

A. QUIROLO.
Stereoscopes.

No. 156,311.

Patented Oct. 27, 1874.

Fig: 1

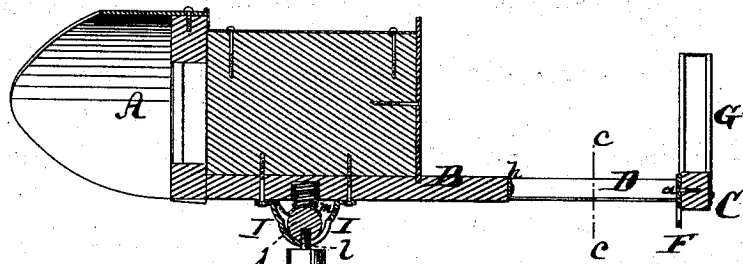


Fig: 3

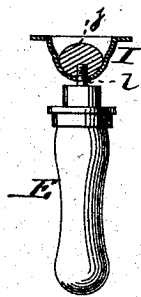


Fig: 4

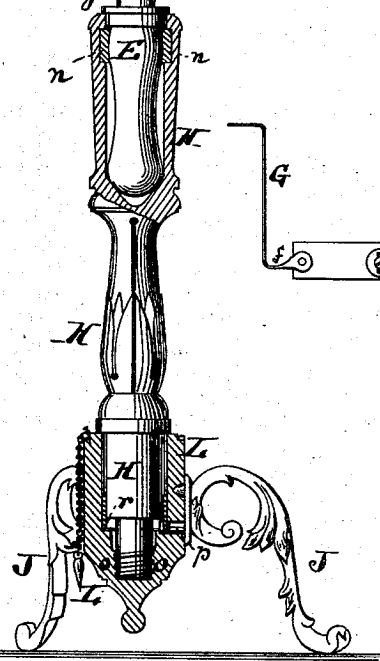
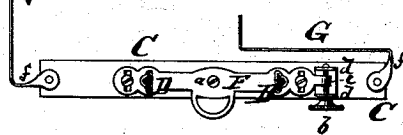
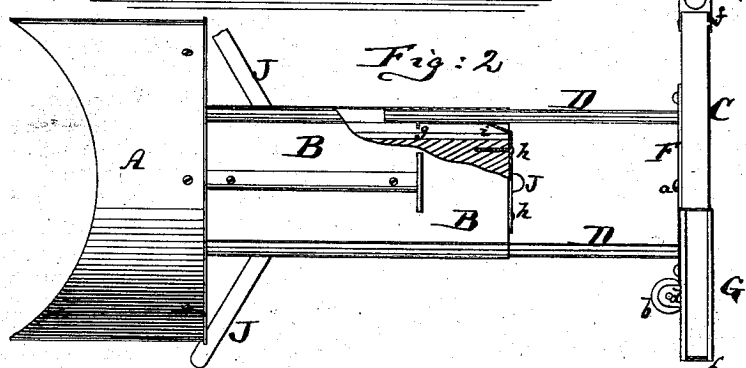


Fig: 2



Witnesses:

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Antonio Quirolo
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UNITED STATES PATENT OFFICE.

ANTONIO QUIROLO, OF HOBOKEN, NEW JERSEY.

IMPROVEMENT IN STEREOSCOPES.

Specification forming part of Letters Patent No. **156,311**, dated October 27, 1874; application filed September 12, 1874.

To all whom it may concern:

Be it known that I, ANTONIO QUIROLO, of Hoboken, in the county of Hudson and State of New Jersey, have invented a new and Improved Stereoscope, of which the following is a specification:

Figure 1 is a vertical longitudinal section of my improved stereoscope; Fig. 2, a plan view, partly in section, of the same; Fig. 3, a detail cross-section of the handle and its attachment; Fig. 4, a cross-section on the line *c c*, Fig. 1.

Similar letters of reference indicate corresponding parts in all the figures.

This invention relates to various improvements in the construction of stereoscopes, having for its object to increase the exactness of the instrument and its adjustability to varying means of support. The specific items of improvement are hereinafter more fully set forth. The chief feature of the invention relates to the means for permitting the adjustment of the picture-holder with reference to the position of the lens of the instrument. It is a well-known fact that if any part of a stereoscope, however exact it may originally have been made, should shrink or warp the whole instrument will be useless, because no longer exact. In order to make it possible to readjust to proper exactness an instrument that may, by shrinking, warping, or otherwise, have changed the relative position of its parts, I have devised a pivot connection between the lens-holder and the picture-holder.

In the drawing, the letter A represents the lens case or holder—that is, that portion of the stereoscope within which the lenses are contained. B is the base-plate of the instrument, usually employed to extend backward from the lens-holder A. C is the rear cross-bar or picture-holding bar of the instrument. The same is usually connected with slides D D, that enter sockets or tubular receptacles at the sides of the board or base-plate B. In accordance with my invention, I connect the rear ends of the slides D D by a cross-plate, F; and I pivot the middle of said cross-plate F, by a pin, *a*, to the middle of the cross-bar or picture-holding bar C. On this pivot *a* the cross-bar C can be vibrated, so that it can be

