T. D. WARNER.

PERISCOPE.

APPLICATION FILED JUNE 10, 1918.

1,300,901. **Patented Apr. 15, 1919.**

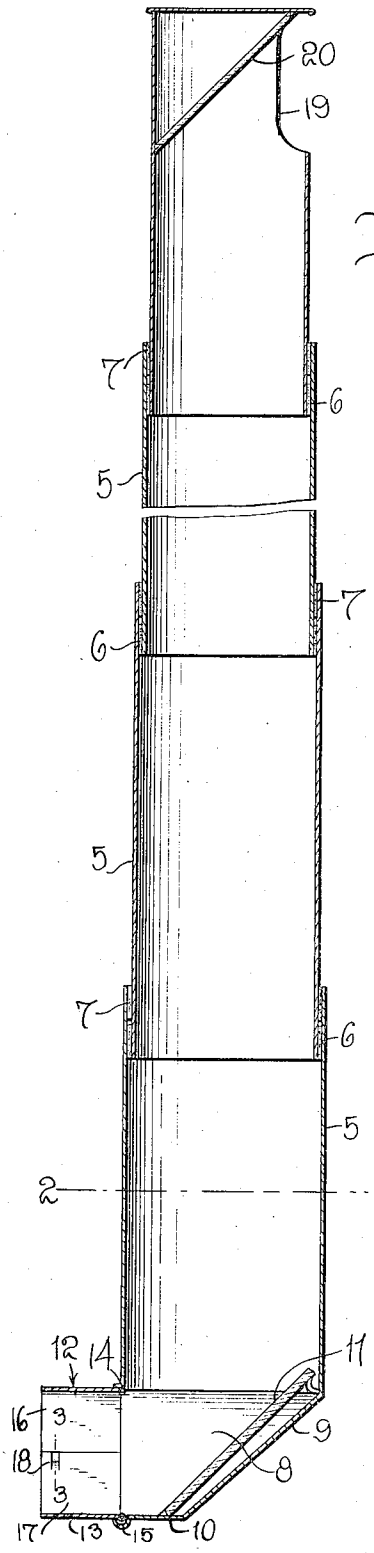


Fig. 1

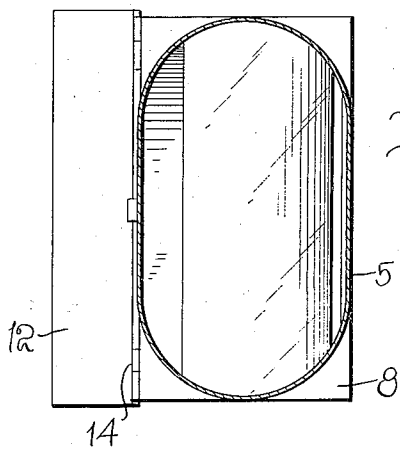


Fig. 2

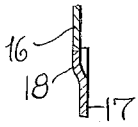


Fig. 3

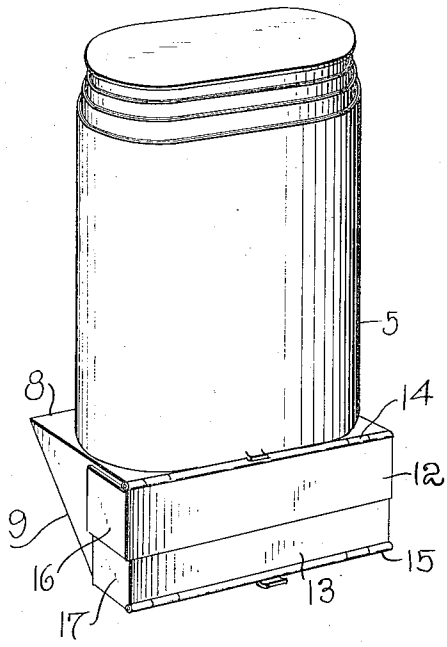


Fig. 4

Inventor

T. D. Warner

By Watson E. Coleman

Attorney

UNITED STATES PATENT OFFICE.

THOMAS DUANE WARNER, OF JONESBORO, ARKANSAS.

PERISCOPE.

1,300,901. Specification of Letters Patent. Patented Apr. 15, 1919.

