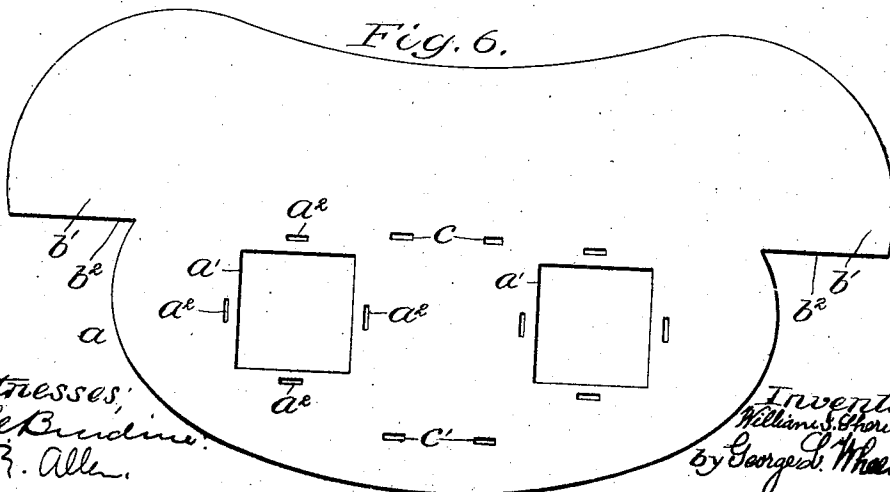
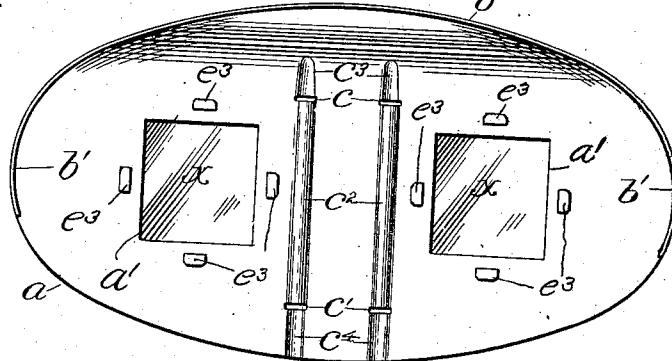
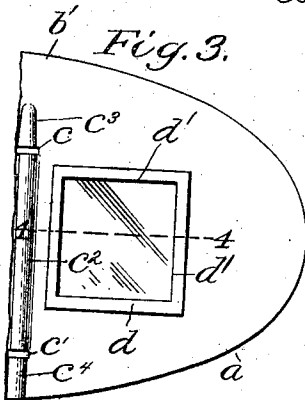
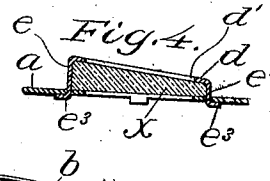
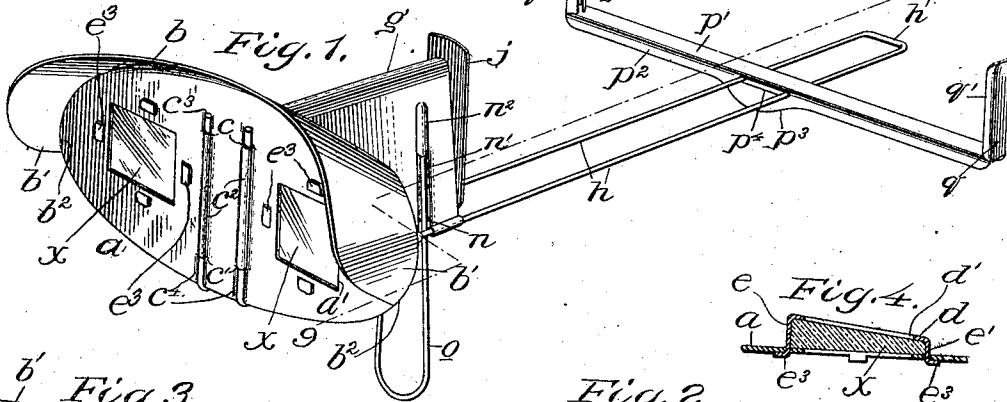
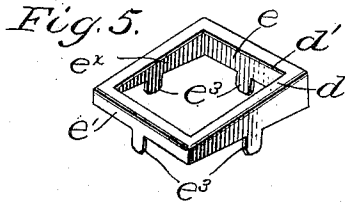


No. 846,805.

