No. 782,519. PATENTED FEB. 14, 1905.

C. L. PAPPENHAGEN.

STEREOSCOPE.

APPLICATION FILED AUG. 9, 1904.

Fig. 1

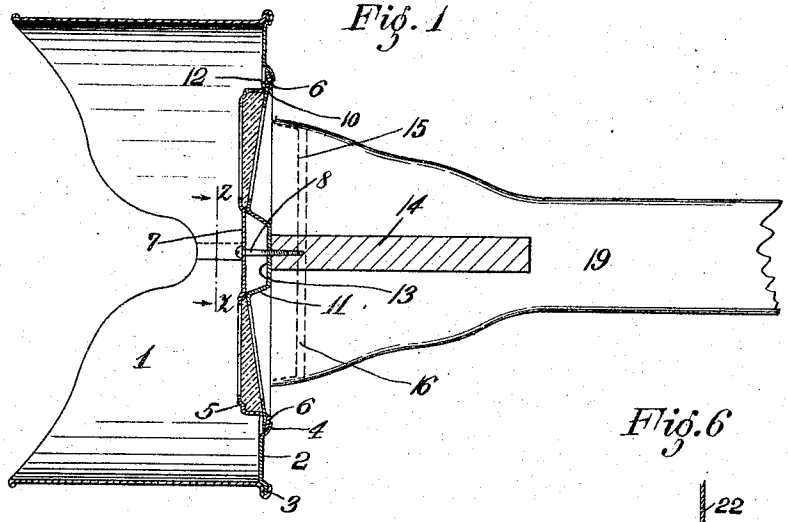


Fig. 6

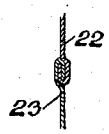


Fig. 2

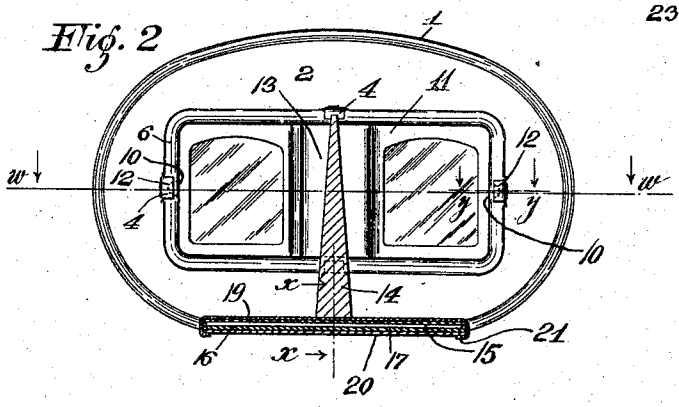


Fig. 3

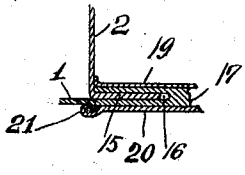


Fig. 5

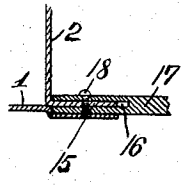
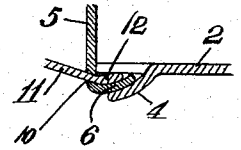


Fig. 4



Witnesses
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No. 782,519. Patented February 14, 1905.

UNITED STATES PATENT OFFICE.

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STEREOSCOPE.

SPECIFICATION forming part of Letters Patent No. 782,519, dated February 14, 1905.

Application filed August 9, 1904. Serial No. 220,057.

To all whom it may concern:

Be it known that I, CHARLES L. PAPPENHAGEN, a citizen of the United States of America, and a resident of Meadville, Crawford county, Pennsylvania, have invented certain new and useful Improvements in Stereoscopes, of which the following is a specification.

My invention relates generally to stereoscopes, and has more particular reference to certain features, which will appear hereinafter.

One feature of my invention is the formation of the shaft which supports and on which moves the picture-holder.

Lightness, resiliency, and strength are the chief qualities to be desired in the shaft of the stereoscope. Metal plates forming a hollow shaft have been used in stereoscopes, and while they furnish a material of sufficient strength they are unsatisfactory because of their weight or lack of elasticity. In using a stereoscope it is quite desirable or essential that the picture be presented exactly at right angles to the line of vision. In other words, the picture-holder must present the view in a position parallel with the lenses. In handling a stereoscope the shaft is peculiarly liable to strains, especially those torsional in character. If then the shaft be formed of rigid material, a strain is liable to permanently distort it, thereby throwing the picture-holder out of its proper position in relation to the line of vision and rendering the stereoscope unsatisfactory or useless. The above-mentioned requirements of a good stereoscope were best fulfilled by the wooden shaft as used in the old-fashioned stereoscope. With the adoption of metal for stereoscopes the wooden shaft was no longer used and in its place was substituted a shaft formed in various ways by metal plates. The wooden shaft was considered unsightly when used with aluminium hoods and lens-frames, and, furthermore, no means were found for joining a wooden shaft to the metal parts of the stereoscope.

