## US GOVERNMENT RAILROAD COMMISSIONERS REPORTS

Under the Congressional acts of 1861 and 1863 the Pacific railroads were to be assisted by the US Government in the costs of construction and equipping the roads. A series of requirements were mandated among which was that each road had to build the first 50 miles after which segments of 20 miles or more had to be inspected by commissioners appointed by the government. The commissioners had to submit their inspection reports to Washington, DC and ultimately the approval of the President of the US was needed before any payments of whatever kind were handed over to the railroads. It was necessary for the railroads to ask for these inspections after which 3 persons were appointed by the government and the railroads paid all expenses plus a fee for their work. Thus, many reports of the commissioners were made over the years, approved ultimately by the President, for not only the Pacific railroads but later several different railroads of the later Southern Pacific family in Oregon, California, Nevada and Utah. This history will deal only with the Central Pacific construction between Sacramento, California and Promontory, Utah between 1863 and 1869 and will give background information on the preparation and preservation of the reports.

The first report was for 31 miles from Sacramento to Newcastle and is very short. All following reports in California and in western Nevada are more detailed. From what is today east of Reno the reports became very stylized, what could be called "boiler plate" in today's jargon. This history copies only the report of the commissioners and excludes very voluminous transfers of the reports between various government agencies and the final approval by the President.

Below are the individual reports, their location and date. The naming as items is work done by a Southern Pacific historical research team which began in 1966 to establish the actual cost of constructing the roadbeds and tracks and tunnel bores of all predecessor lines from 1851 to 1921.

| Item | Name Location | Mile Posts | Report Date <br> D |
| :--- | :--- | :--- | :--- |
| Sacramento to Newcastle | 1 to 31 | Sept 8, 1864 |  |
| E 1 | Newcastle to Colfax | 31 to 51 | June 17, 1865 By Leland Stanford |
| E 2 | Newcastle to Colfax | 31 to 51 | July 5, 1865 |
| E 3 | Newcastle to Colfax | 31 to 51 | Sept ? 1865 |
| E 4 | Newcastle to Colfax | 31 to 54 | Nov 3, 1865 |
| F | Colfax to Blue Bluff | 54 to 74 | Sept 28,1866 |
| G | Not used |  |  |
| H | Midas (near) to Cisco (near) | 74 to 94 | Oct 4, 1867 |
| I | Cisco to Stanford | 94 to 114 | Jun 22, 1868 |
| J | Stanford to Mystic | 114 to 138 | Nov 18, 1867 |
| K | Mystic to Camp 37 (Near) | 138 to 158 | May 15, 1868 |
| AAA Camp 37 (Near) to Clark's | 158 to 178 | Typed report missing |  |
| BBB Clark's to Hot Springs | 178 to 215 | July 28, 1868 |  |
| CCC Mirage to Lovelock's | 215 to 255 | Aug 13, 1868 |  |
| DDD Humboldt House to Rye Parch | 255 to 290 | Aug 31, 1868 |  |
| EEE Mill City to Raspberry Creek | 290 to 310 | Sept 12, 1868 |  |
| FFF Rose Creek to Winnemucca | 310 to 330 | Sept 22, 1868 |  |
| GGG Tule to Rock Creek | 330 to 350 | Oct 8, 1868 |  |
| HHH Iron Point to Stone House | 350 to 370 | Oct 19, 1868 |  |


| III Battle Mountain to Argenta | 370 to 390 | Typed report missing |
| :--- | :--- | :--- |
| JJJ "New" Argenta to Shoshone Point | 390 to 410 | Nov 16, 1868 |
| KKK Beowawe | 410 to 430 | Nov 21, 1868 |
| LLL Palisade to Carlin | 430 to 450 | Dec 9,1868 |
| MMM Moleen | 450 to 470 | Dec 28, 1868 |
| NNN Osino | 470 to 490 | Jan 13, 1869 |
| OOO Deeth | 490 to 510 | Jan 30, 1869 |
| PPP Tulasco | 510 to 530 | Feb 10, 1869 |
| QQQ Cedar to Independence | 530 to 550 | Feb 27, 1869 |
| RRR East Pequop to East of Loray | 550 to 570 | Mar 15, 1869 |
| SSS East of Loray to Monument | 570 to 670 | Apr 28, 1869 |
| TTT Rozel to Promontory | 670 to 690.3 | May 15, 1869 |

In reading the reports and correspondence it was clear the initial reports were not kept in logical order until someone in Washington, DC suggested all reports be kept in the Department of the Interior. Any other party wishing a copy could make one from the original in Interior. After the 1913 Valuation Act was passed by Congress and the field inventories were made the Southern Pacific was a leader in sending a large number of engineers, accountants and lawyers to Washington to sit down with members of the ICC and review the proposals for a base for rate making purposes. This resulted in years of conferences between the parties and in 1923 a "Tentative Valuation" was issued by the ICC for each railroad. The conferences went on and on pursued aggressively by Southern Pacific for one as it became apparent that the ICC "cost of reproduction new" did not come close to the "book figures" of many railroads, mostly those in the west. In San Francisco Southern Pacific employed several hundred typists just to copy the immense amount of data that was generated by both sides. That is one reason these field reports by the commissioners were found among a large warehouse of records by the research team. When the hearings were finally ended in 1935 and a "final" Valuation base determined Southern Pacific shipped to San Francisco forty box car loads of records of all kinds pertaining to the hearings with the ICC. Not all of them survived until this author joined SP in 1948 but the most important records were carefully preserved in vaults and other storage facilities and this was the most helpful fact in the research team's ability to undertake the original cost program mentioned above. The copies herein show smudge and other marks indicating the many times the records have been copied for one purpose or the other. As to why the first reports are on legal size paper while the remainder are on smaller sheets this author has no idea. He worked closely with many men who had been on the initial field surveys both for the railroad and for the ICC and learned first hand about the workings of the Valuation Act. It is hoped the information in these reports will illustrate some of the workings of both Government and railroads in the long and sometimes perplexing history of their intertwined involvements.

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## United States.

The undersigne, F. F. Low, P. H. Sibley and Josiah Johnson, Commissioners appointed by your Excellency to examine and report, upon the Central Pacific Railrond of California under and in pursuance of the provisions of an act of Congress entiticd "Ald Act to ald in the construction of a railroad and telegraph line fiom the Missouri River to the Pacific Ocean and to secure to the Government the use of the same for postal, military and other purposes, approved July 2,2862 , and the aot to amend the sald act approved July 2, 1864. Would respectfully state that they have in pursuance of a notice from the U. S. Surveyor General of the State of California, examined the following portion of the railroad and telegraph line of the dald Central Pacific Railroad Company of Californis, to wit, beginning on the east bank of the Sacramento River at the feot of I Street in the City of Sacramento in said State of California, and ending at a point thirty one miles distant from sald point of beginning, measured on the line of said railroad, the same being near the town of New Castle in Placer County, California and as a result of such examination and from written ovidence submitted to us respectfully,

Report and oertify that the said thirty one miles of said: railroad and telegraph line is fully completed and the same is in running order and in daily use, that the same is a portion of the railroad and telegraph line mentioned and frovided for in and by the said Acts of Congress and is constructed and oompleted in the manner required by the said Acts, from the said point of beginning on the east bank of the Sacramento River at the foot of I street In the City of Sacramento for said distance of thirty one consecutive miles from sald point of beginning and is ready for the serVice contemplated by said Aota of Congress and the same is supplied with all necessary drains, culverts, viaducts, crossings, sidings,
bridges, turnouts, watering places, depots, equipments, furniture, rolling stock, curs, locomotives and all the appurteriances of a first-olass railroad and is constructed of the best materials and in a most durable and permanent manner, and the raila and all the other iron used in the construotion and equipment of the said thirty one miles of said road, are of American manufacture of the best quality; that the track of said railroad is of the uniform width and gauge of four feet eight and ono half inches and the grades and curves of the said railroad do not exceed the maximum grades and curves of the Baltiridre and Ohio Railroad, that the max. imum grade of the gaid thirty one miles of said railroad does not exceed one hundred and five and six tenths (105 6/10) feet per mile and the maximum curve does not exceed eight degrees or a radius of Seven hundred and seventeen (717) feet, exoept a few short ourves In the city of Sacramento which do not exoeed twelve degrees and ten minutes or a padius of four hundred and seventy two feet .and that the distanoe from the beginning point, of said thirty one miles of railroad to the orosbing of Arcade Creek the point fixed by your Excellency as the western base of the Sierra lievada Mountains, is seven and eighteen hundredthe miles and the reminder of said thirty one miles of railroad lies eastwardy from said point so fixed as the western base of said mountains.

All of whioh is respectfully submitted.
WITNESS OUR HANDS at Sacramento, this eighth day of September, 1864.

## Attest:

E. B. Crocker

Fredk. F. Low<br>Josiah Johnson<br>P. H. Sibley.

Secretiary Treasury.
Eeb. 25, 1865.
Received Eeb. 27, 1865.
Ist Soction.
CEITTRAI PACITIC.
Enoloses certified oopies of certain papers in relation to the Central Pacifio Raildoad of California.

Filed.
Sco letter of 2 Maroh, 1366, enclosing oopies to the Com. of the Gen. Iand Office. $1 \rightarrow 110$.

Eile
Corjes to C. P. Huntington, Moli. 6, 65.

Beard. $\left\{\begin{array}{c}\text { Depertinent } \\ \text { of the } \\ \text { Interior. } \\ \text { Fob } 27,1865 .\end{array}\right\}$ 8 Moh. 76.

Mr. Beard was Land \& R.R. O1k. When these papers were rood. by the Intr. Dept. He informsime that this portion of road was lilely acoepted yoybaily ky President Iincaln, as it was his custom ln the press oi business of those days to glve vorbal directions personally to Heads of Depts., go fiar ag nosaible. He. Beard states that he has never been any aoceptance in priting of this portion of road.
B. F. Dolan.

* There may be a record of acceptanoe in the Treasury Departrent.


## EXECUTIVE MANSION

Washineton, January 12, 1864.


#### Abstract

In pursiance of the eleverth section of the aot of Congress entitled "An Act to aid in the conetruction of a Railrcad and Telegraph Iine from the Missouri River to the Pacific Ocean, and to sooure to the Government the use of the same for Postal, Military and other purposes " approved July 1,1862, the point where the Ine of the Oentral Pacific Railroad orosses Aroade Creek In the Sacramento valley is hereby fixed as the western base of the Sierra Nevada mountains.


Abraham Lincoln. (Seal)

## UNITED STATES OF AMERICA

State of California.
To His Excellency Andrew Johnson, President of the United States and Hon, Lauren Urson, U. S. Surveyor General for the State of California.

The Uentral Pacific Railroad Company of California under and in pursuance of the rrovisions of the Act of Congress entitled "An Act to aid in the construction of a rallroad and telegrarh line from the Missouri River to the Pacific Ocean, and to secure to the Government, the use of the same for postal, military and other purposes" approved July lst, 1862 , and the Acts amendatory thereof, approved July 2, 1864 and March 3, 1865, makes the following atatement, that in addition to the thirty one miles of railroad line mentioned and desoribed in the statement made by this company under late of August 31, 1864.

The said oompany have now in running order and are operating twelve conseoutive miles of their railroad line mentioned and proFided for, in and by the said Acts of Congress; that thesame is conatructed in the manner required by said Acts; that said addition and extension of said rallroad line, commences at the termination of the thirty one miles of railroad and telegraph line described in said statement of August 31st, 1864, and ends at the place or town known as "Olipper Gap" in the County of Placer, in said State; that the sald addition and extension is conneoted with and is a continua$t i o n$ of the said thirty one miles of railroad line described in aaid Stateroent of August 31, 1864; that the aid addition and extension of said railroad line is ready for the service contemplated by gald Acts of Oongress and is supplied withall neoessary drains, oulrerts, viaduots, orossings, gidings, bridges, turnouts, watering places, depots, equipments, furniture, rolling stock, cars and looomotives, and all the appurtenances of a first class railroad; and the rails and all the other iron used in the construction and equipmente of the said addition and extension of the said railroad line
are of American manufacture of the best quality; that the track of the said addition and extension of said railroad is of the uniform width and gauge of four feet, eight and one half inghes, and the grades and ourves of the same do not exceed the maximum grades and ourves of the Baltimore and Ohio Railroad; that the maximum ourve thereon does not exceed ten degress, or a radius of five hundred and seventy three feet, and the maximum grade thereon does not exceed one hundred and $f$ ive and six tenths feet per mile; that the whole of said addition and extension lies eastwardly or less than one hundred and fifty miles from the orossing of Areade Creek, the point fixed by the President of the United States as the western base of the Sierra Nevada Mountains.

And the said Company further states that a large proportion of the work required to prepare the road for the superstructure on the remaining portion of eight miles of the section of twenty miles lying next eastwardiy from the termination of said seotian of thirty one miles described in ald statement of August 31st. 1864, 1s done; that six tenths of the work required to prepare the road for the said section of thirty one miles desoribed in suatatement of August 31st, 1864, id done; that the value of the work done on the said section of twenty miles is not less thar one mililion and ninety eight thousand dollars.

The said Central Pacific Railroad Company of California therefore lereby requests the ssid U. S. Surveyor General of the State of California upon the filing of this statement in his office to notify the Hon. F. F. Low, P. H. Sibley and Josiah Johnson, the Commissioners arpointed by the President of the United Stated under and in pursuance of the provisions of the said aots of Congress, for the said Central Pacific Railroad to examine and report and certify upon the sadd work done upon the said section of twenty miles as required by said Acts of Congress.

Sacramento, June 27, 1865.
Leland Stanford,
President C. P. R.R. Co. of Cal.

## STATE OF CALIFORNIA

County of San Eranolsco)

Leland Stanford being duly sworn says that he is the President of the said Central Pacific Railroad Company of California, and that the matters and things set forth in the foregoing staterpent are true and correct.

Leland Stanford.
Sworn and subscribed before me, Wro. Loewy Olark of the District Court of the 4 th Judioial District of gaid State, in and for said County, the same being a Court of Reoord, as witness my hand and the seal of said Court, this 17 th day of June, 1865.

Wm. Loewy County Clerk, ex officio Clerk of sald Distriot Cot. (L.S.)

Office of the Surveyor General
Of the United States, for California.
I. L. Unson, Surveyor Cneral of the United States for the State of California, by virtue of the power vested in me by law, do hereby oertify, that the next preceding and hereunto annexed page, numbered from one to four inclusive, exhibit a true, full, and correct oopy of the sworn statement of Leland Stanford, President of the Central Paoilio Railroad Company of California, in relation to the extension of the line of said railroad, twelve miles, eastwardy from the termination of the thirty one mileg of railroad desoribed in the gtatement of sild company of August 3lst, 1864, mada by said Leland Stanford as President of said Company, as the ame appoars on file and of reoord in this offieg.

In testimony whereor, I have hereunto signed my name officially and caused my seal of offioe to be affixed at the oity of San Francisco, this 29th day of June 1865.

> L. Upson, U.S. Surveyor General, for Califormia.

[^0]To Hin Exoellency Andrew Johnson, President of the
Onited Stater, and H. NoQulloch, Secretary of the Treasury. The undersigned, Frederick F. Low, Pardon H. Sibley and Josiah Johnson, Commissioners ampointed by the Prasident of the United States, to examine and report upon the Central Pacific Railrod of California under and in pursuance of the provisions of an Aot of Congress, entitled "An hot to aid in the construction of of Rilroad and Telegrarh Ine from the Missouri River to the Pacific Ocean, ard to secure to the Government the use of the same for postal, military and other purposes, "approved July lat, 1862, and the abts amendatory thereor approved July 2nd, 1864, and March 3 rd, 1865 , would rempectfully state that they have in pursuance of a notice from the U. S. Surveyor General of the State of Californis, examined the section of twenty miles of the railroad Iine of the said company, lying kext eastwardly of the terminus of the section of thirty one miles, near the tovn of New Oastle, heretofore examined and reported upon by them the eth day of September 1864 and as a result of such examintion and from written evidence submitted to us, the said Commissioners and Saml. S. Kontague Esqr? Chief Engineer of baid Company respeotfully

Report and Certify
That of the said terety mile section lyine next Eastwardy from the town of New Castle, on twelve miles thereof the said Railroad line is now constructed and in running order, and in deily use by the passenger and freight trains of aaid oompany, that the same is a portion of the railroad line mentioned and provided for in said Aots of Congress, and the same is constructed and equipped in the manner required by the said sots, and is ready for the service contemplated by the said Acts of Congress and the same is supplied with all neoessary drains, oulverts, viaducts, orossings, sidings, bridges,
turnouts, watering places, depots, equipments, furniture, rolling stock cars, locomotives, and all the appurtenances of a first class rallroad and the same is constructed of the best quality of materials, and in a durable and permanent manner and the rails and all the other iron used in the construction and equipment of the said twelve miles of the aaid Railroad, are of American manufacture of the best quality; that the track of the said railroad is of the uniform width and gauge of four feet, eight and one half inches, and the grades and curves thereof do not exceed the maximum grades and curves of the Baltimore and Ohio Railroad, that the maximum grades thereof, does not exceed One hundred and five and aix tenths feet per mile, and the maximum curve does not exceed ten degrees or a radius of five hundred and seventy three feet, that the whole of said section of twenty miles lies Rastwardly of and less than One hundred and fifty miles from the crossing of Arcade Creek, the point fixed by the President of the United States as the western base of the Slerra Nevada Mountains.

And thesaid Commissioners and Chief Ingineer further report and certify that a large proportion, to wit, not less than six tenths of the work required to prepare the road for the superstructure, has been done on the remaining portion of elght miles of the said section of twenty miles lying next Eastwardly of New Castle, and that the ralue of the work done on the said section of twenty milea exoeeds the sum of One million and eighty thousand dolers. All of which is respectfully submitted.

WITNESS our hands, signed to triplioates at Saoramento this 5th day of July 1865.

Fredk. F. Low.
Pardon H. Sibley
Josiah Johnson
Sam. S. Montague.

## United States of America

State of California.

To His Hxcellency Andrew Johnson, President and Hon. H. McCilloch, Socretary of the Treasury of the United states. The undergigned, Frederick F. Low, Pardon H. Sibley and Josiah Johnson, Commissioners arpointed by the Preaident of the United States to examine and report upon the Central Paoifio Railroad of California, under and in pursuanoe of the provisions of An Aot of Congress, entitied "An Act to aid in the construction of a railroad and telegraph line from the wissouri River to the Paoific Ocean, and to seoure to the Government the use of the same for postal, military and other purposes, "approved July 1, 1862, and the Acts Amendatory thereof approved July 2 1864, and March 3, 1865, mould respectifully atate, that they have, in purpuance of a notice from the U.S. Surveyor General of the Btate of California, examined the section of twenty miles of the railroad line of the said company, lying next eastwardy of the terminus of the seotion of thirty one miles at the town of Newcastle, heretofore examined and reported upon by us the 8 th day of September 1864, and as a result of such examination and from written evidenoe submitted to us, We the said Commissioners and Samuel S. Montague, Esq. Ohief Engineer of the said company respectfully

Report and certify, that the whole of the work required prepare the said road for the superstructure on the said seotion oftwenty miles, lying next eastwardly of the terminus at Hewcastle, of the said section of thirty one miles, is done and fully completed, and the grades and curves thereof do not exceed the grades and curves of the Baltimore and Ohio Railroad, that the maximum grade thereof does not exceed one hundred and five and six tenths feet per mile, and the maximum curve does not exoeed ten degrees or a radius of fivc hundred and seventy three feet, that the said seotion of twenty miles is a portion of the railroad line mentioned and provided for in said Acts of Congress, and lies eastwardly of, and less than One
hundred and fifty miles from the orossing of Arcade Creek, the point fixed by the President of the United States as the western base of the Sierra Nevada Mountains, and that the value of the said work done on said section of twenty miles, to prepare the same for the superstructure, exceeds the sum of One mililion three hundred and fifty thousand dollars. All of which is respectfully submitted.

WITNESS our hands signed to triplicates, at saoramento, this day of september, 1865.

Frederick F. Low<br>Pardon H. Stblgy<br>Josiah Johnson<br>Sam S. Montague.

Frederick F. Low, Pardon H. Sibley, Josiah Johnson and Samuel S. Montague, boing duly sworn say, that the matters and things set forth in the foregoing report and certificate by them signed, are true, according to the best of their knowledge and belief.

Brederiok F. Low<br>Pardon H. Sibley<br>Josiah Johnson<br>Sam. S. Montague

Subscribed and sworn to before me, Alanson C. Bidwell, County Clerk (and ex-officio Clerk of the Digtriot Court of the Sixth Judicial District) in and for Sacramento County, the same being a Court of record, as witness my hand and the soal of said Court this sixteenth day of September, 1865.

Alanson C. Bidwell.
County Clerk and ex-of'fiolo Clerk of the
(BRAL)
6th Judioial District Court of Sacramento County.

## UNITMD STATES OF AMERICA

State of California.

Tofinis Hxcellency, Andrew Johnson, President of the United States.

The undersigned, Frederiok F. Jow, Pardon H. Sibley and Josian Johnson, appointed by the President of the United states, to examine and report upon the Central Pacifio Railroad of California, under and in pursuance of the provisions of An Act of Congress, entitied An Aot to aid in the construction of a railroad and telegraph line from the Missouri River to the Pacific Ocean, and to secure to the Government the use of the same for postal, military and othed purposes, "approved July 1, 1862, and the Aots Amendatory thereof, approved July 2, 1864, and Maroh 3 ra, 1865, would respectfully state, that they have received a notioe from the U. S. Surveyor General for thestate of California, that the said Central Pacific Railroad Company had filed the verified statement required by the provisions of said acts, showing the complation and equipment of an addition and continuation of twenty three consecutive miles of their railroad and telegraph inne from New Castlo to Colfax, as provided by said Acta, and notifying us, as such Commissioners, to examine and roport upon the said addition and continuation of said railroad and telegraph ine; that we have in pursuance of sald notioe examined the following portion of the railroad and telegraph line of the said 5.
oompany, to wit; commencing at the termination of the thirty first mile of the said railroad and telegraph line, at the town of New Castle, and ending at the termination of the fifty fourth mile of said railroad and telegraph line at the tow of Colfax, all in the County of Placer, in the State of California, and as a result of such examination, and from written evidence submitted to us, respectfuily,

Report and certify, That the said addition and continuation of said twenty three miles of the said Railroad and Telegraph line is fully completed and equipped, and the ame is in runn-
ing order and in dsily use, and is ready for the service contemplated by said Acts of Congresa, that the same is a portion of the rajlroad and telegraph line mentioned and frovided for in and by the said Acts, and is construoted, completed and aquipped in the manner required by the said Acts, and the same id fully supplied with all neoessary drains, culvertm, viaducts, crossings, sidings, bridges, turnouts, watering places, depots, equipments, furniture, roling stock, cars, locomotives, and all the alpurtenances of a first class railroad, and is constructed of the best materiala, and in a durable and permanent manner, and the rails, and all the other iron used in the construction and equipment of the same, are of American manufacture of the best quality; that the tracif of said railroad is of the uniform width and gauge of four fedt, eight and one half inches, and the grades and ourves of the same do not exoeed the maximum grades and curves of the Baltimore and Onfo Railroad; that the maximum grades of the said twenty three miles of the said railroad does not exceed one hundred and five and six tenths (105 6/10) feet per mile, and the maximum curve does not exceed ten degrees or a radius of five hundred and seventy three feet; that all of the said twenty three miles Lie eastwardly, and less than one hundred and fifty miles from the crossing of Arcade Creek, the point fixed by the president of the United States, as the weetern base of the Sierra Nevada Mountains.

They would further report and certify that on the said twenty three miles of said railroad, the number of dogrees of ourved line in four thousand three hundred and twenty six degrees (43260) fifty two (52') minutas, and the lenth of the curved lines is seventy two thousand seven hundred and thirty ifive (72,735) feet, the length of the straight lines is forty eight thousand seven hundred and five (48,705) fect - Percentage of curved Inne, fifty nine and nine tenths $(599 / 10)-\infty$ of tangent line, forty and one tenth (40 01/10) The width of the ombankments at grade line is twelve feet, and the Inclination of the alopes of the embankments 18 ono and one half feet horizontal to one foot vertical.
at the grade line variea from fourteen to eightoen foet, aooogedng to
the material forming the sides of the outs, and the inclinations of the slopes of the excavations varies with the nature of the material through which the excavation is made, and is as follows: Through earth, one (I) foot horizontal to one (I) foot vertical. Soft rock, one half $\left(\frac{1}{2}\right)$ to one (1), three fourths ( $\frac{3}{4}$ ) to one (1), and one (1) foot horizontal to one (1) foot vertical, Through hard rock, one fourth ( 4 ) of a foot horizontal to one (1) foot vertical.

The culverts are all built in the open or box form of hard
stone, and their number and size ara as follows, to wit: Eight (8) Box Culverts, One (1) by one (1) fut.
Twenty five (25) Box Culverts, One and one half (It by one and One half ( $1 \frac{1}{2}$ ) feet. Sixty (60) Box culverts. Two (2) by two (2) feet


Two (2) Open culverts, Six (6) feet span Three (3) " " Fight (8) feet span.

There are six (6) trestle bridges, and one (1) Truss bridge on the said twenty three miles of railroad, all built of wood; they are of the following dimensions; one trestle bridge at New Castle, on section thirty two (32), or a four degree curve of thirty three bents, varying in height from twenty (20) to sixty three (63) feet, one hale of the bents rest on brick and stone piers, and the others on a bed rock foundation, levelled up with broken stone and gravel with loudation plank of redwood three (3) by twelve (12) inches, ard four (4) fest in length, laid under the sill for three fourths of its entire length. One trestle bridge on section thirty six (36) built on a straight line of twenty $s i x(26)^{4 / 6}$ bents, varying in height from ifteen (15) to thirty eight (38) feet. Two trestle bridges on SecBowstan Lions forty (40) and forty one (41) of twenty six (26) and twenty eight (28) bents, varying in height from fourteen (14) to forty (40)
feet. The first being four hundred and sixteen (416) feet in length, one hundred and sixty three (163) feet of which is straight, and two hundred and fifty three (253) feet on a six degree curve, the second being four hundred and forty eight (448) foet in lendith, two hundred and ten (210) feet of which is straight line, and two hundred und thirty eight (238) feet on a six degree curve. One trestle Bridge clizme., 事和: $480^{\circ}$ on section forfy three (43) of thirty (30) bents varying in height from ten (10) to forty six (46) feet, all on a straight ine. One trestle bridee on section (44) $\frac{\text { dexpery four of ewenty six (26) bents } 300 \text { ? }}{90 ?}$ varying from fifteen (15) to fifty (50) feet in height, also on a straight line --......-. The ifive last inentioned bridees are all built on bed rook foundations similar to the one first desoribed, all are built with redvood sills, and upon the same general plan, a drawing of which is herewith sent marked "C". The spans of all the trestle bridges are sixteen (16) feet from center to center of the bents. Clizpant Ravine
There is on section forty four (44) one truss bridge of eight (8) spans of forty (40) feet each, resting uron timber pierg whioh are supported by piers of stone masonry varying in height from six (6) to twelve (12) feet. It io built on a straight line three hundred and twenty (320) fect in length with approaches of tresting at each end of eighty (80) and fifty (50) feet in length respectively, and built upon the same general plan as the other tregtle work. The truss used is the common "gtraining Beam" or "Palladio Truss." The extreme height above the bed of the ravine is ninety six (86) feet. There are three cattie guards, and twe ty road orossings on said twenty three miles of rail road. No fences or farm gates have been built by the railroma company on said portion of their raw road, as none are needed, the road being built almost entirely on vacant fublic lends, and where built throurh enc losed fields, fencesshave not beenfound necessary.

The main track of the portion of the ilroad examined by us is twenty three miles in length, with four thousand six hundred and seqenty five (4675) feet of side traoks attached thereto. The weight of the rails usod is sixty rounds per linear yard. The ohains are ckrino
of wrought iron, and four hundred and forty are used per mile, and each chain weighs eight pounds. The spikes used are of wrought ivon, five and one half inches in length, weigh one half pound each, and number ten thousand one hundred and twenty per mile upon straight Ines, the number being increased upon the curves.

On this nortion of the railroad line there are an average of twenty two hundred ties per mile. The ties are of Black or coast Redwood, eight feot in lensth, six by eight inches in size, the joint ties belng six by ten inches.

The material composing the road bed, for the greater part of the twenty three miles, forms of itself a good ballasting material, and is used for that purpose, the ties being formy embedded therein. Where the road bed is made of oarth or other material unsuitablo for ballasting, the road is ballasted with broken rock, disintegrated granite and gravel, at the rate of one and one quarter (it) cubic yards per linear yard of road.

There are four gtations on said portion of said railroad line, to wit: New Castle, Auburns Clifper Gap and Colfax, With one pasoenger house and one freight house at each station, and three water tanks. The passenger end freight houses and water tanks are all built of wood. There are no machine shong, wood sheds or engine houses on this portion of the railroad. The machine shops and engine houses are located at the city of Saoramento, at which place there Is a large shoy for putting up and repairing locomotives, and an engine house, all built of wood, of sufficient capacity to do the work required. The engine house has five?stalls, capable of acoommodating aix loomotives. The signels used on the road are plain tergets for all switohes.

There are six locomotives in use on the road, all of them of the best styio and quality, of the best class ised on Arericen roads, and well adafted for service on heavy grades and sharp ourves.

The following to a list of the locomotives in use.

- 6 -

| Names of znginos. | No. of Drivers | Diam. of Drivers. | $\begin{aligned} & \text { Diam. of } \\ & \text { Cylinder } \end{aligned}$ |  | Lendth Stroke |  | Weight includ. Tender. |  | Cost. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Gov. Stanford | 4 | 4t ft. | 15 |  |  |  |  | ns | \$15,733.56 |
| Peoifio | 4 | 5 | 16 | " | 24 | " | 46 | 1 | 18,205.08 |
| Atlantic | 4 | $5 \cdots$ | 15 | " | 22 | " | 14 | " | 16,629.91 |
| F. Conness | 6 | 4 | 17 | " | 24 | " | 54 | " | 19,161.74 |
| , Huntington | 2 | $4 \frac{1}{2} 1$ | 11 | ' | 15 | " | 22 | " | 10,589 58 |
| $\cdots$ \% Judah | 2 | 4 ${ }^{1} 1$ | 11 | " | 15 | " | 22 | " | 10,603.49 |

The "Gov. Stanford" was bullt by Norris \& Eon at Philadelphia,
Ponn. The "Paoifio", "Atlantic" and "Conness" by william Mason at
Taunton, Hass., and the Huntington and Judah by Danforth, Cook \& Co. at
Patterson, New Jersy,
There are now in use on the road the rollowing ciars, to wit;

| 6 First class Passenger cars, each costing | $\$ 3,700$. |  |  |  |
| :--- | :--- | :--- | :--- | :--- |
| 2 Passenger and Baggage | $"$ | $"$ | $"$ | $1,880$. |
| 1 Baggage, mail and express | $"$ | " | $2,000$. |  |
| 39 Box freight | $"$ | $"$ | $"$ | 800. |
| 65 Platform | $"$ | $"$ | $"$ | 550. |
| 8 Gravel | $"$ | $"$ | $"$ | 75. |
| 10 Hand | $"$ | $"$ | $"$ | 230. |
| 3 Track laying cars | $"$ | $"$ | $"$ | 125. |

The road is well constructed, and in our ofinion passenger trains can be safely run over it at the rate of thirty miles per house, and at as high a rate of speed as any similar railroad in the United States.

We herewith send a map marked "A" attested by our signatures, which exhibits the line of this portion of the road examined by us, with its ourves and tanger:ts. This portion of the line is located upon the sloje of the Sierra Nevada Mountains, and among rocky hills and over deep ravines, which compelled the use of numerous curves, as mell as high grades.

We also send herewith a Profile marked "B", also attested by our eignatures, which exhibits the ascent and descent of oach grade per mile. All of which is respectfully submitted.


UNITED STATES OF ANERICA)
State of California.

To His Excellency, Andrew fohnson, Preaident, and the
Hon. H. McCullooh, Seoretary of the Treasury, of the United States.
The undersigned, T.F. Low, Josish Johnson and A. M. Crane, Commissioners appointed by the preaident of the united states to examine and report uron the Central Paoific Railroad of Cilifornia, under and in pursuance of the proviaions of the Aot of ConEress, entitled, "An aot to aid in the construotion of a railroad and telegraph line from the Missouri River to the Pacific Ooban, and to secure to the Government the use of the same for postal, military and other purpogen," arproved July 1,2862 , and the Aots amendatory thereor, aproved July 2, 1864, and Maroh 3, 1865 , would respectfully $s$ tate, that they have tiss day made a report upon the construction and comiletion of an addition and cowtruation of theaty miles of the said reilroad and telegraph line, cormmencing at the termination of the fifty áourth mile at the town of Colfax, and ending at the termination of the serenty fourthmile near a rlace called "Blue Blure", in Placer County, Califormás Whioh is hereby referred to; that in addition to the matters therein stated, they would further resrectfuly,

Renort and certify, that on the said twenty miles of said railroad, the number of defrees of curved jine is three thousand four hundred and thirteen and fifty five sixtieths ( $34135 \% / 60$ ); the length of the curved Ines is sixty oix thousand soven hundred and firty and four tenths ( $60.7604 / 10$ ) feet, length of straight lines is thirty eight thouserd eight hundred and forty nine and six tenths ( $30,8496 / 10$ ) fect, the par centiage of curved line is sixty thrce one humdredths ( $03 / 100$ ). The width of the embanimenta at grade line is fourteen (14) feet and the irelination of the slopes of the smbanmenta are one $\therefore$ a cie helf (lit) fect horizontal to one (i) foot vertical. The width of the excavations at grade Ifne varies from fifteen (1.5) to twenty ( 0 ) feet, acboraing to
the material forming the sides of the cuts, and the inclination of the slores of the exoevetions varies with the noture of the material throuch whion the exoavation is made, and is an follows through earth, one (1) foot horizontal to one (1) foot vertical sort rock, one half ( $\frac{1}{2}$ ) to one (1), three fourths ( $\frac{3}{7}$ ) to one (1) and one (1) foot horizontal to che (1) foot vertical. Through had rook, one rourth ( $\left(\frac{1}{4}\right)$ of a foot horizontizl to one (1) foot vertical.

The culvorts are all oither built with an arch, or in the open or box form -- all of hard stone, and their number and size are as follows: --

| Arch | culverts |  | feet $s$ |  | One |
| :---: | :---: | :---: | :---: | :---: | :---: |
| " | " | 5 | " | " | Wwo |
| " | " | 4 | " | 11 | One |
| " | " | 3 | " | " | Nine |
| Box | oulverta | 3 | $\times 4$ |  | Five |
| " | 1 |  | 17 $\times$ 3 $\frac{1}{2}$ |  | One |
| " | 11 |  | $\times 3$ |  | Fourteen |
| " | " |  | $\frac{1}{4} \times 3$ |  | One |
| " | " |  | 1) $\times 3$ |  | One |
| " | " |  | $\times 3$ |  | Twenty eight |
| 11 | " |  | 4 $\times 2 \frac{1}{8}$ |  | One |
| " | * |  | x 2 |  | Thirty five |
| " | " |  | $\frac{1}{2} \times 1 \frac{1}{2}$ |  | Three |
| Open | Culverts |  | feet |  | Two |
| " | " | 5 | 5 " |  | One |
| 1 | " |  | 4 |  | Three |

There are tyo Truss Bridges, with approaches of tresting, on the said section of tienty miles, all built of wood. They are of the following dimensions.