W. I. SHERWOOD.  
STEREOSCOPE.  
APPLICATION FILED FEB. 2, 1906.

PATENTED MAR. 12, 1907.

3 SHEETS—SHEET 1.



Witnesses,  
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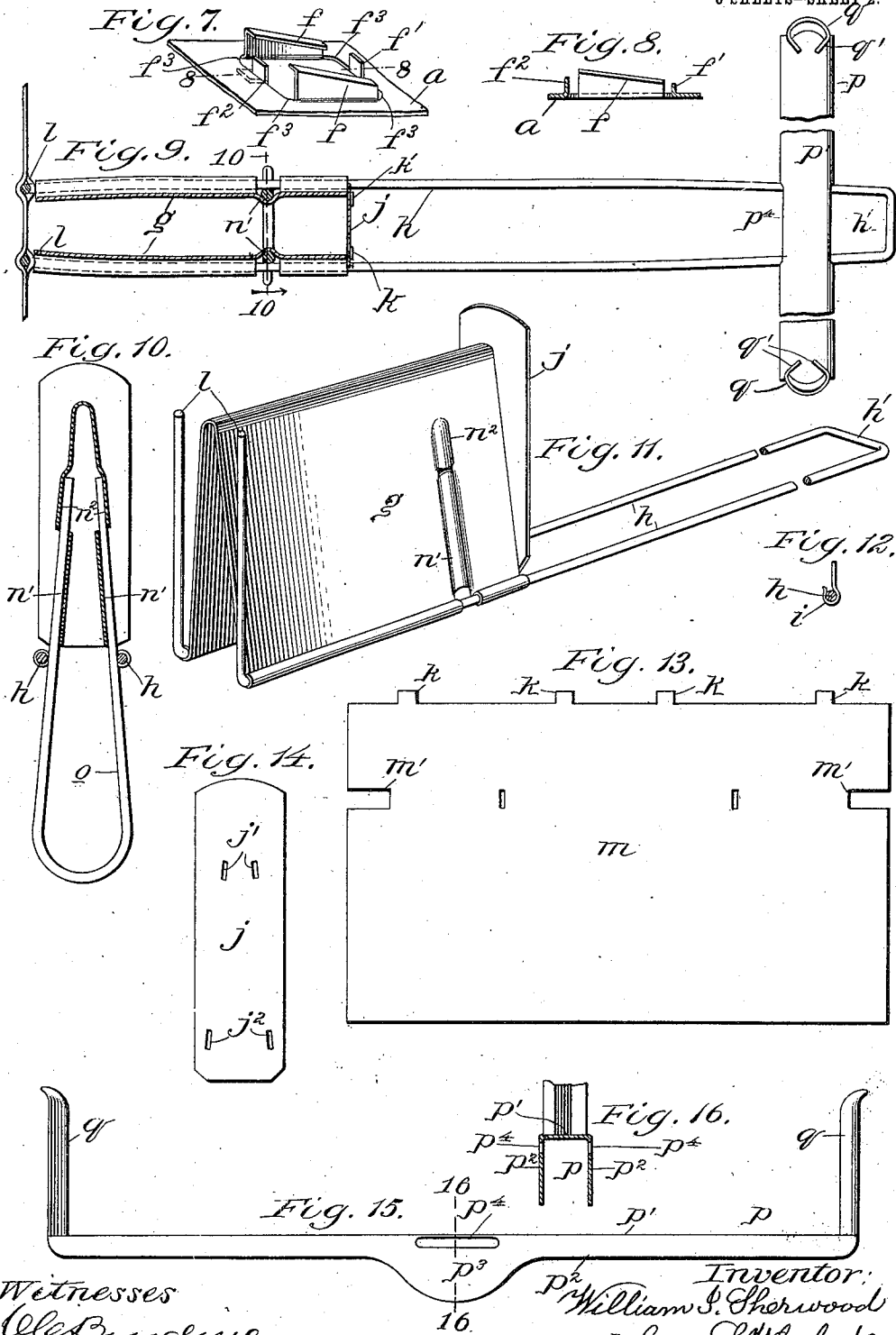
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3 SHEETS—SHEET 2.



