

**G. FECKER.**  
**TELESCOPE.**

(Application filed July 5, 1901.)

(No Model.)

Fig. 1.

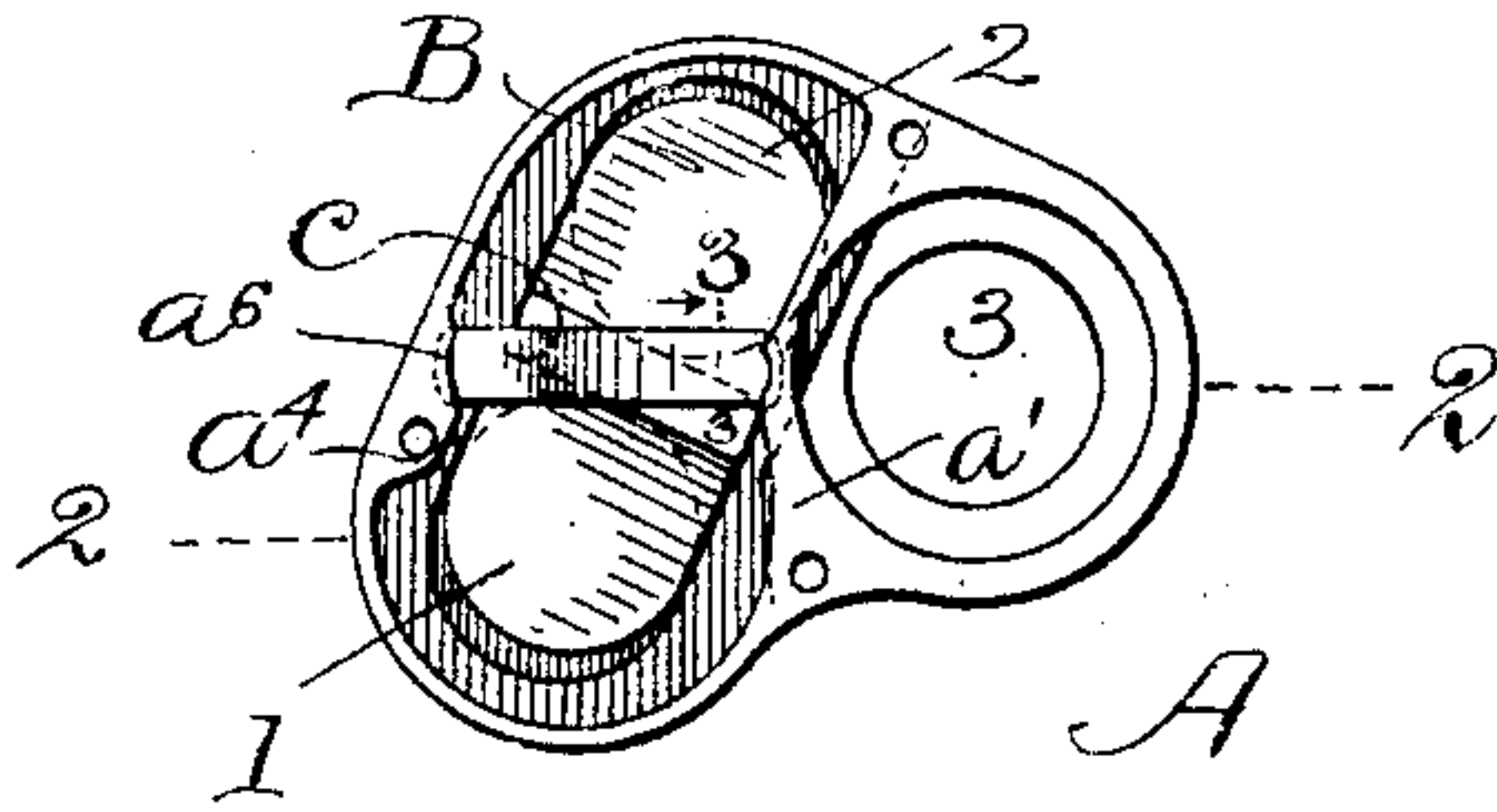


Fig. 2.