My invention therefore relates to means for securing the desirable qualities of a wooden shaft without losing the pleasing appearance of a metal stereoscope and for joining this wooden shaft to the metal parts of the stereoscope.

In my Patent No. 756,692, granted April 5, 1904, I have shown and claimed a lens-frame provided with a single pocket, with a spring-plate engaging therein to secure the lenses in position. The pocket shown in the patent referred to is struck out integral with the lens-frame, and therefore is inseparable from it. In practice I have found it desirable to have this pocket removable. In this application I have shown and claimed such a pocket. The removability of the pocket is not only a convenience, but in the specific form in which I have shown it the cost of manufacture is lessened, while all the desirable features of the single pocket are retained.

In the accompanying drawings I have illustrated my invention in a preferred form; but I desire it to be understood that I do not limit myself to the structure and arrangement of parts there shown. Changes may of course be made within the scope of the claims.

In the several views I have indicated like parts by like characters of reference.

In the drawings, Figure 1 is a horizontal view of a stereoscope employing my invention with parts shown in section, taken on the line *w w* of Fig. 2. Fig. 2 is a front elevation, parts being broken away. Fig. 3 is a detail sectional view taken on line *x x* of Fig. 2. Fig. 4 is a detail sectional view taken on line *y y* of Fig. 2. Fig. 5 is a detail sectional view showing a modification used in connection with a shaft entirely of wood. Fig. 6 is a detail sectional view taken on line *z z* of Fig. 1 and showing the manner of uniting the ends of the hood.

In the drawings I have shown a stereoscope similar in its general features of construction and arrangement to that shown in my Patent No. 756,692, above referred to.

In the drawings I have indicated the hood by 1, having its rear edge bent back on itself and of a contour conforming to the face of the user. The lens-frame 2 is bent slightly outward at its edge to engage with the flanged groove of the hood 3. The central portion of this lens-frame is struck out preferably in an

oblong form, as shown, and inwardly-projecting spurs or lugs 4 are left on the edges, the function of which will appear later. In this struck-out portion of the lens-frame sits a pocket 5 provided with marginal flanges 6, which fit snugly over the edges of the struck-out portion. This pocket is drawn from a single piece of metal, preferably aluminium, and projects rearwardly. It may have a portion 7 indented forwardly, which allows for the screw 8 binding the pocket to the septum. The pocket 5 is provided with apertures for the lenses, and in its walls are openings 10. The pocket being placed in the struck-out portion of the lens-frame, the lugs 4 are bent over its marginal flanges 6, securing it firmly in position. Into this pocket the lenses are inserted, and over them to keep them from displacement fits the member or spring-plate 11, conforming to the angles of the lenses and having on its edges portions or spurs 12, which engage with the openings in the walls of the pocket. The central portion of the spring-plate is of course open, so that it forms a frame for the lenses, and a portion 13 is so formed as to enable the spring-plate to fit snugly against the rear face of the septum 14, forming, as it were, a bridge extending forwardly.

The lens-frame at its lower edge is flanged, 15, and fits into a groove 16, formed in the inner edge of the shaft 17. While I have here shown the lens-frame and shaft joined by a groove and flange, I desire to remark that I do not wish to be understood that I confine myself to the specific means shown. If it should be desired to use a wooden shaft alone without aluminium covering, I insure the retention of the flanged portion of the lens-frame in the groove of the shaft by some suitable means, as, in Fig. 5, by binding-screws 18 passing through a portion of the shaft and the flange of the lens-frame. In such case the hood is brought under the shaft, so that the screw may engage with it and the hood and shaft be firmly joined.

Since a wooden shaft alone is generally considered unsightly in connection with a metal stereoscope, I have shown in Figs. 1, 2, and 3 my means for avoiding such an appearance and at the same time increasing the strength of the shaft. In such case I employ an upper shaft-plate 19 and a lower shaft-plate 20, the former being curled in a head form over the edge of the shaft and brought snugly against the lower shaft-plate, as seen in Fig. 2. The lower shaft-plate in such instance is joined to the hood by a transverse seam 21, formed at the lower portion of its surrounding edge.