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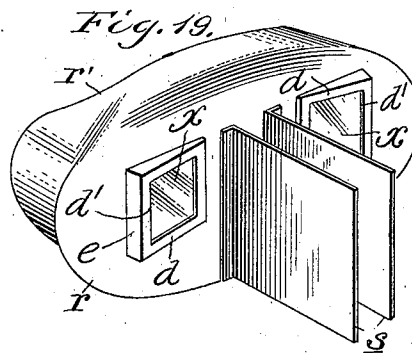
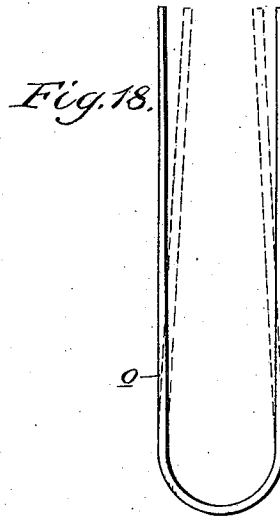
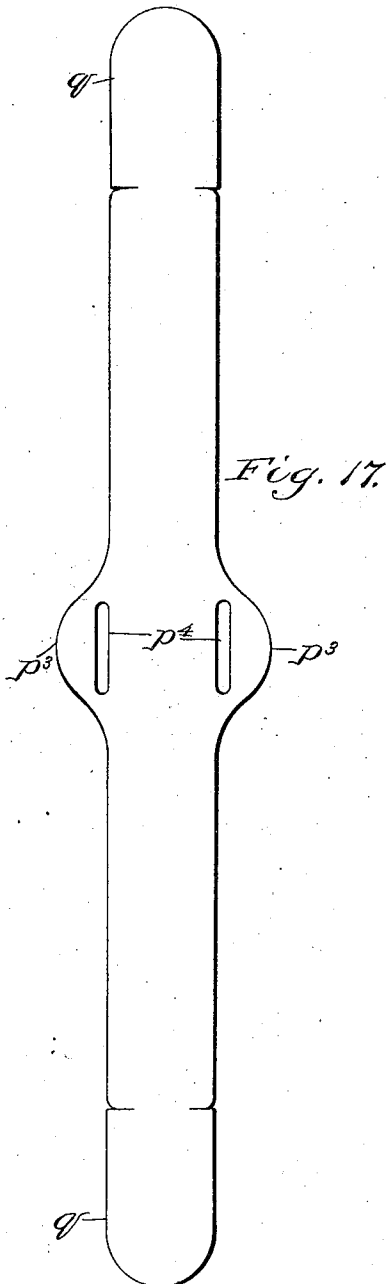
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APPLICATION FILED FEB. 2, 1906.

3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

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## STEREOSCOPE.

No. 846,805.

Specification of Letters Patent.

Patented March 12, 1907.

Application filed February 2, 1906. Serial No. 299,173.

*To all whom it may concern:*

Be it known that I, WILLIAM I. SHERWOOD, a citizen of the United States of America, residing at New York, in the borough of Manhattan, State of New York, have invented certain new and useful Improvements in Stereoscopes, of which the following is a specification.

This invention relates to stereoscopes, more particularly to stereoscopes which are composed of separable and detachable parts for the purpose of permitting the same to be placed in a very small space for shipment or storage.

The frame of the stereoscope forming the subject of the present invention is preferably composed of parts of sheet metal and wire, which can be conveniently assembled to form a stereoscope and which can be knocked down or taken apart.

The invention comprises improvements not only in the general combination of the parts of the stereoscope, but improvements in each and every part of the same, with a view to the production of a popular-priced and yet effective stereoscope which can be made up in various forms and ornamented, painted, or enameled in any desired manner.

With these ends in view my invention consists of certain features of construction and combinations of parts to be hereinafter described with reference to a desirable form of the invention, and then particularly pointed out in the claims.

In the drawings, Figure 1 is a perspective view of the stereoscope. Fig. 2 is a front elevation of a detached lens-frame and hood. Fig. 3 is a rear elevation of one end of the detached lens-frame and hood. Fig. 4 is a sectional detail view of Fig. 3 on line 4 4, showing the construction of lens-holder. Fig. 5 is a perspective view of a lens-holder. Fig. 6 is a plan of an apertured blank for the lens-frame and hood. Fig. 7 is a broken detail perspective view of a modified form of lens-holding means. Fig. 8 is a section of the same on the line 8 8. Fig. 9 is a longitudinal section on the line 9 9, Fig. 1. Fig. 10 is a transverse section on the line 10 10, Fig. 9, looking in the direction of the arrow, the picture-holder being omitted. Fig. 11 is a perspective view of the septum and picture-

holder guide. Fig. 12 is a modified means of securing the septum and guide together. Fig. 13 is a plan of the blank from which the body of the septum is formed. Fig. 14 is a plan of the bridge-piece of the septum. Fig. 15 is an elevation of the picture-holder. Fig. 16 is a transverse section on the line 16 16, Fig. 15. Fig. 17 is a plan of the blank from which the picture-holder is formed. Fig. 18 is an elevation of the handle. Fig. 19 is a perspective view of a modification of combined lens-frame, hood, and septum.