1st. Lon Ravins Bridge consists of three spans of "Howe Truas" -- two of ore hindred and fifty feet each, and one of one hundred and twenty eight feet. This bridee srang the ravine at a height of one hundred and fifteen feet, and rests on austantial
timber piers, supported by stone masonry. All the timber work is covered and securely proteoted from the weather. The arr roaches to the bridge consist of thirty four trestle berts on the west, and four trestle bents on the east end, built uipon the plon submitted with a former report. The bents vary in height from ten to seventy feet .- are placed sixteen feet from oenter to conter, and rest upon foundations of broken stone, similar to those shown upon plan above referred to.
(Hant piste ahsow 47wast, 4 end)?
2nd Secret-town Bridge consists of fourty four trestle bents o (same as above) varying in height from ten to sixty feet, and seven spans of truss of forty fect each, resting on double timber bents, ? same as shown on plan of "Deep Gulch Bridge" submitted with a former report. The foundations of bridge and trestling are the same as hereforegescribed. All the timber used on the above bridges is of thepest quality of pine, spruce and redwood, and all the ivon of the best quality of American manufacture.

There are eight road orossings, but no cattle guards, no fonces or farm gates have been built by the said company on said twenty miles of their railroad, as ane are needed, the road being built almost entirely on vacant public land, and where built through enolosed fields, fences have not been found necessary.

The main track of the portion of the railroad examined and reported on by us, is twenty miles in length, with six thousand two hundred feet of side traoks attached thereto, being supficient to accommodate the business of the road. The weight of the rails used, is sixty pounds fer linear yard. The chaira are of wrought iron, and four hundred and forty are used fer mile, and each chair weighs oight pounds. The spikes used are of vought iron, five and one half inches in length, nine sixteenths of an inch square, weigh one half pound each, and number ten thousand one hundred and twenty per mile upon straight lines, the number being increased upon the curves.

Upon this portion of the railroad there are an average of twenty four hundred cross ties per mile. These ties are either black or Oooast redwood or red spruoe, with a few of sugar pine and white
cedar, the greater portion are, however, redwood or red spruce. They are eight faet in length, six by eight inches in size, the joint ties being six by ten inches.

The material forming the road bed, for the greater part of these twenty miles, is of itself good ballasting, and is used for that purpose, the ties being formerly embedded therein -- this matere lal consists largely of broken rock from the excavations. The ballabting cannot be fully completed until the embanlments have had time to settle, which will take several months. The ballast used so far on this por\$ion of the line, is principally broken wook, at the rate of one and one quarter cubio yards per linear yard of road.

There are three etations on said portion of said railroad line, to wit: Gold Run, Dutch Flat and Alta with one passenger house, and one freight house at each station, and three water tanks, all built of wood. There are no machine shops, wood shed or engine houses on this portion of the railroad, the machine shops and engine houses of the company being located at Sacramento, as stated in a previous rejort made by us.

There are thirteen locomotives in use on the road, and four more have just arrived from the east, but are not yet set ur, all of them of the best style and quality, of thebest class used on American roads, and well adapted for servioe on heavy grades and sharp curves.

## - The following is a list of the locomotives in use:

| No. | Names of Engines. | $\begin{aligned} & \text { No. of } \\ & \text { Drivers. } \end{aligned}$ | Diam of Drivers. Feet. | Diam of Cylinder Inches. | Leneth stroke <br> Inches. | ```Weight inciud- ing Ten- ders.``` | Cost. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | Gov. Stanford | 4 | 41 | 15 | 22 | $T_{44}$ | \$15,733.65 |
| 2 | Paoific | 4 | 5 | 16 | 24 | 46 | 18,205.08 |
| 3 | C P.Huntington | 2 | $4 \frac{1}{8}$ | 11 | 15 | 22 | 10,589.58 |
| 4 | T.D. Judah | 2 | $4 \frac{1}{2}$ | 11 | 15 | 22 | 10,603.49 |
| 5 | Atiantio | 4 | 5 | 16 | 22 | 44 | 16,629.91 |
| 6. | Conness | 6 | 4 | 17 | 24 | 54 | 19,161.74 |
| 7 | Sargent | 4 | 5 | 16 | 24 | 46 | 22,762.24 |
| $B^{3}$ | Nevada | 6 | 4 | 18 | 22 | 55 | 36,438.57 |


|  |  | Feet | Inohes | Inches | Tons. |  |
| :--- | :--- | :--- | :---: | :---: | :---: | :---: |
| 9 Utah | 6 | 4 | 18 | 22 | 55 | $46,438.57$ |
| 10 Humboldt | 6 | 4 | 18 | 22 | 55 | $24,761.45$ |
| 11 Aretic | 4 | 5 | 15 | 22 | 46 | $20,013.13$ |
| 12 Truckee | 6 | 4 | 17 | 24 | 54 | $21,435.89$ |
| 13 Hercules | 6 | 4 | 18 | 22 | 55 | $24,716.49$ |

NEW BNGINES.

| 14 Oneonta | 6 | 4 | 18 | 22 |
| :--- | :--- | :--- | :--- | :--- |
| 15 Washoe | 6 | 4 | 18 | 22 |
| 16 Owyhee | 6 | 4 | 17 | 24 |
| 17 Idaho | 6 | 4 | 17 | 24 |

The Gov. Stanford was built by Norris \& Son, Philadelphia, Penn. The Pacific, Atlantic, Conness, Artio, Truckee, Owyhee and Idaho by Wm. Mason at Taunton, Mass. The Sargent by Booth \& Co, of San Franoisco, California, and the Judah, Huntington, Nevada, Utah, Humboldt, Hercules, Oneonta and Washoe by Danforth, Cook \& Oo, Patterson, New Jersey.

There are now in use on the road the fol lowing oars, to wit;

| 8ix | Pirst class Passenger cars eaoh costing |  |  |  | \$3,700. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Two | Passanger andikagegage | " | " | " | 1,880. |
| Two | Baggage, mail and expres |  | " | 1 | 8,000. |
| Sixty four | Box Freight | " | " | " | 800. |
| Ninety four | Platform | " | " | * | 550. |
| Sixteen | Section | " | N | " | 75. |
| Eighteen | Hand | " | ( | " | 230. |
| Twenty | Dump | " | " | " | 725. |
| Three | Traok laying | " | 1 | " | 125. |

The road is well constructed, and in our opinion, passenger trains can be safely run over it at the rate of thirty miles per hour, and at as high a rate of speed as any similar railroad in the United States.

We herevith send a map marked "D" attestod by our signatures. which exhibits the line of this portion of the road examined by us, with its curves and tangents. This portion of the road is located
upon the western slope of the Sierra Nevada Mountaing, among rocky hills and deep ravines, which has oompelled thefuse of numerous curves as well as high grades.

We also send herewith a profile marked "E" also attested by our signatureg, winch exhibits the ascent and desoent of each grade per mile.

All of which is respectfully submitted.
Sacramento September 28th, 1866.
Frederick F. Low
Josiah Johnson
Addison M. Crane

UNITHD STATES OF ANFRICA，
State of California．
TO HIs Exoellenoy Andrew Johnaon，President，管d the Hon． H．McCulloch，Gecretary of the Treasury，and the Hon．O．H． Browning，Secretary of the Interior，of the United gitates，

The undersigned，John Bigler，Thomas J．Henloyand Frank Denver，Comnisaioners arpointed by the President of ithe United States to examine and report upon tho Central Pacifio Railroad．of California，under and in pursuance of the provisiong of the Aot of Congress，entitled＂An Aot to aid in tho construction of a raflroad and telegraph Iine from the Missouri River to the Pajifio Ocean，and to secure to the Government the use of the same for poatal，military and other purposes，＂approved July 1,1862 ，and the pots amendatory thereof，approved July 2，1864，Maroh 3，1865，and Tuly 3，1866， would reapeotfully state，that they have this day mate a report upon the construction and oompletion of arfadaition and oontinuation of twenty miles of the said railroad and telegraph line oommenoing at the termination of the geventyfourth mile noar a plage calied Bine Blufit in Plaoer County，California and onding at thermination of the ninety fourth mile，whioh is hereby referred wo．That in eadi－ tion to the matters therein stated，they would furth

Repart and Certiey That in the said twenty miles of said，raily road，the nurber of degrees of curved line is 4198 demreea and 57 ． minutes．The length of the curved lines is 62，078 fotid．The length of etraight lines is 43,522 ．The per centage of ourixd line $50 / 100$ ． The width of the embankments at grade line 1814 feet The inolina， tion of the slopes of the embankments are one and on of half feet hor－ izontal to one foot vertioal．The width of the exoavtions at grade Ine varies from 16 to 20 leet acoording to the materifal forming the sides of the cuts，and the inclination of the slopes ${ }^{9}$ 㿟 the excaram． tions Faries with the nature of the material through wioh the axp cavation is made，and is as follows：through earth of foot horizon－ tal to one foot vertioal；soft rook，one half to one，符hree fourthe
to one, and one foot horizontal to one foot verticaif through hard rook, one fourth of a foot horizontal to one poot vartioal.

The culverts are all either built with an aroh or in the open or box form, all of hard stone, and their number and follows:

ninety fourth mile incluaive，the fish joint is used．This consists of two wrought iron bars twenty inohes in length by ${ }^{0}$ two and ono half inches in width，and three fourthe of an inoh finiok，fitting closely to the neak of the rail，and held firmly in $\frac{p^{\frac{3}{7}} \text { place by four }}{}$ bolts and nuts．The rails used are generally twenty eight feet in length．The apikes used are of wrought ironfive ard one half inohes in length，nine sixteenths of an inoh square．weightone half pound each and number about ten thousand five hundred per瞥ile upon straight Ines，the numbsi being increased upon the 符保res，

Uyon this portion of the railroad there are andeverage of twenty four hundred oross ties per wile．These ties are black or oonet red wood，red spruce，sugar pine and white codar，the greatoriportion are，however，redwood，red spruoo and cedar．They are eight feet，in leneth，not less than six by eight inohes in aize，the joint tien being alx by ten inches．

The material forming the road bed，for the greder part of these twenty miles，is of itself good ballasting，and is uged for that pur－ pose，the ties being firmly embedded therein．This naterial oonsists largely of oroken rook from the oxonvations．The ballasting oannot be fully completed until the embankments have had tise to settion
 one and one quafter cublo yards per linear yard of rode．

There are three atations on aid portion of saiditrailroad ine to wit；Blue Cañon，Mmigrant Gap and Cisoo．At the fatter atation a commodious freight depot．four hundred feet in length by forty in breadth，has been built，also a passenger house，engine house，turn－ table，\＆o．There 18 also a turntable at Mmjgrant Gape There are three water tanks on this section of twonty miles，and wood shods capable of holdine a season＇s supply of fuel are in course of on－ struction．There are no machine shops on this portion of the rail． road－－the machine shops and engine houses of the company being located at Sacramento．

There are now in use on the road the following cars to wit：


There are twenty five locomotives in use on thê road, all of them of the bost style and quality, of the best olasgey used on American roids, and well adapted for service on heavy grades and shary ourves.

The following is a list of the locomotives in wise:


| 16 | Owyhe | 6 | 4 | 17 | 24 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| 17 | Idaho | 6 | 4 | 17 | 24 |
| 18 | Puite | 6 | 4 | 18 | 22 |
| 19 | Oarson | 6 | 4 | 18 | 22 |
| 20 | Amazon | 6 | $4 \frac{1}{2}$ | 18 | 24 |
| 21 | Tamaroo | 6 | $4 \frac{1}{2}$ | 18 | 24 |
| 22 | Auburn | 6 | $4 \frac{1}{2}$ | 18 | 24 |
| 23 | Mono | 6 | $4 \frac{1}{2}$ | 18 | 24 |
| 24 | Montana | 5 | $4 \frac{1}{2}$ | 18 | 24 |
| 25 | San Mateo | 4 | 5 | 16 | 22 |

The Gov．Stanford was built by Norria \＆Son，Ph 粦adelphia；Penn． The Paoific，Atlantio，Conness，Artio，Truckee，Dwyoe and Idaho O by Wm．Mason at Taunton，Masa．

The Bargent by Booth \＆Co．Of San Franoisoo，Ca ${ }^{\text {妾fornia．}}$
The Judah，Huntington，Nevada，Utah，Humboldt，Hîcules，Oneonta， Weshoe，Carson and Iuied by Danforth，Cook \＆Co．，Patterson，New Jersey．

The Anazon，Tamaroo，Allburif，Mono and Montana byinkoKay and Aldus， Boston，Mass．

The San Mateo was built by Baldwin Co．，Phizadoligha，Penng
The road is well construotod and pasaenger traing oan be safoly irun over it at the rate of thirty miles per hour，and \％at as high a rate of speed as any similar railroad in tho United s龉tes．

The map markedA is a correct drawing of this seofion of saidrail－ road，from Seotion 75 to Seotion 95 both inolusive，showing correatiy
 exhibita the grades thereof，which said map and profifo herewith ac－ comranies this report duly attested by us．

This portion of the road is located upon the weotern slope of the sierra Nevada Mountains，amones rooky hills and deep ravines；which has compelled the use of numerous oruves as well as hifigh grades．

All of which is respeotfully gubmitted．

## Revenue Stamp Canoelied．

Thoa，Ho Hequey）Commissionere John Biglers Frank Denver

UNITED STATES OE AMERICA.
State of California.
TO Hy Nxoellency, Andrew Johnson Presidet, the Hon.
H. McCullooh Seoretary of the Treesury, and the Hons O . H. Brownm ing, Seoretary of the Interior, of the United statesi

Tho undersigned, John Bigler, Erank Denver and Thomas J. Henley, Commissioners, appointed by the Preaident offthe United States to examine and report upon the Central paoifif Railroad of California, under ard in pursuanoe of the provisions of the Aot of Congress, entitled "An Aot to aid in the Construotion of a Railroad and Telegraph line from the Miasouri River to the Papialc Ocean, and to seoure to the Government the use of the same for postal, military, and other purposes," approved July 1, 1862, and the pots amendatory thercof, approved July 2, 1864, Maroh 3, 1865, and Jipy 3, 1866, would respeotfully state, that they have this day made a report upon the cons!ruction and oompletionpf an addition and oontinuation of Twenty (20) miles of the said Railroad and Ielegraphiline, commencing at the termination of the Ninety fourth (94th) mple, and ending at the termination of the one hundred and fourteenthy (114th) mile, which is hereby referred to. That in addition to the maters thereIn stated and upon satisfaotory evidence submitted the us they would further segpeotfully

Report and Certify, That in the said Twonty (20 miles of gald
 43 minutes; the length of the ourved Innes is 57,915 feet, and of the tangent lines is 47,684.9 feet; the percentage of ourved ine is 54.7. The width of the embankments at grade line is ${ }^{\text {f }}$, ourteen feet, and the inclination of the slopes of the embankments ${ }^{\text {䖭 }}$ one and one half feet horizontal to one foot vertioal. The widthof the exeas Vations at grade line varies from 16 to 20 feet, acoarding to the material forming the sides of the outa, and the inclifation of the slopes of the exoavations varien with the nature of to material through which the axcavation is made, and is as foblage through earth, one foot horizontal to one foot vertioal; soft prook, one half
to one, three fourths to one, and one foot horizont to one foot vertical; through hard rook, one fourth of a foot horizontal to one foot vertioal.

The Culverts are all either built with an aroh or in the open or box form, of hard stone and their number and aizare as follows:

IIST OF OULVERTS

Firgt. Lowor Cabcade Bridge, One span of Hown Truss, 204 feot in olear - with approaches of 2 spans of 40 foet and one span of 80 feet.

Becond. Upper Caspade Bridge, Ono span 204 f fet and one span of 10 feet.

Note. These Bridges are built with a heavy arigh beam, to which the Truss $i$ a attached by suapension rods in same madner as the Truokee River Bridges heretofore desoribed.

Third. South Yuba Bridge, One span How Truse 85 feet In olaar.

Fourtin. Driver's Crook Bridec. One gyan of 50 foct. where?
Note. All these bridees rest upon abutments afid piers of solid granite masonry, are built of the best materiait and in a thorough and workmenlifke manner.

The thober used in these bridges 1 s of the bestimquilty of white and yellow pine, and the iron of the beat qualtty of Amerioan manufaoture.

There are four public Road Oroseings. No fenoes or farm gates have been built on said sootion, ns none are nooded, ithe road being built almoat ontirely on vacant public land, and where built throagh onolosed fialds, fonoes have hot been found nooessary

The main traok of this seotion is twenty miles in lent wh wh $6500^{\circ}$ foet of side traoks attachad thoroto, being suffigiont to ack. oornmodate the present business of the road.

The welght of the rails used in not less than EGf pounds per: yard. They are conneoted by "Fibh joints". This confists of two wrought iron bars, twenty inchea in length by two andifone half inches in width, and threo fourths of an inoh thick, fittingelosely to the neok of the rail, and held firmly in plaoe by four folta and nuta.. The rails uged are cenerally twanty elght feet. In length.

The acikes used are of wrought iron, five and on half inohes in Iength, nine-sixteanths of an inch square, woigh one falf pound aach, and number about ten thousand ive hundred per mile, Zpon gtraighin: IInes, the number boing increasod upon the ourves.

Upon this portion of the railroad, there is an strerage of 2260 cross ties per mile. Thea ties are red spruce, yellodipine, taman rack and white codar. The greator portion are, however, tamaraok and pine. They are oight foet in longth, not lese than six by olght inohes in size, the joint ties being not less than sixy by ton inohes.

The material forming the road bed, for the great portion of these Iventy miles 1s, of 1 tiself, good ballasting, andixis used for: that purpose, the ties boing firmly imbedaea thexoin. TMhia matarial consists largely of gravel and broken rook, from the exparations. The ballasting cannot be fully oompleted until the embắnbments hate
had time to settle，whion will take several months． usod at the rate of one and one quarter oubic yards of road．

The ballast is 4
8
8
8
8

Therc aro tiree stations on ald portion of sald railroad ine， to wit：One at Tamarack，Ninety five miles from Sacramento；one at Cascade，ninety nine miles from Saoramento，and one at summit，ond hundred and five miles from Saoramento．

There are no machine shops on this portion of the railroad－－ the machins shops and engine houses being looated ats Saoramento and Rooklin．

There are now in use on the rod the following gars，to wit： 10 First Class Pasaenger Cars，eaoh costing－－ $\mathrm{B}_{\mathrm{w}} 3,700$ ． 2 Passenger and Bagぁage Cars，и 1,880 ． 4 Bagcage，Mail and Hucpress Cars，＂ 177 Box Freight Cars， 473 Platform Cers， 95 Dump cars， 36 Hand caft， 30 Seation cars，

8 Track oars，

2，000 800. 550. 725. 230.
75.
125.

There are fifty locomotives now in use on the ford，all of therorof the best style and quality，of the best olasg used on Amer－ foan roads，are marufaotured by American builders，ajif well adapted
for service on heavy grades and sharp curves．
The following is a Iid of the Locomotives now in use：

| No． | Names of Engines． | $\begin{aligned} & \text { IVo of } \\ & \text { Drivers. } \end{aligned}$ | Dlamol Diam of Drivers．Cylinders | $\begin{gathered} \text { Length } \\ \text { strake } \\ \text { W } \end{gathered}$ | $\begin{aligned} & \text { Weight } \\ & \text { inalud- } \\ & \text { ing Ten } \\ & \text { der. } \end{aligned}$ | Oost． |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | Gov．Stanford | 4 | Paet．Inches．  <br> $4 \frac{1}{2}$ 15 | $\begin{gathered} \text { Inohog. } \\ 22 \text { 多 } \end{gathered}$ | Sons. | $575,733,65$ |
| 2 | Paoifio | 4 | 516 | 24 等 | 46 | 18，205，08 |
| 3 | C．P．Huntington | 2 | 4tr 21 | 15 等 | 22 | 10，589，58 |
| 4 | T．D．Judah | 2 | $4 \frac{1}{8}$ I2 | 15 筑 | 22 | 10，603．49 |
| 5 | Atiantic | 4 | $5 \quad 15$ | 22 等 | 44 | $16,629.91$ |
| 6 | Connese | 6 | 417 | 24 等 | 54 | 19，161．74 |
| 7 | Sargent | 4 | 516 | 24 镔 | 52 | 22，762．24 |



| 42 | Tnolume | 4 | $\begin{gathered} \text { Feet } \\ 5 \end{gathered}$ | Inohes $16$ | Inche 22 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 43 | Tulare | 4 | 5 | 16 | 22 |
| 44 | Colorsus | 6 | 4\% | 18 | 24 |
| 45 | Majestio | 6 | $4 \frac{1}{2}$ | 18 | 24 |
| 46 | Unicorn | 6 |  | 17 | 22 |
| 47 | Griffin | 6 |  | 17 | 22 |
| 48 | Toiyabo | 6 |  | 17 | 22 |
| 49 | Toquima | 6 |  | 17 | 22 |
| 50 | Champion | 4 | 5 | 16 | 24 |

The road is rell construoted, and Pabsenger Trajns oan be safely run over it at a rate of forty miles por hour and at as high a rate of speed as any similar railroad in the Gitad statese

The Map marked "A" id a correot drawing of thiteopion (20 milos) of said railrosd, from Seotion 85 to 114, bof inolusive The Hap shows correotly the various ourves and tangents, and the Profile marked "B" correotly exhibits the original gytiace Ine and the grades upon witichithis eoction of said Railroad ideonstruated.

All of whioh is respeatfully submitted.

John Bigler
Frank Denver
Thos. J. Henley

Saoramento, Juno 22nd, A.D., 186.8.

UNITITD STATIIS OF ABBGIICA.)
State of California, $\{8$.
To His kxoelienov, Andrew Johnson, President afd the Hon.
H. KoCullooh, Seoretary of the Treasury, and the Hon. O. H. Browning, Secretary of the Interior of the United States 复

The undersigned, John Bigler, Prank Denver and Thomas J. Henley, Commisaioners aypointed by the President of the United states to examine and report upon the Central Pacific Rallroad of California under and in pursusunce of the provisions of the Aot of Congresa entitled "An fot to aid in the oonstruotion of a railpoad and telegraph Ine from tho Misoouri River to the Padfic ooean efid to sooure to the Government the use of the same for poatal, military and other purposes approved July $1,286 \%$, and the Aots amendatory thereof approved July 2, 2864, and Maroh 3, 1865, and July 3, 3886, would rem spectfully state that thoy have this day made a report uron the epnatruation and completion of an aldition and continu wion of tranty fous miles of the baid railroad and telegraph line, fommencing at the termination of the one hundred and fourteenth mpand anding at the termination of the on hundred and thirty oightidmile. Whioh ife hereby referrod to. That in addition to the matter itherein stated and upon personal exsmination and written evidenoe oubmitted, thoy woult further respeotfully

Report that in the said twenty four miles of add railroad the number of degrees of ourved ine is 2717 degrees and 20 minutes, the leagth of the ourved lines 1s 64,86' feet and of thotangent Ines is 61,853 feet; the per oentage of ourved line is 51/10\%; the width of the embankments at grade line is 14 feot; the inolinition of the elopes of the ombankmente are one and one half feet horizontal to one foot vertical; the width of the exarations at grade Ine varios from 16 to 20 feet according to the material forming the side of the outs;
 nature of the material through which the examation fa made, and is as follows: through earth one foot horizontal to onefroot vertical; soft rook - one half to one, three fourthe to one, and one foot horim foot. horizontal to one foot vertical.

The Culverts are all either built with an arch for in the open or box form, all of hard stone and their number and, bize are as follows:


181 Culverts.
The following are the Bridges on said section of twenty four miles.

First. Coldstream Bridge, consists of four spans of Howe Truss, 2 ofirl26, and 2 of 65 feet each, and one spar, straining beam Truss of 50 fest.

The two center piers are built of timber rivaling on fondations of Granite masonry, (similar fa plan to the pi frs of Long Ravine
 Bridge, 56 miles from Sacramento). The other piers wa te built wholly of granite, laid in hydraulic cement. The track is maid on the upper chord, at a height of 80 feet above the bod of the stream.

Second. Proser Crock Bridge. 1 span, Howe Trugs, 105 feet in clear, and two spans of Straining beam Truss, of 50 ? Easting on piers of granite, laid as above. Crossing on upper chord.

Third. Little Truckee Brides. I span, Howe Truss, 105 foot in olear. 1 span, straining beam truss of 50 foot, and one span (acme kind truss) of 40 feet, all resting on piers of grans

Fourth. First Truckeo Bridge. One gran, Howe Truss, with aroh 204 feet in olear. Truss and arch resting on afíhents of first
 Imits of safety, 600 tons. Greatest load that oan fiver be imposed upon the aame, 204 tonse aroselng on lower ahord.

Fifth. Juniper Creok Bridge. One apan, Howe Trixa, 76 footin olear, resting on granite piers. Crossing on lower ghord.
gixth. Alder Oreek Bridge. One span, 40 feet. 䅀 Kind $?_{0}$ The timber used in these bridges is of the gost quality of white and yellow pine, and the iron of the best quality of Anorioan manufaoture.

There are no public road orossings, No fences of farm gates. have been built by said dompany on said seabion, as ibne are neodod, the road being built almot entirely on vaoant puhlio hand, and, where built through onolosed fields, fences have not been found nocessary. The main track of this section is twenty four miles in length, with 1500 fect of $B 1 d o$ traaks attanod thereto, being suffigient to accommodate the present business of the road. The weight of rails used is not less than 5 poundg per yard. They are conneoted by urishm joints." This consists of two wrought iron bars, twenty inohes in length by two and one half inches in width and three fourths of an inoh thick, fitting olosoly to the nook of the rail and hold firmay in place by four bolts and nuts. The rails used are generally twenty eight fect in length. Tho spikes used are of wroughtivon, five and one half inches in length, nine sixteenths of an inohequare, weigh one half pound each and number about ten thousand five hundred per mile upon otraight lines, tho number being increasod pon the ourfes.

Upon this portion of the railroad there are an average of 2300 cross ties rer mile. These ties are red syruce, sugar fine, tamarack and white cedar. Tho creater portion aro, however, tamarack, rod spruce and cedar. They are eight feet in length, not fesi than six by eight inches in size, the joint-tiea beirg not legsithan six by ten inches.

The material forming the road bed, for the greater part of these
twenty four miles，is，of itself，good ballasting and is used for that purpoe日，the ties being firmly imbedaed therein．Thie material oon－ sists laresely of gravel and broken rook from the exoavations．The ballaatimf cannot be fully completed until tho embankments have had timo to settle，which will take several months．The ballast is used at the rate of one and one quartex oubic yarde por I inear yard of road．

There are two stations on sald portion of sald railroad line，to wit：Truokec， 118 milos from Sacrumonto；Boca，at the confluence of
 Camp 24 at terrinus of completed section．

There are no machine shops on this portion of the railroad－－ the machine shops and englno houses of the oompany being lodabd at Sacramento

There are now in use on the road the following gars，to wit；
G First class Pasaenger Cars anch costing

| 2 Passenger and Bacgage | H | ＂ |  |
| :---: | :---: | :---: | :---: |
| 2 Bagmage，mail \＆express | 11 | ＂ | ＂ |
| 135 Box Freight | ＂ | ＂ | $\because$ |
| 250 Platform | ＂ | ＂ | $\pi$ |
| 20 Seotion | 1 | ＇1 | ＊ |
| 20 Hand | n | ＂ | ＂ |
| 45 Dump | ＂ | 1 | ＂ |
| 3 Tracklaying | ＂ | 3 | ＂ |

There are thirty looomotives in use on the road the best style and quality，of the best olass used on American roads and well adapted for servioe on hoavy grades and sharp ourves．

The following is a List of the Locomotives now ing use on the road．

| No． | Names of Engines． | $\begin{aligned} & \text { of } \\ & \text { isris } \end{aligned}$ | $\begin{aligned} & \text { Diam of } \\ & \text { Drivers } \end{aligned}$ | Diam of Oylinder | Jength Stroke |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | Gov．Stanforat | 4 | 4t | 15 | 22 | $\begin{gathered} \text { Tons. } \\ 44 \end{gathered}$ | \＄28，733．65 |
| 2 | Paoifio | 4 | 5 | 16 | 24 | \％ 46 | 18，808，08 |
| 3 | C．P．Huntington | 2 | 412 | 11 | 15 | \％ 22 | 10，589． 88 |



```
$10,603,42
16,629.67
19,161,74
22,762524
36,438,57
36,438,57
24,761,45
20,013,13
21,435,89
24.716.49
83,926.87
23,128:38
24,482.38
23,473.06
22,598,65
23,379422
```

The road is well oonstruoted and Passenger Traina run over it at the rate of forty miles per hour, and ag as high a rate of sreed as any aimilar railroad in tho United stuter.

The Map, marked "A" 18 a oorreot draving of this 悬ootion of sifd
railroad, from gection 115 to Seotion 138, both inolustye, showing correctly its various ourves and tangents.

The profile, marked van also correotly oxhibits tix grades theteof. All of whioh is respeatfully submitted.
Revonue Stamp

John Bigior. Frank Denver. Thos. J. Henloy

## UNITED STATES OHI AIIERICA) <br> State of California.)

To His Excellency, Andrew Johnson, President, and the Hon. H. McCuliooh, Secretary of the Treasury, and the Hon. O. H. Browning, seoretary of the Interior, of the United States.

The undersigned, John Bigler, Trank Denver and Thomas J. Henley, Commissioners appointed by the President of the United States to examine and report unon the Central Pacific Railroad of California, under and in pursuanoe of the provisions of the Aot of Congress, entitied "An Act to aid in the construotion of a Railroad and Telegraph ine from the Missouri River to the Pacific Ooean, andto secure to the Government the use of the samefor postal, military and other purposes," approved July 1, 1862 , and the Acts amendatory thereof aproved July 2, 1864, and March 3, 1865, and July 3, 1866, would respectfully state, that they have this day made a Report upon the construotion and completion of an addition and continuation of twenty miles of the said Railroad and Telegraph line; commenoing at the termination of the One hundred and thirty eighth mile, and endinp at the termination of the One hundred and fifty eighth mile, which is hereby referred to. That in addition to the matters therein stated, they would further respeotful. $1 y$

Reportand certify That in the said twenty miles of said railroad the number of degrees of curved line 1 s 1062 degrees and $46 \mathrm{~min}-$ utes, The length of the ourved lines is $37,007.9$ feet, and of the tangent lines is $68,592.1$ feet. The vercentage of ourved line is $35 / 100$. The width of the embankment at grade Ine is 14 feet, and the incilnation of the slores of the embankments is one and one half feet horizontal to one foot vertical. The width of the excavations at grade line, varien from 16 to 20 feet, according to the material forming the sides of the outs, and the inclination of the slopes of the excavations varies with the nature of the material through which the excavation is made, and is as follows: through earth - one foot horizontal to one foot vertical; soft rock -- one half to one, three fourths to one, and one foot horizontal to one foot vertical; through hard rook -- one fourth of a foot horizontal to one foot vertical.

The Culverts are all either built with an arch, or in the open or box form, all of hard atone, and their number and size are as follows:

|  | x |  | 51 brt. ford. |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 20 | " | " | 2 | $x$ | 3 | " | 16 | " | " | 6 | " | 1 |
| 1 | 1 | " | 2 | x | 4 | " | 3 | " | " | 8 | 1 | " |
| 9 | 11 | " | 2 | $x$ | 3 | 1 | 7 | " | 11 | 10 | " | " |
| 8 | " | " | 3 | $x$ | 4 | " | 1 | " | " | 14 | " | " |
| 4 | $\mu$ | " | 4 | x | 4 | " | 3 | 11 | ${ }^{\prime}$ | 16 | " | " |
| 2 | " | " | 4 | $x$ | 5 | " | 1 | 11 | " | 20 | " | " |
| 51 | Hotd. |  |  |  |  |  | 85 | Culverts. |  |  |  |  |

The following are the Bridges on said seotion of twenty miles. BRIDGES.

First. Second Crossing of the Truokee River, consisting of the spans of Howe Truss, of one hundred and fifty (150) feet each, built upon the same plan and in the same manner as similar bridges desoribed in previous Reports. This bridge rests upon piers of solid granite masonry laid in hydraulio cement.

Seoond. Third Crossing of Truckee, One span of Howe Truss, with arch two hundred and four (204) feet in clear, resting on abutments of granite masonxy, and is built in the same manner, and is in every respect a fac simile of the bridge described in a former Report as "Bridge at first crossing of the Truckee" excepting the Piers, which, in this bridge, are at right angles to the center ine of the track.

Third. Sourth Crossing of Truokee, same as Third Croseing, just above described.

The timber used in these bridges is of the best quality of white and yellow pine and the iron of the best quality of Amerionn manufaoture.

There are 10 public road orossings. No fonces or farm gates have been built on said section, as none are needod, the road being built almost entirely on vaont publio land, and where built through enclosed fields, fences have not been found necessary.

The main track of this Section is twenty miles in lengeth, with

2650 foet of side tracks attached thereto, being suffioient to aco comrodate the rresent busjness of the road. The weight of the rails used, is not less than 56 younds per yard. They are connected by "fish-joints". This consists of two wrought iron bars, twenty inches in length by two and one half inches in widh and three fourths of an inch thick, fitting clusely to the nook of the rail, and held firmly in place by four bolts and nuts. The rails used are generally twenty eight feet in lenisth. The spikes used, are of wrought iron, five and one half inches in length, nine sixteenths of an inch square, weigh one half pound each, and number about ten thousand five hundred per mile upon straight lines, the number being inoreased upon the curves.

Upon this portion of the railroad, there is an average of 2260 pince, cross ties per mile. The:e ties are rod srruce, yellow tamarack and white cedar. The greater portion are, however, tamarack, pine and oodar. They are oight foet in length, not less than six by eight inches in size, the joint ties being not less than six by ten inches.

The material forming the road bed for the areater part of these twenty miloo is, of itself, good ballasting, and is used for that purpose, the ties being firmly imbedded therein. This material consists largely of sravel and broken rook from the exoavations. The ballasting oannot be fully completed until the embanimente have had time to settly, which will take several montha. The ballast is used at the rate of One and one quartor oubic yards yer linear yard of road.

There are two stations on aid portion of said Railroad line, to wit: One at Verdi, 143 milea from Saoramento, and one at Reno, 154 $\frac{1}{4}$ miles from Sacramento.

There are no machine shops on this portion of the railroad, the machine shopes and engine houses of the Company beinglocatod at Saoramento and Rockin.

There are now in use on the Road the following cars, to wit:

10 Nirst Class Passenger Care, cach costing \$3,700.


There are fifty Locomotives now in use on the Road, all of them of the best style and quality, of the best class used on American Roads, and well adapted for service on heavy grades and sharp ourves.