In securing the hood in position it is wrapped around the lens-frame, as is easily understood, and its ends may then be united in any suitable manner—for instance, as in Fig. 6, where the contiguous ends 22 and 23 are shown formed into a lock-joint or seam, each edge having opposed interlocking hook-flanges.

Having thus described my invention, what I claim is—

1. In a stereoscope, the combination with a hood and lenses, of a shaft having its inner edge grooved, and a lens-frame having a flanged portion adapted to engage with the groove of the shaft.

2. In a stereoscope, the combination with a hood and lenses, of a shaft having its inner edge grooved, a lens-frame having a flanged portion adapted to engage with the groove of the shaft, and means for retaining the flanged portion of the lens-frame in engagement with the shaft.

3. In a stereoscope, the combination with a hood and lenses, of a shaft having its inner edge grooved, a lens-frame having a flanged portion adapted to engage with the groove of the shaft and binding-screws adapted to retain the flanged portion of the lens-frame in engagement with the shaft.

4. In a stereoscope, the combination with a hood, lenses and a lens-frame, of a shaft, an upper and a lower shaft-plate enveloping said shaft, and coöperating means on the shaft and lens-frame adapted to unite said shaft and lens-frame.

5. In a stereoscope, the combination with a hood, lenses and a lens-frame, of a shaft having its inner edge grooved and adapted to receive therein a portion of the lens-frame, an upper and a lower shaft-plate enveloping said shaft, said lower shaft-plate being joined to the hood by a transverse seam at the lower portion of its surrounding edge.

6. In a stereoscope, the combination with a hood and lenses, of a shaft having its inner edge grooved and a lens-frame having a flanged portion adapted to engage with the groove of the shaft, an upper and a lower shaft-plate enveloping the shaft, said lower shaft-plate being joined to the hood by a transverse seam at the lower portion of its surrounding edge.

7. In a stereoscope, the combination with a hood and lenses, of a lens-frame having a flanged portion, a shaft, means adapted to secure the shaft to said portion of the lens-frame, an upper and a lower shaft-plate enveloping said shaft.

8. In a stereoscope, the combination with a hood and lenses, of a shaft having its inner edge grooved, a lens-frame having a flanged portion adapted to engage with the groove of the shaft, means for retaining the flanged portion of the lens-frame in engagement with the shaft, an upper and a lower shaft-plate enveloping the shaft.

9. In a stereoscope, the combination with a hood and lenses, of a shaft having its inner edge grooved, a lens-frame having a flanged portion adapted to engage with the groove of the shaft, binding-screws adapted to retain the flanged portion of the lens-frame in engage-

ment with the shaft, an upper and a lower shaft-plate enveloping the shaft.

10. In a stereoscope, the combination with a hood, lenses and a lens-frame, of a shaft, an upper and a lower shaft-plate enveloping said shaft, said lower shaft-plate being joined to the hood by a transverse seam at the lower portion of its surrounding edge.

11. In a stereoscope, the combination with a hood, lenses and a lens-frame, of a shaft, an upper and a lower shaft-plate enveloping said shaft, said lower shaft-plate being joined to the hood by a transverse seam at the lower portion of its surrounding edge, and means adapted to unite said shaft and lens-frame.

12. In a stereoscope, the combination with a hood and lenses, of a lens-frame having a flanged portion, a shaft, means adapted to secure the shaft to said portion of the lens-frame, an upper and a lower shaft-plate enveloping said shaft, said lower shaft-plate being joined to the hood by a transverse seam at the lower portion of its surrounding edge.

13. In a stereoscope, the combination with a hood and lenses, of a shaft having its inner edge grooved, a lens-frame having a flanged portion adapted to engage with the groove of the shaft, means for retaining the flanged portion of the lens-frame in engagement with the shaft, an upper and a lower shaft-plate enveloping the shaft, said lower shaft-plate being joined to the hood by a transverse seam at the lower portion of its surrounding edge.

14. In a stereoscope, the combination with a hood and lenses, of a shaft having its inner edge grooved, a lens-frame having a flanged portion adapted to engage with the groove of the shaft, binding-screws adapted to retain the flanged portion of the lens-frame in engagement with the shaft, an upper and a lower shaft-plate enveloping the shaft, said lower shaft-plate being joined to the hood by a transverse seam at the lower portion of its surrounding edge.

