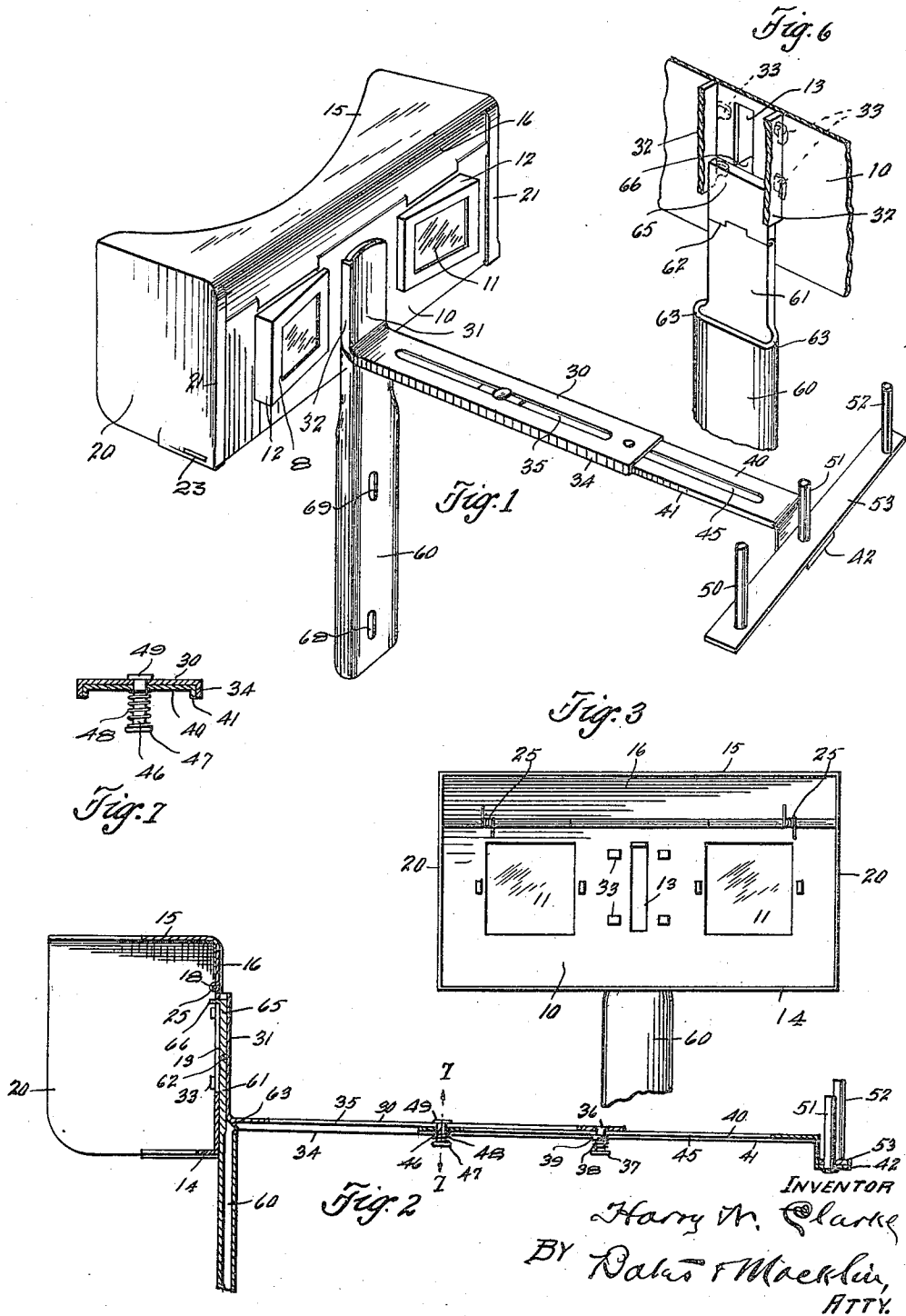


H. N. CLARKE.
STEREOSCOPE.
APPLICATION FILED FEB. 23, 1917.

1,252,089.

Patented Jan. 1, 1918.
2 SHEETS—SHEET 1.