The following is a List of the Looomotives now in use.

| No. | Names of No. Engines. Drive |  | Diamar Drivers. | $\begin{aligned} & \text { Dlam. of } \\ & \text { Cylinders. } \end{aligned}$ | Length <br> .Stroke. | Woight irigiuding Tender. | Cost. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | Gov. Stanford | 4 | $4 \frac{1}{2}$ | 15 | 22 | Töns. 44 | \$15,733.65 |
| 2 | Pacific | 4 | 5 | 16 | 24 | 46 | 18,205.08 |
| 3 | C.P.Huritington | 2 | 4 $\frac{1}{2}$ | 11 | 15 | 22 | 10.589.58 |
| 4 | T.D. Judah | 2 | 41 $\frac{1}{2}$ | 11 | 15 | 22 | 10,603.49 |
| 5 | Atlantic | 4 | 5 | 15 | 22 | 44 | 16,629.91 |
| 6 | Conness | 6 | 4 | 17 | 24 | 54 | 19,161.74 |
| 7 | Sargent | 4 | 5 | 16 | 24 | 52 | 22,762.24 |
| 8 | Nevada | 6 | 4 | 18 | 22 | 55 | 36,438.57 |
| 9 | Utah | 6 | 4 | 18 | 22 | 55 | 36,438.57 |
| 10 | Humboldt | 6 | 4 | 18 | 22 | 55 | 24,761.45 |
| 11 | Arotio | 4 | 5 | 15 | 22 | 46 | 20,013.13 |
| 12 | Truckee | 6 | 4 | 17 | 24 | 54 | 21,435,89 |
| 13 | Hercules | 6 | 4 | 18 | $2 ?$ | 55 | 24,716.49 |
| 14 | Oneonta | 6 | 4 | 183 | 29 | 85 | 23,226.87 |
| 15 | Washoe | 6 | 4 | 18 | 22 | 55 | 23,128.39 |
| 16 | Owyhee | 6 | 4 | 17 | 24 | 55 | 24,482.38 |
| 17 | Idaho | 6 | 4 | 17 | 24 | 55 | 23,473.06 |
| $18$ | Piute | 6 | 4 | 18 | 22 | 5.3 | 22,598,65 |



| 19 | Carson | 6 | 4 | 18 | 22 | Tons. 55. | \$23,379.22 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 20 | Amazon | 6 | 42 | 18 | 24 | $56$ | 20,649.88 |
| 21 | Tamaroo | 6 | 418 | 18 | 24 | 56. | 21.311 .97 |
| 22 | Auburn | 6 | 4t | 18 | 24 | $56$ | 21,283.27 |
| 23 | Mono | 6 | 4t | 18 | 24 | 56. | 21,235.71 |
| 24 | Montana | 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 | 19,116.94 |
| 25 | Yuba | 6 | 4t | 18 | 24 | 56. | 18.970.05 |
| 26 | Sampison | 6 | 4 | 17 | 22 | 8 | 18,671.46 |
| 27 | Goliah | 6 | 4 | 17 | 22 | * | 18,220,86 |
| 28 | Gold Run | 4 | 5 | 16 | 24 | \% | 16,994,56 |
| 29 | Antelope | 4 | 5 | 26 | 24 | a | 16,816.24 |
| 30 | Tahoe | 4 | 5 | 16 | 22 | \% | 17,981.13 |
| 31 | Wasco | 4 | 5 | 16 | 22 | 8 | 17,988.54 |
| 32 | Ajax | 6 | 4 | 16 | 24 | 38 |  |
| 33 | Achilles | 6 | 4 | 16 | 24 | 38 |  |
| 34 | El Dorado | 4 | $5 \frac{1}{2}$ | 16 | 24 | ¢ |  |
| 35 | Buise | 4 | $5 \frac{1}{8}$ | 16 | 24 | \% |  |
| 36 | Shoshone | 4 | 5 | 16 | 22 |  |  |
| 37 | Mohave | 4 | 5 | 26 | 22 | , |  |
| 38 | Ogdensburg | 6 | 4 $\frac{1}{3}$ | 18 | 24 | 56 |  |
| 39 | Malone | 6 | 47 | 18 | 24 | 56 |  |
| 40 | golano | 4 | 5 | 26 | 22 | $4$ |  |
| 41 | Stanislaus: | 4 | 5 | 16 | 22 |  |  |
| 2 | Tuolumne | 4 | 5 | 16 | 22 | \% |  |
| 43 | Tulare | 4 | 5 | 16 | 22 | * |  |
| 44 | Colos8us | 6 | $4 \frac{1}{2}$ | 18 | 24 | 3 |  |
| 45 | Majestio | 6 | 41 | 18 | 24 | \% |  |
| 46 | Unioorn | 6 |  | 17 | 22 | 玺 |  |
| 47 | Grifin | 6 |  | 17 | 22 | \% |  |
| 48 | Toiyabe | 6 |  | 17 | 22 | 7 |  |
| 49 | Toquima | 6 |  | 17 | 22 | 橎 | $\cdots$ |
| 50 | Ohamrion | 4 | 5 | 16 | 24 | 4 |  |

The Map, marled "A", is a oorrect drawing of this Section (20) miles, of said Railroad, from Section 139 to Seation 158 , both inclusive, showing oorrectly the various curves and tangents.

The Profile, marked "B", also oorreotly exhibitg the original surface ilne and the grades upon whioh this Section of said Railroad is constructed. All of which is respectfully submitted.
$\left.\begin{array}{l}\text { John Bigler } \\ \text { Frank Denver } \\ \text { Thos. J. Henley }\end{array}\right\} \quad$ CommisBioners

Sacramento, Kay 15 th, A. D., 1868,
*

Miles 158－178
（See BBB under）
Bridge 8 bents $16^{\prime}$ each 8！high
Sidings 2800
Rails Not less than 56 pounds 28＇gen：
Joints ： 2 miles fish joints， 4 bolts 18 n chairs
Spikes $9 / 16 \times 5 \frac{1}{2} \frac{1}{2} \# 10,500$ on tangent，more on curves Ties $12128 \quad 2260$ per mile from Sierras $6 \times 8 \times 8$ and $6 \times 10 \times 8$ Joint Ballast Native gravel，brocken rock lit Cu．Yd per lin Yd． Stations Camp 37 and Clerks

Rails Joints Spikes Ties Ballast th Truckee 3－50 Truss spans， 3 bentswest and bents on east approach（To be replaced by 204＇Howe＇Truss at low water）Also treaty 3 bents 16＇6－8＇high

Sidings Stations Miles 215－255 Not less than 56\＃28＇gen Fish Joints－ 4 bolts $9 / 16 \times 5^{\frac{1}{2}}$ as above 2250 per mile Sierras $6 \times 8$ \＆ $10 \times 8$＇ Native sand，gravel $1 \frac{1}{4}$ Cu．Yd． 1 in．yd． 9000： Hadsworth，Desert，Hot Springs

Sidings Rails Joints Spikes Ties 2\％p Ballast

## Embankments

standard－as shown by form－same up to here 10，200＇
Not less than 56\＃po＇gen
Fish joints 4 bolt As above
2200 per mile frond Sierras $6 \times 8$－ $10 \times 8$ ！ Native sand and travel Mirage，White Plains，Humboldt Lake，Greasewood， Lovelock
of Commissioners
$\$ 333.70$
$\frac{\frac{\text { Expenses }}{\text { Miles } 255-290}}{\text { Excavations }}$
Standard．
lIst Humboldt $\lambda-80^{\prime}$ Truss spans（to be replaced by $260^{\prime}$ Howe at low water） 10，613：
Not less than 56击 28：gen
Flesh joints as above
As above
2250 p er mile as a dove
Native sand and gravel as above
list crossing of Humboldt，Rye Patch，Humboldt House
（2 sections of 20 miles together）？？
Standard
$4000^{\prime}$
sidings
Rails，Spikes As above 56\＃
Joints Fish Joints as above
Ties 2260 per mile Sierra as above
Ballast Native sand and gravel as above
Stations Mill City，Raspberry Creek

Department
Aug 12 1868
of the Interior.
UNI TED 8 TATES OF AMERICA.
3 tate of Cal ifornia.
To His Excellency, Andrew Johnson President, the Hon H. Mc Culloch Secretray of the Treasury, and the Hon. O. H. Browning Secretary of the Interior of the United States.

The undersigned Thos Jo Henley, Frank Denver and S. D. Smith Commissioners; appointed by the President of the United States to examine and report upon the Central Pacific Mailroad of California, under and in pursuance of the provisions of the Act of Congress, entitled "An Act to aid in the construction of a railroad and teiegraph til Iine from the $i$ issouri River to the Pacific Ccean and to secure to the Government the use of same for postal, military amd other purposes," approved July 1, 1862 and the Acts amendatory thereof, approved July 2nd. 1864 March 3 rd. 1865 and July 3 rd, 1866 and would respectfully state, that they have this day made a report upon the construr ction and completion of an addition and continuation of thbrty seven miles of the said Rail road and Telegraph inee commencing at the termination of the One hundred and seventy eighthmile and ending at the termination of the two hundred and fifteenth mile, which is hereby referred to. That in addition to the matters therein stated, they would further respectfully

Report and Certify, That in the said Thirty seven miles of said $r$ railroad, the number of degrees of curved ine is 1328 degrees and 45 minutes; the 1 ength of the curved line is 61,034 feet, and of the tangent lines is 134,326 feet; the orecentage of curved ine is $3 \times 1,3 \%$ The width of the embankments at grade: 1 ine is fourteen fieet and the inclination of the slopes of the embankments is one and one hali teet horizontal to one foot vertical. The width of the excavation at erade line varies from 16 to 20 teet, accoraing to the material forming the sides of the cuts, and the inciination ot the slopes of the excavations varies with the nature of the material through which the excavation is made, and is as follovis: through earth, one foot horizontal to one foot vertical; soft rock, one half to one, threefourths to one, and one foot horizontal to one foot vertical; through hard rockone fourth of a foot horizontal to one ioot vertical.

The culverts are all either built with an arch, or in the open or box form of hard stone and their number and size are as follows;

## IISTGF CULVERTS.

On Sections 179 to 216 both inclusive.

| No |  | Description | 312e |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | box | Culvert | 2 | $\times 2$ | feet |
| 13 | " | ${ }^{\prime}$ | 2 | $\times 3$ |  |
| 5 | " | ' | 3 | $\times 3$ | H |
| 9 | " | " | 3 | x 4 | ${ }^{\prime}$ |
| 1 | Open | $\dagger$ | 4 | feet | span |
| 27 | N | 11 | 6 | " | \% |
| 44 | ' | H | 8 | n | " |
| 7 | " | " | 10 | " | " |
| 1 | " | * | 12 | n | $\cdots$ |
| 2 | 11 | " | 16 | " | 0 |
| 1 | n | 11 | 20 | " | $\cdots$ |

111 Culverts
The following arethe bridges on said section of thirty seven miles:

BRI DGES.
First. Fif th crossiof of Truckee consists of three spans of ( $\mathrm{S}_{\mathrm{D}}^{\mathrm{B}} \mathrm{B}$ ) Truss of 50 feet each-with the approaches of three bents of treatle on the West, and six bents of trestle on the East end.

The spans are built on the same plan as all spanso of similar length on preceeding sections, and both truss and trestle bridging is constructed in the best manner of yellow pine, and all the iron used is of the best quality of American manufacture.

Buer?
This bridge will be replaced by a Howe 'russ of 204 feet span with stone abutments, as soon as the water recedes sufficiently to allow the foundations to be placed.

Sec ond. One trestle Bridge, 3 bents, 16 feet 3 pan, 6 to 8 feet high
The timber used in these bridges is of the best quality of white and yellow pine, amd the iron of the pest quality of American manufacture.

There are eight public road Crossings. No tences or iarm eates have deen puil $t$ on said section, as none are needed, the road deing buil t almost entirely on vacant pubic land, and where buil through enclosed fields, fences have not deen found necessary.

The main track of this section is 37 miles in length, with y000 feet of side tracks attacnea tnereto, weing sufficient to accommodate the present business of the road.

The weight of the rails is not less than 56 pounds per yard. They are connected by fish-joints. This consista of two wrought iron bars, twenty inches in lencth by two and one half inches in width, and three tourths of an inch thick, ifting closely to the neck of the rail, and held firmly in place by four bolts and nuts. The railes used are generally twenty eight feet in length.

The spikes used are of wrought iron; fidve and one hals inches in length, nine-sixteenths on inch square, weight one hal pound each, end number about then thousand five nundred per mileo upon straight lines the number deing increased upon the curves.

Upon this portion of the rail road, there is an average of 2250 cross ties per mile. These ties are red spruce, yellow pine, tamarach, and white cedar. The greater portion are however, tamarack and pine. They are eight feet in length, not less than six uy eight inches in size, the joint ties being not less than six by tentinches. 1

The material forming the road bed 6 for the greater portion or these 37 miles , is, of itself, good ballasting, and is used for that purpose, the ties deing tirmly imbedded tnerein. This material conaist largely of sand and gravel from the excavations. The ballasting cannor be fully completed until the embankments have had time to settie which will take several months, The ballast is used at the rate of one and one warter cubic yaras per 1 ineal yard of road.

There are three stations on said portion of said rail road ine, to wit; One at Wadsworth 189 miles from Sacramento; one at Desert 197 miles from Sacramento, and one at Hot Springs, 209 miles from Sac ramento.

There are no machine shops on this portion of the railroad the machine shops and engine houses being loacted at sacramento and Rocklin. Nachine shop? nave deen laid out and will ve immediately built at \%adsworth.

There are now in use on the road the following cars, to wit:


There are fifty locomotives now in use on the road, all of them of the best styke and quality, of the best class used on Amerjcan roads, are manufattured by American builders, and well adapted for service on heavy grades and shatp curves.

The following is a list of the locomotives in use:


| 5 | Atlantoc | 4 | 5 | 15 | 22 | 44 | 16,629.91 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 6 | Conness | 6 | 4 | i7 | 24 | 54 | 19,161.74 |
| 7 | Sargent | 4 | 5 | 16 | 24 | 52 | 22,762.24 |
| 8 | Nevada | 6 | 4 | 18 | 22 | 55 | 36,438.57 |
| 9 | Utah | 6 | 4 | 18 | 22 | 55 | 36,438.57 |
| 10 | Humboldt | 6 | 4 | 18 | 22 | 55 | $24,761.45$ |
| 11 | Arctic | 4 | 5 | $\perp 5$ | 22 | 46 | 20,013.13 |
| 12 | Truckee | 6 | 4 | 17 | 24 | 54 | 21,435.89 |
| 13 | Hercules | 6 | 4 | 18 | 22 | 55 | 24,716.49 |
| 14 | One on ta | 6 | 4 | 18 | 22 | 55 | 23 m 226.87 |
| 15 | Fashoe | 6 | 4 | 18 | 22 | 55 | 23,128.39 |
| 16 | Owy hee | 6 | 4 | 17 | 24 | 55 | 24,482.38 |
| 17 | Idaho | 6 | 4 | 17 | 24 | 55 | 23,473.06 |
| 18 | Piute | 6 | 4 | 18 | 22 | $\bigcirc 5$ | 22,598.65 |
| 19 | Casson | 6 | 4 | 18 | 22 | 55 | 23,379.22 |
| 20 | Amazon | 6 | 4 $\frac{1}{3}$ | 18 | 24 | 56 | 20,649.58 |
| 21 | Tamaroo | 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 | 21,311.47 |
| 22 | Auburn | 6 | 4 $\frac{1}{2}$ | 18 | 24 | $\bigcirc 6$ | 21,283.27 |
| 23 | Mono | 6 | $4 \frac{1}{8}$ | 18 | 24 | 56 | 21,235.71 |
| 24 | Montana | 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 | 19,116.94 |
| 25 | Yuba | 6 | $4 \frac{1}{2}$ | 18 | 24 | 26 | 18,970.05 |
| 26 | Samps on | 6 | 4 | 17 | 22 |  | 18,671.45 |
| 27 | Goliah | 6 | 4 | 17 | 22 |  | 18,220.86 |
| 28 | Gold Run | 4 | 5 | 16 | 24 |  | 16.994 .56 |
| 29 | Antelope | 4 | 5 | 16 | 24 |  | 16.820 .24 |
| 30 | Tahoe | 4 | 5 | 16 | 22 |  | 17.981,13 |
| 31 | Kl ama th | 4 | 5 | 16 | 22 |  | 17,988.54 |
| 32 | Ajax | 6 | 4 | 16 | 24 | 38 |  |
| 33 | Achilles | 6 | 4 | 16 | 24 | 38 |  |
| 34 | Fl Dorado | 4 | $5 \frac{1}{2}$ | 16 | 24 |  |  |
| 35 | Boise | 4 | $5 \frac{1}{2}$ | 16 | 24 |  |  |
| 36 | Ghoshone | 4 | 5 | 16 | 22 |  |  |
| 37 | mohave | 4 | 5 | 16 | 22 |  |  |
| 38 | Ogdenscurg | 6 | 412 | 18 | 24 | 56 |  |
| 39 | Mal one | 6 | 41 | 18 | 24 | 56 |  |
| 40 | Solano | 4 | 5 | 16 | 22 |  |  |
| 41 | Stanislaus | 4 | 5 | 16 | 22 |  |  |
| 42 | Tuolumne | 2 | 5 | 16 | 22 |  |  |
| 43 | Tulare | 4 | 5 | 16 | 22 |  |  |
| 44 | Col ossus | 6 | $4 \frac{1}{2}$ | 18 | 24 |  |  |
| 45 | Niajestic | 6 | 4 $\frac{1}{2}$ | 18 | 24 |  |  |
| 46 | Unicorn | 6 |  | 17 | 22 |  |  |
| 47 | Griffin | 6 |  | 17 | 22 |  |  |
| 48 | Toiyabe | 0 |  | 17 | 22 |  |  |
| 49 | Toquima | 6 |  | 17 | 22 |  |  |
| 50 | Champion | 4 | 5 | 16 | 24 |  |  |

The road is well constructed, and passenger trains can be safely run oqer it at a rate of torty miles pernour, and at high a rate of speed as any similar ailroad in the United states.

The Map and Profile marked "A" is a correct drawing of this section ( 37 miles) of said Railroad, fromestion 179 to section 215, both inclusive. The map shws correctly the various curves and tangents, and the Profile correctly exnibits the original suriace


Sacramento Iuly 28 th, A. D. 1868

## UNI TED STATES OF AMERICA.

State of California.

Fo His Excellency, Andrev Johnson Presicent, the Hon. H. Mc Culloch, Secretary of the Treasury, and tne Hon. U, Ho browning Secretary or tne Interior of the united $S$ tates.

The undersigned Thos. J. Henley@ Frank Denver and S. D. Smith, Commissioners, appointed by the President of the United states to
 under and in pursuance of the provisions of the Act of Congress, entitled "An Act to aid in the Construction of a Kailroad and Telegraph line fom the Missouri River to the Pacific Ocean, and il secure to the Government tne use of tne same for Postal, Military and other purposes." approved July lst 1862, and th Acts amendatory thereof, approved July 2, 1864, March 31865 and July 3, 1860, would respectfully state, that tney nave this day made a report upon tile construction and completion of an adaition and continuation of forty miles of the said Railroad and Telegraph line, commencing at the ter mination of the two hundred and fifteenth mile, and ending at the termination of the two nundred and ifity fifth mile, which is hereby referred to. That in addition to the matters therein stated, they wou further respec tfully 6

Report and Certify. That in tire sala forty miles of said railrc the number of degrees of curved line 1 s 843 degrees and $21 \mathrm{~min}-$ utes; the length of the curved line is 82,934 feet, and of the tangent lines is 128,266 teet; the percentage or curved ine is $3928 / 100$ The width of the embankments at grade line is fourteen feet, and the inclination of the slopes of the embankments is one and one half ifeet horizontal to one loot vertical. The wiatr oi une excavations at grade i ine varies ryom 16 to 20 teet, accordint to the material forming the sides of the cuts, and the inclination of the slopes of the excavations varies with the nature of the material tnrougri wilon tue excavation is made, and is as follows: through earth, one $100 t$ horizontal to one foot vertical; sof trock, one half to one, three fourtrs to one, and one foot horizontal to one ioot vertical; tirougn nard rock, one fourtn of a foot norizontal to one loot vertical.

The Culverts are all either builtwith an arch, or in the open or box torm, of nard stone and their number and size are as foll ows:

List of culverts
on Sections 216 to 255 both inciusive.

| NO | Description |  | 312e |  |
| :---: | :---: | :---: | :---: | :---: |
| 2 | Box culverts |  | x 3 feet |  |
| 1 | " |  | 人4 ${ }^{10}$ | Double |
| 12 | Open |  | feet spar. |  |
| 29 | , 1 | 8 | " $\quad 1$ |  |
| 8 | " | 10 | " $\quad$ |  |
| 2 | 4 | 12 | " " |  |
|  |  |  |  |  |

There are no bridges on this forty mile section.
There are 12 public road croseings. No fences or tarm gates have deen puilt on saia section, as ione are needed, frie roaq weing built almost entirely in vacant karad public 1 and, and where built through enclosed tields, fences have not been iound necessary.

The main track of this section is forty wiles in length, with 10,200 feet of side tracks attached thereto, being tw sufficient to accommodate the present business of the road.

The weight of the rails used is not 1 ess inan 50 pounus per yard. They are connected by tish-joints. This consis ts of two wrought iron bars, twenty inches in 1 ength by two and one half inches in width, and threefourths of an inch thick, ilitting clogely to the neck of the rail and neld firmly in place by four bol ts and nuts. The rails used are generally twenty eignt teet in length.

The spikes used are of wrougnt iron, fove ano one nad1 incnes 1: length, nine-sixteenths of an inch square, weight one haif pound each, and number about ten thousand five nundred per mile, upon ytraignt Lines the number being increased upon the curves.

Upon this portion of the railroad, there is an average of 2200 cross-ties per mile. These ties are red opruce, yellow pine, tamarach and white cedar, The greater portion are, however, tamarack and pine. They are eight feet in length, not less than six by eight inc nes in size, the joint ties veing not less than six by ten inches.

The material forming the road bed for the greater portion of these forty miles, is, of itself, good vallasting, aud $1 s$ usea for tria purpose, the ties deing firmly imbedded therein. This material congistd largely of sand and gravel from the excavations. The ballasting cannot de fuily completed until tne embankments rave nad time to settle, which will take several months. The ballast is used at the rate of one and one quarter cubic yards per inneas yara oi roau.

There are five stations on said portion of said railroad 1 ine, to wit: One atMirage, $2153 / 4$ miles from Sacram ento; one at white Plains $2223 / 4$ miles from Sacramento, one at fumbolat Lake 2324 mil es from Sacramento, one at Greasewood, 235 miles , and one at Lovelock's $251 \frac{1}{2}$ miles from Sacramento.

There are no machine shops on tnis portion oí tne railroadthe machine shops and engine houses deing located at Sacramento, Rockl in and Wadeworth.

There are now in use on the road the following cars, to wit:

| 13 | First Class Passenger |  | each | costing | \$3,700. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 2 | Passenger \& Baggage | " | " | , | 1,880. |
| 4 | Baggage Mail \& Express | " | " | " | 2,000. |
| 178 | Box Freight | * | " | " | 800. |
| 650 | Platform | 2 | " | " | 550. |
| 95 | Dump | " | " | " | 725. |
| 38 | Hand | $\cdots$ | " | " | 230. |
| 34 | Sections | " | " | " | 73. |
| 22 | Track | " | " | " | 125. |

There are fifty locomotives now in use on the road, a+1 ot them of the dest stype ana quality, of tne vest chass used on American roada, are manufactured by American builders, and well adapted for service on neavy grades and srarp curves.

The following is a dist of the Locomotives now in use:

IFrebs Inches Inches Tons

| 1 Gov Stanford | 4 |
| :--- | ---: |
| 2 Pacific | 4 |
| 3 C.P.Huntington | 2 |
| 4 T. D. Judah | 2 |
| 5 Atlantic. | 4 |
| 6 Conness | 6 |
| 7 Sargent | 4 |
| 8 Nevada | 6 |
| 9 Utah | 6 |
| 10 Humboldt | 6 |
| 11 Arctic | 4 |
| 12 Truckee | 6 |
| 13 Hercules | 6 |
| 14 Oneonta | 6 |
| 15 Washoe | 6 |
| 16 Owyhee | 6 |
| 17 Idaho | 6 |
| 18 Piute | 6 |
| 19 Carson | 6 |
| 20 Amazon | 6 |
| 21 Tamaroo | 6 |
| 22 Auburn | 6 |
| 23 Mono | 6 |
| 24 Montana | 6 |
| 25 Yuba | 6 |
| 26 Sampson | 6 |
| 27 Goliah | 6 |
| 28 Gold Run | 6 |
| 29 Antel ope | 4 |
| 30 Tahoe | 4 |
| 31 Klamath | 4 |


| $4 \frac{1}{2}$ | 15 | 22 | 44 |
| :--- | :--- | :--- | :--- |
| 5 | 16 | 24 | 46 |
| $4 \frac{1}{2}$ | 11 | 15 | 22 |
| $4 \frac{1}{2}$ | 11 | 15 | 22 |
| 5 | 15 | 22 | 44 |
| 4 | 17 | 24 | 54 |
| 5 | 16 | 24 | 52 |
| 4 | 18 | 22 | 55 |
| 4 | 18 | 22 | 55 |
| 4 | 18 | 22 | 55 |
| 5 | 15 | 22 | 46 |
| 4 | 17 | 24 | 54 |
| 4 | 18 | 22 | 55 |
| 4 | 18 | 22 | 55 |
| 4 | 18 | 22 | 55 |
| 4 | 17 | 24 | 55 |
| 4 | 17 | 24 | 55 |
| 4 | 18 | 22 | 55 |
| 4 | 18 | 22 | 55 |
| $4 \frac{1}{2}$ | 18 | 24 | 56 |
| $4 \frac{1}{2}$ | 18 | 24 | 56 |
| $4 \frac{1}{2}$ | 18 | 24 | 56 |
| $4 \frac{1}{2}$ | 18 | 24 | 56 |
| $4 \frac{1}{8}$ | 18 | 24 | 56 |
| $4 \frac{1}{2}$ | 18 | 24 | 56 |


| 32 | Ajax | 6 | 4 | 16 | 24 | 38 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 33 | Achilles | 6 | 4 | 16 | 24 | 38 |
| 34 | El Dorado | 4 | $5 \frac{1}{2}$ | 16 | 24 |  |
| 35 | Boise | 4 | $5 \frac{1}{2}$ | 16 | 24 |  |
| 36 | Shoshone | 4 | 6 | 16 | 22 |  |
| 37 | Mohare | 4 | 5 | 16 | 22 |  |
| 38 | Ogdensburg | 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 |
| 39 | Malone | 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 |
| 40 | Solano | 4 | 5 | 16 | 22 |  |
| 41 | Stanislaus | 4 | 5 | 16 | 22 |  |
| 42 | Tuolumne | 4 | 5 | 16 | 22 |  |
| 43 | Tulare | 4 | 5 | 16 | 22 |  |
| 44 | Colossus | 6 | $4 \frac{1}{2}$ | 18 | 24 |  |
| 45 | Majestic | 6 | $4 \frac{1}{2}$ | 18 | 24 |  |
| 46 | Unicorn | 6 |  | 17 | 22 |  |
| 47 | Griffin | 6 |  | 17 | 22 |  |
| 48 | Toiyabe | 6 |  | 17 | 22 |  |
| 49 | Toquima | 6 |  | 17 | 22 |  |
| 50 | Champion | 4 | 5 | 16 | 24 |  |

The road is well construc ted, and Passenger trains can safel $\pm$ be run over it at a tate of forty miles per hour, and at as high a rate of speed as any smilar rail road in the United States.

The map and Profile marked "A", is a correct drawing of this section ( 40 miles) of said Railroad, from section 216 to section 255, both inclusive. The map shows correotly the various curves and tangents, and the Profile correctly exhibits the original surface line and the grades upon which thig section of said railroad is cons truc ted

All of which is respec tfully submitted.
Thos. J. Heni ey ,
Frank Denver
S. D. Smith $\{$ Commissioners.
Sac ramento, August 13 th, 1868 .

UNI TED STATES OF AMERICA.
State of California.
To His Excellency, Andrew Johnson President tw, the non. H. HCCulloch, Secretary of the Treasury and the Hon. O. B. Browning, Sectetary of the Interior, of the United States.

The undersigned, Thomas J. Henley, Frank Denver and 3. D. Smith Commissioners, appointed by the President of the United States to examine and report upon the Central Pacitic Railroad of Calidornia, under and in pursuance of the provisions of the Act of Congress, entitll ed "an Act to aid in the constriction of a railroad and telegraph lian form the Missouri River to the Pacific Ocean, and to secure to the Government the use of same for Postal, military and other par poses." approved July lst, 1862 and the acts amendatory there of approved July 2nd, 1864. March 3rd, 1865, and July 3rd, 1866,would respectfuily state, that they have this daysmade a report upon the construction and completion of an addition and continuation of Thirty five miles of the said rallroad and telegraph ine, comm encing at the termination of the two hundred and fiftyifth mile, and ending a the termination of the two nundred and ninetietn mile, which is hereby referred to. That in addition to the matter therein stated. they would further respec tfully

Report and Certify. That in the said thirty five miles of said railroad, the number of degrees of curved line is 552 degrees qnd 36 minuter ; the length of the curved lines is 59,877 feet, and the tangent lines is $124,923 \mathrm{teet}$; The percentage of curved In ine is 32.4. The width of the embankments at grade line is foutteen feet, and the inclination of, the slopes of the embankmenta is one and one half feethorizontal and one foot vertical. The width of the excavations at grade line varies from 16 to 20 feet, according to the material forming the sides of the cuts, and the inclination of the slopes of the excavations varies with the nature of the material through which the excavations are made, and is a foblows: Through earth, one foot horizontal to one foot vertical; soft rock one half to one, three fourths to one, and one foot norizontal to one foot vertical; through hard rock one fourth of a foot horizontal to one foot vertical.

The culverts are all either built with an arch, or in the open or box form, of hard stone and their number and size are as to.io: foll ows:

LI3T OF CULVERTS
On sections 256 to 240 ooth inclusive;

| No | Description Size. |  |  |
| :---: | :---: | :---: | :---: |
| 1 | Box Culvert | $2 \times 3$ teet |  |
| 1 | " | $3 \times 4$ " |  |
| 34 | Open | 6 teet span |  |
| 48 | " | 8 " ${ }^{\text {" }}$ |  |
| 1 | " | 12 " |  |
| 1 | " " | 16 " ${ }^{\prime \prime}$ | $\because$ |
| 86 |  |  |  |

The following are the Bridges on said section of thirty fife miles:

Firgt. First Crossing of Humboldt, consists of two spans of Truss of eighty feet each. The spans are buift on tre same plan as all spans of similar length on preceding sections, and both truss and trestle oridging is constructed in the best manner of yellow pine and all the iron used is of the dest quality of American manufanoture.

This bridge will be replaced by a Howe Truss of 160 feet span, with stone abutments as soon as the vater receded sufiticiently to allow the toundations to de placed.

The timber used in these bridges is of the best quality of white and yeliow pine, and the iron of the best quality of American manufacture.

There are 14 Public Road Crossings. No fences or rarm gates hav have been built on said section, as none are needed, the road deing built almose entirely on public vavant iand, and where ouil through enclosed fields, fences have not been 1 ound necessary.

The main track of this section is 35 miles; in length, with 10,613 feet of side tracks attached therto veing sufficient to accommodate the present business of the road.

The welght og the rails used is not less than 56 pounds per yard. They are connected by $f i s h$ joints. This consists of two wrought iron bars, twenty inches in length by two and one nalf inches in width, and three fourths of aninch thick, fitting closely to the nexk of the rail, and held firmly in place fy four bolts anc nuts. The rails used are generally twenty eisht feet in length.

The spikes used are of wrought iron, five and one nalf inches in length, nine.-sixteenths of an inch aquare, weigh one hald pound each and number about ten thousand iice nundred per mile. upon straight lines, the number being increased upon the curves.

Upon this portion of the railroad, there is an average of 2250 cross-ties per mile. These ties are red spruce, yeliow pine tamarack and white cedar. The greater portion are, however tamarack and pine. They are eight feet in length, not less than six by $\epsilon$ eight inches in size, the joint ties being not less than six by ten inches.

The material forming the road bed, for the greater portion of these 35 miles, is, of itself, good dallasting, and is used for for that purpose, the ties being firmly imbedaed therein. This material consists largely ot samd and gravel forn the excavations. The ballasting cannot be fully completed until the embankments have had time to settle. which will take several months. The paliast is used at the rate of one and one quarter cubic yeard per lineal yard ot road.

There are three stations on said portion or said railroad line, to wit; One at First Croseing at Humboldt 255 miles from Sacramento, one at Rye Patch 273 miles from Sacramento and one at Humboldt house, 284 miles fom Sac ramento.

There are no machine snops on this portion of the rail road-the machine shops and engine houses being iocated at Sacramento rocklin and Wadsworth.

There are now in use on the road the following cars, to wit;

| 1) | First Class | anger Cars, | each | costing | \$3.700. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 2 | Passenger and | d Baggage cars | " | " | 1,880/ |
| 6 | Baggage mail | and Express" | ${ }^{\prime}$ | " | 2,000. |
| 177 | Box Greight | * | " | H | 800. |
| 655 | Platf orm | " | " | " | 550. |
| 95 | Dump | n | " | " | 725. |
| 46 | Hand | " | " | " | 230. |
| 39 | Section | * | " | " | 75. |
| 24 | Track | " | " | " | 125. |

There are fifty three locomotives now in use on the road, all of them of the best style and quality, of the best rlass used on American Roads. are manutac tured by American builaers, and well adapted for service on heavy grades and sharp curves.