Application filed June 10, 1918. Serial No. 239,204.

To all whom it may concern:

Be it known that I, THOMAS D. WARNER, a citizen of the United States, residing at Jonesboro, in the county of Craighead and State of Arkansas, have invented certain new and useful Improvements in Periscopes, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to an improved periscope and has for its primary object to provide a folding or collapsible periscope which may be conveniently carried in the pocket when not in use.

It is a more particular object of the invention to provide a periscope having a plurality of telescopically associated extensible and collapsible tubes or sections, and means for effecting a substantially air-tight closure of the tubular sections when the periscope is collapsed, to prevent the collection of dust upon the mirrors of the periscope.

It is a detail object of my invention to provide a closure for the sight opening of a periscope consisting of two closure sections hingedly mounted along one of their edges at the upper and lower edges of said opening, said sections in one position affording means for shielding the face of the periscope mirror from strong light rays, and simple and effective means for retaining said closure sections in such position or in a closed position over the sight opening.

It is also a further general object of my invention to provide a periscope as above characterized which consists of relatively few parts and may therefore be manufactured at comparatively small cost and which will be highly serviceable and convenient in practical use.

With the above and other objects in view, the invention consists in the improved combination, construction and relative arrangement of the several parts, as will be hereinafter more fully described, subsequently claimed and illustrated in the accompanying drawing in which similar reference characters designate corresponding parts throughout the several views, and wherein:—

Figure 1 is a longitudinal sectional view through the periscope, showing the sections thereof extended;

Fig. 2 is a horizontal section taken on the line 2—2 of Fig. 1;

Fig. 3 is an enlarged detail section taken on the line 3—3 of Fig. 1; and

Fig. 4 is a perspective view showing the periscope folded or collapsed.

Referring in detail to the drawing, 5 designates a plurality of tubular sections which constitute the body of the periscope, said sections successively decreasing in cross sectional area and having sliding telescoping engagement within each other as clearly shown in Fig. 1. Each of the sections 5 is provided at one end and upon the exterior thereof with a continuous strip 6 preferably of a suitable packing material. This strip may be adhesively or otherwise secured to the wall of the periscope section. The telescope sections are also provided at their opposite ends with a similar strip of packing material 7 which is secured to the inner surface thereof. It will of course be understood that the largest section of the periscope is not provided with the exterior packing strip 6 while the smallest section thereof is not provided with an interior packing strip 7. These packing strips 6 and 7, limit the relative movement of the periscope sections to their extended positions.

Preferably, though not necessarily, each section of the periscope is of substantially elliptical form in plan as seen in Fig. 2, and the outermost larger section 5 is provided at one of its ends with a rectangular casing extension designated 8 having an obliquely inclined side wall 9 extending from the relatively narrow end wall 10 to one side of the elliptical periscope section 5. The opposite side of the rectangular casing 8 is open, and a mirror 11 is suitably mounted or arranged within this casing in an obliquely inclined position and extends from the end wall 10 in divergent relation to the inclined wall 9 and for a slight distance into the end of the periscope section 5.

At the open side of the rectangular casing 8, closure members for said opening designated by the numerals 12 and 13, respectively, are mounted, said members being hinged along one of their longitudinal edges as at 14 and 15, respectively, at the opposite sides of said opening. Each of these closure members consists of a strip of metal having its end portions bent at right angles as at 16 and 17. The end portions of the closure member 13 are disposed inwardly of the plane of the corresponding end portions

16 of the member 12. Each angular end 17 of the member 13 has a yieldable tongue 18 struck outwardly from one edge thereof and disposed in the plane of the end 16 of the other member 12. Thus when these closure members are extended to project outwardly from the sight opening of the casing 8, the spring clips or tongues 18 engaging under the opposed edges of the wall 16 of the member 12 act to retain the closure members in their extended positions against relative inward movement. Thus these members constitute in effect a hood through which the image upon the mirror 11 may be viewed, the walls of said members preventing the entrance of strong rays of light into the casing 8. When the periscope is not in use, the resilient tongues 18 are forced inwardly and the closure section 13 is then first moved inwardly against the open side of the casing 8, the ends 17 of said member engaging exteriorly upon the opposite side walls of said casing. The other hinged member 12 is then swung inwardly, the ends 16 thereof moving upon the outer faces of the ends 17 of the member 13, and said angular ends 16 of the member 12 riding over and upon the tongues 18 which thereby serve to retain the members 12 and 13 in their folded positions against the open side of the casing 8 and against casual relative movement. Thus the sight opening will be completely closed and the entrance of dust or other foreign matter into said casing where it would collect upon the surface of the mirror 11 is obviated.