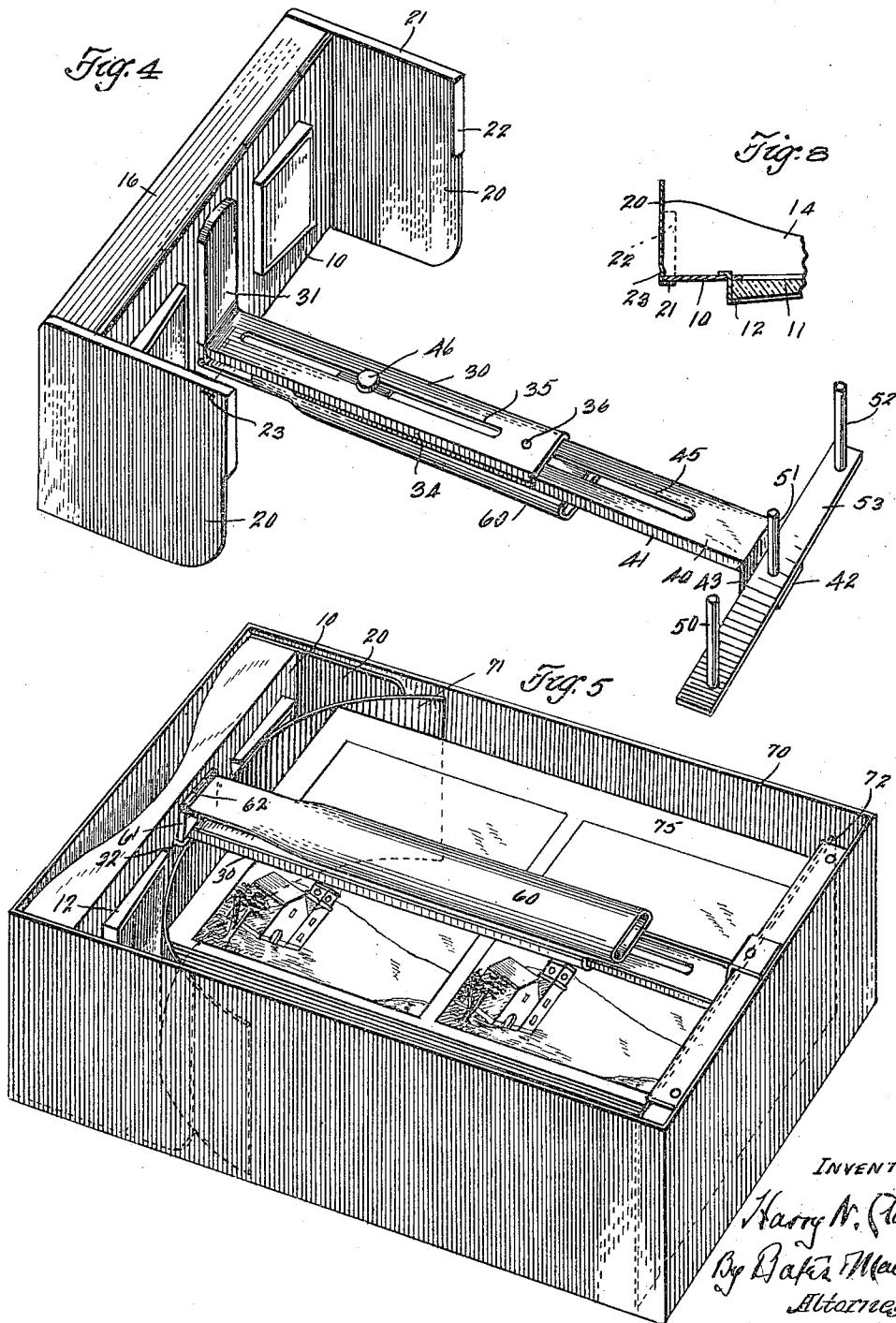


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INVENTOR
Harry N. Clarke
By Baker Macklin,
Attorneys.

UNITED STATES PATENT OFFICE.

HARRY N. CLARKE, OF CLEVELAND, OHIO, ASSIGNOR TO THE CORTE-SCOPE COMPANY,
OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

STEREOSCOPE.