The folloving is a list of the Locomotives now in use:

No Names of No of Diam of Diam of Length Weight Engines Drivers Driverscylinders Stroke including

Tender
Cost

| Feet |  |  |  | Tender |  |  | Cost |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Inches | hes |  |  |
| 1 | Gov Stanford | 4 | 412 | 15 | 22 | 44 | \$15,733.65 |
| 2 | Pacific | 4 | 5 | 16 | 24 | 46 | 18,200.08 |
| 3 | C. P. Hunting |  | 4i ${ }^{\text {b }}$ | 11 | 15 | 22 | 10,589.58 |
| 4 | T. D. Judah | $2:$ | 4 ${ }^{\frac{1}{2}}$ | 11 | 15 | 22 | 10.603/49 |
| 5 | Atlantmc | 4 | 5 | k5 | 22 | 44 | 16,629.91 |
| 6 | Conness | 6 | 4 | 17 | 24 | 54 | 19,161.74 |
| 7 | Sargent | 4 | 5 | 16 | 24 | 52 | 22,762.24 |
| 8 | Nevada | 6 | 4 | 18 | 22 | 55 | 36,438,57 |
| 9 | Utah | 6 | 4 | 18 | 22 | 55 | 36,438.57 |
| 10 | Humbol at2 | 6 | 4 | 18 | 22 | 55 | 24,761.45 |
| 11 | Arctic | 4 | 5 | 15 | 22 | 46 | 20,013.13 |
| 12 | Truckee | 6 | 4 | 17 | 24 | 54 | 21,435.89 |
| 13 | Hercules | 6 | 4 | 18 | 22 | 55 | 24,716.49 |
|  | Oneonta | 6 | 4 | 18 | 22 | 55 | 23,226.87 |
| 15 | Washoe | 6 | 4 | 18 | 22 | $\bigcirc 5$ | 23,128.39 |
| 16 | Owyhee | 60 | 4 | 17 | 24 | 55 | 24.482.38 |
| 17 | I dàho | 6 | 4 | 17 | 24 | 55 | 23,4'3.06 |
| 18 | Piute | 6 | 4 | 18 | 22 | b5 | 22,598.65 |


| 19 Carson | $\because 6$ | 4 | 18 | 22 | 55 | \$23,379.22 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 20 Amazon | 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 | 20,64y.58 |
| 21 Tamaroo | 6 | 4 $\frac{1}{2}$ | 78 | 24 | 06 | 21,311.97 |
| 22 Auburn | 6 | 4 $\frac{1}{2}$ | 18 | 24 | 56 | 21,283.27 |
| 23 Mono | 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 | 21,235.71 |
| 24 Montana | 6 | 4 $\frac{1}{2}$ | 18 | 24 | 56 | 49,116.94 |
| 25 Yuba | 6 | 4 ${ }^{2}$ | 18 | 24 | 56 | 18,970.05 |
| 26 Samps on | 6 | 4 | 17 | 22 |  | 18,671.45 |
| 27 Goliah | 6 | 4 | 17 | 22 |  | 18,220.86 |
| 28 Gold Run | 4 | 5 | 16 | 24 |  | 16,994.56 |
| 29 Antel ope | 4 | 5 | 16 | 24 |  | 16,816.24 |
| 30 Tahoe | 4 | 5 | 16 | 22 |  | 17,981.13 |
| 31 Klamath | 4 | 5 | 16 | 22 |  | 17,988.54 |
| 32 Ajax | 6 | 4 | 16 | 24 | 38 |  |
| 33 Achilles | 6 | 4 | 16 | 24 | 38 |  |
| 24 El Dorado | 4 | $5 \frac{1}{2}$ | 16 | 24 |  |  |
| 35 Boise | 4 | 51 | 16 | 24 |  |  |
| 26 Shoshone | 4 | 5 | 16 | 22 |  |  |
| 37 Mohave | 8 | 5 | 16 | 22 |  |  |
| 38 Ogdensburg | 6 | 41 $\frac{1}{2}$ | 18 | 24 | 06 |  |
| 39 Mal one | 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 |  |
| 40801 ano | 4 | 5 | 16 | 22 |  |  |
| 41-Stanislaus | 4 | 5 | 16 | 22 |  |  |
| 42 Tu ol umne | 4 | 5 | 16 | 22 |  |  |
| 43 Tulare | 4 | 5 | 16 | 22 |  |  |
| 44 Colossus | 6 | 4 $\frac{1}{2}$ | 18 | 24 |  |  |
| 45 Majestic | 6 | 4年 | 18 | 24 |  |  |
| 46 Unicorn | 6 |  | 17 | 22 |  |  |
| 47 Griffin | 6 |  | 17 | 22 |  |  |
| 48 Toiyabe | 6 |  | 17 | 22 |  |  |
| 49 Toquima | 6 |  | 17 | 22 |  |  |
| 50 Champion | 4 | 5 | 16 | 24 |  |  |
| 51 Olimax | 4 | 5 | 16 | 24 |  |  |
| 52 Tip Top | 4 | 5 | 16 | 24 |  |  |
| 53 Summit. | 4 | 5 | 16 | 24 |  |  |

The road is well constructed, and Passenger trains can be safely run over it at a rate of forty miles per hour, and at a high a rate of speed as any similar railroad in the Uni tec States.

The Map and Profi; e marked "A" is a correct drawing of this section ( 35 miles ) of said railroad, from Section 256 to section 290, both inclusive, The Map shows correctly the various curves ard tangents, and the profile correctly exhioits the original surtace line and the grades upon which this section of said railroad is cons truc ted.

All of which is respectfully gwbmitted
$\left.\begin{array}{l}\text { Tyos. J. Henley } \\ \text { Frank D enver } \\ \text { S. D. Smith }\end{array}\right\}$ Commissioners

# CEMTRAL PACIFIC R. R. CO 

Keport of CDmmissioners on

11 th Section.
20 miles

Submits to the President of the U. S. reports dated the l2th and 22nd ultimo of the Commissioners appointed to examine two sections, 40 miles of the Central Pacific Railroad of California with recomendations on the dubject.

290 to 330
EXBCUTIVE MAMSICN, Oct loth 1868
The within recommendations of the sectetary of the Interior are approved and the Secretary of the Treasury and himself are hereby directed to carry thesame into effect.

## Andrew Johnson

Pac. R. R.

DEPANTVENT OF THE INTERIOR,
Yashington, D. C. Oct. 10th 1868.

Sir:
I have the honor to transmit herewith, for your action, the reports dated the 12 th and 22nd ul timo of the Commissioners messrs Thomas J. Henley, Frank Denver and John Bigler, appointed by you to examine and report on two sections of twenty mi;es each, of the road and tel egraph line of the Central Pacific Railroad Company of California, commencing at the termination of the 290 th mile and entins at the termination of the 330 th mile, east of the initial point at Sacramento, in the state of California.

The Commissioners in their reports represent the said Sect tiong, (of forty milea) ready for present service and completed and equipped as a tirst class reilroad, and that the teles rapn line is completed for the same distance; and as the said Company have paid to the said Commissioners the per diem amd mileage due them under the $2 l a t$ section of the Act of Congress, approved July 27 th 1866, on account of their examination of these sections of road and-telegraph-line, I therefore respectiully recommend the acceptance of the same, and the issue to said Company of Donds and of patents for lands due on account of said sections, agreeably to the Act. approved July lst, 1862, entitled "An Act to aid in the construction of a railroad and telegraph line from the Missouri River to the Pacific Ocean" \&c. and the Acts amendatory there of.

Very respectfully your obt. servant.
O. H. Browning

Secretazy

The President.

All bills must be handed in on or before the third day of each month, or they will have to lie over No account will be allowed unless certified.

CENTRAI PACIFIC RAILROAD COMPAITY
1868 To Thos. J. Henley. Dr.
Aug 13 To 4 dayse services as U. S. Commissioner
in examinins railroad from 215 th to 255 th mile and makin report thereon at $\$ 10$. per day $\$ 40.00$

To 973 mileg traveled in rendering the above services at lo\& per mile
97.30
137.30

Revenue
3 tainp
Cancelled
Sacramento August 13 th. 1863
Received tromCENTRAL PACIFIC RAILROAD COMPANY One Hundred and thirty seven $30 / 100$----Dollars in full for above account

Thos J. Henley.

CENTRAL PACIFIC RAIL ROAD COIAPANY
1868 TO S. D. Smith Dr.

Aug 13 To 4 days services ar U. S. Cormissioner in examining railroad from 215 th to 255 th mile \& making report thereon at $\$ 10$. per day $\$ 40: 00$

To 391 miles traveled in rendering the above service at lo\& per mile
39.10
79.10

Revenue
Stamp
Sacramento August 13 th 1868.
Cancelled Received fromCEN TRAL PACIFIC RAILROAD COMPANY
 in full for above account
S. D. Smith

CENTRAL PACIFIC RAILROAD COMPANY
TO Frank Denver Ar.
1868
Aug 13 To 4 days services as U.S. Commissioner in examining railroad fro 215 th to 255 th mile \& makinf report thereon at $\$ 10$. per day

To 773 miles traveled in rendering the above service at lof per mile

Revenue
Stamp
Sacramento Sugst 13 th 1868
Cancelled Received from CENTRAL PACIFIC RAILROAD COMPANY One hundred and seventeen $30 / 100--------D$ - Dollars in full for above account.

$$
-1-
$$

UNITED STATES OF AMERICA.

## State of California.

To His Excellency, Andew Johns on President, the Hon H. McCulloch, Secretary of the Treasury ard the 0. H. Browning, Secretary of the Interior, of the United States.

The undersigned, Thomas J. Henley, Frank Denver and Join Bigler, Commissioners, appointed by the President of the United $S$ tates to examine and report upon the Central Pacific Bailroad or California, under and on pursuance of the $A \alpha x$ provisions of the Act of Congress, entitled "An Act to aid in tne construction of a Railroad adn Telegraph line from th Missouri River to the Pacific Ocean, and to secure to the Government the use of the same for postal. military and other purposes." approved July 1,1862 and the Acts amendatory thereof, approved July 2, 1864, March 3, 1865, and July 3. 1866, would respec tfully state, that they have this day made a report upon the construction and completion of an addition ana continuation of twenty miles of saia railroad and telegrapn line, commencing at the termination of the $\quad$ wo Hundred and ninetiethmile, and ending at the termination of the three hundred and tenth mile, which is hereby referred to. That in addition to the matters there-. in stated, they would fint ther respectfully

Report and Certify, That in the said twenty miles of daid Kailroad the number of degrees of curved line is 128 degrees and 48 minuteg the length of the curved lines is $23,013 \mathrm{feet}$, and of the tangents lines 82, 587 feet; the rercentage of curved line is 21.8. The width of the embankments at grade line is fourteen feet, and the inclination of the slopes of the emoankments is one and one nalf feet horizontal to one foot vertical. The width of the excavations at grade line varieg from 16 t: 20 feet, ancording to the matemial formine the sides of the cuts, and the inclination of the slopes of the excavations varies with the nature of the material tnrougn which the excavation is made, and is as follows: Through earth, one toot horizontal to one toot vertical; softrock, one halt to one, three fourths to one, and one t'oot horizontal to one troot vertical; through hard rock, one fourth of a foot horizontal to one foot vertical.

The culverts are all either built with an arch, or in the open or box form, of hard stone and their number and size are as riollows:

IIST OF CULVERTS
On Sections 291 to 310 Doth inclusive.


There are no bridges on this section of twenty miles.
There are 20 Public road crossings, No fences or farm gates hav have been buil $t$ on said section, as none are needed, the road being built almost entirely on vacant public land, and where built through erclosed fields fences nave not been found necessary.

The main track of this section is 20 miles in length, with 4000 feet of side tracks attached thereto, being sufficient to accommodate the present business of the road.

The weigrt of the rails used is not less than 56 pounds per yard. They are connec ted by fish joints. This consistd of two wrought iron bars, twenty inches in length by two and one half inches in width, and three fourths of an inch thick, i'itting closedy to the neck or the rail, and neld firmly in place by four bolts and nuts. The rails used are generally twenty eight feet in length.

The spikes used are of wrought iron, five and one half inches in length, nine sixteenths of an inch square, weight one hald pound each, and number about ten thousand tive hundred per mile, upon straight lines, the number being increased upon the curves.

Upon this portion of the rail road, there is an average of 2260 cross-ties per mile. These ties are red spruce, yellow pine, tamarack and white cedar. The greater portion are, however, tamarask and pine. They are eight feet in length, not less than,six by eight inches in size, the joint ties being not less than six by ten inches.

The material forming the road ped, for the freater portion of thes these 20 miles, is of itselt good oallasting, and is used tor that purpose, the ties being firmly imbedded therein. This material consists largely of sand and gravel form the excavations. The ballasting cannot be fully completed until the empankments have had time to settle, which will take several months. The ballast is used at the rate of one and one quarter cuoic yards per 1 ineal yard of road.

There are two $s$ tations on said portion of railroad line, to wit; One at Nill City $2953 / 4$ miles from Sac ramento; One at Raspoery Creek, $303 \frac{1}{2}$ miles from 3acramento.

There are po machine shops on this portion of the railroad-the machine shops and enging houses being 1 ocated at Sacramento Rocklin and Fadsworth.

There are now in use on the road the following cars, to wot;

|  | Fisst Class Passenger |  |  |  | 3.700 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 2 | Passenger and Baggage | " | " | " | $1,880 .$ |
| 6 | Baggage Mail \& Express | " | " | " | 2,000. |
| 177 | Box Freight | " | " | " | 800. |
| 694 | Platform | " | " | " | 550. |
|  | Dump | " | " | " | '25. |
|  | Hand | H | H | " | 230. |
| 46 | Section | " | " | 11 | $75 /$ |
|  | Track | " | " | " | 125. |

There are fof thee $l$ ocomotives now in use on the road, all of tnem of the best style and wuality, of the best class used on American roads, are manuractured by American Duilders, ana well adapted for service on heavy grades and sharp curves.

The following is a list of the Locomotives now in use:
No Names of No of Diam of diam of Length Veight
Engines DriversDrivers Cylinders Stroke including cost tender

|  |  |  | feet | inches | incres | tons |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | Gov Stanford | 4 | 4古 | 18 | 22 | 44 | \$15.733.65 |
| 2 | Pacif ic | 4 | 5 | 16 | 24 | 46 | 18,205.08 |
| 3 | C.P.Huntington | 2 | $4 \frac{1}{2}$ | 11 | 15 | 22 | 10,598.58 |
| 4 | T. D. Judah | 2 | 4 $\frac{1}{2}$ | 11 | 15 | 22 | 10,603, 49 |
| 5 | Atlantac | 4 | 5 | 15 | 22 | 44 | 16,629.91 |
| 6 | Conness | 6 | 4 | 17 | 24 | 54 | 19,161.74 |
| 7 | Sargent | 4 | 5 | 16 | 24 | 52 | 22,762.24 |
| 8 | Nevada | 0 | 4 | 18 | 22 | 55 | 36,438.57 |
| 9 | Utah | 6 | 4 | 18 | 22 | 55 | 36,438.57 |
| 10 | Humboldt | 6 | 4 | 18 | 22 | 85 | 24,761.45 |
| 11 | Aretbe | 4 | 5 | 15 | 22 | 46 | 20,D13.13 |
| 12 | Truckee. | 6: | 4. | 17 | 24 | 54 | 21,435.89 |
| 13 | Hercules | 6 | 4 | 18 | 22 | b5 | 24,716.49 |
| 14 | One onta | 6 | 4 | 18 | 22 | -55 | 23,226.87 |
| 15 | Washoe | 6 | 4 | 18 | 22 | 55 | 23,128.39 |
| 16 | Owyhee | 6 | 4 | 17 | 24 | 55 | 24,482.38 |
| 17 | I daho | 6 | 4 | 17 | 24 | b5 | 23.473 .06 |
| 18 | Piute | 6 | 4 | 18 | 22 | 55 | 22,598.65 |
| 19 | Carson | 6 | 4 | 18 | 22 | 55 | 23 379.22 |
| 20 | Anazon | 6 | 4 $\frac{1}{2}$ | 18 | 24 | 56 | 20,649.58 |
| 21 | Tamaroo | 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 | 21.311 .97 |
| 22 | Auburn | 6 | 4 $\frac{1}{2}$ | 18 | 24 | 56 | 21,283.27 |
| 23 | Mono | 6 | 41 | 78 | 24 | 56 | 21,235.71 |
| 24 | Montana | 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 | 19,116.94 |
| 25 | Yuba | 6 | 4 $\frac{1}{2}$ | 18 | 24 | 06 | 18,970.05 |
| 26 | Sampson | 6 | 4 | 17 | 22 |  | 18,671.45 |
| 27 | Goliah | 6 | 4 | 17 | 22 |  | 18,220.86 |
| 28 | Gold Run | 4 | 5 | 16 | 24 |  | +6,9y4.56 |
| 29 | Antelope | 4 | 5 | 16 | 24 |  | 16,816.24 |
| 30 | Tahoe | 4 | 5 | 16 | 24 |  | 17.981 .13 |
| 31 | Klamath | 4 | 5 | 16 | 22 |  | 17,988.54 |
| 32 | Ajax | 6 | 4 | 16 | 24 | 38 |  |
| 33 | Achilles | 6 | 4 | 16 | 24 | 38 |  |
| 34 | El Dorado | 4 | 5 $\frac{1}{2}$ | 16 | 24 |  |  |
| 35 | Boise | 4 | b $\frac{1}{2}$ | 16 | 24 |  |  |
| 36 | shoshone | 4 | 5 | 16 | 22 |  |  |
| 37 | Mohave | 4 | 0 | 16 | 22 |  |  |
| 38 | Ogdensourg | 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 |  |
| 39 | Mal one | 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 |  |
| 40 | solano | 4 | 5 | 16 | 22 |  |  |
| 41 | 9 tanislaus | 4 | 5 | 16 | 22 |  |  |
| 42 | Tuol umne | 4 | 8 : | 16. | 22 |  | \% |
| 43 | Tulare | 4 | 5 | 16 | 22 |  | $\therefore$ \% |
| 44 | Colossus | 6 | 4 $\frac{1}{2}$ | 18 | 24 |  | $\cdots$ |
| 45 | majeatic | 6 | 4혈 | 18 | 24 |  |  |


| 46 Unicorn | 6 |  | 17 | 22 |
| :--- | :--- | :--- | :--- | :--- |
| 47 Griffin | 6 |  | 17 | 22 |
| 48 Toiyabe | 6 |  | 17 | 22 |
| 49 Toquima | 6 |  | 17 | 22 |
| 50 Champion | 4 | 5 | 16 | 24 |
| 51 Climax | 4 | 5 | 16 | 24 |
| 52 Tip Top | 4 | 5 | 16 | 24 |
| 53 Summit | 4 | 5 | 16 | 24 |

The road is well cons tructed, and Passenger Trains can be safely run over it at a rate of forty miles per hour, and at as high a rate of speed as any similar rail road in the United States.

The map and Profily marked "A" is a correct drawing of this sect section ( 20 miles) of said Railroad, from section 291 to section 310. Do bith inclusive. The Map shows correctly the various curves and tangents, and the Profile correctiy exhioits the original surface line and the grades upon which this section of said railroad is cons truc ted.

All of which is respectfully submitted.

Thos, J. Henley,
Frank Denver
John Bigler

Cormissioners

Sacramento September 12th. A. D. 1868.

2nd half 20 miles

# UNI TED 3 TATES OF AMERICA. 

State of California.
To His Excellency, Andrew $J$ ohnson, President, the Hon $H$. Mv Cullocj, Sectatary of the Treasury and the Hon, $0, H$, Browning Secretary of the Interior, of the United States.:

The undersigned, Thomas-J. Henley, Frank Denver and John Bigler Commissioners, appointed by the president of tne undted States to examine ana report upon the central Pacitic Rallroad or Cal ifornia, under and in pursuance of the provisions of the Act of Congresa, entitled "An Act to aid in the construction of a Railroad and Telefraph ine from the Missouri River to the Pacific Ocean, and to secure to the lovernment tne use of same for pos tal military and other purposes," approved July 1 st, 1862 , and the Acts amemdatory thereof, approved \#\#iny 2nd, 1864, March 3rd, 1865 and July 3rd, 1866, would respectfully state, that they have tnis day made a report upon the construction and completion or an aadtion and continuation of twanty miles of said railroad land Teiegraph line, commencing at the termination of the 310 th mile and endinge. at the termination ot the 330 th mile, which is nereby reterrea to. That in adaition to these matters therein stated, they would furtner respectfully.

Report and Certify, That in the said twenty miles of said Rail road, the number of degrees of curved line is 228 degrees and 28 minutes; the length of the cutved ine is 26,485 feet, and of the tangent 1 ines is 79,115 Ieet; the percentage ot curved ine is 25.08. The width of the embankments at grade 1 ine is fourteen lieet and the inclination of the slopes of the emoankments is one and one half feet horizontal to one toot vertical. The width or the Excavations at grade tines varies Irom 16 to 20 feet, according to the material forming the sides of the cuts, and the inciination of the slopes of the excavations varies with the nature of the material through which the excavation is made and is as follows: Through eartn, one foot norizontal ro one root vertical; sot rock, one nall to one, three fourthe to one, and one foot horizontal to one foot vertical; hard rock, one fourth of a foot horizontal to one toot vertical.

The Culverts are all either ouilt with an Arch, or in the open or dox form, of hard stone and tneir mumer and size are as tol lows:

LI3T OF CULVERTS
On sections 311 to 330 poth inclugive
NO Description size

| 2 | Open Culverta | 6 feet span |
| :---: | :---: | :---: |
| 3 | " " | 8 " |
| 1 | " " | 10 |

$\frac{1}{6}$ Culverts.

THREE TRESTLE BRIDGES

## 12 feet span 6 to 8 feet high 4 bents each.

The timber used in these bridges is of the best quality of white and yellow pine, and the iron of the dest quality of American manufacture.

There are seven Public Road Crossings, No fences or farm gates have deen pullt on said section, as none are needed, the road veing ibuilt almost entirely on vacant public land, and where buil through enclosed fields, fences have not been found necessary.

The main tracks of this section is Twenty ulies in iength, with 5840 feet of side tracks at tached theeeto, being sufficient to accommodate the present business of the road.

The weight of the railes used is not less than 56 pounds per yard. They are connected oy "Chairs" for the distance of 13 miles . and for the remaining 7 miles by"fish joints! This consists of two wrought iron bars, twenty inches in length oy two and one nalt inches in width, and three four ths of an inch thick, fitting closely to the neck of the rail, and held firmly in place by $f$ our bol ts and nuts. The rails used are generally twenty eigint feet in 1 entin.

The spikes used are of wrought iron, tive and one nalf inches in length, nine-sixteemths of an inch square, weight one half pound each and number about titen thousand five hundred per mile. upon straight 1 ines, the number being increased upon the curves.

Upon this portion of the railroad, there is an average of 2260 cross ties per mile. These ties are red goruce, yellow pine, tanatack and white cedar. The grearer portion are, nowever, ta arack and pine. They are eight feet in length, not less than six by eight inches in size, the joint ties being not less than six by ten inches.

The material forming the road ved, ior the yreater portion or these trenty miles, 18 , of 1 tself, good Dallasting and is used fior that purpose. the ties being firmly imbedded therein. This material consistilargely of sand and gravel from the excavations. The ballasting cannot ve fuily completed until trie emoanknents nave nad time to settle, which will take several months. The dallast is used at the rate of one and one warter cubic yards per 1 ineal yard of road.

There are two stations on said portion of sald rallroad 11 ne, to wit; One at Rose Creek 313咅 miles from sacramento and one at $W i$ Winnemucea, 324 miles from Sacramento.

There are no machine shpps on this portion of the rail road line the machine shop: and engbne nouses weing iocated at Bacramento Rockl in and Wadsworth.

There are now in use on the road the following cars, to wit.


There are ifity three Locomotives now in use on the road, all of them of the best $s$ tyle and quality, of the dest class used on American roads, are manuractured dy American vuilders, and well adapted for service on heavy grades and sharp curves.

The foll owing is a list of the Locomotives now in use.

| No | Names of No of Engones Drivers |  | Diam of Drivers | Diam of Cylinders | Length Stroke | $\begin{aligned} & \text { Weight } \\ & \text { inciuding } \\ & \text { Tender } \end{aligned}$ | Cost |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | feet | inches | inches | tons |  |
| 1 | Gov, Stanford | 4 | $4 \frac{1}{2}$ | 15 | 22 | 44 | \$15,733.65 |
| 2 | Pacifix | 4 | 5 | 16 | 24 | 46 | 18, 205.08 |
| 3 | C.P.Huntington | 2 | 4 $\frac{1}{2}$ | 11 | 15 | 22 | 10;589.58 |
| 4 | T. D. Judah | 2 | 4 $\frac{1}{2}$ | 11 | 15 | 22 | 10.803 .49 |
| 5 | Atlantac | 4 | 5 | 15 | 22 | 44 | 16,629.91 |
| 6 | Conness | 6 | 4 | 17 | 24 | 54 | 19,161.74 |
| 7 | Sargent | 4 | 5 | 16 | 24 | 52 | 22,762.24 |
| 8 | Nevada | 6 | 4 | 18 | 22 | 55 | 36,438,57 |
| 9 | Utah | 6 | 4 | 18 | 22 | $\bigcirc 5$ | 36,438.57 |
| 10 | Humboldt | 6 | 4 | 18 | 22 | 55 | 24,761.45 |
| 11 | Arctic | 4 | 5 | 15 | 22 | 46 | 20,013.13 |
| 12 | Trucke | 6 | 4 | 17 | 24 | 54 | 21,435.. 89 |
| 13 | Hercules | 6 | 4 | 18 | 22 | 55 | 24,716.49 |
| 14 | One onta | 6 | 4 | 18 | 22 | 55 | 23,226.87 |
| 15 | Washoe | 6 | 4 | 18 | 22 | bo | 23, 128.39 |
| 16 | Owyhee | 6 | 4 | 17 | 24 | 55 | 24,482.38 |
| 17 | Idaho | 6 | 4 | 17 | 24 | 55 | 23,473.06 |
| 18 | Piute | 6 | 4 | 18 | 22 | 55 | 22,598.65 |
| 19 | Carson | 6 | 4 | 18 | 22 | 55 | 23,379.22 |
| 20 | Amazon | 6 | 41 ${ }^{1}$ | 18 | 24 | 56 | 20.649.58 |
| 21 | tamaroo | 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 | 21,311.97 |
| 22 | Auburn | 6 | 4 ${ }^{\text {2 }}$ | 18 | 24 | 56 | 21,283.27 |
| 23 | Mono | 6 | $4 \frac{1}{2}$ | 18 | 24 | 06 | 21,2,35.71 |
| 24 | Montana | 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 | 19.116.94 |
| 25 | Yuba | 6 | 4 ${ }^{2}$ | 18 | 24 | 56 | 18,970.05 |
| 26 | Samps on | 6 | 4 | 17 | 22 |  | 18,671.45 |
| 27 | Goliah | 6 | 4 | 17 | 22 |  | 18.220 .86 |
| 28 | Gold fun | 4 | 5 | 16 | 24 |  | 16,094.56 |
| 29 | Antel ope | 4 | 5 | 16 | 24 |  | 16,816.24 |
| 30 | Tahoe | 4 | 5 | 16 | 22 |  | 17,981.13 |
| 31 | Klamath | 4 | $\bigcirc$ | 16 | 22 | + | 17.988 .54 |


| 32 Ajax | 6 | 4 | 16 | 24 | 38 |
| :--- | :--- | :---: | :--- | :--- | :--- |
| 33 Achilles | 6 | 4 | 16 | 24 | 38 |
| 34 El Dorado | 4 | $5 \frac{1}{2}$ | 16 | 24 |  |
| 35 Boise | 4 | $5 \frac{1}{2}$ | 16 | 24 |  |
| 36 Shoshone | 4 | 5 | 16 | 22 |  |
| 37 Mohave | 4 | 5 | 16 | 22 |  |
| 38 Ogdensburg | 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 |
| 39 Malone | 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 |
| 40 Solano | 4 | 5 | 16 | 22 |  |
| 41 Stanislaus | 4 | 5 | 16 | 22 |  |
| 42 Tuolumne | 4 | 5 | 16 | 22 |  |
| 43 Tulare | 4 | 5 | 16 | 22 |  |
| 44 Colossus | 6 | $4 \frac{1}{2}$ | 18 | 24 |  |
| 45 Majestio | 6 | $4 \frac{1}{2}$ | 18 | 24 |  |
| 46 Onicorn | 6 |  | 17 | 22 |  |
| 47 Griffin | 6 |  | 17 | 22 |  |
| 48 Toiyabe | 6 |  | 17 | 22 |  |
| 49 Toquima | 6 |  | 17 | 22 |  |
| 50 Champion | 4 | 5 | 16 | 24 |  |
| 51 Climax | 4 | 5 | 16 | 24 |  |
| 52 TipTop | 4 | 5 | 16 | 24 |  |
| 53 Suranit | 4 | 5 | 16 | 24 |  |

The road is well constructed, and rassenger Trains-can de aarely run over it a a rate or forty miles per hour, and at a high a rate of speed as any similar railroad in the United States.

The Map and Profile marked "A"m is a correct drawing of this section ( 20 miles ) of said Rail road, from section 311 to section 330 , both inclusive, The Map shows correctiy the various curves and tangent and the profile correctly exhibits the original surface line and the grades upon which this section of said railroad is constructed.

All of which is respectfuliy submitted
Thos J. Henley
Frank Denver
John Bigler $\{$ Commissioners

Sacramento September 22nd A. D. 1868.

## -1-

UNI TED STATES OF AMERICA.
State of Calitornia

To His Excellency Andrew Hohnson President, the Hon. H. NcC ulloch Secretary of the Treasury, and the Hon, O, H, Browning, secretary of the Interior, of the United States:

The undersigned, Thomas J. Henley, Frank Denver and John BigLer Comissioners, appoonted oy the President of the united $s$ tates to examine and report upon the Central pacilic railroad of ualifornia, under and in pursuance of the provisions of the Act of Congress entitled "An Act to aid in the construction of a Railroad and Telegraph line form the Missouri River to the Pacific Ocean, and to secure to the Government the use of same for postal, military and other purposes," approved July 1,1862 , and the Acts amenaatory there01, approved July 2, 1864, maren 3, 1865 and July srd. 1866, would respectfully state, that they have this day made a report upon the construction and completion of an addition and contimation of twenty miles of the said Railroad and Telegraph inne, commencing at the termination of the three handred and thirtieth mile and ending at the termination of the tiree hundred and fiftieth mile, which is nere oy referred to....That in adaition to the matters tnerein stated, triey would further respectfully

Report and Certify, That is the said Twenty miles of said Railroad, the number of degrees of curved 7 ine is 889 aegrees and 39 minutes; the leng th of the curved line is $44,2706 / 10$ feet, and of the tangent ines is $61,3294 / 10$ feet; the percentage oi curved ine 1s 41.93. The wiath oi the emvankments at grade intie is iourteen reet, and the inciination of the slopes of tne embankments is one and one half feet horizontal to one foot vertical. The width of the excavations at grade line varies from 26 to 20 feet. according to the material forming the sides of the cuts, and the inciination or the slopes of the excavations varies with the nature of tne waterial througn which the excavation is made, and is as 101lows: Througn earth, one foothorizontal to one foot vertical; soft rock one nalf to one, three fourths to one, and one foot horizontal to one foot vertical; through hard rock, one fourth or a foot horizontal to one foot vertical.

The culverte are ail either ouilt vith an arch, or in the open of Dox form, of hard stone and their number and size are as loliows:

IIST OF CULVERTPT;
On Sections 331 to 350 both inclusive.

| No | Description | Size |
| :---: | :---: | :---: |
| 4 | Box Culvertas | $3 \times 4$ |
| 1 | " $n$ | $2 \times 3$ |
| 22 | Open | 6 feet span |
| 30 | " | 8 " |
| 3 | " | 10 n $\quad$ |
| 60 |  |  |

The following are the oridges on said section of twenty miles.
BRIDGES.
First. One Trestie orddge, 5 bents of 12 feet each Two Trestle brbdges 4 bents each and each bent having a length of 12 teet.

These bridges are contructed in tise pest manner or yeliow pine, and all the iron used is or the oest quality of American manufactire.

The timber used in these oridges is of the dest quality of wnite and yellow pine, and the iron or the dest quality or American manufacture.

There are Four public Road Crossings. No rences or rarm gates have been built on said section, as none are needed, the road deing built almost entirely on vacant public land, and where ouilt tnrough enclosed tields. Ience have not been found necessary.

The main track on this section 1 s 20 mlles in 1 enith, witn 3600 feet of side tracks attached thereto, being sufficient to accommodate the present business of the road.

The weight of the rails used is not 1 ess than 06 pounds per yard. They are connected oy fish-joints. Inis consists of two wrougnt iron bars, 20 inches in 1 ength by two and one nalfinches in width and tnree fourths of an inch tnick, fitting closely to the neck of the rail, and neld tirmiy in place oy rour dol ts and nuts. The rails used are yenerally twenty eignt ieet in 1 enstn.

The spikes used are of wrought iron, tive and one nalt incnes In length, nine sixteenths of an inch square, weigh one hadf pound each, and number about ten thousand ifve nundred per mue upon straignt lines, the number deing increased upon the curves.

Upon this portion of the railroad tnere io an average of 2260 cross ties per mile, These ties are red spruce, yellow pine, tamarack adn white cedar. The greater portion are nowever, tamarack and pine. They are eight teet in length, not $1 e s s$ tnan six oy eiknt in inches in size, the joint. ties deing not less than six by ten inches.

The material forming the road ded, for the greater portion or these 20 miles , is of itself good Dallasting, and is used for that purpo purpose, the ties being iimmy imbedded tnerein. This material consists largely ot sand and gravely torm the excavations. The pallasting cannot be fullt completed until the emoankments have had time to settle. which will take several months. The dallast is used at the rate of one and one guarter cubic yards per 1 ineal yard or road.

There are no machine shops on this portion of the railroad-the machine shops and engine houses being 1 ocated at Sacramento, Rocklin and Wadsworth,

There are now in use on the road the rof owing cais, to wit;


There are sixty two 10 omotives now in use on the road, all of them of the best style and quality, of the dest class used on American roads, are manufactured by American bu iders, and well adapted fro service on neacy grades ana sharp curves.

