ABSTRACT

A lens cover for the lens of a telescope embodies a collar of polyethylene having a high degree of flexibility which is mounted over the end of the telescope. The collar has a melting point of about 300°F. The collar has ears integral therewith and a pivot pin on which a stiff lid is pivoted. The collar has an interior annular shoulder, an exterior shoulder, and a shallow annular extension beyond the exterior shoulder over which the lid snaps, the extension and shoulder having a cooperating rib and groove to hold the lid closed. The collar has a thickened portion spaced circumferentially of the collar from the ears. An operating button and lever unit of another synthetic resin product (DuPont Zytel 101) having a melting point of 700°F is coated with a mold release material and molded in the thickened portion of the collar and has an extension projecting above the exterior shoulder for operating the lever. The material of the enlargement fills into a central aperture of the lever to provide a pivot for it.

2 Claims, 7 Drawing Figures
LENS COVER AND OPERATING BUTTON ASSEMBLY

BACKGROUND OF THE INVENTION

The lens covers for rifle telescopes shown herein are of a general type that have been in use for many years. The U.S. Pat. No. 2,849,795 to Royal A. Vissing is the closest prior art known to applicant in this field. A particular problem has been to provide a collar that will resiliently receive the lens barrel and carry a lid which when released will spring open and yet will stay closed until positively pushed part way open. The lid opening means must be on the collar and of such nature that the opening of the lid does not tend to pull the collar off the lens barrel.

The purpose of this invention is to provide the lid and collar with a complete sealing connection and a lift lever housed in the collar to break the sealing connection. Specifically, this invention provides a circular lever body molded in the collar with one projection underlying the lid and another projection projecting axially of the collar alongside the lid edge to turn the circular lever body to lift the first projection and push the lid away from the collar.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side view of a rifle telescope equipped with lens covers embodying the invention.

FIG. 2 is an end view of the lens cover.

FIG. 3 is a sectional view on the line 3—3 of FIG. 2.

FIG. 4 is an end view of the lens cover looking rearward from the lens barrel showing the structure of the collar.

FIG. 5 is an enlarged sectional view on the line 5—5 of FIG. 2.

FIG. 6 is an enlarged sectional view on the line 6—6 of FIG. 2.

FIG. 7 is an enlarged sectional view on the line 7—7 of FIG. 1. The line 7—7 is also indicated on FIG. 5.

DESCRIPTION OF A PREFERRED FORM OF THE INVENTION

In FIG. 1 the lens barrel 1 of a rifle telescope has both ends provided with covers indicated at 2. The covers 2 are identical and FIGS. 2 to 7 show the details of each cover 2.

The two major parts of the cover are a lid 3 which is of a stiff polystyrene material and a hollow collar 4 which is a resilient polystyrene resin which is capable of stretching slightly to go over the lens barrel 1. This collar has a relatively low melting point, about 300°F.

The lid 3 has an annular flange 5 which has a groove 6 therein to receive a rib 7 in the groove 6 and hold the lid 3 on the collar 4. Rib 7 is formed about an annular extension 8 of collar 4. A hinge sleeve 9 is formed on the lid and extends between hinge ears 10 on the collar 4. The sleeve 9 and ears 10 receive a hinge pin 11 to connect them. A spring 12 has one end 13 embedded in the sleeve 9 and is wrapped around the pin 11 with its free end 14 resting on the collar 4 between the ears 10. The spring 12 is wound under tension so that it tends to swing the lid 3 open away from the collar 4.

Spring 12 is designed that when embedded within sleeve 9, it has sufficient coiled force to quickly open the released lid 3 and to then hold lid 3 above collar 4 in a substantially horizontal position under slight tension. This open position is defined by abutment of the side edges of lid 3 against the ears 10, and is shown in dashed lines in FIG. 1.

It is also important to note that spring 12 is totally enclosed within the assembly when the lid 3 is closed, protecting the metal spring from weather conditions and eliminating the possibility of accidental snapping of the relatively light spring wire.

As shown best in FIGS. 3 and 4, the collar 4 has thick wall portions 4d at the ears 10 and opposite them. In between these portions, are thin wall portions 4b that extend inwardly to an edge 4c. The portion beyond the edge 4c is of the same thickness as the portions 4d up to the extension 8. This construction provides adequate strength for the collar 4 and provides a shoulder at edge 4c for abutment with the end of lens barrel 1.

The lid 3 has a lift tab 15 located about 120° (counterclockwise with respect to FIG. 2) around the lid from the hinge sleeve 9. To apply pressure to this tab and pull the groove flange 5 off the rib 7 on the extension 8, I provide a lift lever 16, within the adjacent wall of the collar 4 with a finger projection 17 that extends up alongside and beyond the flange 5 when the lid is closed. The lift lever 16 has another projection 18 which seats in a thickened wall portion 4d on the collar 4 and which, when so seated, is flush with the shoulder at edge 4c of the collar 4. When pressure is applied on the finger projection 17 in a direction toward collar 4, the projection 18 lifts the tab 15 to break the lid 3 away from the rib 7. The spring 12 then snaps the lid wide open.

The lift lever 16 is made of a hard material such as the synthetic resin product made by the DuPont Company and sold under their trade name “Zytel 101.” The melting point of this material is about 700°F. This makes it possible to coat the finished lift lever 16 with a mold release compound and mount it in the die for the collar 4 in a position so that when the collar 4 is molded, the thickened wall portion 4d will cover the lever and form a pivot pin 20 for the lever 16. Upon removal from the die, the collar 4 has the lever 16 pivotted therein in the position shown in FIG. 5. The pivot pin 20 prevents the lever from snapping out of its socket in the wall portion 4d.

The integral pivot pin 20 molded through lift lever 16 is a most important feature of this disclosure. It has been found impractical to use separate hinge pins in soft molded plastic materials. First, the fabrication step is costly. Secondly, it is subject to being torn from the flexible material or broken when subjected to outdoor use by sportsmen. This is overcome by injection molding of pivot pin 20 under high pressure integrally with the molding of collar 4 to provide one complete molded article.

These lens covers for rifle telescopes may be subjected to all sorts of weather, mud, rain, and snow, saltwater and freezing. By reason of the construction just described, the lens covers are and remain substantially impervious to the weather attacks and keep the lenses clear.

The embodiments of my invention in which an exclusive right is claimed are defined in the following claims:

1. A lens cover comprising:
   a) a resilient collar adapted to be stretched over a lens barrel,
a lid hinged to one end of said collar; spring means connected to the collar and the lid and urging the lid away from said one end of the collar; the collar and lid having complementary annular flanges, one of which is ribbed and the other being grooved, to hold the lid on the collar; a push tab on the lid remote from the hinge point adapted when pushed away from the collar to release the lid flange from the collar; a lift lever pivotally embedded in the collar and having a projection thereon in position to engage the lift tab; the lift lever having a finger projection extending from the collar alongside the lid by which the lever may be pivoted to push said lift tab away from the collar.

2. The invention defined in claim 1 wherein the collar has a thickened wall adjacent to the hinge point with the lid, and opposite the hinge point with thin walls therebetween, and the collar having a thick end all around at the flanged end, forming a stop shoulder for the lens cover.