1,252,089.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HARRY N. CLARKE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Stereoscopes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The object of this invention is to provide a stereoscope adapted to be folded into a compact space. Adaptability for placing in a box with stereoscopic views, and ease of extending or folding the instrument are characteristics of my stereoscope. Further this stereoscope is so designed that it may be very cheaply constructed, being readily made almost entirely of sheet metal. My invention is hereinafter more fully explained, and its essential characteristics are set out in the claims.

In the drawings, Figure 1 is a perspective view of the stereoscope extended or in condition for use; Fig. 2 is a longitudinal section through the stereoscope ready for use; Fig. 3 is a front elevation of the stereoscope, that is, looking into the light-shielding hood; Fig. 4 is a perspective view of the stereoscope collapsed; Fig. 5 is a perspective view of the stereoscope collapsed and inverted and located in a box with stereoscopic views. Fig. 6 is a perspective view of a portion of the lens-carrying plate with the handle dropped ready for folding, and Fig. 7 is a cross section through the extensible shaft, as indicated by the line 7-7 in Fig. 2, these two views being on an enlarged scale; Fig. 8 is a fragmentary detail in horizontal section, as indicated by the line 8 on Fig. 1.

In the drawings, 10 indicates the vertical lens-plate carrying lenses 11, 11, which are shown as mounted in frames 12 suitably secured to the rear face of the lens-plate. On the lower edge of this lens-plate is a forwardly extending flange 14, forming the bottom or nose-plate. 15 indicates the top or vizer-plate. This has a depending vertical flange 16 (preferably an integral portion of the plate rounded from it), the lower edge of which flange is hinged to the upper edge of the lens-plate. There may conveniently be a hinge wire 18 and curled ears on the vertical flange and the lens-plate, as shown.

Depending from the ends of the vizer-plate and rigid with it, are the end plates 20. These are provided at their rear edges with narrow inwardly extending flanges 21 adapted to lie against the rear face of the lens-plate when the hood is in active position. The end plates 20 also have inward flanges 22 extending a short distance along their lower edges. These flanges are adapted to abut the lower face of the nose-plate 14. The end plates 20 are provided with slight inward projections adjacent to their lower corners, preferably made by bending inwardly a portion of the plate, as illustrated at 23. This inward projection or protuberance lies just in front of the lens-plate and by engaging it prevents the extended hood being inadvertently collapsed.

One or more springs are provided, tending to maintain the hood in extended position. For this purpose I have shown helical springs 25, Fig. 3, surrounding the hinge rod 18 and having extended ends bearing against the flange 16 and the lens-plate 10. These springs are quite light, but are sufficient to swing the vizer and end flaps into active position when such parts are released.

Fig. 4 illustrates the hood collapsed with the vizer plate 15 swung down into a vertical position and the flange 16 horizontal and the end flaps 20 overhanging the ends of the lens-plate and projecting toward the view end of the stereoscope. This is the position of the hood when the stereoscope is stored, as hereinafter explained. When it is removed from its receptacle, the springs 25 automatically swing the hood into substantially the extended position shown in Figs. 1, 2 and 3. Then a slight pressure of the fingers on the flanges 21 springs the inward projections 23 over the ends of the lens-plate and secures the hood extended. The hood will remain in this position during use and will hold its extended condition, though comparatively light pressure will collapse it whenever desired.

The extensible shaft which carries the view holder and is connected with the lens-plate may conveniently be made of two pieces of sheet metal. One of these pieces has a substantially horizontal portion 30 and a vertical front portion 31 lying along the rear face of the lens-plate and secured to it. I provide the connection with the lens-plate

by forming flanges 32 on the edges of the portion 31, which flanges have lugs 33 extending through the lens-plate and bent over on the front side thereof. The horizontal portion 30 of this shaft member has downward edge flanges 34, stiffening it.

The member of the extensible shaft which carries the view holder is designated 40. It consists of a strip slightly narrower than the strip 30 and flanged at its edges 41 and seated within the strip 30. The two strips 30 and 40 are provided with slots 35 and 45 respectively, and each strip carries a pin extending through the slot of the other strip and provided with a spring establishing frictional engagement. The pin carried by the strip 30 is designated 36. It is shown as upset in the end portion of the strip and extends downwardly vertically and has a head 37. Around the shank of the pin is a spring 38 pressing upwardly against a washer 39 which lies on the underside of the strip 40, such spring action making a frictional binding between the two strips at this point. The other pin is designated 46. It is loosely mounted in a hole in the forward end portion of the strip 40 and extends through the slot 35 and has a head 49 on its upper end overhanging the strip 30. At its lower end it has a head 47 and above this a helical spring 48 bearing against the underside of the strip 40. The construction described provides a very simple frictional engagement between the two members of the extensible shaft, enabling the shaft to be telescoped as desired, as well as to hold any position given it.