The following is a list of the Locomotives now in use:

| No | $\begin{array}{cc} -\quad \text { Names of } & \text { No } \\ \text { Engines } & \text { Dr } \\ \hline \end{array}$ | 0 of Divers | Diam of Drivers | Diam of cylinder | $\begin{aligned} & \text { Length } \\ & \text { s'stroke } \end{aligned}$ | $\begin{aligned} & \text { Weignt } \\ & \text { including } \\ & \text { 'lender } \end{aligned}$ | じost |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Feet | Inches | inches | tons. |  |
| 1 | Gov $8 \operatorname{tanf}$ ord | 4 | 4 $\frac{1}{2}$ | 15 | 22 | 44 | \$ 15.733.65 |
| 2 | Pacific | 4 | 0 | 16 | 24 | 46 | 18,200.08 |
| 3 | C.P.Huntington | n 2 | $4 \frac{1}{2}$ | 11 | 15 | 22 | 10,589.58 |
| 4 | T/ D. Judah | 2 | 4/ | 11 | 15 | 22 | 10.603.49 |
| 5 | Atlantbc | 4 | 5 | 10 | 22 | 44 | 10,62Y.91 |
| 6 | Conness | 6 | 4 | 17 | 24 | 54 | 19.161.74 |
| 7 | Sargent | 4 | 5 | 16 | 24 | 52 | 22,762.24 |
| 8 | Nevada | 6 | 4 | 18 | 22 | $\bigcirc 5$ | 36,438.57 |
| 9 | Utan | 6 | 4 | 18 | 22 | bo | 30.438.0\% |
| 10 | Humboldt | 6 | 4 | 18 | 22 | 55 | 24.701.45 |
| 11 | Arctio | 4 | 5 | 15 | 22 | 46 | 20,013.13 |
| 12 | Truckee | 6 | 4 | 17 | 24 | 54 | 21,435.89 |
| 13 | Hercules | 6 | 4 | 18 | 22 | 55 | 24,716.49 |
| 14 | 4 One onta | 6 | 4 | 18 | 22 | 55 | 23,226.87 |
| 15 | Washoe | 6 | 4 | 18 | 22 | 50 | 23,128.59 |
| 16 | Owyhee | 6 | 4 | 17 | 24 | 55 | 24,482.38 |
| 17 | I daho | 6 | 4 | 17 | 24 | 55 | 23,473.06 |
| 18 | Piute | 6 | 4 | 18 | 22 | 55 | 22598.65 |
| 19 | carson | 6 | 4 | 18 | 22 | 55 | 23,379.22 |
| 20 | Amazon | $\bigcirc$ | $4 \frac{1}{4}$ | 18 | 24 | 56 | 20,649.58 |
| 21 | Tamaroo | 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 | $21.311 .9 \%$ |
| 22 | Auburn | 6 | 4 $\frac{1}{2}$ | 18 | 24 | 56 | 21,283.27 |
| 23 | Mono | 0 | 41 | 18 | 24 | 56 | 21.235 .71 |
| 24 | 4 Montana | 6 | 41 | 18 | 24 | 56 | 19,116.94 |
| 25 | Yuba | 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 | 18,970.05 |
| 26 | Samps on | 6 | 4 | 17 | 22 |  | $18,6 \% 1.40$ |



| 27 GOLiah | 6 | 4 | 17 | 22 |  | \$18,220.86 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 28 G did Run | 6 | 4 | 17 | 24 |  | 16, 994.56 |
| 29 Antel ope | 4 | 5 | 16 | 24 |  | 16,816.24 |
| 30 Tahoe | 4 | 5 | 16 | 22 |  | 17,981.13 |
| 31 Kalmath | 4 | 5 | 16 | 22 |  | 27,988.54 |
| 32 Ajax | 0 | 4 | 16 | 24 | 38 |  |
| 33 Achilles | 6 | 4 | 16 | 24 | 38 |  |
| 34 El Dorado | 4 | 5t | 16 | 24 | 38 |  |
| 35 Bolse | 4 | $5 \frac{1}{2}$ | 16 | 24 |  |  |
| 36 Shoshone | 4 | 5 | 16 | 22 |  |  |
| 37 Mohave | 4 | 5 | 16 | 22 |  |  |
| 38 Ogdens Durg | 6 | 4* | 18 | 24 | 56 |  |
| 39 Mal one | 6 | 4 告 | 18 | 24 | 56 |  |
| 40 Sol ano | 4 | 5 | 16 | 22 |  |  |
| 41 Stanislaus | 4 | 5 | 16 | 22 |  |  |
| 42 Tuolumne | 4 | 5 | 16 | 22 |  |  |
| 43 Tulare | 4 | 5 | 16 | 22 |  |  |
| 44 COLOssus | 6 | 42 | 18 | 24 |  |  |
| 45 Majestic | 6 | 4* | 18 | 24 |  |  |
| 46 Unicorn | 6 |  | 17 | 22 |  |  |
| 47 Griftin | 0 |  | 17 | 22 |  |  |
| 48 Tolyade | 6 |  | 17 | 22 |  |  |
| 49 Toquima | 6 |  | 17 | 22 |  |  |
| 50. Champion | 4 | 5 | 16 | 24 |  |  |
| 51 Climax | 8 | 5 | 16 | 24 |  |  |
| 53 Tip Top | 4 | 5 | 16 | 24 |  |  |
| 53 Sunnit | 4 | 5 | 16 | 24 |  |  |
| 64 Emigrant | 4 | 0 | 16 | 24 |  |  |
| 80 Phil Sheridan | 4 | 5 | 16 | 24 |  |  |
| 81 U.S. Grant | 4 | 5 | 16 | 24 |  |  |
| 84 Gazelle | 4 | 5 | 26 | 24 |  |  |
| 93 Oronoco | 4 |  |  |  |  |  |
| 122 Will iamette | 4 | 5 | 16 | 24 |  |  |
| 123 Gel L. Woods | 4 | 5 | 16 | 24 |  |  |
| 124 umpqua | 4 | 5 | 16 | 24 |  |  |
| $125 \mathrm{~J} . \mathrm{R}$. Moores | 4 | 5 | 16 | 24 |  |  |

The road is well constructed, and Hassenger Trains can de safely run over it at a rate of forty miles per hour, and at as ? high as rate of speed as any similar railroad in tne united States.

The Map and protile marked "A" is a correct drawing of this section $\$ 20 \mathrm{miles}$ ) ot said railroad, from Section 331 to 300 , woth inciusive. The Nap shows correctuy tne various curvesy ani tancents, and tne profile coreectiy exhibits the original suriace ine ana the grades upon which section os daid railroad is constructea.

All ot wnich is resper tully sumittea.


Sacramento Dc toder 8 tn A. D. 1808.

State or Calitornia.

To His Excellency, Andrew Johns on president, tne rion in. inc Culloch, Secretary of the Treasury and the Hon O, H, Browning, Secretary of the Interior of the united states.

The undersigned, Thomas J. Henley, Frank Denver and John Bigler, Commissioners, appointea by the president of the united States to examine and report upon the Central Paciiic Hailroad Company of Culifornia, under and in pursuance of the provisions of the act of Congress, entitied "An Act to ala in tne construction of a railroad and telegraph line from the Missouri Kiver ro tne racilic Ocean, ana to secure to the uovernment the use of the same for postal, military and other purposes. " approved July 1 , 1862 , and the Ac ts amendatory there of approved July 2, 1864, March 31865 and July 3. 1866. Would respectfully statd, that they have this day made a report upon the construetion and completion of an adaition ana continuation of twenty miles od said railroad and telegraph 1 ine, commencing at the termination of the three hundred and firtietn mile iand ending at the termination of the three hundred and seventieth mile, which is nereby referred to. "That in addition to the matter therein stated. they would further respertfully

Report and Certify. That in the said twenty miles of said railroad, thw number of degrees of curved 1 ine is 510 degrees and 39 minutes; the length of the curved line is $28,561.5$ feet, and or the tangent lines is $77,038.5$ Ieet; the percentage of curved inge 1s 27.05 The width of the embankments at graded line is rourteen rees, and the inclination of the slopes of the embankments is one and one halifeet horizontal to one foot vertical. The width of the excavations at grade inne varies from 16 to 20 feet, according to the material forming the sides of the cuts, and the inclination of the slopes of the excavaty iond varies with the nature of the material through which the excavation is made, and is as follows: Through earth, one foot horizontal to one foot vertical: sott rock, one hald to one, three four the to one, and one foot horizontal to one foot vertical through hard rock, one fourth of a foot horizontal to one foot vertical.

The culverts are all either built with an arch, or in the open or box form, of hard stone and the number and size are as follows:

LIST OF CULVERTS.
On sections 351 to 370 both inclusive.


There are no bridges on this section of twenty miles.
There are two public Road Crossings. No fences or farm gates have been built on said section, as none are needea; the road being buil talmost entirely on vacant public land, and where buil $t$ through enclosed fields, fences have not been found neoessary.

The main track of this section is 20 miles in length with 7800 feet of side tracks attached thereto, being sufticient to accommodate the present business of the road.

The weight of the rails used is not less than 56 pounds per yard They are connected by fish-joints. This consists of two wroughtiron bars, twenty inches in length by two and one half inches in width, anf three fourths of an inoh thick, fitting closely to the neck of the rail and held firmly in place by four boltd and nutd. The rails used are generally twenty eight reet in length.

The spikes used are of wrought iton, tiva and one half inches in length, ninesixteenths of an inch square, weigh one half pound each, and number about titen thousand five hundred per mile, upon straight lines, the number being increased ypon the curves.

Upon this portion of the railroad, there is an average of 2260 cross ties per mile. These ties are red spruce, yellow pine tamarack and white cedar. The greater portion are, however, tamarack and pine. They are eightfeet in leng thm not less than six by eight inches in size, the joint ties being not 1 ess than six by ten $i$ inches.

The material forming the road bed, for the greater portion of these 20 mileacis, of itself, good ballasting, and is used for that purpose, the ties being firmly imbedded therein. This material consists largely of samd and gravel from the excavations. The ballasting cannot be fully completed until the empankments have had time to settle, which will take several months. The ballast is used at the rate of one and one quarter cubic yarda per ineal yard of rad.

There are two stations on said portion ot saia rail road ine to Wit; One at Iron Point 302 miles from Sacramento and one at Stone House 3ó4 $\frac{t}{2}$ miles from Sacramento.

There are no machine ships on tnis portion of the rail road the machine shops and engine houses being located at Sacramento, Rocklin and Wadsworth.

There are now in use on the road the foliowing cars, to wit;

| 10 | First Class Passenger | Cars | each | costing | \$3.700. |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 2 | Passenger anf Baggage | " | " | " | 1,880. |
| 6 | Baggage Mail \& Express | " | * | * | 2,000. |
| 177 | box Freight | " | * | ${ }^{*}$ | 800. |
| 806 | Platiorm | n | " | " | 550. |
| 95 | Dump | $\cdots$ | $\cdots$ | $\cdots$ | 725 |
| 60 | Hand | " | " | $\cdots$ | 230 |
| 50 | Section | " | $\cdots$ | N | 75 |
| 24 | Track | * | " | " | 125 |

There are sixty six locomotives now in use on the road, all of them of the best style and quality, of the dest class used on Americal roada; are manutactured by America builders, and well adapted for service on heavy grades and sharp curves.

The following is a list of the locomotives now in use:


|  |  | feet | incnes | incnes | tons |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 Gov. Stanford | 4 | 42. | 15 | 22 | 44 | \$15,73㐌,65 |
| 2 Pacific | 4 | 5 | 16 | 24 | 46 | 18,205.08 |
| 3 ¢.P. Huntington | 2 | $4 \frac{1}{2}$ | 11 | 15 | 22 | 10,589.58 |
| 4 T. D. Judah | 2 | 4 $\frac{1}{8}$ | 11 | 15 | 22 | 10,603.49 |
| 5 Atlantbe | 4 | 5 | 15 | 22 | 44 | 16.629.91 |
| 6 Conness | 6 | 4 | 17 | 24 | 54 | 19,161.78- |
| 7 Sargent | 4 | 5 | 16 | 24 | 52 | 22,762.24 |
| 8 Nevada | 6 | 4 | 28 | 22 | 55 | 36,438.07 |
| 9 Utah | 6 | 4 | 18 | 22 | 55 | 36,438.57 |
| 10 Humboldt | 6 | 4 | 18 | 22 | 55 | 24,761.45 |
| 11 Arctic | 4 | 5 | 15 | 22 | 46 | 20,013.13 |
| 12 Truckee | 6 | 4 | 17 | 24 | 54 | 21,435.89 |
| 13 Hercul es | 6 | 4 | 18 | 22 | 55 | 24,716.49 |
| 14 One onta | 6 | 4 | 18 | 22 | 55 | 23,226,87 |
| 15 Washoe | 6 | 4 | 18 | 22 | 55 | 23.128.39 |
| 16 Owyhee | 6 | 4 | 17 | 24 | 55 | 24,482.38 |
| 17 Idaho | 6 | 4 | 17 | 24 | 55 | 23473.06 |
| 18 Piute | 6 | 4 | 18 | 22 | 55 | 22,598.65 |
| 19 cars on | 0 | 4 | 18 | 22 | 55 | 23,379.22 |
| 20 Amaz on | 6 | 4술 | 18 | 24 | 56 | 20,649,58 |
| 21 Tamar00 | 6 | 4t $\frac{1}{2}$ | 18 | 24 | 56 | $21,311.97$ |
| 22 Auburn | 6 | 4t | 18 | 24 | 56 | $21,283.27$ |
| 23 Mono | 6 | 4t $\frac{1}{2}$ | 18 | 24 | 56 | 21.235 .71 |
| 28 mon tana | 6 | 4 $\frac{1}{2}$ | 18 | 24 | 56 | 19.116.94 |
| 25 Yuba | 6 | 4 $\frac{1}{2}$ | 18 | 24 | 56 | 18,970.05 |
| 26 Sams on | 6 | 4 | 17 | 22 |  | 18,671.45 |
| 27 Goliah | 6 | 4 | 17 | 22 |  | 18,220.86 |
| 28 Gold Run | 4 | 5 | 16 | 24 |  | 16,994.56 |
| 29 Antelope | 4 | 5 | 16 | 24 |  | 16,816:24 |
| 30 Tahoe | 4 | 5 | 16 | 22 |  | 17,981 113 |
| 31 Klama th | 4 | 5 | 16 | 22 |  | 17,988.54 |
| 32 Ajax | 6 | 4 | 16 | 24 | 38 |  |


| 33 | Aohilles | 6 | 4 | 16 | 24 |  | 38 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 34 | HI Dorado | 4 | $5 \frac{1}{2}$ | 16 | 24 |  |  |
| 35 | Bolse | 4 | 5 $\frac{1}{2}$ | 16 | 24 |  |  |
| 36 | Shoshone | 4 | 5 | 16 | 22 |  |  |
| 37 | Mohave | 4 | 5 | 16 | 22 |  |  |
| 38 | Ogdens burg | 6 | 41 | 18 | 24 |  | 56 |
| 39 | Mal one | 6 | 42 | 18 | 24 |  | 56 |
| 40 | Solano | 4 | 5 | 16 | 22 |  |  |
| 41 | 3 tanislaus | 4 | 5 | 16 | 22 |  |  |
| 42 | Tuolumse | 4 | 5 | 16 | 22 |  |  |
| 43 | Tulare | 4 | 5 | 16 | 22 |  |  |
| 44 | Cal08848 | 6 | 4t | 18 | 24 |  |  |
| 45 | Majestic | 6 | 412 | 18 | 24 |  |  |
| 46 | Unicorn | 6 |  | 17 | 22 |  |  |
| 47 | Grifiln | 6 |  | 17 | 22 |  |  |
| 38 | Toiyabe | 6 |  | 17 | 22 |  |  |
| 49 | Toquima | 6 |  | 17 | 22 |  |  |
| 50 | Champion | 4 | 5 | 16. | 24 |  |  |
| 51 | Climax | 4 | 5 | 16. | 24 |  |  |
| 52 | Tip Top | 4 | 5 | 16 : | 24 |  |  |
| 53 | Summit | 4 | 5 | 16 | 24 |  |  |
| 64 | Emigrant | 4 | 5 | 16 | 24 |  |  |
| 65 | Mikado | 4 | 5 | 16: | 24 |  |  |
| 66 | Tycoom | 4 | 5 | 16 | 24 |  |  |
| 67 | Hec tor | 4 | 5 | 16 | 24 |  |  |
| 73 | Terrible | 6 | 4悬 | 18 | 24 |  |  |
| 80 | Phil Sheridan | 4 | 5 | 16 | 24 |  |  |
| 81 | U. S. Grant | 4 | 5 | 16 | 24 |  |  |
| 84 | Gazelle | 4 | 5 | 16 | 24 |  |  |
| 93 | Oronoco | 4 |  |  |  |  |  |
| 122 | Williamette | 4 | 5 | 16 | 24 |  |  |
| 123 | Geo. I. Woods | 4 | 5 | 16 | 24 |  |  |
| 124 | Umpqua | 4 | 5 | 16 | 24 |  |  |
| 225 | J.R. Moores | 4 | 5 | 16 | 24 |  |  |

The road is well constructed and Passenger trains can be safely run over at a tate of forty miles per hour, and at as high a rate of speed as any similar rail road in the United States.

The map and profile marked "A" is a correct drawing of this section ( 20 miles) of said railroad, from section 351 to 370 , both inclusive. The Map shows correctly the various curves and tangents, and the profile correctly exhibits the original surface line and the grades upon which this section of said railroad is constructed.

All of which is respectfully submitted.
$\left.\begin{array}{l}\text { Thos. J. Henley, } \\ \text { Frank Denver } \\ \text { John Bigler }\end{array}\right\}$ Commissioners

Sacramento Octover 19 th. A. D. 1868.

Miles 310-530 (with 290-310) Grading Standard Trestles 3 each 4 bents each $12^{\prime}$ span Slajises 5840'
Rails Not less than 56\# 281/gen Joints 7 miles fish joints as above
Spikes As above
Ties $\quad \begin{aligned} & 2260 \text { per mile sierra as above } \\ & \text { Ballast }\end{aligned}$
Stations Res 3 Re Creek \& Winnemucea
Miles 330-350
Grading standard

| Trestles | $1-5$ pints $22^{\prime}, 2-4$ bents $12 \prime$ |
| :--- | :--- |
| Sidings | 3600 |

Rails
Joints
Spikes
Ties
Ballast Native sand and gravel as above Stations Mile 350-370

Grading Sidings $\frac{\text { Rails }}{\text { Joints }}$ Spikes Ties 2260 per mile Ballast Native sand and grater Stations Iron Point, Stone House


State of California.

To His Excellency, Andrew Johns on President, the Hon. H. Mo Cullboh secretary of the Treasury, and the Hon 0. H. Browning, Secretary of tre Interior, of the Onited 3tates:

The underaigned, Thomas J. Henley, Frank Denver and John Bigler, domassioners, appointed by the President of the United 8 tates to examine and report apon the Central Pacific Railroad of California, under and in pursuance to the provisions of the Act of Congress, entitil ed"An Act to ald in the conetruction of a Railroad and telegraph inne from the Missouri River to the Paoisio Gcean, and to seoure to the Government the use of ame for postal, military and other purposes." approved July 1,1862, and the Acts amendatory thereof, approved July 2, 1864, Maren 3, 186E. and July 3. 1866. would respeotfully state, that they have this day made a report upon the construction and completion of an additional and continuation of the twenty miles of said railroad and telegraph line, commencing at the termination of the Three hundred and ninetieth mile, and ending a at the termination of the Four Hundred and Terih mile, whinh is hereby re referced to. Tnat in addition to the matters therein tated, they would further respectfully.

Report and Certify. That in the said Twenty miles of the said Rall road, the number of degrees of curved line is 570 degrees and 02 minutes: and the leng th of the cutred line 1840.190 .6 feet, and of the tan-gent lines is 65.409 .4 feet: The percentage of curved line is 38.05 . The widthot the embankments at grade IIne is fourteen feet, and the inclination of twe slopes of the embankments is one and one half feet horizontal to one foot vertical. The width of the exczuztions at grade ilne varies fromi 6 to 20 feet, acoording to the material forming the sides of the outa, and the inclination of the slopes of the exaavations varies witht the mature of the material through which the excavation is made, and is as follows: Through earth, one foot horizontal to one foot vertical; soft rook, one half to one, three fourths to one, and one foot horizontal to one foot vertical; through hard rock, one fourth of a foot horizontal to one foot vertical.

The Culverts are all either built with an arch or in the open or box form, of hard stone and their mumber and size are as follows:

LIST OF CUVERTS
On sections 391 to 410 both inclusive
No Description 3ize.

| 5 |  | Culverts | 22 feetspan |
| :---: | :---: | :---: | :---: |
| 2 |  | $\cdots$ | 8 |
| 50 |  | 6 | $n$ |

There are no Bridges on ald section of twenty miles.
There are twelve Public Road Crossings, No fonces or farm gates have been built $9 n$ sald gection, as none are neededm the road being buil t almost entirely on vacant public land, and where built through enol osed fields, fences have not deen found necessary.

The main track of tris gection is twenty milesin ilength, with 9700 feet of side tracks attached thereto, being suffioient to accommodate the present buainess of the road.

The weight of the rails used is not less than 56 poinds per yard. They are connected by Fish-joints. This consigts of two wrought iron bars, twenty inohes in length by two and one half inches in width, and three ourths of an inch thiok, fitting olosely to the neak of the rail, and held firmiy in place by four bol ta and nuts: The raile used are generally twenty eight feet in length.

The spikes used are of wrought iron, five and one half inches in leagth nine sixteenths of an inch square weigh one half pound each and number about teh thousand eive hindred per mile, upon straight lines the number being incfeased upon the curves.

Upon this portion of the railroad there is an average of 2260 cross ties per mile. These ties are red spruce, yellow pine, tamarack and white cedar. The greater portion are, however, tamarack and pine. They are eight feet in length, not less than $81 x$ by eight inches in size, the joint ties being not less than six by ten inches.

The material forming the road bed, for the greater portion of these twenty miles, is, of itself, good ballasting, and is used for theat purpose, the ties being firmly imbedded therein. This material consists largely of sand and gravel from the excavations. The ballssting cannot be fuily completed until the embankments have had time to gettle, which will take several mon tha. The ballast is used at the rate of one and one quarter cubic yarda per lineal yard of road.

There are two stations on said portion of said railroad line, to wit : Onea $t$ Argenta 396 miles from qacramento and one at Shoshone peint, 407 miles from sanramento.
(NOTE Station "Argenta" is mentioned also in report of Oct. 26 th 1868 as being 385 miles from Sacramento, since that time it has been removed to the 396 th mile.)

There are no maching shops on this portion of the raibroad the machine shops ane enging houses being $20 c a t e d$ at Bacramento. Rookl in and Wadsworth.

There are nowin use on the road the following oars, to wit:

| 10 | Pirgt class Paseenger | cars, eaoh | 00sting | $\$ 3,700$ 1,880 |
| :---: | :---: | :---: | :---: | :---: |
| 6 | Eaggage Miail \& Express | $\cdots$ | " | 2,000. |
| 1.87 | Box Freight |  | " | 800. |
| 882 | Platform | $\cdots$ | H | 550. |
| 95 | Dump | " | " | 725. |
| 62 | H and | " ${ }^{\prime \prime}$ | * | 230. |
| 56 | seotion | n | - | 75. |
| 24 | Track | " * | ${ }^{\prime \prime}$ | 125. |

There are seventy 100 omotives now in use on the road, all of them of the best atyle and quality of the beat olass used on Amer toan roads, are manufactured by Amerioan builders; and well adapted for servioe on heavy grades and sharp curves.

The following in a list of the loomotives now in use:



The road is well constructed, and Passenger Trains can be safely run over it at a rate of foty miles per hour, and at as high a rate of speed as any similar rail road in the united $s$ tates.

The liap and Profile marked "A" is a correct arawing of this section ( 20 miles ) of said reilroad. from section 391 to 410 , Doth inclusive. The map shows corrently the warious ourves and tang ents, and the profile correctly exinibits the priginal surface line and the grades upon which this section of the Railroad is constructed.

All of whic: is respectifully submitted.

## UNI WED STATEJ OF AMERICA

3tate of California.
To His Bxcellenoy, Abdrew Johnson, President, the Hon. H. wecullooh, seoretary of the 'reasury and the Hon, O. H. Hrowning 3ecretary of the Interior, of the United 3 tates:

The underaigned. Thomas J. Henley, Frank Denver and John Bigler, Commasianers, appointed by the President of the United 3 tates to examine and report upon the Central lacific liailroad of California, under and un pursuance of the provision of the Act of Congress, entitled "An Act to aid in the construction of a railroad and telegraph line from the Missouri River to the Pacific Ocean, and to secure to the Government the use of the same for postal. military or other spurpores." approved July 1.1862 , and the Acts amendatory there of, approved July 2, 1864, Maroh 3, 2865, and July 31866. would respectfully state, that they have this day made a report upon the construction and completion of an addition and continuation of twenty miles of said railroad and telegraph inne, commencing at the termination of the four Hundred and tenth mile, and ending at the termination of the Four hundred and thortieth mile, Which is hereby referred to. That in addition to the matters therein stated. they would further respeotfully.

Report and Certify That in the said twenty miles od said failroad, the number of gegrees of curved 1 ine is 907 degrees and 51 minutes; the length of the ourved line is $51,888.1$ feet, and of the tanfent lines is 53.711 .9 feet; the percentage of aurved inne is 49.14. The width of the embankments at grade line is fourteen reet, and the inclination of the slopes of the emoankments is one and one hal feet horizontal to one foot vertioal. The width of the excavations atgrade line deries from 16 to 20 feet; according to the material forming the sides of the outs, and the inclination of the alopeg of the excavations varies with the nature of the material through whion the excavation is made, and ia as follows: through earth, one foot horizontal to one foot vertical: soft rook, one halt to one, three four the to one, and one foot horizontal tp one foot vertioal; through hard rook, one fourth of a foot horizontal $t$ one foot vertical.

The culverts are all either buil twith an Arch, or in the open or box form, of hard stone and their number and size are as foll ows:

> LIST OF CULV arTS.
> On sections 411 to 430 both inclusive.


The following are the bridges on said section of twenty miles:
BRIDGET.
First second Crossing of Humboldt, consists of one span of Howe Truss, one hundred and lofty feet in clear, and one trussed Girder fifty feet. Total length, including apace over center pier. two hundred and five feet.

The Howe Truss is constructed in the same manner as the Bridges at Long Ravine and Second Crossing of the Truckee fiver. full description of which have been given in former reports.

The Trussed girder is built on the same plan as degoribed in a former report and used at first crossing of humboldt.

The whole bridge rests upon substantial tone piers laid in hydraulic cement and is constructed of the best materisis and in the most thorough manner throughout.
$\int$ Second.Croseing of Mary's Creek, One span, straining beam truss. 50 feet in clear amd resting on stone piers.

Third. Crossing of Maggie's Creek. Jame as next above.
Note The bridges at mary's and maggie's Creeks are
on the same plan as Drivers Creek Bridge near Summit of Sierra Nevada Mountains described in detail in a former report.

Fourth One trestle bridge. 4 bents each 16 feet long, total len Eth 64 feet.

Fifth. One trestle bridge, 6 bents each 16 feet long. Total $I$ eng th 96 feet.

The timber used in these brides is of the best quality of
white and yellow pine, and the iron of the best quality of American manufacture.

There are twelve Publio hoad Crossings No fences or farm eates have been built on said gection, as none are nesded, the road being built almost entirely on vacant public land, and where built through enclosed fileds, fences have not veen found necessary.

The main track of this eection is 20 miles in iensth, witn 1300 feet of side tracks attached thereto, being sufficient to accommodate the present business of the road.

The weight of the rails used ia not less than 56 pounda per yard. They are conneoted by fish-jointg. Thia consigts of two wrought iron bars, twenty inches in length by two and one halp inches in width, anf three fourths of an inch thick, fittine ciosely to the neck of the rail, and held firmly in plane by four bol ta and nuts. The rails used are fenerally twenty eight feet in length.

The spikes used are of wrought iron, five and one half incieg in length, nine sixteenths of an inoh square, weight one half pound each, and number about ten thoudand five hundred per mile, upon straight lineg, the number deine increased upon the rurves.

Upon this portion of the railroad, there is an average of 2260 cross ties per mile. These ties are red sprure, yellow pine, th tamarack and white cedar. The grezer portion are, however, tamarack and pine. They are eight feet in length, not less than six by eignt inches in size. the joint ties being not legs than six uy ten inches.

The material forming the road ved, for trie greater portion of $t$ these 20 miles. in, of itself, good ballastine, and ia used for that purpose, the ties being ilimly imbedded therein. Thim moterial conm sints largely of sand and gravel from the excavations. The Ballasting cannot be fully completed until the embankments have had time to settle. which will take several montha. The bailast is used at $t$ rate of one and one quarter cubic yards per lineal yard of raad.

There is one atation on ald portion of railroad inne, to wit: One at Heowawe, 417 miles from Bacramento.

There are no machine shops on this portion of aid rallroad The machine shops and engine houses being located at gaoramento, Rookl in and Fadeworth.

There are now in use on the road the following cars, to wit:


There are seven ty one Locomotives now in use on the road, all of them the best gtyle and quality, of the best class used on Amerioan roads, are manufactured by American builders, and well adapted for aervice on heavy frades and sharp curves.

The followine is a ligt of the locomotives now in use:



The road is well constructed, and Pasgenger Trains can be affely run over it at a rate of forty miles per hour, and at as high a rate of opeed as any similar rail road in the United 3 tatea.

The Map and Profile marked "A" is a correct drawing of this. section ( 20 mlles ) of said railraad from gection 411 to 3ection 430 both inclugive. The Map shoms correatly the various curves and tangents, and the Profile oorreatly exhibits the original sutface line and the erades upon which this gection of said rail road is construnted.

All of which in respectfully submitted.

## UNI TED 3 TATES OF AIBERICA

State of California.

To His Excellency, Andrew Johnson President, the Hon. H. Mo Cukloch, secretary of the Treasury and the Hon. O. H. B rowning Secretary of the Interior, of the United States:

The undersigned, Thomas J. H enley, Prank Denver and J onn Bigler Comissioners, Appointed oy the President of the United States to examine and report upon the Central Pacific Railroad of Califoraia, under and in pursuance or the provisions of the Act of Congress, entitled "An Act to aid in the construction of a Railroad and telegraph line from the Missouri River to the Paciric ocean, and to secure to the Government the use it same forrpostal military and other purposes." approved Juiy 1,1802 and the Acts Amendatory thereof, approved July 2, 1864, March 3, 1865 and Juiy 3, 1866. would respeotfully $s$ tate, tha $t$ they have this day made a report upon the construction and completion of an addition anapontinuation of twenty miles of the said railroad and telegraph ine, commencing at the termination of the Four hundred and thirtieth mile, and ending at the termination of the Four Hundred and $f$ ititieth mile, wnicn is hereby referred to. That in addition to the matters therejn stated, they would further respectfully

Report and certify. That in the said twenty miles of said Railroad the number of degrees of curved line is 2192 degrees and 37 minutes; the length of curved line is 49,429 9人10 feetand of the tangent lines $56,9364 / 10$ geet; the percentage of curved ines is $4647 / 100$. The width of the embankments at grade ilne is fourteen feet, and the inclination of the slopey of the embankments is one and one halffeet horizontal to one toot vertical. The wiath or the excavations at grade line varies from 76 to 20 reet, according to the material forming the sides of the cuts, and the inclination of the siopes of the excavations varies with the nature of the material through which the excapation is made, and if as follows: througn earth, one foot horizontal to on foot vertical; sort rock, one hal t to one, three fourths to one and one foot horizontal to one foot vertical: through hard rock, one fourth of a foot horizontal to one foot vertical:

The Culverts are all either built with an arch, or in the open of box form of hard stone and thetr number and aize are as f0110ws:

## LIST OF CULVERTS

 On Sections: 331 to 450 both inclusive.No Description Size

| $\begin{aligned} & 2 " \\ & 8 \end{aligned}$ | Open | Culverts | 16 8 |  |  | span |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 27 | $\cdots$ | " | 6 |  | " | " |
| 2 | " | * | 4 |  | " | $\cdots$ |
| 5 | Box | " | 3 | x | 4 | feet |
| 1 | n | * | 3 | x | 3 | * |
| 15 | " | " | 2 | x | 3 | " |
| 7 | * | n | 2 | 2 | 2 | " |

The following are the Bridges on said section of twenty miles;
First. Crossing of Mary's Creek, one span straining deam truss, 50 feet in clear and resting on atone piers.

Second.Croseing on Maggier's Creek yame as above.
(Note These bridges are on the same plan as Driver's Creek Bridge near Summit of Sierra Nevada Mountains described in detail on a former report.

These bridges have also been erroneoudly reported in report of November 21, 1868, as being Located in the 20 mile section 410 to 430 th mile.

The timber used in these oridges is of the dest quaility of white and yellow pine, and the iron of the dest quality of American manufac ture.

There are Five public road crossings. No Iences or tam tates have been built on said section it as none are needed, the road being built almost entirely on vacant public land and where built througn enclosed fields, fences have not been found necessary,

The main track of this section is 20 miles on length, with 9300 teet of side tracks attached thereto, being sutiticient to accommodate the present business of the road.

The weight of the rails is not less than 56 pounds per yard. They are connec ted by fish joints. This consists of two wrought ixon bars, twenty inches in length by two and one half inches in width, and three four ths of an inch thick, fitting closely to the neck of the rail and held firmly in place by four bol ts and nuts. The rails used are generally twenty eight feet in length.

The spikes used are of wrought iton, five and one haif inches in length, nine sixteenths of an inch square, weigh one nalf pound each, and number about ten thousand fobe nundred per mile, upon
straight lines, the muber being increased upon the curves.
Upon this portion of the railroad there is an average of 2260 crose ties per mile. These ties are red spruce, yell ow pine, tamarack and white cedar. The greater portion are, however, tamarack and pine. They are eight feet in 1 ength, not less than $s i x$ by eight inches in size, the joint ties deing not less than $s i x$ by ten inches.

The material forming the road bed for the greater portion of these $20 \mathrm{miles} i \mathrm{~s}$, of 1 tself. good ballasting, and is used for that purpose. the ties being firmly imbedded therein. The material consists largely of rock sand and gravel from the excavations. The ballasting cannot be fully completed until the ombankments nave had time to settle, which will take several months. The baliast is used at the rat rate of one and one quarter cubic yards per lineal yard of road.

There are Two atations on said portion of said railroad line to wit: One at Palisade. $435 \frac{1}{2}$ miles from Sacramento and one at carl in, $444 \frac{1}{2}$ miles from Sacramento.

There are no machine shops on this portion of the railroad the machine shops and englite houses being located at Sacramento, Rocklin and Wadsworth.

There are now in use on the road the following cars, to wit;


There are eighty two Locomotives now in use on the road, all or th them of the best style and quality, of the best class used on American roads, and manufactured oy American builders, and well adapted for service on heavy grades and shatp curves..

The following is a list of the Locomotives now in use:

| No | $\begin{aligned} & \text { Names of No } \\ & \text { Engines } \end{aligned}$ | of vers | Diam of Drivers | $\begin{aligned} & \text { Diam of } \\ & \text { cyl inrers } \end{aligned}$ | $\begin{aligned} & \text { Length } \\ & \text { Stroke } \end{aligned}$ | Weight including Tender | Cost |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | Gov. Stanf ord | 4 | ${ }^{\text {f ep }}$ ¢ ${ }^{\text {d }}$ | inches 18 | inches | ${ }^{\text {tons }}$ | \$15,733.65 |
| 2 | Pacific | 4 | 5 | 16 | 35 | 46 | 18,205.08 |
| 3 | C.P.Huntington | 8 | 4 $\frac{1}{2}$ | 11 | 55 | 22 | 10,589.58 |
| 4 | T. D. Judah | 2 | 4i | 11 | 15 | 22 | 10,603.49 |
| 5 | Atlantic | 4 | 5 | 15 | 22 | 44 | 16,629.91 |
| 6 | Conness | 6 | 4 | 17 | 24 | 54 | $1 y, 161.74$ |
| 7 | Sargent | 4 | 5 | 16 | 24 | 52 | 22,762.24 |



| 72 | Niagara | 6 | 41 | 18 | 24 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 73 | Terrible | 6 | $4 \frac{1}{2}$ | 18 | 24 |
| 74 | Dragon | 6 | 4 $\frac{1}{2}$ | 18 | 24 |
| 75 | Growler | 6 | 4 $\frac{1}{2}$ | 18 | 24 |
| 76 | Carrier | 4 | 5 | 16 | 24 |
| 77 | Confucius | 4 | 5 | 16 | 24 |
| 78 | Mars | 4 | 5 | 16 | 24 |
| 79 | Apol10 | 4 | 5 | 16 | 24 |
| 80 . | Phil Sheridan | 4 | 5 | 16 | 24 |
| 81 | O. 8. Grant | 4 | 5 | 16 | 24 |
| 82 | Buffalo | 6 | 4古 | 18 | 24 |
| 83 | Moantaineer | 6 | 4 $\frac{1}{2}$ | 18 | 24 |
| 84 | Gazelle | 4 | 5 | 16 | 24 |
| 85 | White Bear | 6 | 4t | 18 | 24 |
| 88 | Hurricane | 6 | 4 ${ }^{\frac{1}{2}}$ | 18 | 24 |
| 89 | Giant | 6 | 4 $\frac{1}{2}$ | 18 | 24 |
| 93 | Oronoco | 4 | E5: | 14 | 24 |
| 95 | Driver | 4 | 5 | 15 | 24 |
| E82 | Will iame tte | 4 | 5 | 16 | 24 |
| 123 | Geo. L. Woods | 4 | 6 | 16 | 24 |
| 124 | Umpqua | 4 | 5 | 76 | 24 |
| 125 | J. R. Moores | 4 | 5 | 16 | 24 |

The roadr is well constructed and Passenger Trains can de safely run over it at a rate of forty miles per hour, and at as high a rate of speed as any similar rail road in the United States.

The Map and Profile marked "A" is a correct drawing or this section ( 20 miles) of said railroad, from section 431 to Section 450 both inclusive. The Map shows correctly the various curves and tangents and the profile correctly exhibits the surface line, and the grades upon which this section of said railroad is constructed.