Referring to Figs. 1, 2, 3, and 6, the lens-frame and hood *a b*, respectively, preferably of sheet metal, are constructed as follows: The lens-frame *a* is made of suitable size to form an apertured curtain or blind to be placed in front of the eyes, being provided with lens-apertures *a'*, while at each side of each aperture is located a hole or slit *a''*, so that there are four slits around each aperture. This number may of course be varied. Between the apertures and located above and below the plane of the same are respectively two pairs of holes or slits *c c'*, and between the two pairs of slits the metal or other material is pressed or stamped so as to form approximately semicylindrical or half-round grooves or transverse depressions *c''* at the back of the lens-frame. Said holes or slits *c c'* will thus form terminals at the ends of the parallel or substantially parallel rear grooves *c''*. Extending in line with said rear grooves *c''* and opening into the slits or holes *c c'* there are at the top and bottom, respectively, of the lens-frame two pairs of grooves or depressions *c'' c''*, formed in the face of the lens-frame. In consequence of this arrangement of grooves and holes *c c'* sockets or guides are provided for mounting the lens-frame and hood upon the "shaft" or picture-holder guide. The lens-frame and hood *a b*, respectively, are preferably formed from a one-piece blank of sheet metal, Fig. 6, the said hood having side wings *b'*. These side wings when the main body of the hood is bent over to form the top shield are curved and bent in such form as that their inner edges *b''* will lie adjacent to the opposite ends of the lens-frame *a*. Preferably the adjacent edges of the wings and the lens-frame *a* are left unsoldered. The lens-frame and hood thus

constructed and formed provide a suitable semidark chamber to be placed over the eyes.

Each lens-holder is preferably constructed as shown in Figs. 3, 4, and 5. Here each holder is four-sided, comprising a retaining-flange  $d$ , having an aperture  $d'$  of approximately the same dimensions as the lens-aperture  $a'$  in the lens-frame, said flange  $d$  having box-flanges on sides  $e e'$ , the side  $e$  being wider transversely than the side  $e'$ , from which side  $e$  the retaining-flange  $d$  slants toward the side  $e'$ . Each holder will thus have the approximate shape of each lens  $x$ , the lenses  $x$  being arranged in the lens-frames in such manner as that the light-rays will be properly diverted in well-known manner. These lens-holders are preferably of sheet metal, and the box-flanges are provided with integral ears or lugs  $e^3$ . These lugs  $e^3$  are passed from the rear forwardly through the slits or holes  $a^2$  in the lens-frame  $a$ , and there the ends are bent preferably outwardly over and against the face of the lens-frame, as shown clearly in Fig. 4. This method of constructing and attaching the lens-holders is both economical and substantial, as the lenses will not shift from their original position.

In Figs. 7 and 8 is shown a modified means of supporting the lenses upon the lens-frame. In this form detachable lens-holders are dispensed with and the lens-holders are made integral with the lens-frame. The lens-aperture is provided at opposite sides with guides  $f$ , L-shaped or angular in cross section and bent up from the lens-frame. Said L-shaped guides taper toward one end of the lens-aperture so as to correspond with the taper of the lenses. Obviously the taper of the guides should be and is toward the minor axis of the lens-frame. That side of the lens-aperture at the smaller ends of the guides  $f$  is provided with a struck-up tongue or lip  $f''$ , forming a stop for the thinner edge of each lens when it is pushed home into the guides. At the side of the aperture opposite the stop  $f''$  the same is provided with a retaining lip or tongue  $f^2$ , which is bent back, as shown in dotted lines, to permit the lens to be shoved into place, and it is then bent up against the thick edge of the lens, thus retaining the lens firmly in position. Obviously the guide-flanges and said lips or tongues may be set or bent back a slight distance away from the edges of the aperture to allow the edges of the lens to be seated; but with or without this inset of said parts the corners of the lens may the lens may be supported against the rounded corner portions  $f^3$  of the lens-aperture.