The view holder shown is very simple and effective. It consists of three pins 50, 51 and 52 rising from a transverse bar 53, which is secured on a downwardly offset portion 42 of the strip 40. This downwardly offset portion is provided by a vertical connecting portion 43 and a horizontal step on which the cross bar seats. This construction may thus readily be effected by simply bending downwardly and then longitudinally the end portion of the strip 40, the flanges 41 being omitted at such parts. The pins are preferably secured to the strip 53 by having their lower ends upset therein. The middle pin 51 may extend through the step 42, and, by being upset below it, form the means of securing the strip to the step.

It will be noticed that the pin 51 is set somewhat nearer the front of the stereoscope than the other two pins. It is also somewhat shorter than the other pins. The view is placed in front of the two pins 50 and 52 and behind the pin 51, there being just enough bending of the view in this placement to frictionally hold it in position.

One of the features of my invention consists of the hinged handle adapted to be folded along the shaft for packing. This

handle is shown as consisting of a sheet metal member 60 bent to make a flattened hollow tube and having an upward extension 61 on its forward side. This forward extension is of a suitable width and thickness to pass into the vertical pocket provided between the shaft member 31 and the rear face of the lens-plate 10. This handle portion 61 is hinged at its upper end 62 to a plate 65 of corresponding thickness and width which lies within the pocket described, and is provided at its upper edge with a forwardly extending ear 66 adapted to project through a vertical slot 13 in the lens-plate.

The slot 13 limits the up and down movement of the handle, but is of sufficient length to allow the handle portion 61 to enter the pocket, locking the handle in vertical position, as shown in Fig. 1, or to allow it to drop to bring the hinge 62 below the shaft, as shown in Figs. 4, 5 and 6. When the handle is in its uppermost position the edges 63 of its tubular portion substantially abut the flanges 34 of the shaft member 30. The extension 61, as well as the plate 65, is then snugly housed within the pocket between the shaft portion 31 and the lens-plate, and the handle is held firmly in place. When, however, the handle is drawn downwardly, the hinge comes below the shaft and then the handle is free to be folded along the shaft. To enable the greatest compactness, I provide openings 68 and 69 in the rear face of the handle which provide space for the pins 36 and 46 when the handle is folded over into horizontal position.

Fig. 5 illustrates a suitable receptacle 70 for carrying the folded stereoscope together with a pile of views. This receptacle is preferably a rectangular box having near one end a curved partition 71 adapted to separate the folded hood from the view space, and, near the other end, a partition 72 separating the view holder from the view space. In the space between these partitions in the box I place a pile of views, as illustrated at 75. The curved partition 71 keeps these views away from either edge of the box so that space is provided for the operator's fingers whereby he may readily lift the views out from the box.

To store the stereoscope the hood is collapsed and the handle released and swung alongside of the shaft and the stereoscope is placed in an inverted position in the box, as shown in Fig. 5, the hood passing between the partition 71 and the adjacent end of the box, and the view holder between the partition 72 and that end of the box, and the shaft lying on top of the views. The hole 69 in the handle is so positioned that when the pin 46 registers with it, the shaft is collapsed just enough to enable the stereoscope to fit the box. Accordingly, in placing the

stereoscope in the box, the handle is folded alongside of the shaft and then the shaft is collapsed until the pins register with both holes in the handle. When the stereoscope is in the box, the shaft forms a bar across the pile of views, preventing their displacement.

It will be seen from the description and drawings that the stereoscope is arranged to occupy very little additional space in the box beyond that required for the views themselves. It is readily collapsed for placing in the box and extended when removed. In removing the stereoscope, it is only necessary, for example, to swing the handle upwardly into a vertical position and shove it downwardly, to carry its portion into the pocket, then to remove the stereoscope from the box, allowing the hood to spring into extended position, and securing the hood by a slight finger pressure at the corners.