All of which is respectfully submitted.

| Thos. J. Henley |  |
| :---: | :---: |
| Frank Denver | Commissioners |
| John Bigler ) |  |

Sacramento December 9 th A. D. 1868.

## UNI TED STATES OF AMERICA

State of California.
Fo His Excellency, Andrew Johns on President, the Hon. H. Mc Culloch, Secretary of the Treasary and the Hon, 0, H, Browning, Secretary of the Interior of the United states:

The undersigned Thomas J, Henley, Prank Denver and John bigler, Commssioners, appointed by the President of the United States to examine and report upon the Central Pacific Rail road or California, under and in pursuance of the provisions of the Act of congress, entitled "An Act to aid in the construction of a Rail road and Telegraph line from the Missouri River to the Pacific Ocean, and to secure to the Government the use of same fod postal, mili-, tary and other purposes." approved July lst, 1862, and the Acts amendatory thereof, approved July 2; 1864, March 3, 1865, and July 3, 1866, would respectfully $s$ tate, that they have this day made a report upon the construction and completion of an addition and continuation of twenty miles of the said railroad and Telegraph line, commencing at the termination of the 450 th mile and endinge at the termination of the 470 th mile, which is hereby referred to. That in addition to the matters therein stated, they would further respec tfully.

REPORT AND CERTIFY, That in the said twenty miles of asia railroad the number of degrees of curved line is 1191 degrees a nd 42 minutes; the length of the curved lines is $39.7932 / 10$ feet, and of the tangent lines is $65,8068 / 10$ feet; the percentage of curved line is 37.7. The width of the embankments at cgrade line is fourteen feet. and the inclination of the slopes of the embankments is one and one half seet horizontal to one foot vertical. The width of the excavations at grade line varies from 16 to 20 feet, according to the material forming the sides of the outs, and the inclination or the sl opes of the excavations varies with the nature of the material through which the excavation is made, and is as follows: through earth, one foot horizontal to one foot vertical; soft rock one half to one, three four ths to one, and one foot horizontal to one foot vertical; through hard rock, one fourth of a foot horizontal to one foot vertical.

The Culverts are all either built with an Arch, or in the open or box form, of hard stone and their number and size are as follows:

List of Culverts
On sections 451 to 470 both inclusive.

| 1 | Open Culvert |  | feet | span |
| :---: | :---: | :---: | :---: | :---: |
| 1 | " | 10 |  | n |
| 14 |  | 8 | H | " |
| 22 | " $\quad$ N | 6 | n | $\cdots$ |
| 8 | " $\mathrm{C} \times \mathrm{n}$ - ${ }^{\text {a }}$ | 4 | $\cdots$ | 0 |
| 1 | Box | 3 | $\times 4$ | feet |
| 15 | - | 2 | $x 3$ |  |

There are no bridges on sald portion of twenty miles.
There are eight public Roadcrossings. No fences or farm gates have been built on said sectionasi none are needed, the road being built almost entirely on public vacantiand, and where built through enclosed fieles, fences have not been found necessary.

The main track of this section is twenty miles in leng th, with 1400 feet of side tracks attached thereto, being sufiicient to accommodate the present business of the road.

The weight of the rails used is not less than 66 bpounds per yard. They are connected by fish joints. This oonsis ts of two wrought iron bars, twenty inches iniength by two and one hal inches in width, and three fourths of an inch thick, fotting ciosely to the neck of the rail, and held firmly in place by four ool ts and nuts. The rails uged are generally twenty eight reet in length.

The spikes used are of wrounht iron, five and one half inches in length, aine sixteenths of an inch square, weight one half pound each, and number about tian thousand five hundred per mile upon the straight lines, the number being increased upon the curves.

Upon this portion of the railroad, there is an average of 2260 cross ties per mile. These ties are red spruce, yellow pine, tamarack and white cedar. The greater portion are,however, tamarack and pine. The $y$ are eight feet in length, not less than six by eight inches in size, the joint ties being not less than six by ten inches.

The material forming the road bed, for the greater portion of these twenty miles, is, of itself, good ballasting, and is used for that purpose, the ties oeing firmly imbedded therein. This material consists largely of sand and gravel from the excavations. The ballasting cannot be fully completed until the embankments have had time to settie, which will take several months. The ballast is used at the rate of one and one quarter cubic yards per lineal yard of road.

Tnere is one station on said portion of said railroad ine, to wit; One at Moleen, 456 miles from Sacramento.

There are no machine shops on this portion of the eailroad the machine shops and engine houses being located at Sacramento, Rocklin and Wadsworth.


There are eighty three locomotives now in use on the road, all of them of the best style and quality, of the best chass used on american roads, are manufactured by American builders, and well adapted fpr service on heavy grades and sharp curves.

Thefoblowing is a list of tine $L \infty$ omotives now in nuse.

| No | Names of NO of Engines Drivers | Diam of Drivers | $\begin{aligned} & \text { Diam of } \\ & \text { Cylinder } \end{aligned}$ | Length Stroke | Weignt including tender | Cost |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Seet | inches | inches | tons. | \$15,733.65 |
| 1 | Gov. 5 tanford 4 | 4 5 | 15 16 | 22 |  | \$15,733.65 |
| 2 | Pacifio 4 | 5 | 16 | 24 | 46 | 18,205.08 |
| 3 | C.P.Huntington 2 | 4t | 11 | 15 | 22 | 10,589.58 |
| 4 | T. D. Judah 2 | 4t | 11 | 18 | 22 | 10,603.49 |
| 5 | Atlantic 4 | 5 | 15 | 22 | 44 | 16,629.91 |
| 6 | Conness 6 | 4 | 17 | 24 | 54 | 19,161.74 |
| 7 | Sargent 4 | 5 | 16 | 24 | 52 | 22,762.24 |
| 8 | Nevada 6 | 4 | 18 | 22 | 55 | 36,438.57 |
| 9 | Utah 6 | 4 | 18 | 22 | 55 | 36,438.57 |
| 10 | Hunboldt 6 | 4 | 18 | 22 | 55 | 24,761.45 |
| 11 | Arctia 4 | 5 | 15 | 22 | 86 | 20,013.13 |
| 12 | Truckee $\quad 6$ | 4 | 17 | 24 | 54 | 21.435.89 |
| 13. | Hercules 6 | 4. | 18 | 22 | 55 | 24,716.49 |
| 14 | Oneonta 6 | 4 | 18 | 22 | 55 | 23,226.87 |
| 15 | Washoe 6 | 4 | 18 | 22 | 55 | 23,128.39 |
| 16 | Owyhee 6 | 4 | 17 | 24 | 55 | 24,482.38 |
| 17 | İaho 6 | 4 | 17 | 24 | 55 | 23, 473.06 |
| 18 | Piute 6 | 4 | 18 | 22 | 55 | 22,598.65 |
| 18 | Carson 6 | 4 | 18 | 22 | 55 | 23,379.22 |
| 20 | Amazon 6 | 4t | 18 | 24 | 56 | 20,649.58 |
| 21 | Tamaroo 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 | 21,311.97 |
| 22 | Auburn 6 | 4t | 18 | 24 | 56 | 21,283.27 |
| 23 | Mono 6 | 4 ${ }^{\text {d }}$ | 18 | 24 | 56 | 21,235.71 |
| 24 | Montana 6 | 4t | 18 | 24 | 56 | 19,116.94 |
| 25 | Yuba 6 | 4, | 18 | 24 | 56 | 18,970.05 |
| 26 | Sampson 6 | 4 | 17 | 22 |  | 18,671.45 |
| 27 | Goliah 6 | 4 | 17 | 22 |  | 18,220,80 |
| 28 | Gold Run 4 | 5 | 16 | 24 |  | 16,994.56 |
| 29 | Antelope 4 | 5 | 16 | 24 |  | $16,816.24$ |
| 30 | Tahoe 4 | 5 | 16 | 22 |  | 17,981.13 |
| 31 | Klamath 4 | 5 | 16 | 22 |  | 17,988.54 |
| 32 | Ajax 6 | 4 | 16 | 24 | 38 |  |
| 33 | Achilles 6 | 4 | 16 | 24 | 38 |  |
| 34 | El Dorado 4 | $5 \frac{1}{2}$ | 16 | 24 |  | 20,009.58 |
| 35 | Boise 4 | $5 \frac{1}{2}$ | 16 | 24 |  | 20,218.36 |
| 36 | Shoshone 4 | 5 | 16 | 22 | : | 17,739.99 |
| 37 | Mohave 4 | 5 | 16 | 22 |  | 17.633.98 |
| 28 | Ogdensburg 6 | 4t ${ }^{\text {2 }}$ | 18 | 24 | 56 | 17,830.43 |
| 29 | Malone 6 | 4t | 18 | 24 | 56 | 17,838.94 |
| 40 | Solano 4 | 5 | 16 | 22 |  |  |
| 41. | $5 \operatorname{tanislaus} 4$ | 5 | 16 | 22 |  |  |
| 42 | Tuolumne : 4 | 5 | 16 | 22 |  |  |
| 43 | Tulare 4 | 5 | 16 | 22 |  |  |


| 44. COl ossus |  | 6 | 41 | 18 | 24 | Cost $\$ 16,663.22$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 45 | Majestic | 6 |  | 18 | 24 |  |
| 46 | unicorn | 6 |  | 17 |  |  |
|  | unicorn |  |  | 17 | 22 |  |
| 47 | Qriffin | 6 |  | 17 | 22 |  |
| 48 | Toiyabe | 6 |  | 27 | 22 |  |
| 49 | Toquima | 6 |  | 17 | 22 | 16,236.38 |
| 50 | Champion | 4 | 5 | 16 | 24 | 13,969.54 |
| 61 | Climax | 4 | 5 | 16 | 24 | 13.624 .77 |
| 52 | Tip Top | 8 | 5 | 16 | 24 | 13,908.84 |
| 53 | Summit | 4 | 5 | 16 | 24 | 13,830.37 |
| 56 | Grizzly | 6 | 4 | 18 | 24 | 14,887.48 |
| 64 | Emigrant | 4 | 5 | 16 | 24 | 13.159 .78 |
| 65 | Mikado | 4 | 5 | 16 | 24 | 12.906.00 |
| 66 | Tycoon | 4 | 5 | 16 | 24 | 13,066.09 |
| 67 | Hector | 4 | 5 | 16 | 24 | 13,175,65 |
| 68 | Pequop | 6 | 4咅 | 18 | 24 | 14,481.81 |
| 69 | Vuloan | 6 | 4 $\frac{1}{2}$ | 18 | 24 | 14,495.82 |
| 72 | Niagara | 6 | $4 \frac{1}{2}$ | 18 | 24 | 13,187.52 |
| 73 | Terrible | 6 | 4t | 18 | 24 | 15,470.71 |
| 74 | Dragon | 6 | 4t | 18 | 24 | 14,370.91 |
| 75 | Growl er | 6 | $4 \frac{1}{2}$ | 18 | 24 | 15,055.17 |
| 76 | Carrier | 4 | 5 | 16 | 24 | 12,207.92 |
| 77. | Confucius | 4 | 5 | 16 | 24 |  |
| 78 | Mars | 4 | 5 | 16 | 24 |  |
| 79 | Apollo | 4 | 5 | 16 | 24 |  |
| 80 | Phil Sheridan | 4 | 5 | 16 | 24 |  |
| 81 | U. S. Erant | 4 | 5 | 16 | 24 |  |
| 82 | Buffalo | 6 | 4t | 18 | 24 |  |
| 83 | Moun taineer | 6 | 4 ${ }^{\text {c }}$ | 18 | 24 |  |
| 84 | Gaxelle | 4 | 5 | 16 | 24 |  |
| 85 | White Bear | 6 | 4t | 18 | 24 |  |
| 88 | Hurricane | 6 | 4 | 18 | 24 |  |
| 89 | Giant | 6 | 4t | 18 | 24 |  |
| 93 | Oronoco | 4 | 5 | 1.4 | 24 |  |
| 94 | Eclipse | 4 | 5 | 15 | 24 |  |
| 95 | Driver | 4 | 5 | 25 | 24 |  |
| 122 | Willame tte | 4 | 5 | 16 | 24 | 13,009.28 |
| 123 | Geo L. Woods | 4 | 5 | 16 | 24 | 13,009.29 |
| 124 | Umpqua | 4 | 5 | 16 | 244 | 13,009.29 |
| 225 | J. R. Mioores | 4 | 5 | 16 | 24 | 13,009.29 |

The road is well constructed and Passenger Trains can be safely run over it at a rate of forty miles per hour, and at as high a rate of speed as any similar rail road in the United $S$ tates.

The Map amd Profile marked "A" is a correct drawiug of this section ( 20 milea) of said rail road from section 451 to sectiod 470 both inclusive. The Map shows correctly the various curves and tangents and the profile correctly exhibits the originad surface line and the grades upon which this section of said railroad is cons truc ted.

All of which is respectiuliy submittea.
Thos $J$ Henley
Frank Denver
Hohn Bigler $\{$ Commisaioners

## UNITED 3TATRG OF ANEREICA

State of Qalifornia.

To His sxcellenoy, Andrew Johnson president, the Hon H. Yocull ooh, Becretary of the Treasury and the Hon. O, H, Browning Secretary of the Interior, of the United 3tatem:

The undersigned, Thoman J, Henleu, Frank Denver and John Bigler, commissioners, appointed by the president of the united 3 tates to examine and report upon the Contral Pacific Hail road of California, under and in pursuance of the provisions of the het of Congress, entitled "An AOt to ald in the oonatruction of a hallroad and telegraph iine frpm the Mispouri River to the Paoirio Ooan and to secure to the Government the use of same for postal. military and other purpoese " approved July 1,1862 and the Aots amendatory thereof, epproved July 2, 2864, fiaroh 3 2865, and July 3, 1866, would respeotfully state. that they have this day made a report upon the construction and completion of an addition and continuation of the said rail road and telegrpah line oommencing at the terminatIon of the Bour Hundred and qeventieth mile, and ending at the termination of the four hundred and ninetieth mile, which is hereby referred to. That in addition to the matters therein stated, they would further reapertfuly

Report and Certify That in the said twonty miles of said Railroad, the number of degrees of ourved 1 ine is 1255 degrees and 17 minutes: the 2 ength of the curved ine is $46.6127 / 10$ feet, and of the tangent, ines is $58,9873 / 10$ feet; the percentage of curved ine is 44.15. The width of the embankments at grade ine is fourteen feet, and the inclination of the slopes of the embankments is one and one half foot horizontal to one foot vertical. The width of the excavations at grade ine varies from 26 to 20 feet, according to the material forming the sides of the outs, and the inolination of the slopes of the exsavations vardes with the nature of the mater ial through whinh the excavztion is made, and is as foll ows; through earth, one foot horizontal to one foot vertical; soft rosk, one hal \& to one, three fourths to one and one foothorizontal to one foot vertical; through nard rook, one fourth of a foot horizontal to one foot vertical.

The culverts are all either buil $t$ with an arch, or in the open or box form. of hard stone and their number and aize are as follows:

LI3T OF CULVETS
On sections 471 to 490 both inoluaive

| 3 |  | Open culverts | 16 | feet | apan |
| :---: | :---: | :---: | :---: | :---: | :---: |
| $7 \%$ |  | " | 8 | + | " |
| 18 |  | " $\quad$ " | 6 | - | " |
| 29 |  | " ${ }^{\prime \prime}$ | 4 | * | n |
| 57 | Culverts: |  |  |  |  |

The following are the bridges on said section of twenty miles.

## BRIDOES

Pirgt North Pork Bridge, consisting of one span of Howe Truss one hundred and fifty feet in olear anross the North Fork of the Humboldt River.

This bridge is built of similar materials and in the same manner as the bridges on the second orossing of the Truckee and econd crossine of the Humboldt. It renta on gubstantial stone abutments and ia in every respeot a first olass structure.

The timber use on these bridges id of the best quality of white and yoll ow pine, and the iron of the best quality of American manufacture.

There are seven Publio Road Crosaings, No fences or farm Eates havo been built on said section, as none are needed. the road being buil $t$ almost entirely on vacant public land, and where built through enolosed fields, fences have not been found neoessary.

The main track on this seotion 1 s . 20 miles in leng th with 2200 feet of side tracks at tached thereto, being suffioi ent to acoomodate the present business of the road.

The welghtof the rails used is not less than 56 pounds per yard. They are cornected by fish-jointa. Fhls consists of two wrought iron bars, twenty inches in iength by tro and one half inohes in width, and three fourths of an inch thick. Ifteing viosely to the neak of the rail, and held firmly in place by four bol to and nuts. The rails used are generally twenty eight feet in lenth.

The opikes used are of wrought iron. five and one half inohes in length, nine sixteenths of an inoh square. weight one half pound each, and number about tan thoudand five hundred per mile, upon straight fines, the numbor being inoreased upon the ourves.

Upon this portion of the rail road there is an average of 2260 oross ties per mile. These ties are red spruce, yellow pine. tamarack and white cedar. The greater portion are,however, tamarack and pine. They are eight feet in lengthm not less than six by eight inohes in size, the joint ties beine not less than six by ten inohes.

Thematerifil figrmin the fgad bequpf the rreater portion of these twenty miles. is, or itself Good ballasting, and is used for that purpose, the ties being firmly imbedded therein. This material consists larsely of rock, gand and eravel from the excavations. The ballasting cannot be fully completed until the embankments have had time to settle, which will take several months. The ballast is used at the rate of one and one quarter oubic yarda per linealy yard of road.

There are no machine shops on this portion of the railroad the the machine shops and engine houses being looated at Baoramento.

Rooklin, Wadsworth, Winnemucca and Cariin,
There is one atatuin on caid portion of said railroad ilne, to wit: Dne at Con ino 478 miles from 3acramento.

There are now in use on the rosd the following oars; to wit:


There are elghty eight 100 omotivea now in use on the road, all of them of the best quality and style of the best olans used on Arnerican roads, are manufaotured by Ameriana builders, and well adapted for service on heavy grades and sharp ourves.

The following is a list of the locomotives now in use:


| -4- |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 28 | O074 Run | 4 | 5 | 16 | 24 |  | 16.994 .56 |
| 29 | Antel ope | 4 | 5 | 16 | 24 |  | 26.816.24 |
| 30 | Tahoe | 4 | 5 | 16 | 22 |  | 17.981 .13 |
| 31 | Klamath | 4 | b | 16 | 22 |  | 17.988.54 |
| 32 | Aax | 6 | 4 | 26 | 24 | 38 |  |
| 33 | Achill es | 6 | 4 | 16. | 24 | 38 |  |
| 34 | 32 Dorado | 4 | $5 \frac{1}{2}$ | 16 | 24 |  | 20.009.58 |
| 35 | Boise | 4 | 51 | 16 | 24 |  | 20,218.36 |
| 36 | Shoghone | 4 | 5 | 16 | 22 |  | 17.739.39 |
| 37 | Mohsve | 4 | 5 | 26 | 22 |  | 17.633 .88 |
| 38 | Oedensburg | 6 | $4 \frac{1}{6}$ | 18 | 24 | 36 | 17.830 .43 |
| 39 | telone | 6 | 4t | 18 | 24 | 56 | 17.838.94 |
| 40 | solnno | 4 | 5 | 16 | 22 |  |  |
| 41 | Stanigl aum | 4 | 5 | 16 | 22 |  |  |
| W2. | Trolumne | 4 | 5 | 16 | 22 |  |  |
| 43 | miare | 4 | 5 | 16 | 22 |  |  |
| 44 | 0010980 | 6 | 41 | 18 | 24 |  | 16.663.22 |
| 45 | Majestio | 6 | 41 | 18 | 24 |  | 16,934.73 |
| 46 | Unioorn | 6 |  | 27 | 22 |  |  |
| 47 | Griffin | 6 |  | 17 | 22 |  |  |
| 48 | Tolyabe | 6 |  | 17 | 22 |  |  |
| 49 | Toguima | 6 |  | 17 | 22 |  | 16,236.38 |
| 50 | Crampion | 4 | 5 | 16 | 24 |  | 13,969.54 |
| 51 | Olimax | 4 | 5 | 16 | 24 |  | 13,624.77 |
| 52 | Tip Top | 4 | 5 | 16 | 24 |  | 13.908.84 |
| 53 | Sumit | 4 | 5 | 16 | 24 |  | 13,830.37 |
| 58. | Grizzly | 6 | 4 | 18 | 24 |  | 14,887.48 |
| 58 | Bison | 6 | 4 | 18 | 24 |  |  |
| 64 | Emisrant | 4 | 5 | 16 | 24 |  | 13.159.78 |
| 65 | Mikado | 4 | 5 | 16 | 24 |  | 22,906.00 |
| 66 | Tyecon | 4 | 5 | 16 | 24 |  | 13.066.09 |
| 57 | Heotor | 4 | B | 16 | 24 |  | 13.175.65 |
| 68 | Pequop | 6 | $4 \frac{1}{3}$ | 18 | 24 |  | 14.481.81 |
| $6{ }^{\circ}$ | Vulcan | 6 | 4 | 18 | 24 |  | 14,495.82 |
| 78 | N1agara | 6 | $4 \frac{1}{4}$ | 28 | 24 |  | 13.187 .52 |
| 73 | Terrible | 6 | 4. | 28 | 24 |  | 15.470 .71 |
| 74 | Dracon | 6 | $4 \frac{1}{2}$ | 18 | 24 |  | 14,370.91 |
| 75 | Cromer | 6 | 4 $\frac{1}{8}$ | 28 | 24 |  | 15,055.17 |
| 76 | Cerrier | 4 | 5 | 16 | 24 |  | 12,207.92 |
| 77 | confuoius | 4 | 5 | 16 | 24 |  |  |
| 78 | Vars | 4 | 5 | 16 | 24 |  |  |
| 79 | Apol2o | 4 | 5 | 16 | 24 |  |  |
| 80 | Phil Sheridan | 4 | 5 | 26 | 24 |  |  |
| 81 | U.s. Grant | 4 | 6 | 16 | 24 |  |  |
| 82 | Buffeio | 6 | $4{ }^{4}$ | 18 | 24 |  |  |
| 83 | Mountaineer | 6 | 42 | 18 | 24 |  |  |
| 84 | Gazelle | 4 | 5 | 16 | 24 |  |  |
| 85 | 箽ite Hear | 6 | 鮌 | 18 | 24 |  |  |
| 86 | Gorilla | 0 | $4 \frac{1}{4}$ | 18 | 24 |  |  |
| 87 | Tempest | 6 | 4 | 18 | 24 |  |  |
| 88 | Hurrioane | 6 | $4 \frac{1}{4}$ | 18 | 24 |  |  |
| 88 | Giant | 6 | 41 | 18 | 24 |  |  |
| 93 | Oronoco | 4 | 5 | 14 | 24 |  |  |
| 84 | Eclipse | 4 | 5 | 18 | 24 |  |  |
| 95 | Driver | 4 | 5 | 15 | 24 |  |  |


| 108 | 3 tager | 4 | $42 / 3$ | 15 | 22 | Q3. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 109 | Miex | 4 | $42 / 3$. | 15 | 22 |  |
| 122 | Wlilamette | 4 | 5 | 16 | 24 | 113,009.28 |
| 123 | Geo. L. Hoods | 4 | 5 | 56 | 24 | 13,009.28 |
| 224 | Umpqua | 4 | 5 | 10 | 24 | 13,009.29 |
| 125 | J. R. Woores | 4 | 6 | 26 | 24 | 13,009.29 |

The road is well constructad and Passenger Trains can be afely run over it at a rate of forty miles per hour, and at as high a rate of specd as any mimilar rail road in the United 3 tates.

The kap and profile maxiced "A" is a oorreot drawing of thin section (20 Miles) of said iailroad. Prom neation 472 to 490 both incluaive. The Map shows correotly the various ourven ans tangents, and the profile obrrectly exhibits the original surface Iine and the srades upon whioh this ootion of sald railroad is congtrus ted.

All or whion is respontfuliz submitted.
$\left.\begin{array}{c}\text { Thos. J. Henley } \\ \text { Frank Denver } \\ \text { John Bigler }\end{array}\right\}$ Commina ione rs.

Sacrament. Jan. 13 th A. D. 1869.

## UNI TED STATES OF AMERICA.

3 tate of California.

To His Excellency. Andrew Johnson President, the Hon H. Mc Culloch, Secretary of the Treasury and the Hon, O. H. Browning secretary of the Interior, of the United States:

The undersigned Thomas J. Henley, Frank Denver and John Bigler, Commissioners appointed by the President of the United states to examine and report upon the Central Pacific kailroad of california, under and in pursuance or the provisions of the Act of Conere gress, entitled "An Act to aid in the oonstruction of a railroad and telegraph line Irom the Missouri River to the Pacific Ocean, and to secure to the Government the use of same for postal, military and other purposes," approved July $1 s t, 1862$ and the $A 0$ ts amendatory thereof, spproved Buly 2nd, 1864, Miaroh 3rd, 1865, and July 3, 1866, would respectfully state, that they have this day made a report upon the construction and completion of an addition and $c$ ontinuation of twenty miles of the said railroad and telegraph line, commencing at the termination of the tour hundred and ntnetieth mile, and ending at the termination of the five hundred and tenth mile, which is hereby referred to. That in addition to the matters therein stated, they would fim ther respectfully

Report and Certify, That in the said twenty miles of said Railroad, the number of degrees of curved line is 186 degre and 54 minutes; the length of the curved lines is 30,429 feet, and of the tangent lines is $75,17 \perp$ feet; The percentage of curved 1 ine is 28.8. The width of the embankments at gradeline is fourteen feet, and the inclination of the slopes of the embankments is one and one half feet horizontal to one foot vertical. The width of the excavations at grade line varies from 16 to 20 feet, according to the material forming the sides of the cuts, and the inciination of the slopes of the excavations varies with the nature of the material through which the excavation is made, and is a 1011 ows: through earth, one foot horozintal to one foot vertical; soft rock, one half to one, three fourths to one, and one toot horizontal to one foot vertical; through hard rock, one fourth of a root horizontal to one foot vertical.

The culverts are all either built with an arch, or in the open or box form of hard stone and their number and size are as foll ows:

LIST OF CULVERTS
On sections 491 to 510 both inclusive.

| No | Deacription | 81ze |
| :---: | :---: | :---: |
| 5 | Box Culverte? | 16 feet span |
| 3 | " \# | 12 " |
| 11 | " | 6 H |
| 28 | " | 4 " |
| 49 |  |  |

The following are the bridges on said portion if twenty
mil es/

## BRIDGES.

First Third Crossing of Humboldt, Consisting of a single span of Howe Truss, 150 feet in clear, resting upon substantital stone piers. The bridge and masonry are built in a similar manner to that atnsecond crossing of Truckeen.... described...in a former report.

The timber used in these bridges is of the best quality of white and yellow pine, and the irun of the dest quality of American manufacture.

There are nine Public Road crossings, No fences or farm gates have been built on said section, as none are needed, the road being bullt almost entirely on vacant public land, and where built through enclosed fields, tences have not been found necessary.

The main track of this section is 20 miles in length, with 2200 feet of side tracks attached thereto, deing sufficient to accommodate the present business of the road.

The weight of the rails used 18 not less than 56 pounds per yard. They are connected by fish joints. This consists of two wrought iron bars, twenty inches in length by two and one half inches in width. and three fourths of an inch thick, fitting closely to the neck of the rail, and held firmiy in place by four dolts and nuts. The rails used are generally twenty eight geet in length.

The spikes used are of wrought iron, five and one halt inches in length, nine sixteenths of an inch square, weight one halt pound each, and number about ten thousand tive hundred per mile, upon staight lines, the number being increased upon the curves.

Upon this portion of the rail road, there is an average or 2260 cross ties per mile. These ties are red spruce, yellow pine, tamarack and whi te cedar. The greater portion, are, howerer tamarack and pine. They are eignt leet in length, not less than six by eigntinches in size, the joint ties being not less than six by ten inches.

The material forming the road bed for the greater portion of these twenty miles, is, of itself, good ballasting, and is used $f$ or that purpose, the ties being firmly imbedded therein. This material consists largely of sand, rock and gravel from the excavations. The ballasting cannot be rullj completed until the embankments have had the to settle, which will take several months. The ballast is used at the rate of one and one quarter cubic yards per lineal yard of road.

There is one station on said portion of said railroad line to wit; One at Deeth, 504t miles from Sacramento.

There are no machine shops on this portion of the railroad-the machine shops and engine houses being located at Sacramento, Rockl in and Wadswor th, Winnemucce amd Carlin.

There are now in use on the road the following cars, to wht:


There are ninety two locomotives now in use on the road, a.11 of them of the best style and quality, of the best class used on : American roads, are manufactared by American builders, and wekk adapted for service on heaøy grades and sharp curves.

The foll owing is a list of the locomotives now in use:

| No | Names of No of Diam of Diam ofLeng th Engines Drivermivers Cylin. Stroke |  |  |  | Weight <br> includingCost <br> Tender |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | HEET | INCHES | INCHES | TONS |  |
| 1 | G ovstanford 4 | 4 $\frac{1}{2}$ | 15 | 22 | 44 | \$ 15,'733.65 |
| 2 | Pacific 4 | 5 | 16 | 24 | 46 | 18,205.08 |
| 3 | ब.P.Huntington2 | 4 $\frac{1}{2}$ | 11 | 15 | 22 | 10,589.58 |
| 4 | T. D. Judah 2 | $4 \frac{1}{2}$ | 11 | 15 | 22 | 10,603.49 |
| 5 | Atlantic . 4 | 5 | 15 | 22 | 44 | 16,629.91 |
| 6 | Conness 6 | 4 | 17 | 24 | 54 | 19,161.74 |
| 7 | Sargent | 5 | 16 | 24 | 52 | 22,762.24 |
| 8 | Nesada 6 | C | 18 | 22 | 55 | 36,438.57 |
| 9 | Utah $\quad 6$ | 4 | 18 | 22 | 55 | 36,438.5'7 |
| 10 | Humboldt 6 | 4 | 18 | 22 | 55 | 24.761.45 |
| 11 | Arctic $\quad 4$ | 5 | 185 | 22 | 46 | 20,013.13 |
| 12 | Truckee $\quad 6$ | 4. | 17 | 24 | 54 | 21, 435.89 |
| 13 | Hercules 6 6 | 4 | 18 | 22 | 55 | 24.716.49 |
| 14 | One on ta 6 |  | \% 18 | 22 | 55 | 23,226.87 |
| 15 | Washoe 6 | 4 | 18 | 22 | 55 | 23.128 .39 |



| 80 ? | Phil Sheridan | 4 | 5 | 16 | 24 | \$ $13,659.84$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 81 | U. S. Grant | 4 | 5 | 16 | 24 | 13,674.67 |
| 82 | Buffalo | 6 | 4t | 18 | 24 |  |
| 83 | Mountaineer | 6 | 42 | 18 | 24 |  |
| 84 | Gazelle | 4 | 5 | 16 | 24 |  |
| 85 | Whi te bear | 6 | 4t | 18 | 24 |  |
| 88 | Hurricane | 6 | 4t | 18 | 24 |  |
| 89 | Giant | 6 | 4t | 18 | 24 |  |
| 93 | Oronoco | 4 | 5 | 14 | 24 |  |
| 94 | Eclipse | 4 | 5 | 15 | 24: |  |
| 98 | Driver | 4 | 5 | 25 | 24 |  |
| 96 | Racer | 4 | 5 | 15 | 24 |  |
| 108 | 8 tager | 4 | $42 / 3$ | 15 | 22 |  |
| 109 | Flier | 4 | $42 / 3$ | +5 | 22 |  |
| 111 | Chamois | 4 | $42 / 3$ | 15 | 22 |  |
| 119 | Golden Eagle | 4 | $22 / 3$ | 15 | 22 |  |
| 122 | Willime tte | 4 | 5 | 16 | 24 | 13,009.28 |
| 123 | Geo. L. Yoods | 4 | 5 | 16 | 24: | 13.009.29 |
| 124 | Umpqua | 4 | 5 | 16 | 24 | 13.009.29 |
| 125 | J.R. Moores | 4 | 5 | 16 | 24 | 13,009.29 |
| 138 | Bine Bird | 4 | $42 / 3$ | 15 | 22 |  |
| 139 | Blue Jay | 4 | $42 / 3$ | 15 | 22 |  |
| 140 | Ostrich | 4 | $42 / 3$ | 15 | 22 | . |

The road is well constructed, and Passenger Trains can de safely run over it at a rate of forty miles per hour, and at as high a rate of speed as any similar rail road in the United States.

The Map and Profile marked "A" is a correct drawing of this section ( 20 miles ) of said rail road, Irom Section 491 to Section 510, both inclusive. The Map shows correctly the various curves and tangents. and the Profile correctly exhioits the original surface line and the grades upon which this section of said railroad is cons tructed.

All of which is respec tfully submitted.
Thøa J. Henley
$\left.\begin{array}{l}\text { Frank Denver } \\ \text { John Bigler }\end{array}\right\}$ Commissioners.

Sac ramen to January 30 th A. D. 1869.

State of California.

To His Excellency Andrew Hohns on President, the Hon H. Mo Culloch Secretary of the Treasury, and the Hon C. H. Browning Secretary of the Interior of the United States.

The undersigned, Thomas J, Henley, Frank Denver and John Bigler Commissioners, appointed by tne President of the United States to examine and report upon the central Pacific Bailroad of California, under and in pursuance of the provisions of the Act of Congress, entitled "An Act to aid in tne construction or a rail road
and telegraph Ine from the Missouri River to the Pacitic Ocean, and to secure to the Government the use of sane for postal, military and other purposes," approved July $18 t$, 1862, and the Acts amendatory thereot, approved Huly 2nd, 1864, March 3 rd. 1865 and July 3rd, 1866, , Hould respec tfully $s$ tate, that they have tnis day made a report upon the construction and completion of an addetion and continuation of twenty miles of tne said railroad ana Telegraph line. commencing at the termination or the five Hundred and tenth mile and ending at the termination of the rive fundred and thirtieth mile, which is hereby referred to. That in addition to the matters therein stated, they would further respectiully

Report and Certify That in the said twenty/miles of said Rail road, the number of degrees of curved line is/415 degrees and 39 minutes; the length of the curved line is $\mathbb{C 8} 250$ feet; and of the tangent lines is 78,950 feet; the percentage of curved line is $2525 / 100$. The width of the embankments at grade ine is fourteen feet, and the inclination of the slopes of the embankments id one and one half feet horizontal to one foot vertical. The width of the excavations at grade line varies from 16 to 20 feet, according to the material forming the sides of the cuts, and the inclination of the alopes of the excavations vardes with the nature of the material through which the excavation is made, and is as follows: Through earth, one foot horizontal to one foot vertical; soft rock, one falf to one, three fourths to one, and one foot horizontal to one foot vertical; through hard rock, one fourth ot a foot horizontal to one root vertical.

The culverts are all either bull $t w i t h$ an Arch, or in the open or box form, of hard stone and their number and gize are as foll ows:

LIST OF CUVERTS
On Sections 511 to 530 both inclusive


## BRIDGES

Firgt. Bishop's Creek Bridge. consisting of one span of H owe Truss 107 feet in clear, resting upon substantial stone piers laid in nydraulic cement mortar.

This bridge is built in the same manner as all the nowe Bridges on the 1 ine naving its timbers and iron work graduated to the length of gpan and $s$ train imposed, it being framed from the same patterns as the 150 teet spand neretofore described at" Qsecond Crossing of the Truckes" and Second and Tinird cirossings of the Humboldt and is precisely similar to these spans, short ened by removing three end panels.