The smallest section 5 of the periscope is cut away upon one side to provide an opening 19 therein, and an obliquely inclined mirror 20 is arranged within this periscope section and extends from one end of the opening 19 to the opposite side wall of the section 5. The image is reflected from the surface of this mirror through the extended tubular sections of the periscope and upon the surface of the mirror 11.

When the periscope is not in use, the several sections thereof are collapsed or folded within each other as indicated in Fig. 4 of the drawing, the closure members 12 and 13 for the sight opening being also disposed in their folded positions. The several parts being thus very compactly arranged, the device can be conveniently carried in the pocket or packed away in a relatively small space. The opening 19 in the end of the smallest section 5 of the periscope is completely covered by the end of the next section 5 in the series, so that when the parts are collapsed, dust cannot enter through this opening and collect upon the mirror 20. The packing strips 6 and 7 on the periscope sections frictionally engaging the walls of the adjacent sections, will also prevent the entrance of any dust or other foreign matter to the interior of the periscope between the walls of the relatively movable sections. My improved collapsible pocket periscope may be used for various purposes, such as to enable children or persons of short stature to view a procession, and in many other instances where one may desire to see or observe, while the observer remains hidden from view. Of course it is apparent that any desired number of the telescopically engaged periscope sections may be used, and these sections can be of any preferred length. The improved periscope as a whole is of relatively simple construction, strong and durable, and can be manufactured at relatively small cost.

While I have herein shown and described the preferred construction and relative arrangement of the several parts, it is to be understood that the device is susceptible of considerable modification therein and I therefore reserve the privilege of adopting all such legitimate changes as may be fairly embodied within the spirit and scope of the invention as claimed.

Having thus described my invention, what I claim is:—

1. A periscope having a tubular body and a mirror arranged therein, said body being provided with a sight opening, and complementary closure members of said sight opening adapted to be arranged in laterally extending relation to the body to provide a projecting hood extending outwardly from the sight opening.

2. A periscope having a tubular body and a mirror arranged therein, said body being provided with a sight opening, and closure means for the sight opening hingedly mounted upon the body and adjustable with respect thereto, to provide a hood projecting laterally in an outward direction from the sight opening.

3. A periscope having a tubular body and a mirror arranged therein, said tubular body being provided with a sight opening, and closure members hingedly mounted upon the body at the opposite edges of said opening and adapted to be extended laterally from the opening to constitute a projecting hood, said closure members being foldable relative to each other against the periscope body to close said sight opening.

4. A periscope having a tubular body provided with a sight opening and a mirror mounted within said body, closure members for the sight opening movably mounted upon the periscope body adapted to be extended laterally from the opening to constitute a hood, one of said members being provided with means to coact with the other closure member and retain said members in their extended positions against casual relative movement.

5. A periscope having a tubular body provided with a sight opening, a mirror ar-

ranged within said body, relatively movable closure members for the sight opening, and means to retain said closure members in one position against relative movement to provide a hood projecting laterally from the sight opening, said means being constructed to also retain the closure members against relative movement in another position to close said sight opening.

6. A periscope having a tubular body provided with a sight opening and a mirror arranged within said body, closure members hingedly mounted upon said body at the opposite edges of the sight opening, each of said members having angular end portions disposed in different planes for sliding movement on each other, the end portions of one of said members having resilient tongues struck therefrom and with which the end portions of the other closure member are adapted to engage in one position of said members to prevent their casual relative movement whereby said members constitute a hood projecting laterally from the sight opening, said members being foldable upon the periscope body with respect to each other to close the sight opening and said tongues coacting with the latter closure member to retain the members in their folded positions.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

THOMAS DUANE WARNER.

Witnesses:
CLAUDE ELVIS JOHNSON,
CURTIS MCGINNIS.