adjusted to have its upper surface parallel to a line that can be drawn through the centers of the lenses. In this manner I am enabled to readjust the instrument in case it should have shrunk, or if otherwise the proper relation of its parts should have become deranged. It is evident, however, that my invention can be carried into effect by pivoting the lens frame or holder A instead of pivoting the picture-holder C, or by otherwise providing, by pivot connection, for the requisite adjustment of picture and lens as regards their horizontal parallelism. For preventing the cross-bar C from spontaneously changing its position on or around the pivot *a*, I have swiveled a screw, *b*, in ears *d* that project from the picture-holder C; and have caused this screw to pass through a nut, *e*, that is rigidly attached to the bar or plate F, so that by turning the screw *b* I am enabled to adjust the cross-bar C on the pivot *a*, and to lock it in the desired position. A further feature of my invention has reference to the construction of the picture-clasps G G, which are applied to the ends of the cross-bar C. These clasps G are usually pivoted to the upper part or end of the cross-bar, or to extension-plates that are pivoted to such cross-bar. If directly connected, they require the cross-bar to be fully as long as the picture, while, if indirectly connected—that is to say, by extension-plates—they cause the instrument to be more expensive than if there were merely a direct connection. I have constructed these clasps G so that they will permit the cross-bar to be shorter than the picture, and still dispense with the extension-plate. This object I attain by making each clasp G L-shaped—that is to say, bending its lower end at about right angles to its main body. The lower bend *f* of each clasp will, when the clasp is raised vertically, constitute an extension of the cross-bar, while, when the clasp is folded upon the cross-bar, it will come in line with the end of the cross-bar. In this manner I am enabled to use, for transporting my stereoscope, a box narrower than the length of the picture. The pivots of the clasps G pass through ears that extend from the lower bend *f*, as clearly shown in Fig. 4. The clasps are slotted or grooved lengthwise to receive and hold the ends of the pictures. Each slide D of

the instrument has a short inwardly-projecting lug, *g*, near or at its forward end, as is clearly shown in Fig. 2. To the back of the usually-wooden base-plate B, I attach a metal cross-plate, *h*, which has forwardly-projecting spring ends *i i*. These spring ends bear against the inner faces of the slides D, and apply sufficient friction to the same to retain the cross-bar C at any desired distance from the lenses. The spring ends *i* of the cross-piece *h* serve the further purpose of abutting against the lugs *g* whenever the cross-bar C has been drawn backward to its fullest extent, thus preventing said cross-bar and its slides D from being entirely withdrawn from the body of the instrument. Thus by the mere application of the small plate *h* with its forwardly-bent ends *i*, I dispense with the expensive friction and retaining devices heretofore used, and also with the bridge piece usually employed over the base-plate B.

For connecting the handle E or the pillar H to the under side of the base-plate, I have devised a ball and socket-joint of peculiar construction. I attach an ellipsoid, *j*, by a stem or pin, *l*, to the end of the handle E or pillar H, and insert this ellipsoid in the corresponding recess of a shell, I, that is screwed to the under side of the base-plate B. The stem *l* passes through a slot in the shell I. A spring, *m*, bears upon the ellipsoid, being interposed between the same and the base-plate. Now, when it is desired to turn the instrument, so as to bring the lenses higher up or lower down, this can easily be done, because the base-plate B and its shell I will readily vibrate on and around the ellipsoid *j*, the spring *m* keeping the parts always in the requisite position. The ball *j* I make in the form of an ellipsoid rather than in the form of a sphere, for the purpose of allowing the stem or pin *l* to be unscrewed, which could not be readily done if the part *j* were a ball, as in that case it would revolve with the pin *l* around the axis of the same. This construction of joint has many advantages over the pivot-joint heretofore in use, and described in a former patent granted to me, inasmuch as it prevents the parts from wearing laterally, and from becoming loose after short use.

I have stated that the pin *l* may project either from the handle E or from the pillar H. When it is made to project from the handle E, I prefer to make this handle attachable to the pillar H, in order to allow the instrument to be used either on a stand or in the hand. For effecting this I make the upper end of the pillar H hollow, the socket of the same being sufficiently large to receive the handle

E, as clearly indicated in Fig. 1. To prevent the handle from shaking in the pillow, I apply a rubber ring, *n*, in the socket, firmly attaching it therein, so that said rubber ring, when it embraces the inserted handle E, will hold the same sufficiently firm to prevent it from shaking or becoming laterally displaced in the pillar.

The pillar H is shown to have radially-projecting feet J J. In transportation considerable space can be saved by withdrawing these feet from the pillar, and in order to permit this I have made the pillar in two parts. Its lowermost part L is made tubular, and contains within it nut *o*. The feet J have hook-shaped projections, *p*, which enter through slots into the interior of the tubular lower end L of the pillar. The main body or upper part of the pillar H has, at its lowermost end, a screw-thread, matching the nut *o*, and above the same a downwardly-projecting ledge, *r*. When the feet J are fitted into the tube L, I screw the body H of the pillar into the latter until the ledge *r* enters into the recesses or grooves of the hooks *p*, thus locking the feet to the tube L, and the tube L to the body H of the pillar.

In this manner the requisite connection of parts can be readily secured, and still they may be taken to pieces whenever desired.

I claim as my invention—

1. A stereoscope having its picture-holding cross-bar C and its lens frame or holder A united by a pivot, *a*, for permitting the relative vertical adjustment of the picture and lenses, substantially as described.

2. The screw *b*, arranged in combination with the plate F and cross-bar C, of the stereoscope, substantially as and for the purpose specified.

3. The cross-plate *h* having the forwardly-projecting spring ends *i i* and bearing against the slides D D, which have the projecting lugs *g*, substantially as described.

4. The pillar H, made tubular at its upper end, and provided with the interior rubber ring *n*, to receive the main portion of the handle E of the stereoscope, substantially as herein shown and described.

5. The combination of the feet J, which have the hook-projections *p*, with the tube L, and with the body H of the pillar, said body having a downwardly-projecting ledge, *r*, for locking the feet, substantially as specified.

ANTONIO QUIROLO.

Witnesses:

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