The timber used in these bridges is of the pest quality of white and yellow pine. and the iron of the best quality of American maufacture.

There are eight Public Road Crossings. No fences or tarm gates have been buil $t$ on saic section, as none are needed, the road being built admost entirely on vacant public land, and where built through enclosed fields, fence have not deen found necessary.

The main track of this section is twenty miles in length, With 2600 I eet of side tracks a tached thereto, deing sutificient to accommodate the present business of the road.

The weight of the rails used is not less than 56 pounds per yard. They are connected by fish joints. This consists of two wrought iron bars, twenty inches in length by two and one half inches in width, and tnree foirths of and inch tnick, iitting closely to the neck of the rail, and held firmiy in place by four
bol ts and nuts. in length.

The spikes used are of wrought iron, 1 ive and one half inches in length, nine sixteen ths of an inch square, weight one halt pound each, and number about ten thousand ifive hundred per mile; upon straight lines, the number deing increased upon the ourves.

Upon this portion of the railroad, there is an average of 2260 cross ties per mile. These ties are red spruce, yeliow pine, tamarack and white cedar. The greater portion are, nowever, tamarack and pine. They are eight feet in length not less than six by eight inches in size, the joint ties being not less than six by ten inches.

The material forming the road bed for the greater portion of these twenty miles, is, of itself, good ballasting, and is used for that purpose, the ties oeing firmly imoedded therein. This material consists largely of sand and gravel trom the excavatfons. The ballasting cannot be fully completed until the embankments have had time to settle, which will take seweral months. The ballast is used at the rate of one and one quarter cubic yards. per lineal yard of road.

There is one station on said portion of said Rail road line, to wit: One at Tulasco, 517 miles from Sacramento.

There are no machine shops on this portion of tne railioad the machine shops and engine nouses Deing located at Bacramento, Rocklin, Wadsworth, Winnenucca and Carlin.

There are now in use on the road the following cars, to wit:


There are ninety three Locomotives now in use on the road, all of them of the best style and quality. of tne pest class used on American roads, are manufactured by American puilders, and well adapted for service on neavy grades and sharp curves.

The following is a list of the Locomotives now in uge:

Weight
No Names of No of Diam ofDiam of Length including Cost Engines DriversDrivers Cylin Stroke Tender

|  |  |  |  | 156C4 | jnch | cou |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | Gov. Stanford | 4 | $4 \frac{1}{2}$ | 51 | 22 | 44 | \$ $15,733.65$ |
| 2 | Poific | 4 | 5 | 16 | 24 | 46 | 18,205.08 |
| 3 | C.P.Huntington | 2 | 4\% | 11 | 15 | 22 | 10,589.58 |
| 4 | T. D. Judah | 2 | 4t | 11 | 15 | 22 | 10,603.49 |
| 5 | Atlantic | 4 | 5 | 15 | 22 | 44 | $16,029.91$ |
| 6 | Conness | 6 | 4 | $1 "$ | 24 | 54 | $19,161.74$ |
| 7 | Sargent | 4 | 5 | 16 | 24 | 52 | 22,762.24 |
| 8 | Nevada | 6 | 4 | 18 | 22 | 55 | 36,438.57 |
| 9 | Utah | 6 | 4 | 18 | 22 | 55 | 36,438.57 |
| 10 | Humbolat | 6 | 4 | 18 | 22 | 55 | 24,761.45 |
| 11 | Arctic | 4 | 5 | 15 | 22 | 46 | 20,013.13 |
| 12 | Truckee | 6 | 4 | 17 | 24 | 54 | 21,438.89 |
| 13 | Hercul es | 6 | 4 | 18 | 22 | 55 | 24,716.49 |
| 14 | One onta | 6 | 4 | 18 | 22 | 55 | 23,220.87 |
| 15 | Washoe | 6 | 4 | 18 | 22 | 55 | 23.128.39 |
| 16 | Owy bee | 6 | 4 | 17 | 24 | 55 | 24,482.38 |
| 17 | Idaho | 6 | 4 | 17 | 24 | 55 | 23,473.06 |
| 18 | Plute | 6 | 4 | 18 | 22 | 55 | 22.598.65 |
| 19 | Carson | 6 | 4 | 18 | 22 | ¢5 | 23,379.22 |
| 20 | Amazon | 6 | 4告 | 18 | 24 | 56 | - $20,649.58$ |
| 21 | Tamaroo | 6 | 4홀 | 18 | 24 | 56 | 21,311.97 |
| 22 | Auburn | 6 | 4할 | 18 | 24 | 56 | 21,283.27 |
| 23 | Monp | 6 | 4홀 | 18 | 24 | 56 | 21,235.71 |
| 24 | Montana | 6 | 4t | 18 | 24 | -6 | 1y,116.94 |
| 25 | Yuba | 6 | 4 $\frac{1}{2}$ | 18 | 24 | 56 | 18,970.05 |
| 26 | Samps on | 6 | 4 | 17 | 22 |  | 18,671.45 |
| 27 | Goliah | 6 | 4 | 17 | 22 |  | 18,220.86 |
| 28 | Gola Run | 4 | 5 | 16 | 24 |  | 16,984.56 |
| 29 | Antel ope | 4 | 5 | 16 | 24 |  | $16,816.24$ |
| 30 | Tahce | 4 | 5 | 16 | 22 |  | $17,981.13$ |
| 31 | Khamath | 4 | 5 | 16 | 22 |  | 17,988.54 |
| 32 | Ajax | 6 | 4 | 16 | 24 | 38 | 18,354.84 |
| 33 | Axnilles | 6 | 4 | 16 | 24 | 38 | 17,915.69 |
| 34 | El Dorado | 4 | 5 者. | 16 | 24 |  | 20,009.58 |
| 35 | Boise | 4 | $5 \frac{1}{2}$ | 16 | 24 |  | 20,218.36 |
| 36 | Shoshone | 4 | 5 | 16 | 22 |  | 17,739.39 |
| 37 | Mohave | 4 | 5 | 16 | 22 |  | 17,633.78 |
| 38 | Ogdens burs | 6 | 47 | 18 | 24 | 06 | 17,830.43 |
| 39 | Mal une | 6 | 4 $\frac{1}{2}$ | 18 | 24 | 56 | 17,838.94 |
| 40 | Solano | 4 | 5 | 16 | 22 |  | 12.000 .00 |
| 41 | $S \tan$ Slaus | 4 | 5 | 16 | 22 |  | 12,000.00 |
| 42 | Tuolumne | 4 | 5 | 16 | 22 |  | 12.000 .00 |
| 43 | Tulare | 4 | 5 | 16 | 22 |  | 12.000.00 |
| 44 | Colossus | 6 | 4t | 18 | 24 |  | 16,663.22 |
| 45 | Majestic | 6 | $4 \frac{1}{2}$ | 18 | 24 |  | 16.934 .73 |
| 46 | Unicorn | 6 | 4 | 17 | 22 |  | 19,008.29 |
| 47 | Griffin | $6:$ | 4 | 17 | 22 |  | 18,992.21 |
| 48 | Toiyabe | 6 | 4 | 17 | 22 |  | 18,963.86 |
| 49 | Toquima | 6 | 4 | 17 | 22 |  | 16,230.38 |
| 50 | Crampion | 4 | $\bigcirc$ | 16 | 24 |  | 13,969.54 |
| 51 | Climax | 4 | 5 | 16 | 24 |  | -13,624.88 |
| 52 | Tip I'op | 4 | 5 | 16 | 24 |  | 13,908.84: |
| 53 | Suramit | 4 | 5 | 16 | 24 |  | $13,830.37$ |


| 56 | Grizzly | 6 | 4 | 28 | 24 | $\$$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 57 | Bison | 6 | 4 | 18 | 24 |  |
| 64 | Emigrant | 4 | 5 | 16 | 24 | 13,159.78 |
| 65 | Mikado | 4 | 5 | 16 | 24 | 12,906.00 |
| 66 | Tycoon | 4 | 5 | 16 | 24 | 13,066.09 |
| 67 | Hec tor | 4 | 5 | 16 | 24 | 13,175.65 |
| 68 | Peoquop | 6 | 4t | 18 | 24 |  |
| 69 | Vulcan | 6 | $4 \frac{1}{2}$ | 18 | 24 |  |
| 72 | Niagara | 6 | $4 \frac{1}{2}$ | 18 | 24 |  |
| 73 | Terrible | $6 \%$ | 4t | 18 | 24 | 15,391.66 |
| 74 | Dragon | $6:$ | 4t | 18 | 24 |  |
| 75 | Growler | 6 | 42. | 18 | 24 |  |
| 76 | Carrier | 4. | 5 | 16 | 24 |  |
| 77 | Confucius | 4 | 5 | 16 | 24 |  |
| 78 | Mars | 4 | 5 | 16 | 24 |  |
| 78 | Apollo | 4 | 5 | 16 | 24 |  |
| 80 | Phil Sheridan | 4 | 5 | 16 | 24 | 13,659.84 |
| 81 | U. S. Grant | 4 | 5 | 16 | 24 | 13,6'74.67 |
| 82 | Buffalo | 6 | 4t | 18 | 24 |  |
| 83 | Mountaini eer | 6 | 4t | 18 | 24 |  |
| 84 | Gazelle | 4 | 5 | 16 | 24 |  |
| 85 | White Bear | 6 | 4t | 18 | 24 |  |
| 88 | Hurricane | $6 \%$ | 4t | 18 | 24 |  |
| 89 | Giant | 6 : | 4t | 18 | 24 |  |
| 93 | Oronoco | 4 | 5 | 14 | 24 |  |
| 94 | Echipse | 4 | 5 | 15 | 24 |  |
| 95 | Driver | 4 | 5 | 15 | 24 |  |
| 96 | Racer | 4 | 5 | 15 | 24 |  |
| 108 | Stager | 4 |  | $2 / 325$ | 22 |  |
| 109 | Flier | 4 |  | 2/315 | 22 |  |
| 111 | Cnamoiso | 4 |  | 2/315 | 22 |  |
| 119 | Golden Eagle | 4 |  | $2 / 315$ | 22 |  |
| 120 | Bals Eagle $\because$ :id | 14 |  | 2/315 | 22 |  |
| 122 | Vill amette | 4 | 5 | 16 | 24 | 13,009.29 |
| 123 | Geol L. Woods |  | 5 | 16 | 24 | 13,009. 29 |
| 124 | Umpqua | 4 | 5 | 16 | 24 | 13,009.29 |
| ; 25 | J. R. Moores | 4 | 5 | 16 | 24 | 13,009.29 |
| 138 | Blue Bird | 4 |  | $2 / 315$ | 22 |  |
| 139 | Blue Jay | 4 |  | 2/315 | 22 |  |
| 140 | Ostrich | 4 |  | 2/315 | 22 |  |

The road is well constructed, and Passenger Trains can De safely run over it at a rate of forty miles per hour, and at as high a rate of speed as any similar railroad in the united istates.

The hap and Profile markea "A", is a correct drawing of this section ( 20 miles ) of said railroad, from section 5il to section 530, both inclusive. The Map shows correctly the various curves and tangents, and the Profile correctly exhibita tne original surface line and the gradearupon which this section of said Railroad is constructed.

All of which is respectfully submitted

## UNI TED STATES OF AMERICA:

State of California.

To His Excellency, Andrew Johnson rresident, the ion. H. Mct Culloch, Secretary of the Treasury, and the Hon. O. H. Browning, Secretary of the Interior of the United 9 tates.

The undersignea Tnomas $J$, Henley, Prank Denver and John Bigler, Commisaioners appointed by the President of the United States to examine and report upon the Central Pacific Railroad of California, under and in pursuance of the provisions ot the Act of Congress, entitl ed "An Act to aid in the construction of a Railroad and telegraph line from the Missouri River to the Pacific Ocean, and to secure to the Government the use of same ior posthl. military and other purposes." approved Julyl,1862, and tne Acts amendatory there of approved J uly 2, 1864, March 3,1865, and july 3, 1866, would respectfully state, that they nave this day made a report upon the construction and completion of an addition and continuation of twenty miles of the said hailroad and Telegraph iine. commencing at the termination oi the tive nundred and thirtieth mile, and ending at the termination of the live hundred and fiftieth mile, wnich is nereby referred to. inat in addition to the matters therein stated, tney woula iurtner respect fully

Report and Certify, That in trie said twenty miles of said Rail road, the number of degreex of curved line is ilyz degrees and 05 minutes; the 1 ength of the curved line is $58,303.7$ teet, and of the tangent lines is 47.296 .3 Ieet; the percentage of $\because=:$ curved line is C .21 . The width of tne embankments at grade ine is fourteen feet, and the inclination of the slopes of the emoankments is one and one half feet horizontal to one loot vertical. The width of the excavations at grade ine varies from 16 to 20 feet, according to the material torming the sides of the cuts, and the inclination of the slopes of the excavations varies with the nature of the material through which the excavation is made, and is as follows: through earth, one foothorizontal to one root vertical; soft rock, one nalf to one, three fourths to one, and one foot horizontal toone ioot vertical; tnrough nard rock, one fourth of a foot horizontal to one foot vertical.

The Culverts are all either buolt with an arch, or in the open or box form, of hard stone and their number and rize are as foll ows:

## LIST OF CUVERTS

On sections 631 to 550 both inclusive.

| No. | Description | Size |
| :---: | :---: | :---: |
| 23 | Box Culverts | $2 \times 3$ |
| 7 | " " | $3 \times 3$ |
| 2 | " ${ }^{\prime \prime}$ | $3 \times 4$ |
| 9 | Open " | 4 feet span |
| 14 | n |  |
| 1 | $\cdots$ | $8{ }^{\circ}$ |
| 1 | , | 10 " |
| 1 | " | 14 " |
| 58 |  |  |

There are no bridges on this section of twenty miles. There are . . . public Rpad Crossings. No Iences or farm gates have been built on said section, as none are needed, the road being buil $t$ almost entirely on vacant public land, and where built through end osed. fields, fence have not deen found necessary.

The main track of this section is 20 miles in length, with 5900 feet of side tracks attached thereto, deing sufficient to accommodate the present business of the road.

The weight of the rails used is not less than 56 pounds per yard. They are connec ted by tish joints. This consists of two wrought iron bars, twenty inches in length by two and one half inches in width, and three fourths of an inch thick, fitting closely to the neck of the rail, and neld firmly in place oy four bol ts and nuts. The rails used are generally twento eight feet in length.

The spikes used are of wrought iron, live nad one nali inches in length, nine sixteenths of an inch square, weight one halfound each, and mumber about ten thousand five hundred per mile, upon straight lines, the number being increased upon the curves.

Upon this portion of the railroad, there is an average of 2260 cross ties per mile. These ties are red spruce, yellow pine, tamarack and white cedar. The greater portion are however tamarack and pine. They are eight feet in length, not 1 ess than six by eight inches in size, the joint toes being not less than six by ten inches.

The material forming the road bed for the greater portion of these twenty miles, is, of itself, good ballasting, and is used for that purpose, the ties being firmiy imbedded therein. This material consists largely of sand, rock and gravel fom the
excavations. The ballasting cannot be fully completed until the embankments have had time to settle, which will take several m months. The ballast is used at the rate of one and one quarter cubic yards per lineal yard of road.

There are two stations on said portion of said railroad line, to Wit; One at Cedar, $530 \frac{1}{2}$ miles from Sacramento and one at Independence, 539 miles from Sacramento.

There are no machine shops on this portion of the railroad-the machine shops and engine houses being located at Sacramento, Rocklin, Wadsworth, Winnemucea and Carlin.

There are now in use on the road the following cars, to wit;


There are 109 Locomotives now in use on the road, all of them of the best style and quality, of the best class used on American roads, are manufactured by American Builders, and well adapted for service on heavy grades and sharp curves.

The following is a list of the the Locomotives now in uset:

No Names of No of Diam of Diam of Length including cost | Neight |
| :--- |
| Engines Drivers Drivers Cylin |



| 15 | Washoe | 6 | 4 | 18 | 22 | 55 | \$ 23,128.39 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 16 | Owyhee | 6 | 4 | 17 | 24 | 55 | 24,482.38 |
| 17 | Iadaho | 6 | 4 | 17 | 24 | 55 | 23,473.06 |
| 18 | Piute | 6 | 4 | 18 | 22 | 55 | 22,598.65 |
| 19 | Carson | 6 | 4 | 18 | 22 | 55 | 23,379.22 |
| 20 | Amazon | 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 | 20,649.58 |
| 21 | Tamar00 | 6 | 4 ${ }^{2}$ | 18 | 24 | 56 | 21.311.97 |
| 22 | Auburbn | 6 | 4 | 18 | 24 | 56 | 21,283.27 |
| 23 | Mono | 6 | 4 | 18 | 24 | 56 | 21,235.71 |
| 24 | Hontana | 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 | 19.116 .94 |
| 25 | Yuba | 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 | 18,970.05 |
| 26 | Samps on | 6 | 4 | 17 | 22 |  | 18.671.45 |
| 27 | Goliah | 6 | 4 | 17 | 22 |  | 18,220.86 |
| 28 | Gold Run | 4 | 53 | 16 | 24 |  | 16,994.56 |
| 29 | Antel ope | 4 | 5 | 16 | 24 |  | 16,816.24 |
| 30 | Tahoe | 4 | 5 | 16 | 22. |  | 17,981.13 |
| 31 | Klamath | 4 | 5 | 16 | 22 |  | 17,988.54 |
| 32 | Ajax | 6 | 4 | 16 | 24 |  | 18,354.84 |
| 33 | Achilles | 6 | 4 | 16 | 24 | 38 | 17,915.69 |
| 34 | El Doradao | 4 | $5 \frac{1}{2}$ | 16 | 24 | 38 | 20,009.58 |
| 35 | Boige | 4 | $5 \frac{1}{2}$ | 16 | 24 |  | 20,218.36 |
| 36 | Shoshone | 4 | 5. | 16 | 22 |  | 17,739.39 |
| 37 | Mohave | 4 | 5 | 16 | 22 |  | 17,633.98 |
| 38 | Ogdens burg | 6 | 4古 | 18 | 24 | 56 | 17.830 .43 |
| 39 | Mal one | 6 | 4t | 18 | - 24 | 56 | 17,838.94 |
| 40 | Solano | 4 | 5. | 16 | 22 |  | 12,000.00 |
| 41 | $3 \tan 191 \mathrm{aus}$ | 4 | 5 | 16 | 22 |  | 12,000.00 |
| 42 | Tuolumne | 4 | 5 | 16 | 22 |  | 12,000.00 |
| 43 | Tulare | 4 | 5 | 16 | 22 |  | 12,000.00 |
| 44 | Col ossus | 6 | 4 ${ }^{\text {c }}$ | 18 | 24 |  | 16,663.22 |
| 45 | Majestic | 6 | 4交 | 18 | 24 |  | 16,934.73 |
| 46 | Unicorn | 6 | 4 | 17 | 22 |  | 19,008.29 |
| 47 | Griffin | 6 | 4 | 17 | 22 |  | 18,992.21 |
| 48 | Toiyabe | 6 | 4 | 17 | 22 |  | 18,963.86 |
| 49 | Toquima | 6 | 4 | 27 | 22 |  | 16,236.38 |
| 50 | Champion | 4 | 5 | 16 | 24 |  | 13,969.54 |
| 51 | Climax | 4 | 5 | 16 | 24 |  | 13,624.17 |
| 25 | Tip Top | 4 | 5 | 16 | 24 |  | 13,908.84 |
| 53 | Sunnit | 4 | 5 | 16 | 24 |  | 13.830 .37 |
| 54 | Red Deer | 4 | 5 | 16 | 24 |  |  |
| 56 | Grizzly | 6 | 4 | 18 | 24 |  |  |
| , 7 | Bison | 6 | 4 | 18 | 24 |  |  |
| 58 | Placer | 6 | 4 | 18 | 24 |  |  |
| 59 | Pluto | 6 | 4 | 18 | 24 |  |  |
| 64 | Emigrant | 4 | ${ }_{5}^{4} 5$ | 16 | 24 |  | 13,159.78 |
| 65 | Mikado | 4 | 5 | 16 | 24 |  | 12,906.00 |
| 66 | Tycoon | 4 | 5 | 16 | 24 |  | 13,066.09 |
| 67 | Hector | 4 | 5 | 16 | 24 |  | 13,175.65 |
| 68 | pequop | 6 | 4-1 | 18 | 24 |  |  |
| 69 | Vulcan | 6 | $4 \frac{1}{2}$ | 18 | 24 |  |  |
| 72 | Niagara | 6.) | 4 $\frac{1}{2}$ | 18 | 24 |  |  |
| 73 | Terrible | 6 | $4 \frac{1}{2}$ | 18 | 24 |  | 15,391.66 |
| 74 | Dragon | 66 | 4 $\frac{1}{2}$ | 18 | 24 |  |  |


| 75 | Growler | 6 | 4 $\frac{1}{2}$ | 18 | 24 | \$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 76 | Carrier | 4 | 5 | 16 | 24 |  |
| 77 | Confualus | 4 | 5 | 16 | 24 |  |
| 78 | Mars | 4 | 5 | 16 | 24 |  |
| 79 | Apollo | 4 | 5 | 16 | 24 |  |
| 80 | Phil Sheridam |  | 5 | 16 | 24 | 13,659.84 |
| 81 | U. S. Grant | 4 | 5 | 16 | 24 | 13,674.67 |
| 82 | Buffalo | 6 | $4 \frac{1}{2}$ | 18 | 24 |  |
| 83 | Mountaine er | 6 | 4 $\frac{1}{2}$ | 18 | 24 |  |
| 84 | Gazelle | 47 | 5 | 16 | 24 |  |
| 85 | Whi te Bear | 6 | 4 ${ }^{2}$ c | 18 | 24 |  |
| 86 | Gorilla | 6 | 4t | 18 | 24 |  |
| 87 | Tempest | 6 | 4t | $k 8$ | 24 |  |
|  | Hurricane | 6 | $4 \frac{1}{2}$ | 18 | 24 |  |
|  | Giant | $6=$ | 4 $\frac{1}{2}$ | 18 | 24 |  |
| 93 | Oronoco | 4 | 5 | 14 | 24 |  |
| 94 | Eclipse | 4 | 5 | 15 | 24 |  |
| 95 | Driver | 4 | 5 | 15 | 24 |  |
| 96 | Clipper | 4 | 5 | 15 | 24 |  |
| 87 | Racer | 4 | 5 | 15 | 24 |  |
| 98 | Rattler | 4 | 5 | 15 | 24 |  |
| 99 | Ranger | 4 | 5 | 15 | 24 |  |
| 100 | 0 Rover | 4 | 5 | 15 | 24 |  |
|  | 2 Runner | 4 | $42 / 3$ | 15 | 22 |  |
|  | 3 Rusher | 4 | $42 / 3$ | 15 | 22 |  |
|  | 8 Stager | 4. | $42 / 3$ | 15 | 22 |  |
| 109 | 9 Flier | 4 | $42 / 3$ | 15 | 22 |  |
|  | OFire Fly | 4 | $42 / 3$ | 15 | 22 |  |
| 111 | 1 Chamois | 4 | $42 / 3$ | 15 | 22 |  |
|  | 2 Hawk | 4 | $42 / 3$ | 15 | 22 |  |
|  | 3 Falcon | 4 | 4 2/3 | 15 | 22 |  |
| $7 \pm 8$ | 8 Grey Eagle | 4 | $42 / 3$ | 15 | 22 |  |
|  | 9 Golden Eagle | 4 | $42 / 3$ | 15 | 22 |  |
|  | OBald Eagle | 1 | $42 / 3$ | 15 | 22 |  |
| 122 | 2 Will iame tte | 4 | 5 | 16 | 24 | 13,009.28 |
|  |  | 4 | 5 | 16 | 24 | 13,009.29 |
|  | 4 Umpqua | 4 | 5 | 16 | 24 | 13,009.29 |
| 125 | 5 J.R. Moores | 4 | 5 | 16 | 24 | 13,009.2y |
| 132 | 2 Deer Hound | 4 | $42 / 3$ | 15 | 22 |  |
| 138 | 8 Blue Bird | 4 | $42 / 3$ | 15 | 22 |  |
|  | 9 Iune Jay | 4 | $42 / 3$ | 15 | 22 |  |
|  | 0 Ostrich | 4 | $42 / 3$ | 15 | 22 |  |

The road is well constructed, and Passenger Trains can be safely run over it at a rate of forty miles per hour, and at as high as rate of speed as any similar railroad in tne United States.

The Map and Profile, marked "A" is a correct arawing of this section ( 20 miles ) of said railroad, trom section 531 to
section 550. both inclubive. The Map shows correctly the various ourves and tangents, and the Profile correctly exhibits the oripinal surface line and the grades upon which this section of said railroad is constructed.

All of which is respeotfully submitted.


Sacrament February 27 th, $A, D, 1869$.

UNI TED $S$ TA TES OF AMERICA
State of Calfornia.

To His Exceliency, Ulysses $S$, Grant President, the Hon. George S. Boutwell, Secretary of the Treasury, and the Hon. Jacob D. Cox, Secretary of the Interior. of the United States:

The undersigned, Thomas:J. Henley, Frank Denver and John Bigler, Commissioners, appointed by the President of the United States to examine and report upon the Central Pacific Railroad of California, under and in pursuance of the provisions of the Act of Congress; entitled "An Act to ald in tne construction of a Railroad and Telegraph line from the Missouri River to the Pacific Ocean, and to secure to the Government the use of some for postal, military and other purposes." approved July 1 , 1862, and the Acts amendatory thereof, approved July 2, 1864. March 3. 1865. July 3 1866, would respec tfully state, that they have this day made a report upon the construction and completion of an addition and continuation of twenty miles oi the said Railroad and Telegraph line, commencing at the termination of the five hundred and riftieth mile and ending at tne termination of the five hundred and seventieth mile, which is hereby referred to. That in addition to the matters therein stated, they would further respectfully.

Report and Certify, That in the said twenty miles of gaidMailroad, the number of degrees of curved 1 ine is 792 degrees and 03 minutes; the length of the curved lines 1826,042 feet, and of the tangent lines is 79,558 feet; the percentage of curved line 18 $2465 / 100$. The width of the embankments at grade ine is fourteen feet, and the inclination of the slopes of the empankments is one and one half ieet horizontal to one foot vertical. The width of the excavations at grade 1 ine varies from 16 to 20 reet. accordinf to the material forming the sides of the cuts, and the incilnation of the slopes of the excavations varies with the nature oi the material through which the excavation is made, and is as follows: through earth, one foot horizontal to one foot vertical; sott rook, one half to one, three fourths to one, and one foot horizontal to one foot certical; through hard rock, one fourth of a foot horizontal to one foot vertical.

The culverts are all ei ther built with an arch, or in the open or box form, of hard stone and their number and size are as follows:

## LIST OF CULVERTS

On Sections 561 to 570 both inclusive.

| NO | Description | Size |
| :---: | :---: | :---: |
| 42 | Box Culverts | $2 \times 3$ teet |
| 2 | " | $3 \times 4$ |
| 19 | Open | 6 Feet Span |

63 Culverts

There are no bridges on said section of twenty miles.
There are ........public Road Crossings. No Iences or farm gates have been built on said section, as none are needed, the road being built almost entirely on public vacant land, and where buil t through encl osed fielda, tences have not been tound necessary.

The main track of this section is twentymiles in length, with 3800 feet of side tracks attached thereto, being suffiaient to accommodate the present business of the road.

The weignt of the rails used is not less than 56 pounds per yard. They are connected by fish joints. Thts cons ds ts of two wrought iron bars, twenty inches in length by two and one nal inches in width, and three fourths of an inch thick, fitting ciosely to the neck of the rail, and held firmly in place by four polts and nuts. the rails used are genexally twenty eight feet in length.

The spikes used are of wrought ixon, five and one nalt inches in length, nine sixteenths of an inch square. weignt one half pound each, and number about ten thousand fi*e hunared per mile, upon straight lines, the number Deing increased upon the curves.

Upon this portion of the rail road, there is an average of 2260 cross-ties per mile. These ties are red spruce, yellow pine, tamarack and white cedar. The greater portion are, nowever, tamarack and pine. They are eight feet in length, not less than six be eignt inches in size, the joint ties being not less than gix by ten inches.

The material forming the road bea for the greater portion of these 20 miles , is of itself', good ballasting, and is used for that purpose, the ties being firmly imbedded therein. This material consists largely of sand, rock and gravel form the excavations: The ballasting cannot be fully completed until the embankments have had time to settle, which will take several months. The Ballast is used at the rate of one and one quarter cubic yards per Iineal yard of road.

There are two stations on said portion of said railroad line, to wit: One at East Peoquop, 550t miles from Sacramento. one at Toano, $559 \frac{1}{2}$ miles from Sacramento.

There are no machine shops on this portion of the railroad-the machine shops and entine houses being locatea at Sacramento; Rocklin. Wadsworth, Winnemucca and Carlin.

There are now in use on the road the foliowing cars, to wit


There are 113 Locomotives: now in use on the road, all of them of the best style and qualits, of the best class used on American roada, are manufactured by American builders, and well adapted for service on heavy grades and sharp curves.

The following $1 s$ a 1 ist of the Locomotices now in use;

|  | Names of -Reraneg. D | $\begin{array}{ll} \text { No of } \\ \text { Drivers } \end{array}$ |  | Diam of Diam of Leng th inciuding |  |  | Cost |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | inch | inch | tons |  |  |
| 1 | Gov. Stanford | 4 | $4 \frac{1}{2}$ | 15 | 22 | 44 |  | +5,733.65 |
| 2 | Pacific | 4 | 5 | 16 | 24 | 46 |  | 18,205.08 |
| 3 | C.P.Huntington |  | 4t | 11 | 15 | 22 |  | 10,589.58 |
| 4 | T. D. Judah | 2 | 4 $\frac{1}{3}$ | 11 | 75 | 22 |  | 10,603.49 |
| 5 | Atlantic | g | 5 | 15 | 22 | 44 |  | 16,629.91 |
| 6 | Conness | 6 | 4 | 77 | $2{ }^{3}$ | 54 |  | 19,161.74 |
| 7 | Sargent | 4 | 5 | 76 | 24 | 52 |  | 22,762.24 |
| 8 | Nevada | 6 | 4 | 78 | 22 | 55 |  | 36,438.57 |
| 9 | Utah | 6 | 4 | 78 | 22 | 55 |  | 36.438 .57 |
| 10 | Humboldt | 6 | 4 | 48 | 22 | 55 |  | 24,751.45 |
| 11 | Aretivr | 4 | 5 | $\ddagger 5$ | 22 | 46 |  | 20,013.13 |
| 12 | Truckee | 6 | 4 | 77 | 24 | 54 |  | 21,435.89 |
| 13 | Hercules | 6 | 4 | 18 | 22 | 55 |  | 24,716.49 |
| 14 | One on ta | 6 | 4 | 18 | 2 | 55 |  | 23,226.87 |
| 15 | Washle | 6 | 4 | 18 | 22 | 55 |  | 23,128.39 |
| 16 | Owyhee | 6 | 4 | 17 | 24 | 55 |  | 24,432.38 |
| 17 | Idaho | 6. | 4 | 17 | 24 | 55 |  | 23, 473.06 |
| 18 | Piute | $6 \%$ | 4 | 18 | 22 | 55 |  | 22,598.65 |
| 19 | Carsan | 6 | 4 | 18 | 2 | 55 |  | 23,379.22 |
| 20 | Amazon | 6 | $4{ }^{2}$ | 18 | 24 | 56 |  | 20,649,58 |
| 21 | Tamar00 | 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 |  | 21.311 .97 |


| 22 | Auburn | 6 | 4- $\frac{1}{2}$ | 18 | 24 | 56 | \$ 21.283 .27 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 23 | Mono | 6 | 4, $\frac{1}{2}$ | 18 | 24 | 56 | 21,235.71 |
| 24 | Montana | 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 | 19,116.94 |
| 25 | Yuba | 6 | 4 $\frac{1}{2}$ | 18 | 24 |  | 18,970.05 |
| 26 | Sumps on | 66 | 4 | 17 | 22 |  | 18,671.45 |
| 27 | Goliah | 6 | 4 | 17 | 22 |  | 18,220.86 |
| 28 | Gold Run | 4 | 5 | 16 | 24 |  | 16,994.56 |
| 29 | Antelope | 4 | 5 | 16 | 24 |  | 16,816.24 |
| 30 | Tahoe | 4 | 5 | 16 | 22 |  | 17,981.13 |
| 31 | Kl amath | 4 | 5 | 16 | 22 |  | 17,988.54 |
| 32 | Ajax | 6 | 4. | 16 | 24 | 38 | 18,354.84 |
| 33 | Achilles | 6 | 4 | 16 | 24 | 38 | 17,915.69 |
| 34 | El Derado | 4 | 5 ${ }_{\frac{1}{2}}$ | 16 | 24 |  | 20,009.58 |
| 35 | Boise | 4 | $5 \frac{1}{2}$ | 16 | 24 |  | 20,218.36 |
| 36 | Schoshone | 4 | 4 | 16 | 22 |  | 17,739.39 |
| 37 | Mohave | 4 | 4 | 16 | 22 |  | 17,633.98 |
| 38 | Ogdensburg | 6 | 42 | 18 | 24 | 56 | 17.830.43 |
| 39 | Mal one | 6 | 4한 | 18 | 24 | 56 | 17.838 .94 |
| 40 | Solano | 4 | 5 | 16 | 22 |  | 12,000.00 |
| 41 | 3 tanislaus | 4 | 5 | 16 | 22 |  | 12,000.00 |
| 42 | Tu olumne | 4 | 5 | 16 | 22 |  | 12,000.00 |
| 43 | Tulare | 4 | 5 | 16 | 22 |  | 12,000.00 |
| 44 | COIOssus | 6 | 4 $\frac{1}{2}$ | 18 | 24 |  | 16,663.22 |
| 45 | Majestic | 6 | 4- $\frac{1}{2}$ | 18 | 24 |  | 16,934.73 |
| 46 | Unicorn | 6 | 4 | 17 | 22 |  | 17,008.29 |
| 47 | Griffin | $6:$ | 4 | 17 | 22 |  | 18,992.21 |
| 48 | Toiyabe | 6 | 4 | 17 | 22 |  | 18,963.86 |
| 49 | Toquima | 6 | 4 | 17 | 22 |  | 16,236.38 |
| 50 | Champion | 4 | 5 | 16 | 24 |  | 13,969.54 |
| 51 | Climax | 4 | 5 | 16 | 24 |  | 13,624.77 |
| 52 | Tip Top | 4 | 5 | 16 | 24 |  | 13,908.84 |
| 53 | Summit | 4 | 5 | 16 | 24 |  | 13,830.37 |
| 54 | Red Deer | 4 | 5 | 16 | 24 |  |  |
| 56 | Grizzley | 6 | 4 | 18 | 24 |  |  |
| 57 | Bison | 6 | 4 | 18 | 84 |  |  |
| 58 | Placer | 5 | 4 | 18 | 24 |  |  |
| 59 | Pluto | 6 | 4 : | 18 | 24 |  |  |
| 64 | Enigrant | 4 | 5 | 16 | 24 |  | 13,259.78 |
| 685 | Mikado | 4 | 5 | 16 | 24 |  | 12,906.00 |
| 676 | Tycoon | 4 | 5 | 16 | 24 |  | 23,066.09 |
| 687 | Hector | $\stackrel{1}{4}$ | 5 | 16 | 24 |  | 1', 17\%0.05 |
| 698 | Peoquop | 6 | 42 | 18 | 24 |  |  |
| 82 | Vuloar | 6 | $4 \frac{1}{2}$ | 18 | 24 |  |  |
| 732 | Niagara | 6 | $4 \frac{1}{2}$ | 18 | 24 |  |  |
| 743 | Terrible | 6 | 4 $\frac{1}{2}$ | 18 | 24 |  | 15,391.66 |
| 764 | Dragon | 6 | 42 | 18 | 24 |  |  |
| 765 | Growler | 6 | 42; | 18 | 24 |  |  |
| 776 | Carrier | 4 | 5 | 16 | 24 |  |  |
| 787 | Confucius | 4 | 5 | 16 | 24 |  |  |
| 788 | Mare | 4 | 5 | 16 | 24 |  |  |
| 80 | Apollo | 4 | 5 | 16 | 24 |  |  |
| 81 | Phil Sheri | dan 4 - | 5 | 16 | 24 |  | 13,659.84 |
| 821 | Ul S Grant | 4 | 5 | 16 | 20 |  | 13,674.67 |
|  |  |  |  |  | $3 \%$ |  |  |


$13,009.28$
$13,009.29$
$13,009.29$
$13,009.29$

The road is well constructed, and Passenger Trains can be safely ron over it at a rate or forty miles per hour, and at as high a rate of speed as any sinilar railroad in the united states.