The septum and shaft or guide and the manner of connecting the same with each other and mounting the lens-frame and hood upon them is more particularly illustrated in Figs. 9, 10, and 11. The septum  $g$  is pref-

erably composed of sheet metal and the shaft or guide  $h$  of wire. The body or dividing portion of the septum, which extends at right angles to the lens-frame between the apertures, is preferably of inverted-V shape in cross-section, so that it widens toward the lower part. The lower edges of the preferably sheet-metal septum are preferably bent tightly over and around the side wires of the guide  $h$  and are then soldered to them. This is not absolutely essential, as obviously the septum may be made separable from the guide, after the manner shown in Fig. 12, where it will be seen that the wires can be snapped into position by pressing them past the spring-clip portions  $i$  at the lower edges of the septum. At the rear end of the septum is located a bridge-piece  $j$ , which extends across the rear end and projects to both sides and somewhat above the same, thus effectively separating the duplicate views from each other. This bridge-piece also gives firmness to the septum. The bridge-piece is provided, as shown in Figs. 9 and 13, with apertures  $j' j^2$ , into which are inserted tongues or lugs  $k$  at the rear edges of the septum.

The forward ends of the side wires of the picture-holder guide are formed with connecting-wires  $l$ , which wires are inserted into the openings, slits, and grooves provided in the lens-frame  $a$ , thus furnishing means for readily attaching or detaching the picture-holder guide and lens-frame. The connecting-wires  $l$  provide an upright connector for the picture-holder guide. Said picture-holder guide is preferably composed of a single piece of wire forming the side wires, the vertical connecting-wires, and the end portion  $h'$ . The septum is formed preferably from a blank  $m$ , such as shown in Fig. 13, said blank having the integral lugs or tongues  $k$  before mentioned and being provided at opposite ends with recesses  $m'$ . These recesses  $m'$  form when the septum is applied to the side wires of the guide  $h$  openings  $n$  for the purpose of receiving the handle  $o$ , Fig. 18. Formed in the septum in line with the openings  $n$  are upwardly and transversely extending half-round grooves or depressions  $n' n^2$ , the grooves  $n^2$  being in the outer faces or sides of the septum and the grooves  $n'$  in the inner sides. By this means sockets are provided in connection with the openings  $n$  to connect the ends of the U-shaped, preferably wire, handle  $o$  with the septum. The arms of the spring-handle  $o$  are normally sprung apart, as in full lines, Fig. 18, and when they are to be inserted into the sockets of the septum their ends are pressed inwardly to dotted-line position and inserted into the openings  $n$  and then pushed in until their extremities enter the grooves  $n^2$ . The sides of the wire handle contact with and press upon the inner sides

of the guide-wires  $h$ , and said handle acts in the nature of a wedge to spread the wires  $h$  apart. Obviously the wires could be more freely spread apart if the septum were separate from the guide-wires; but even in the particular construction shown the side wires can be spread apart, and this is owing to the fact that the lower portions of the sides of the septum are so attached as to permit them to yield. Apart, however, from the manner of attachment the sides of the septum being of sheet metal are resilient or yielding. The resiliency of the wires  $h$  and the possibility of spreading them is taken advantage of in connection with the picture-holder.

The picture-holder  $p$  is preferably formed from a blank (shown in Fig. 17) in such manner as to provide a cross-piece  $p'$ , having downturned side flanges  $p^2$ , provided with depending lobes or finger portions  $p^3$ , which furnish means for moving the picture-holder nearer to or farther from the lenses for focusing. The portions of the side flanges  $p^2$  adjacent the finger-pieces  $p^3$  are provided with longitudinal openings  $p^4$ , which are of a length approximately that of the distance between the side wires  $h$  of the picture-holder guide. The ends of the cross-piece  $p$  are provided with integral upturned and longitudinally-slotted picture-guides  $q$  of a tubular form. The side lips  $q'$  hold the picture or view in position. The said openings  $p^4$  receive the guide  $h$  in such manner as that when the handle is detached the picture-holder can be adjusted with more or less looseness upon the guide. The introduction of the handle  $o$ , however, to the septum, as before described, and the consequent spreading of the side wires causes the wires to bind with considerable friction upon the end walls of the openings  $p^4$ , thereby holding the picture-holder firmly in the position to which it may be set. Owing to the resiliency of the spread-wires, the spring thereof is overcome by the adjustment of the picture-holder along them.