Preferably, the handle extension 61 and the plate 65 have a snug enough engagement in the pocket on the lens-plate so that more force than the gravity of the parts is required to carry the hinge out of the pocket. Accordingly, when the handle is swung up and the hinge shoved down into the pocket (when the stereoscope is inverted in the box) the stereoscope may be lifted out from the box by its handle and carried by the handle until it is desired to again collapse it.

Having thus described my invention what I claim is:

1. In a hood for stereoscopes, the combination of a lens carrying plate, a top vizor hinged on a horizontal axis to the upper edge of the lens plate, vertical end flaps rigidly secured to the vizor and extending downwardly, the rear edges of said end flaps terminating adjacent to the ends of the lens plate when the vizor is horizontal and said end flaps extending rearwardly across the end plate when the vizor is swung down substantially parallel with the lens plate.

2. In a hood for stereoscopes, the combination of a lens plate, a top vizor plate, a downwardly extending flange at the rear edge of said vizor plate and rigid with it, said flange being hinged at its lower edge to the upper edge of the lens plate, and end flaps carried by one of said plates.

3. In a hood for stereoscopes, the combination of a lens plate, a top vizor plate, a downwardly extending flange at the rear edge of the vizor plate, said flange being hinged at its lower edge to the upper edge of the lens plate, and end flaps rigid with the vizor plate and flange.

4. In a hood for stereoscopes, the combination of a lens plate, a vizor plate having a downwardly extending flange the lower

edge of which is hinged to the upper edge of the lens plate, end flaps rigid with the vizor plate and flange, and flanges on the rear edges of the end flaps adapted to overlap and lie against the rear face of the lens plate when the vizor plate is substantially horizontal.

5. In a folding hood for stereoscopes, the combination of a lens plate, a vizor hinged below its normal plane to the upper edge of the lens plate, a nose plate extending forwardly from the lower edge of the lens plate and rigid therewith, end flaps rigid with the vizor and provided on their lower edges with flanges adapted to extend beneath the nose plate, and having on their rear edges flanges adapted to lie along the rear face of the lens plate.

6. In a hood for stereoscopes, the combination of a lens plate, a vizor plate having a downwardly extending flange the lower edge of which is hinged to the upper edge of the lens plate, and a nose plate extending forwardly from the lower edge of the lens plate for a distance approximately equal to the depth of said flange, whereby when the hood is folded the vizor and the extreme edge of the nose plate stand at about the same distance in front of the lens plate.

7. The combination of a lens plate, a vizor hinged to the upper edge thereof, a spring tending to swing the vizor into normal position, end flaps rigidly carried by the vizor, and a detent connection between such end flaps and the lens plate.

8. The combination of a lens plate, a vizor hinged to the upper edge thereof, a spring tending to swing the vizor into normal position, end flaps rigidly carried by the vizor, and flanges on the end flaps limiting the forward movement thereof.

9. In a folding hood for stereoscopes, the combination of a lens plate, a vizor plate having a downwardly extending flange hinged to the upper edge of the lens plate, a spring at such hinge tending to swing the vizor plate into normal position, end flaps carried by the vizor plate, and flanges on the end flaps adapted to overhang the rear face of the lens plate.

10. In a folding hood for stereoscopes, the combination of a lens plate, a vizor plate having a rigid downwardly extending flange hinged to the upper edge of the lens plate, and a spring surrounding the hinge rod and having its ends bearing against the face of the flange and lens plate respectively.

11. In a stereoscope, the combination with a lens carrier, a shaft and a pocket adjacent to the lens carrier, of a foldable handle having adjacent to its upper end a hinge connection with the parts mentioned, such hinge connection being bodily shift-