15. In a stereoscope, a lens-frame having a removable pocket adapted to receive the lenses and extending rearwardly, said pocket having in its walls a plurality of openings, a spring-plate conforming to the angles of the lenses adapted to spring into the said pocket and to hold the lenses in position and having extending spurs adapted to engage in the openings in the wall of the pocket to secure the said plate.

16. In a stereoscope, a lens-frame having a removable pocket extending rearwardly adapted to receive the lenses, a spring-plate conforming to the angles of the lenses having a forwardly-extending bridge in its central portion and adapted to engage in said pocket and to hold the lenses in position.

17. In a stereoscope, a lens-frame having a removable pocket extending rearwardly adapted to receive the lenses, a spring-plate conforming to the angles of the lenses and having a forwardly-extending bridge in its central portion, said spring-plate being adapted to engage in said pocket and to hold the lenses against displacement and means adapted to secure the spring-plate in position.

18. In a stereoscope, a lens-frame having its central portion struck out, a removable pocket having marginal flanges adapted to fit over the edges of the struck-out portion of the lens-frame, said pocket being adapted to receive the lenses, a member adapted to be secured in the said pocket to hold the lenses in position and means adapted to hold the pocket in the struck-out portion of the lens-frame.

19. In a stereoscope, a lens-frame having its central portion struck out, a removable pocket extending rearwardly having marginal flanges adapted to fit over the edges of the struck-out portion of the lens-frame, said pocket being adapted to receive the lenses, a spring-plate adapted to be secured in the said pocket to hold the lenses in position and means adapted to hold the pocket in the struck-out portion of the lens-frame.

20. In a stereoscope, a lens-frame having its central portion struck out, a removable pocket extending rearwardly and adapted to receive the lenses, having marginal flanges adapted to fit over the edges of the struck-out portion of the lens-frame, said pocket having in its walls a plurality of openings, a spring-plate conforming to the angles of the lenses adapted to spring into said pocket and to hold the lenses in position and having a plurality of extending spurs adapted to engage in the openings in the wall of the pocket to secure the said plate, and means adapted to hold the pocket in the struck-out portion of the lens-frame.

21. In a stereoscope, a lens-frame having its central portion struck out, a removable pocket extending rearwardly adapted to receive the lenses, having marginal flanges adapted to fit over the edges of the struck-out portion of the lens-frame, a spring-plate conforming to the angles of the lenses having a forwardly-extending bridge in its central portion and adapted to engage in said pocket and to hold the lenses in position, and means adapted to hold the pocket in the struck-out portion of the lens-frame.

22. In a stereoscope, a lens-frame having its central portion struck out, a removable pocket extending rearwardly adapted to receive the lenses, having marginal flanges adapted to fit over the edges of the struck-out portion of the lens-frame, a spring-plate conforming to the angles of the lenses having a forwardly-extending bridge in its central portion and adapted to engage in said pocket and to hold the lenses in position, means adapted to secure the spring-plate in position, and means adapted to hold the pocket in the struck-out portion of the lens-frame.

23. In a stereoscope, a lens-frame having its central portion struck out, a removable pocket having marginal flanges adapted to fit over the edges of the struck-out portion of the lens-frame, said pocket being adapted to receive the lenses, a member adapted to be secured in the said pocket to hold the lenses in position and lugs formed on the edges of the struck-out portion of the lens-frame adapted to fit over the marginal flanges of the pocket to hold the latter in position.

24. In a stereoscope, a lens-frame having its central portion struck out, a removable pocket extending rearwardly having marginal flanges adapted to fit over the edges of the struck-out portion of the lens-frame, said pocket being adapted to receive the lenses, a spring-plate adapted to be secured in the said pocket to hold the lenses in position, and lugs formed on the edges of the struck-out portion of the lens-frame adapted to fit over the marginal flanges of the pocket to hold the latter in position.

25. In a stereoscope, a lens-frame having its central portion struck out, a removable pocket extending rearwardly and adapted to receive the lenses, having marginal flanges adapted to fit over the edges of the struck-out portion of the lens-frame, said pocket having in its walls a plurality of openings, a spring-plate conforming to the angles of the lenses adapted to spring into said pocket and to hold the lenses in position and having a plurality of extending spurs adapted to engage in the openings in the wall of the pocket to secure the said plate, and lugs formed on the edges of the struck-out portion of the lens-frame adapted to fit over the marginal flanges of the pocket to hold the latter in position.