In Fig. 19 is shown a modified form of lens-frame and septum. In this figure there is shown a lens-frame  $r$ , having a hood  $r'$ , and instead of the septum being made separable from the lens-frame it consists of suitable wings  $s$ , attached to the lens-frame between the lenses  $x$ .

Other modifications than those described will be obvious to those skilled.

Without restricting myself to the parts shown and described, as some may be omitted or modified or differently arranged and combined, what I claim as new, and desire to secure by Letters Patent, is—

1. In a stereoscope, a lens-frame, rearwardly-extending side-by-side round spring-wires, and a removable picture-holder having longitudinal openings with rounded ends and into which openings the said wires are in-

serted, said wires bearing against the ends of said openings, and said picture-holder being adapted to change the distance between the wires, for substantially the purposes set forth.

2. In a stereoscope, a picture-holder guide comprising spring-wires, a septum applied to said wires, a picture-holder guided on the wires, and means for spreading the wires.

3. In a stereoscope, a lens-frame provided with a hood, a septum, a picture-holder guide comprising spring-wires, a picture-holder guided thereon, and means for spreading the wires.

4. In a stereoscope, the combination, with a lens-frame having transverse sockets, of a picture-holder guide having upright connecting-wires inserted into the sockets.

5. In a stereoscope, the combination, with a lens-frame having transverse grooves and two pairs of slits or openings which together form sockets, some of said grooves being on one and some on the other side of the frame, of a picture-holder guide having upright connecting-wires inserted into the sockets.

6. In a stereoscope, the combination of a lens-frame, guide-wires attached to the same, a picture-holder guided on said wires, and means located between the lens-frame and picture-holder for changing the normal distance between the wires.

7. In a stereoscope, the combination of a lens-frame, guide-wires attached to the same, a picture-holder on said wires, and a handle adapted to spread the wires.

8. In a stereoscope, a lens-frame, an inverted hollow V-shaped septum of sheet material, and a picture-holder guide applied to the lower edges of the septum.

9. In a stereoscope, a lens-frame, an inverted-V-shaped septum, guide-wires to which the lower edges of the septum are applied, and a picture-holder.

10. In a stereoscope, a lens-frame, an inverted hollow V-shaped septum of sheet material provided with a bridge-piece at its rear end, and a picture-holder guide applied to the lower edges of the septum.

11. In a stereoscope, the combination of side-by-side guide-wires, and a septum composed of a doubled piece of sheet metal having its ends bent around and upon said wires.

12. In a stereoscope, the combination of a septum, guide-wires, and means applied to the wires and sides of the septum to spread such side wires.

13. In a stereoscope, an inverted-V-shaped septum, guide-wires, and means inserted into the septum for spreading the sides thereof and for spreading the wires.

14. In a stereoscope, the combination of a picture-holder guide composed of side wires, a picture-holder guided thereon, and a U-shaped handle of spring-wire inserted between the wires on the guide to spread them.

15. In a stereoscope, the combination with a lens-frame of sheet metal having lens-apertures, and lens-holders angular in cross-section, said lens-frame having slits, and said lens-holders having lugs inserted into said slits and bent back upon the front of the lens-frame.
16. In a stereoscope, an apertured lens-frame, angular or L-shaped guides projecting from the back of the frame at two opposite sides of each aperture and tapering toward the inner end of the same, a stop tongue or lip at the inner end of each aperture against which tongue one end of a lens guided by said guides may be pushed, and a retaining tongue or lip at the outer end of each aperture for engagement with the other end of the lens, said tongues also projecting from the back of the frame and coöperating with the guides to secure the lenses upon the back of the lens-frame.
17. A picture-holder for stereoscopes, composed of sheet metal, comprising a cross-piece provided with parallel side flanges, and upwardly-extending picture guides on the ends of the cross-piece, of general tubular form, said guides having longitudinally-extending side lips for guiding and receiving the ends of a picture, said lips being directed inwardly toward each other, and said flanges having longitudinal openings to receive the picture-holder guide.
18. In a stereoscope, a lens-frame, an inverted-V-shaped septum of sheet material, a bridge-piece, a slot-and-lug connection between the rear end of the septum and the bridge-piece, and a picture-holder.
19. In a stereoscope, the combination of a septum provided with sockets, and a U-shaped wire handle, the ends of which are inserted into said sockets.

Signed at New York, N. Y., this 23d day of January, 1906.

WILLIAM I. SHERWOOD.

Witnesses:

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