The Map and Profile marked "A" is a correct drawing or this section (20 M1 les) of said railroad, from section 551 to section 570 , doth inelusive. The Map shows correctly the various curves and tangent and the Profile correctly exhibits the original surface and the grades upon which this section of said railroad is constructed

All of which is respectfully submitted.
Thos-J. Henley
Frank Denver
John Bigler $\left\{\begin{array}{l}\text { Commissioners }\end{array}\right.$
Sacramento March 15 th A. D. 1869.

## UNI TED 8 TA TES OF AMERICA

## State of California

To His Excellency, Ulysses S, Grant President, The Hon. George S. Boutwell, Secretary of the Treasury, and the Hon. Jacor D, Cox, Becretary of the Interior, of tne United 3 tates;

The undersigned James W. Haines, Frederick A. Tritie and William Sherman, Commsioners appointed by the president of the United States to examine and report upon the Central Pacific Railroad of California, under and in pursuance of the provisions of the Act of Congress; entitied "An Act to aid in the construction of a Railroad and Telegraph Line from the Missouri River to the Pacific Ocean, and to secure to the Government the use of the same for postal, military and other purposes," approved July 1, 1862, and the acts amendatory thereof, approved July 2, 1864, March 31865 and July 3 1866, would respec tfully state that they have this day made a report upon the construction and completion of an addition and continuation of One Hundred miles of the said Railroad and Telegraph Line, commencing at the termination of the five hundred and seventieth mile and ending at the termination of the six hundred and seventieth mile, which is nereby referred to. That in addition to the matters tnerein stated they would further respectfully

Report and Certify, That in the said One Hundred miles of said railroad, the number of legrees of curved line is 2205 de grees and $42 \mathrm{minutes} ;$ the 1 ength of the curved 1 ine is 108054.2 feet, and of the tangent lines is $419,945.8$ feet; the percentage of curved line is 20.48, The wDdth of the empankments at grade line is fourteen fieet, and the inclination or the siopes of the embankments is one and one half feet norizontal to one foot vertical. The width of the excavations at grade line varies from 16 to 20 feet, sccording to the material rorming the sides of the cuts; and the inclination of the slopes of the excavations varies with the nature of the material through which the excavation is made, and is asafollows; through earth, one foot horizontal to one foot vertical; sort rock, one hali to one, three fourtin to one, and one foot horizontal to one root vertical; through hard rock, one fourth of a foot horizontal to one foot vertical.

The Culverts are all either duilt woth ain arch, or in the open or box form, of hard stone and their numoer and size are asfollows:

LIST OF CULVERTS
On sections 571 to 670 both inclusive.

| No | Description | Size |
| :---: | :---: | :---: |
| 5 | Box Culverts | $3 \times 4$ feet |
| 1 | " ${ }^{\prime \prime}$ | $3 \times 3$ |
| 48 | " $\quad$ | $2 \times 3$ |
| 1 | $\cdots$ | $2 \times 2 \frac{1}{8}$ |
| 1 | Open | 14 feet span |
| 18 | $\cdots$ | 12 " |
| 30 | * * | 10 " |
| 25 | $\cdots$ | 8 " $\quad$ |
| 18 | " | $6{ }^{\prime \prime}$ |
| 39 |  | 4 " |

There are no bridges on said section of one Hundred miles.
There are no Publis Road Crossings. No tences or farm gates have been built on said section, as none are needed, the road being built almost entirtely on vacant publ ic Land, and where built through enclosed fields, fences have not deen found necessary.

The main track of this section $y \mathbf{l} 200$ miles in length with 31,100 t'eet of side tracks attached thereto, being sufficient to accommodate the present business or the road.

The weight of the rails used is not less than 56 pounds pextyard. They are connected by fish jpints. This consis ts or two wrought iron bars, twenty inches in length by two and one half inches in width, and three fourths of an inch thick, føtting closely to the nek of the rail, and held firmly in place by four bolts and nuts. Tie rails uged are generally twenty eight feet in length.

The spikes used are of wrought iron, ifive and one hal $f$ inches in length, nine sixteenths of an inch square, weight one half pound each, and number about ten thousand five hundred per mile, upon statight lines the number being increased upon the curves.

Upon this portion of the railroad there is an average of 2260 cross ties per mile. These ties are red spruce, yellow pine, tamarack and white cedar. The greater portion are, howeever tamarack and pine. They are eight feet in length, not less than six by eight inches in size, the joint ties being not less than six by ten inches.

The material forming the road bed forthe greater portion of these 100 miles, is, of itsely good ballasting, and is used for that putpose, the ties being firmly imbedded therein. This material conststs largely of samd, rock and gravel from the excavations. The ballasting cannot be fully completed until
embankments have had time to settle, which will take several months. The ballast is used at the rate or one and one quarter cubic yards per lineal yard of road.

There are nine stations on said portion of said railroad IIne to wit One at Montello, 5 '17 miles from Sacrarmento, one at Tecoma, $586 \frac{1}{2}$ miles Trom Sacramento; one at Lucin, 596 miles from Sacramentol one at Bovine 609 miles from Sacramento, one at Terrace 621 mile , one at Matlin 636 mlles , one at Kelton $6513 / 4 \mathrm{miles}$ and one at Monument 669 miles from Sacramento.

There are no machine shops on this portion of the railroad the machine shops and engine houses being located at Sacramento, Rooklin, Wadsworth, Winnemucea and Carlin.

There are now in use on the road the following cars, to wit.


There are 141 Locomotives now in use on the road, all of them the best style and quality, of the best class used on American roads, are manutactured by American builders, and well adapted fer service on heavy grades and sharp curves.

T:e following is a List of the Locomotives now in use:


|  |  |  |  | inches | inches | tons |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | Gov. 3 tanf ord | 4 | 4 $\frac{1}{2}$ | 15 | 22 | 44 | \$ $15,733,65$ |
| 2 | Pacific | 4 | 5 | 16 | 24 | 46 | 18,205.08 |
| 3 | C.P.Huntington | 2 | 4交 | 11 | 15 | 22 | 10,589.58 |
| 4 | T. D. Judah | 2 | 4휼 | 11 | 15 | 22 | 10,003.49 |
| 5 | Atlantoc | 4 | 5 | 15 | 22 | 44 | 16,629.91 |
| B | Conness | 6 | 4 | 17 | 24 | 54 | 19,161.74 |
| 7 | Sargent | 4 | 5 | 16 | 24 | 52 | 22.762.24 |
| 8 | Nevaca | 6 | 4 | 18 | 22 | 55 | 36,438.57 |
| 9 | Utah | 6 | 4 | 18 | 22 | 55 | 36,438.57 |
| 10 | Humboldt | 6. | 4 | 18 | 22 | 55 | 24,761.45 |
| 11 | Arctic | 4 | 5 | 16 | 22 | 46 | 20,013.13 |
| 12 | Truclee | 6 | 4 | 17 | 24 | 04 | +21,435.89 |
| 13 | Hercules | 6 | 4 | 18 | 22 | 55 | 24,716.49 |
| 14 | One or.ta | 6 | 4 | 18 | 22 | 55 | 23.226 .87 |


| 15 | Washoe | 6 | 4 | 18 | 22 | 55 | \$ $23,128.39$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 16 | Owyhee | 6 | 4 | 17 | 24 | 55 | 24,482.38 |
| 17 | I daho | 6 | 4 | 17 | 24 | 55 | 23,473.06 |
| 18 | Plute | 6 | 4 | 18 | 22 | 55 | 22,598. 65 |
| 19 | Cars on | 6 | 4 | 18 | 22 | 55 | 23,379.22 |
| 20 | Amazon | 6 | 4 $\frac{1}{2}$ | 18 | 24 | 56 | 20,649:58 |
| 21 | Tamaroo | 6 | $4 \frac{1}{8}$ | 18 | 24 | 56 | 21.311 .97 |
| 22 | Auburn | 66 | 4t | 18 | 24 | 56. | 21,283.27 |
| 23 | Mono | 6 | $4 \frac{1}{2}$ | 18 | 24 | 56 | 21.935 .71 |
| 24 | Montana | 6 | 4t | 1.8 | 24 | 56 | 19,116.84 |
| 25 | Yuba | 6 | 4 4 | 18 | 24 | 56 | 18,970.05 |
| 26 | Samps on | 6 | 4 | 17 | 22 |  | 18,671.45: |
| 27 | Goliah | 6 | 4 | 17 | 22 |  | 18.220 .86 |
| 28 | Gold Kun | 4 | 5 | 16 | 24 |  | 16,994.56 |
| 29 | Antelope | 4 | 5 | 16 | 24 |  | 16,816.24 |
| 30 | Tahoe | ¢ 4 | 5 | 16 | 22 |  | 17,981.13 |
| 91 | Klamath | 84 | 5 | 16 | 22 |  | 17,988.04 |
| 32 | Ajax | 6 | 4 | 16 | 24 | 38 | 18,354.84 |
| 33 | Achill es | 6 | 4 | 16 | 24 | 38 | 17,915.69 |
| 34 | El Dorado | $4{ }^{6}$ | 51 | 16 | 24. |  | 20,009.58 |
| 35 | Boise | 4 | $5 \frac{1}{2}$ | 16 | 24 |  | 20,218.36 |
| 36 | Shoshone | 4 | 8. | 16 | 22 |  | 17,739.39 |
| 37 | Mohave | 4 | 5 | 16 | 22 |  | 17,633.98 |
| 38 | Ogdenaburg | 6 | 4t | 18 | 24 | 56. | 17,830.43 |
| 39 | Mal one | 6 | 4 | 18 | 24 | 56: | 17,858.94 |
| 40 | Solano | 4 | 5 | 16 | 22 |  | 12,000.00 |
| 41 | Stanislaus | 4 | 5 | 16 | 22 |  | 12,000.00 |
| 42 | Tuolumne | 4 | 5 | 16 | 22 |  | 12,000.00 |
| 43 | Tulare | 4 | 5 | 16 | 22 |  | $12,000.00$ |
| 44 | Colossus | 6 | 4t | 18 | 24 |  | 16,665.22 |
| 45 | Majestic | 6 | 4 | 18 | 24 |  | 16,934.73 |
| 46 | Unicorn | 6 | 4 | 17 | 22) |  | 19,008.29 |
| 47 | Griffin | 6 | 4 | 17 | 22 |  | 18.492 .21 |
| 48 | Toiyabe | 6 | 4 | 1" | 22 |  | 18,965.80 |
| 49 | Toquima | 6 | 4 | 17 | 22? |  | 16,236. 38 |
| 50 | Champion | 4 | 5 | 16 | 24 |  | 13,969.54 |
| 51 | Qlimax | 4 | 5 | 16 | 24. |  | 13,624.77 |
| 52 | Tip Top | 4 | 5 | 16 | 24. |  | 13,908.84 |
| 53 | Summit | 4 | 5 | 16 | $24 \%$ |  | 1'3,830.37 |
| 54 | Red Deer | 4 | 5 | 16 | 24. |  | 13,830.37 |
| 55 | Black Deer | 4 | 5 | 16 | 24 |  |  |
| 56 | Grizzly | 6 | 4 | 18 | 244 |  |  |
| 57 | Bison | 6 | 4 | 18 | 24 |  |  |
| 58 | Placer | 6 | 4 | 18 | 24 |  |  |
| 59 | Pluto | 6 | 4 | 18 | 24 |  |  |
| 60 | Jupiter | 4 | 5 | 26 | 24 |  |  |
| 61 | Storm | 4 | 5 | 16 | 24 |  |  |
| 62 | Whirlwind | 4 | 5 | 16 | 24 |  |  |
| 63 | Leviatran | 4 | 5 | 16 | 24 |  |  |
| 64 | Emigrant | 4 | 5 | 16 | 24 |  | 13,159,78 |
| 65 | Mikado | 4 | 5 | 16 | 24 |  | 12,906.00 |
| 66 | Tycoon | 4 | 5 | 16 | 24 |  | 13,066.09 |
| 67 | Hec tor | 4 | 5 | 16 | 24 |  | 13,175.65 |


| 68 Peoquop | 6 | 4t | 18 | 24 | \$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 69 V ulcan | 6 | 4t ${ }^{\text {a }}$ | 18 | 24 |  |
| 72 Niagara | 6 | 4t | 18 | 24 |  |
| 73 Terrible | 6 | $4 \frac{1}{8}$ | 18 | 24 | 15,391.66 |
| 74 Dragon | 60 | $4 \frac{1}{2}$ | BB | 24 | 15,301.66 |
| 75 G rowl er | 6 | 4t | 18 | 24 |  |
| 76 Carrier | 4 | 5 | 16 | 24 |  |
| 77 Confuctus | 4 | 5 : | 16 | 24 |  |
| 78 Mars | 4 | 5 | 18 | 24 |  |
| 79 Ap0110 | 4 | 5 | 16 | 24 |  |
| 80 Phil Sheridan | 4 | 5 : | 16 | 24 | 13,659.84 |
| 81 U. S. Grant | 4- | 5 | 16 | 24 | 23,674.67 |
| 82 Buffalo | 6 | 4 ${ }^{2}$ | 18 | 24 |  |
| 83 Mountaineer | 6 | 4 \% | 18 | 24 |  |
| 84 Gazelle | 4 | 5 | 16 | 24 |  |
| 86 White Bear | 6 | 4t | 18 | 24 |  |
| 86 G orilla | 6 | \%** | 18 | 24 |  |
| 87 Tempest | 6 | 4te: | 18 | 24 |  |
| 88 Hurricane | 6. | 42 | 18 | 24 |  |
| 89 Giant | 6 | $4 \frac{1}{8}$ | 18 | 24 |  |
| 90 G ladiator | 60 | $4 \frac{1}{2}$ | 18 | 24 |  |
| 91 Tiger | 6 | 4 $\frac{1}{2}$ | 18 | 24 |  |
| 92 verdi | 66 | 4管: | 18 | 24 |  |
| 93 Oronico | 4 | 5 | 14 | 24 |  |
| 94 Eclipse | 4 | 5 | 15 | 24 |  |
| 95 Driver | 4. | 5 | 15 | 24 |  |
| 96 Clipper | 4. | 5 | 15 | 24 |  |
| 97 Racer | 4 | 5. | 15 | 24 |  |
| 98 Rattler | 4 | 50 | ; 5 | 24 |  |
| 99 Ranger | 4 | 5 | 15 | 24 |  |
| 100 Rover | 4 | 5 | 15 | 24 |  |
| 101 Hunter | 4 | 5 | 15 | 24 |  |
| 102 Kunner | $4 \cdot$ | $42 / 3$ | 15 | 22 |  |
| 103 Rusher | 4 | 4 2/3 | 15 | 22 |  |
| 104 Rambler | $4{ }^{4}$ | $42 / 3$ | 15 | 22 |  |
| 105 Rdl ler | 4. | $42 / 3$ | 15 | 22 |  |
| 106 Pacer | 4 | 42.13 | 15 | 22 |  |
| 107 Courser | 4 | $42 / 3$ | 15 | 22 |  |
| 108 stager | 44 | $412 / 3$ | 15 | 22 |  |
| 109 Flier | $4{ }^{\text {i }}$ | $42 / 3$ | 15 | 22 |  |
| 110 fire Fly | 4. | $42 / 3$ | 15 | 22 |  |
| 111 Chamois | 4 | $42 / 3$ | 15 | 22 |  |
| 112 Hawk | 4 | $42 / 3$ | 15 | 22 |  |
| 113 Falc on | 4. | $42 / 3$ | 15 | 22 |  |
| 114 Feron | 4 | $42 / 3$ | 15 | 22 |  |
| 115 Eagle | 4 | 4 2/3 | 15 | 22 |  |
| 116 Vhite Eagle | 4 | $42 / 3$ | 15 | 22 |  |
| 117 Hedi Eagle | 4 | $42 / 3$ | 15 | 22 |  |
| 118 Grey [ Tratle | 4 | $42 / 3$ | 15 | 22 |  |
| 119 G Olden Eagle | 4 | $42 / 3$ | 15 | 22 |  |
| 120 Bald Eagle | 4 | $42 / 3$ | 15 | 22 |  |
| 121 Américan Eagle | 4 | $42 / 3$ | 15 | 22 |  |


| 122 | Willame tte | 4 | 5 | 16 | 24 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 123 | Geo. L. Woods | 4 | 5 | 上6 | 24 |
| 124 | Umpqua | 4 | 5 | ¢6 | 24 |
| 215 | J. R. Moores | 4 | 5 | 16 | 24 |
| 126 | Swiftoure | 4 | $42 / 3$ | 1.6 | 22 |
| 127 | Meroury | 4 | $42 / 3$ | 20 | 22 |
| 128 | Herald | 4 | $42 / 3$ | 15 | 22 |
| 129 | Fleetfoot | 4 | $42 / 3$ | 15 | 22 |
| 130 | Favorite | 4 | $42 / 3$ | 15 | 22 |
| 381 | Grey Hound | 4 | $42 / 3$ | 15 | 22 |
| 132 | Deer Hound | 4 | $42 / 3$ | 15 | 22 |
| 133 | Foc Hound | 4 | $42 / 3$ | 15 | 22 |
| 341 | Trapper | 4 | $42 / 3$ | 15 | 22 |
| 135 | Peeler | 4 | $42 / 3$ | 15 | 22 |
| 138 | Bhue Bird | 4 | $42 / 3$ | 15 | 22 |
| 139 | Blue Jap | 4 | 4 2/3 | 15 | 22 |
| 140 | Ostrich | 4 | $42 / 4$ | 15 | 22 |
| 141 | Magpie | 4 | $42 / 3$ | 15 | 22 |
| 142 | Raven | 4 | $42 / 3$ | 15 | 22~ |
| 143 | stan | 4 | $42 / 3$ | 15 | 22 |
| 144 | Crane | 4 | $42 / 3$ | 15 | 22 |
| 145 | Dart | 4 | $42 / 3$ | 15 | 22 |

$$
\begin{array}{r}
\$ 13,009.28 \\
13,009.29 \\
13,009.29 \\
13,009.29
\end{array}
$$

The road is well constructed and Passenger Trains can de safely run over it at a rate of foty miles per hour, and at as high rate of speed as any similar railroad in the United States.

The Maps and profiles marked "A" "B" "C" and "D" are correct drawings of this section ( 100 miles) of said railroad. from section 571 to section 670, both inolusive. The Map shows correctly the various curved and tangents, and the Profile correctly exhibits the original surface line and the grades upon which this section of the said railroad is constructed.

All of which is respectfullu submitted.
James W. Haines
Frederick A, Trutle
William Sherman $\left\{\begin{array}{l}\text { Commissioners }\end{array}\right.$

Sacramento April 28 th, A. D. 1869.

## UNI TED STATES OF AMERICA

State of California.

To His Excellency, Ulysses S. Grant President, the Hon. George S. Boutwell, Secretary of the Treasury, and the Hon. Jacob D. Cox Secretary of the Interior, of the United States:

The undergigned, James W. Haines, Frederick A. Tritle and William Sherman Commissioners, appointed by the $P$ resident of the Onited States to examine and roport upon the Central Pacitic Railroad of California, under and in pursuance of the provisions of the Act of Congress, entitled, "An Act to aid in the construction of a railroad and tel egraph line from the Missouri kiver to the Pacific Ocean, and to gecure to the $G$ overnment the use of the game for postal, military and other purposes, approved July 1,1862, and the Acts amendatory thereof, approved Jyly 2, 1864, March 3 , 1865 and July 3 1866, would respectfully state, that they have this day made a report upon the construsetion and completion of an addition and continuation of twenty $3 / 10$ miles of the said railroad and telegraph line, commencins at the termination of thensix hundred and seventieth mile, and ending at the termination of the six hundred and ninetieth $3 / 10$ mile, which is hereby referred to. That in addition to the matters therein atated they would fürther respectfully

Report and Certify That in the said twenty anit $5 / 10$ miles of said railroad, the number of degrees of curved line is 965 degrees and 36 minutes; the length of the curved line is $45,728.2$ feet and of the tangent lines is 61, 433.2 teet; the percentage of curved line is 43.25. The width of the embankments at grade line is fourteen feet, and the inclination of the slopes of the embankments is one and one half feet horizontal to one foot vertical. The width of the excavations at grade line varies from 16 to 20 feet, according to the material forming the sides of the cuts, and the inclination of the slopes of the excavations varies with the nature of the material through which the excavation is made, and is as follows; Through earth, one foot horizontal to one foot vertical; soft rock one half to one, three fourths to One and one foot horizontal to one foot vertical; through hard rock, one fourth of a foot horizontal to one toot vertical.

The culverts are all either built with an aroh, or in the open or box form. of hard stone and their number and size are as foll ows:

LIST OF CULVERTS
On Sections 671 to $6903 / 10$ both inclusive.

| NO | Descrdption | Size |
| :---: | :---: | :---: |
| 84 | Box Culverts | $2 \times 3$ feet |
| 1 | " | $2 \times 2$ |
| 1 | " ${ }^{\prime \prime}$ | $2 \times 2 \frac{1}{}$ |
| 4 | Open | 6 feet span |
| 25 | н | $4 "$ |

1 Trestle, 48 feet 1 ong.
The following are the bridges on said section of twenty 3.10 miles;

BRIDGES.
Birst. There are no bridges on said section of twenty $3 / 10 \mathrm{mlles}$.

There are no public Road Crossings. No tences or tarm gates $h$ gates have been puilt on said section, as none are needed, the road being built almost entirely on vacant public land, and where buil through enclosed fields, fences have not veen found necessary.

The main track of this section is Twenty $3 / 10$ miles in length With 2000 feet of side tracks attached thereto, deing surficient to accommodate the present business of the road.

The weight of the rails used is not less than 56 pounds per yard. They are connected by fish joints. This consists of two wrought iron bars, twenty inches in 1 ength by two and one hall inches in width, and three fourths of an inch thick, iitting ciosely to the neck of the rail, and held firmly in place by four ool ts and nuts. The rails used are generally twenty eight fieet in length.

The spikes used are of wrought iton, five and one half inches in leng th, nine sixteenths of an inch square, weight one hali pound each, and number about ten thousand fiye hunared per mile upon straight lines, the number being increased upon tne curves.

Upon this portion of the railroad, there is an average of 2260 cross ties per mile. These ties are red spruce, yelior pine, tamarack and white cedar. The greater portion are, nowever, tamarack and pine. They are eight feet in length, not less than six by eight inches in size, the joint ties being not less than six by ten inches.

The material forming the road bed, for the greater portion of these $203 / 10 \mathrm{miles}$, is, of itself, good ballasting, and is used for that purpose. the ties being firmly imbedded tnerein. The material consists largely of sand rock and gravel from the excavations. The ballasting cannot be fully completed until the embankments have had time to settle, which will take several months. The ballagt is used at the rate of one and one quarter eubic yards per lineal yard of road.

There is one station on said portion of said rail road line to wit: One at Rozel $682 \frac{1}{2}$ miles from Sacramento.

There are no machine shops on this portion of the rall road-the machine shops and engine houses being located at Sacramento, Rocklin, Wadsworth, Winnemucoa, Carlin and Toano.

There are now in use on the road the following cars, to wit;


There are 243 Locomotives nof in use on the road, all of them of the best style and quality, of the best chass used on American roads, are manufactured by American builders, and well adapted for sorvice on heavy grades and sharp curves.

The following is a list of the Locomotises now in use:

| No | $\begin{aligned} & \text { Names of } \\ & \text { Engines } \end{aligned}$ | No of Drivers | $\begin{aligned} & \text { Diam of } \\ & \text { Drivers } \end{aligned}$ | Diam of CLength Cyl indersstroke | Weight including Tender | Cost |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |



| 86 | Gorilla | 6 | $4 \frac{1}{2}$ | 18 | 24 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 87 | Tempest | 6 | 4t | 18 | 24 |
| 88 | Hurricane | 66 | 4t | 18 | 24 |
| 89 | Giant | 6 | 4t | 18 | 24 |
| 90 | Gladiator | 6 | 412: | 18 | 24 |
| 91 | Tiger | 6 | 41 | 18 | 24 |
| 92 | Verdi | 6 | 412 | 18 | 24 |
| 93 | Oronoco | 4 | 5 | 14 | 24 |
| 94 | Eclipse | 4 | 5 | 15 | 24 |
| 95 | Driver | 4 | 5 | 15 | 24 |
| 96 | Clipper | 4 | 5 | 18 | 24 |
| 97 | Racer | 4 | 5 | 15 | 24 |
| 98 | Rattler | 4 | 5 | 16 | 24 |
| 99 | Ranger | 4 | $5{ }^{\circ}$ | 15 | 24 |
| 100 | Rover | 4 | 50 | 15 | 24 |
| 101 | Hunter | 4 | 50 | 15 | 24 |
| 102 | Runner | 4 | $42 / 3$ | 15 | 22 |
| 103 | Rusher | 4 | $42 / 3$ | 15 | 22 |
| 104 | Rambler | 4 | $42 / 3$ | 15 | 22 |
| 105 | Roller | 4 | $42 / 3$ | 15 | 22 |
| 106 | Pacer | 4 | $42 / 3$ | 15 | 22 |
| 107 | Courser | 4 | $42 / 3$ | 15 | 22 |
| 108 | Ttager | 4 | $42 / 3$ | 15 | 22 |
| 109 | Flier | 4 | $42 / 3$ | 15 | 22 |
| 110 | Fire Fly | 4 | $42 / 3$ | 15 | 22 |
| 121 : | Chamois | 4. | $42 / 3$ | 15 | 22 |
| 122 | Hawk | 4 | $42 / 3$ | 15 | 22 |
| 113 | Falcon | 4 | $42 / 3$ | 15 | 22 |
| 114 | Heron | 4 | $42 / 3$ | 15 | 22 |
| 115 | Eagle | 4 | $42 / 3$ | 15 | 22 |
| 116 | Vini te Eagle | 4 | $42 / 3$ | 15 | 22 |
| 117 | Red Eagle | 4 | $42 / 3$ | 15 | 22 |
| 118 | Grey Eagle | 4 | $42 / 3$ | 15 | 22 |
| 119 | Golden Eagle | 4 | $42 / 3$ | 15 | 22 |
| 120 | Bala Eagle? | $\leq$ | $42 / 3$ | 15 | 22 |
| 121 | American Eagle | A | $42 / 3$ | 15 | 22 |
| 222 | WIllamette | 4 | 5 | 15 | 24 |
| 123 | Geo L Woods | 4 | 5 | 15 | 24 |
| 124 | Umpqua | 4 | 5 | 15 | 24 |
| 125 | J.R. Moores | 4 | 5 | 35 | 24 |
| 126 | Swiftsure | 4 | $42 / 3$ | 15 | 22 |
| 127 | Mercury | 4 | $42 / 3$ | 15 | 22 |
| 128 | Herald | 4 | $42 / 3$ | 15 | 22 |
| 129 | Fleetfoot | 4 | $42 / 3$ | 15 | 22 |
| 130 | Favorite | 4 | $42 / 3$ | 15 | 22 |
| 131 | Grey Hound | 4 | $42 / 3$ | 15 | 22 |
| 132 | Deer Hound | 4 | $42 / 3$ | 15 | 22 |
| 133 | Fox Hound | 4 | $42 / 3$ | 15 | 22 |
| 134 | Trapper | 4 | $42 / 3$ | 15 | 22 |
| 135 | Peeler | 4 | $42 / 3$ | 15 | 22 |
| 138 | Blue Bird | 4 | $42 / 3$ | 15 | 22 |
| 139 | Blue Jay | 4 | $42 / 3$ | 15 | 22 |
| 140 | Ostrich | 4 | $42 / 3$ | 15 | 22 |

$$
\begin{array}{r}
\$ 13,009.28 \\
13,009.29 \\
13,009.29 \\
13,009.29
\end{array}
$$

| 29 | Antel ope | 4 | B | 16 | 24 |  | \$ 16,816.24 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 30 | Tahoe | 4 | 5 | 16 | 22 |  | 17,981.13 |
| 31 | Klamath | 4 | 5 | 26 | 22 |  | 17,988.54 |
| 32 | Ajax | 6 | 4 | 16 | 24 | 38 | 18,354.84 |
| 33 | Achilles | 6 | 4 | 16 | 24 | 38 | 17,915.69 |
| 34 | gl Dorado | 4 | 5t | 46 | 24 |  | 20,009.58 |
| 35 | Boise | 4 | 5t | 16 | 24 |  | 20,218.36 |
| 36 | Shoshone | 4 | 5 | 26 | 22 |  | 17,739.39 |
| 37 | Mohave | 4 | 5 | 26 | 22 |  | 17,633.98 |
| 38 | Ogdens burg | 6 | $4 \frac{1}{8}$ | 18 | 24 | 56 | $17,830.43$ |
| 39 | Mal one | 6 | 4t | 18 | 24 | 56 | 17.838 .94 |
| 40 | Solano | 4 | 5 | 16 | 22 |  | $12,000.00$ |
| 41 | Stanislaus | 4 | 5 | 16 | 22 |  | 12.000 .00 |
| 42 | Tuol umne | 4 | 5 | 26 | 22 |  | $12,000.00$ |
| 43 | Tulare | 46 | 5 | 26 | 22 |  | 12,000.00 |
| 44 | C0108gus | 6 | 4t | 18 | 24 |  | 16,663.22 |
| 45 | Majestic | 6 | 4产 | 18 | 24 |  | $16,934.73$ |
| 46 | Undcorn | $6 \%$ | 4 | 17 | 22 |  | 19,008.29 |
| 47 | Griffin | 6 | 4 | 17 | 22 |  | 18,992.21 |
| 48 | Toiyabe | 60 | 4 | 17 | 22 |  | 18,963.86 |
| 49 | Toquima | $6!$ | 4 | 17 | 22 |  | 16,236.38 |
| 50 | Champion | 4 | 5 | 16 | 24 |  | $13,969.54$ |
| 51 | Climax | 4 | 5 | 16 | 24 |  | 13;624.77 |
| 52 | Tip Top | 4 | $5:$ | 16 | 24 |  | $13,908.84$ |
| 53 | Summit | 4 | 5: | 16 | 24 |  | $13,830.37$ |
| 54 | Red Deer | 4 | 5 | 16 | 24 |  |  |
| 55 | Black Deer | 4 | 5 | 16 | 24 |  |  |
| 56 | Grizzly | 6 | 4 | 18 | 24 |  |  |
| 57 | Bigon | 6 | 4 | 18 | 24 |  |  |
| 58 | Bracer | 6 | 4 | 18 | 24 |  |  |
| 59 | Pluto | 6 | 4 | 18 | 24 |  |  |
| 60 | Jupiter | 4 | 5 | 16 | 24 |  |  |
| 61 | Storm | 4 | 5 | 16 | 24 |  |  |
| 62 | Whirlwind | 4 | 5 | 16 | 24 |  |  |
| 63 | Levia than | 4 | 5 | 16 | 24 |  |  |
| 64 | Emigrant | 4 | $5 \%$ | 16 | 24 |  | $13,159.78$ |
| 65 | Mikado | 4 | $E$ | 1.6 | 24 |  | 12,906.00 |
| 66 | Tycoon | 4 | 5 | 16 | 24 |  | 13,066.09 |
| 67 | Hector | 4 | 5 | 16 | 24 |  | 13,175.65 |
| 68 | Peoquop | 6 | 4娄 | 18 | 24 |  |  |
| 69 | Vulcan | $6!$ | 4t | 18 | 24 |  |  |
| 72 | Niagara | $6:$ | 4t | 18 | 24 |  |  |
| 83 | Terrible | 6 | $4 \frac{1}{2}$ | 18 | 24 |  | 25,391.66 |
| 74 | Dragon | 6 | 4t | 18 | 24 |  |  |
| 75 | Growl er | 6, | 4t | 18 | 24 |  |  |
| 8.8 | Carrier | 4 | 5 | 16 | 24 |  |  |
| 77 | Confucius | 4 | 5 | 16 | 24 |  |  |
| 78 | Mars | 4 | 5 | 16 | 24 |  |  |
| 79 | ApOL10 | 4 | 50 | 16 | 24 |  |  |
| $80^{\circ}$ | Phil Sheridan | 4 | 5 . | 16 | 24 |  | $13,659.84$ |
| 81 | U, S, Grant | 4 | 5 | 16 | 24 |  | $13,674.67$ |
| 82 | Buffalo | 6 | 4t | 18 | 24 |  |  |
| 83 | Mountaineer | 6 | 4t | 18 | 24 |  |  |
| 84 | Gazelle | 4 | 5 | 16 | 24 |  |  |
| 85 | Minte Eear | 6 | 4t $\frac{1}{2}$ | 18 | 24 |  |  |
|  |  | 6 |  |  |  |  |  |
|  |  | 6 |  |  |  |  |  |


| 141 | Magpie | 4 | 4 | $2 / 3$ | 15 |
| :--- | :--- | :--- | :--- | :--- | :--- |
| 142 | Raven | 4 | $42 / 3$ | 15 | 22 |
| 143 | 8wan | 4 | 4 | $2 / 3$ | 15 |
| 144 | Crane | 4 | 4 | $2 / 3$ | 15 |
| 145 | Dart | 4 | 4 | $2 / 3$ | 15 |
| 164 | Esmeral da | 4 | 5 | 16 | 22 |
| 165 | Aurora | 4 | 5 | 16 | 22 |
|  |  |  |  |  |  |

The road is well constructed, and Passenger Trains can be safely run over it at the rate of forty miles per hour, and at as high a rate of speed as any similar rail road in the United 3 tates.

The Map and profifemarked "A", is a correct draring of this section ( $203 / 10$ ) mbegaid railroad, from section 671 to section $6903 / 10$. both inclusive. The Map shows correctly the various curves and tangents, and the profile correctiy exhibits the original surface line and the grades upon which this section of said rail road is constructed.

All of which is respectfully submitted.


Sacramento, May l5th, A. D. 1869.


[^0]:    (J.S.)