26. In a stereoscope, a lens-frame having its central portion struck out, a removable pocket extending rearwardly adapted to receive the lenses, having marginal flanges adapted to fit over the edges of the struck-out portion of the lens-frame, a spring-plate conforming to the angles of the lenses having a forwardly-extending bridge in its central portion and adapted to engage in said pocket and to hold the lenses in position, and lugs formed on the edges of the struck-out portion of the lens-frame adapted to fit over the marginal flanges of the pocket to hold the latter in position.

27. In a stereoscope, a lens-frame having its central portion struck out, a removable pocket extending rearwardly adapted to receive the lenses, having marginal flanges adapted to fit over the edges of the struck-out portion of the lens-frame, a spring-plate conforming to the angles of the lenses having a forwardly-extending bridge in its central portion and adapted to engage in said pocket and to hold the lenses in position, means adapted to secure the spring-plate in position, and lugs formed on the edges of the struck-out portion of the lens-frame adapted to fit over the marginal flanges of the pocket to hold the latter in position.

28. In a stereoscope, a lens-frame having a removable pocket adapted to receive the lenses and a member adapted to be secured in the said pocket to hold the lenses in position, said lens-frame having a flanged portion, a shaft having a groove at its inner edge adapted to receive the flanged portion of the lens-frame.

29. In a stereoscope, a lens-frame having a removable pocket extending rearwardly adapted to receive the lenses, and a spring-plate adapted to be secured in the said pocket to hold the lenses in position, said lens-frame having a flanged portion, a shaft having a groove at its inner edge adapted to receive the flanged portion of the lens-frame.

30. In a stereoscope, a lens-frame having its central portion struck out, a removable pocket extending rearwardly having marginal flanges adapted to fit over the edges of the struck-out portion of the lens-frame, said pocket being adapted to receive the lenses, a spring-plate adapted to be secured in the said pocket to hold the lenses in position, and means adapted to hold the pocket in the struck-out portion of the lens-frame, said lens-frame having a flanged portion, and a shaft having its inner edge grooved out adapted to receive therein the flanged portion of the lens-frame.

31. In a stereoscope, a lens-frame having its central portion struck out, a removable pocket extending rearwardly and adapted to receive the lenses, having marginal flanges adapted to fit over the edges of the struck-out portion of the lens-frame, said pocket having in its walls a plurality of openings, a spring-plate conforming to the angles of the lenses adapted to spring into said pocket and to hold the lenses in position and having a plurality of extending spurs adapted to engage in the openings in the wall of the pocket to secure the said plate, lugs formed on the edges of the struck-out portion of the lens-frame adapted to fit over the marginal flanges of the pocket to hold the latter in position, said lens-frame having a flanged portion, and a shaft having its inner edge grooved and adapted to receive therein the flanged portion of the lens-frame.

32. In a stereoscope, a lens-frame having its central portion struck out, a removable pocket extending rearwardly adapted to receive the lenses, having marginal flanges adapted to fit over the edges of the struck-out portion of the lens-frame, a spring-plate conforming to the angles of the lenses, having a forwardly-extending bridge in its central portion and adapted to engage in said pocket and to hold the lenses in position, means adapted to secure the spring-plate in position, lugs formed on the edges of the struck-out portion of the lens-frame adapted to fit over the marginal flanges of the pocket to hold the latter in position, said lens-frame having a flanged por-

tion, and a shaft having its inner edge grooved and adapted to receive therein the flanged portion of the lens-frame.

33. In a stereoscope, a lens-frame having its central portion struck out, a removable pocket extending rearwardly adapted to receive the lenses, having marginal flanges adapted to fit over the edges of the struck-out portion of the lens-frame, a spring-plate conforming to the angles of the lenses, having a forwardly-extending bridge in its central portion and adapted to engage in said pocket and to hold the lenses in position, means adapted to secure the spring-plate in position, lugs formed on the edges of the struck-out portion of the lens-frame adapted to fit over the marginal flanges of the pocket to hold the latter in position, said lens-frame having a flanged portion, a shaft having its inner edge grooved and adapted to receive therein the flanged portion of the lens-frame, and means for retaining the flanged portion of the lens-frame in the groove of the shaft.

Signed at New York city this 8th day of August, 1904.

CHARLES L. PAPPENHAGEN.

Witnesses:
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AXEL V. BEEKEN.