- able into and out of the pocket, and the wall of the pocket being adapted to engage the handle below the hinge connection and prevent folding of the handle.
12. The combination, with a lens carrier, of a pocket carried thereby and open at its lower end, and a handle having a hinge adjacent to its upper end which is shiftable into and out of the pocket, the wall of the pocket being adapted to engage and rigidly confine the handle when the hinge is in the pocket.
13. The combination with a lens carrier, of a pocket carried thereby, a member slidably mounted in said pocket, and a handle hinged at its upper end to said member, said hinge being adapted to lie in the pocket or be positioned below it.
14. In a stereoscope, the combination of a lens carrier having a vertical pocket opening downwardly, a handle having an upward extension adapted to occupy said pocket, a slidable member within the pocket to which the upper end of the handle is hinged, and a shaft connected with the lens carrier, said handle being adapted to be folded into position along the under side of the shaft.
15. In a stereoscope, the combination of a lens plate, a member secured to the rear face thereof and providing a vertical pocket along such face, said member having a substantially horizontal integral extension forming a portion of the shaft which carries the view holder, a handle having an upward extension adapted to occupy said pocket, and a slidable block in the pocket hinged to the upper end of the handle.
16. In a stereoscope, the combination of a lens carrier having a vertical pocket opening downwardly, a handle having an upward extension adapted to occupy said pocket, a slidable member within the pocket to which the upper end of the handle is hinged, and means for limiting the vertical movement of said member.
17. The combination of a lens plate, a pocket on the rear face thereof, a handle having an upward extension adapted to occupy said pocket, a slidable member in the pocket hinged at its lower edge to the upper end of said extension, and a lug on said member occupying a slot in the lens plate.
18. In a stereoscope, the combination of a lens plate, a shaft member having an upturned forward portion, said forward portion having flanges abutting and secured to the rear face of the lens plate and providing a pocket along such rear face, a handle having an upward extension adapted to occupy said pocket, and a member slidable in the pocket and hinged to the handle extension.
19. In a stereoscope, the combination with a lens carrier and view holder, of a telescoping shaft connecting the same and comprising two channel-shaped members seated one within the other and one connected to the lens carrier and the other to the view holder, and spring means for establishing frictional engagement between said channel-shaped strips.
20. In a stereoscope, the combination with a lens carrier and view holder, of a telescoping shaft connecting the same and comprising two bars each having a slot and each bar carrying a pin extending through the slot of the other bar, and springs held by said pins.
21. In a stereoscope, the combination with a lens carrier and a view holder, of an extensible shaft connecting them and comprising two bars overlapping each other and each provided with a slot, a pin carried by each bar and extending through the slot of the other bar and having a head, and a helical compression spring about the shank of each pin, operating to frictionally hold together the two bars of the shaft at such point.
22. In a stereoscope, the combination of a lens plate, a strip secured to the rear face of the lens plate and bent to extend rearward substantially horizontally, another strip engaging the strip first mentioned, one of said strips having flanges overlapping the edges of the other, one of the strips having a slot and the other strip carrying a pin extending through such slot, and a spring carried by said pin for providing a frictional engagement between the strips.
23. In a folding stereoscope, the combination of a lens carrier, an extensible shaft secured thereto and having two members one slidable on the other, a pin carried by one of such members and occupying a slot in the other, and a handle having a hinged engagement with the lens carrier and having a hole in its rear face adapted to be occupied by said pin when the handle is folded along the under side of the shaft.
24. In a folding stereoscope, the combination of a lens plate, an extensible shaft comprising a substantially horizontal portion and a vertical portion, the vertical portion standing adjacent to the rear face of the lens plate and having edge flanges abutting such rear face and thus providing a pocket between it and the rear face, an extension member of such shaft having sliding connection with the member first mentioned, a downwardly extending pin carried by one of said shaft members and occupying a slot in the other member, a spring surrounding the pin to provide frictional engagement, a plate slidable in the pocket, and a handle in the form of a flattened tube having an upward extension hinged at its upper edge to the lower edge of the pocket plate, the rear side of said handle having an opening

adapted to be occupied by said pin when the handle is folded against the under side of the shaft.

25. In a stereoscope, the combination of
5 a lens carrier, a shaft secured thereto, and
a view holder carried by said shaft comprising a transverse bar having three pins rising from it near its ends and middle respectively, the middle pin extending into the
10 shaft and securing the transverse bar to it.

26. The combination of a lens carrier, an extensible shaft comprising two mutually

slidable connected bars, one of which is secured to the lens carrier, a step made by downwardly offsetting the rear end of the
15 other bar, a transverse bar secured to said step, and three vertical pins carried by said bar, the middle pin being positioned slightly
20 out of the plane connecting the other two pins.

In testimony whereof, I hereunto affix my signature.

HARRY N. CLARKE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."