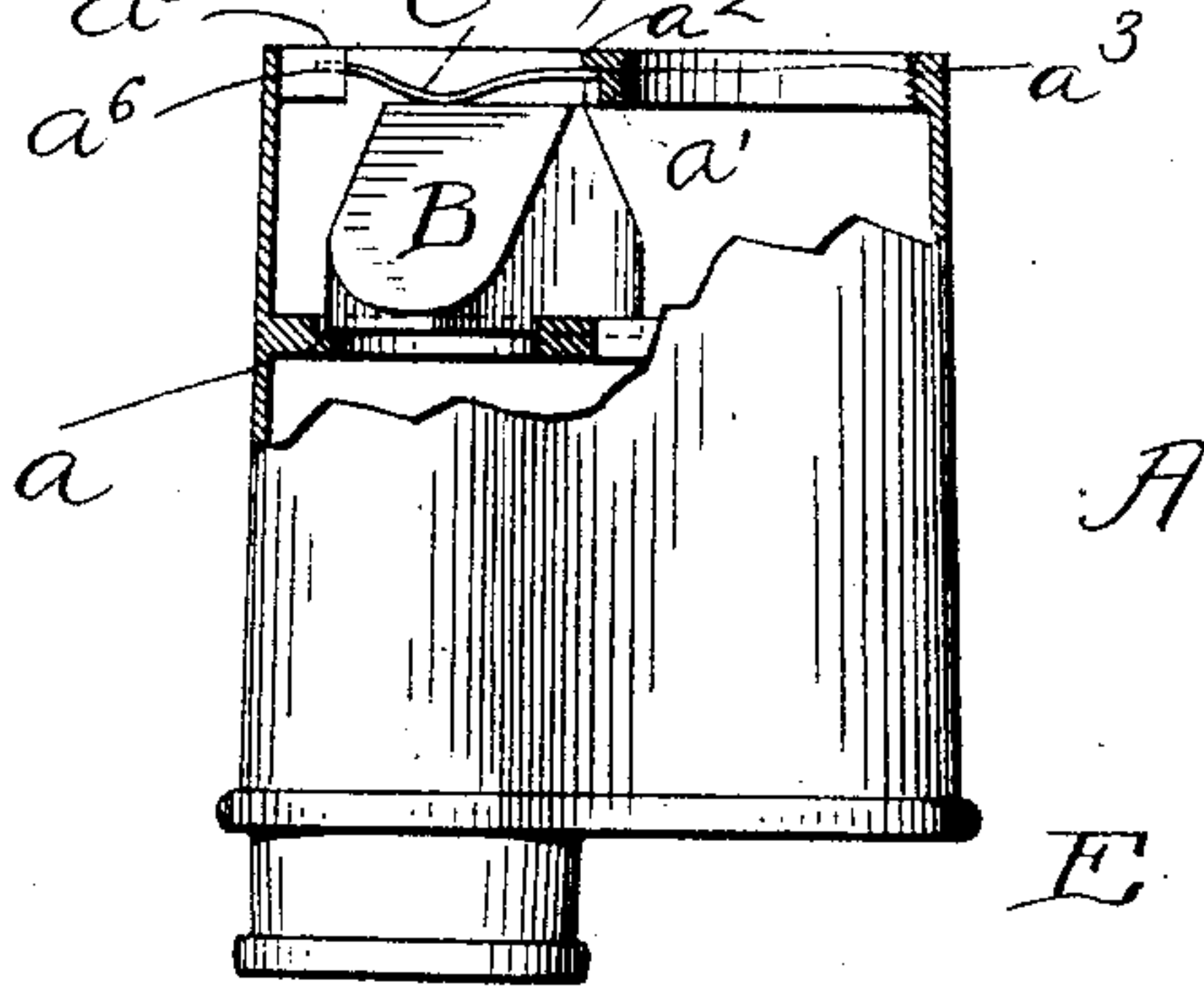
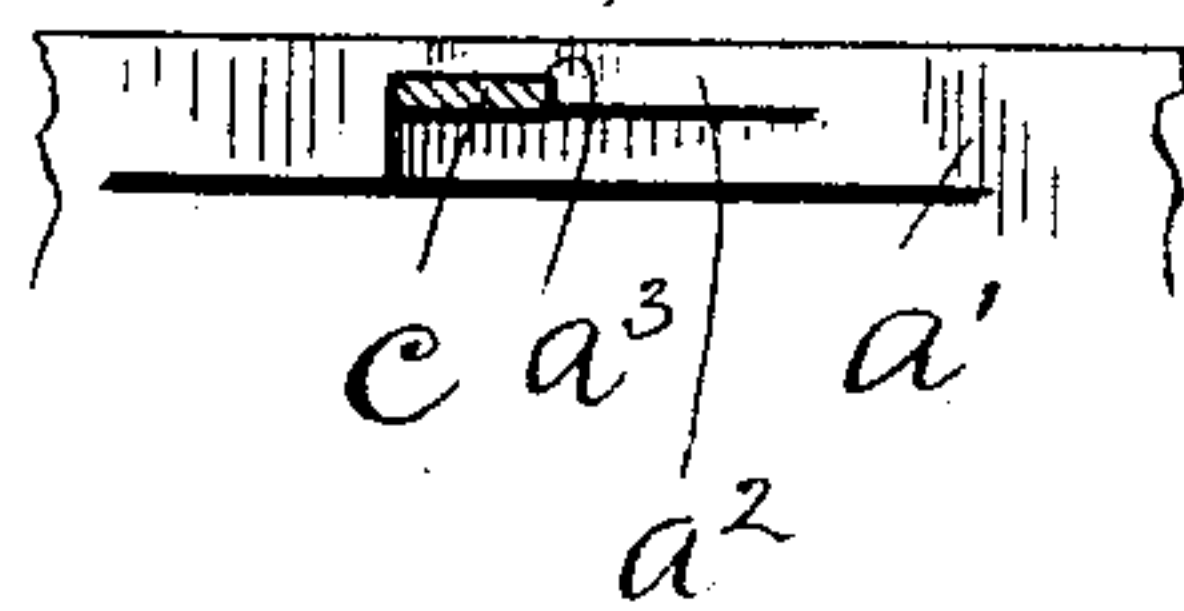


Fig. 3,



Witnesses.  
E. B. Gilchrist  
H. M. Wise.

Inventor,  
Gottlieb Fecker,  
By his Attorneys,  
Thurston & Bates.

# UNITED STATES PATENT OFFICE.

GOTTLIEB FECKER, OF CLEVELAND, OHIO, ASSIGNOR TO THE WARNER & SWASEY COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

## TELESCOPE.

SPECIFICATION forming part of Letters Patent No. 695,712, dated March 18, 1902.

Application filed July 5, 1901. Serial No. 67,121. (No model.)

*To all whom it may concern:*

Be it known that I, GOTTLIEB FECKER, 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 Telescopes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

10 The invention relates to improvements in the kind of telescopes which employ the so-called "Porro prisms."

The object of the invention is to firmly hold such prisms in the barrel against the seats therefor provided and to effect this result by means which are exceedingly simple in construction, but which may be easily manipulated either for the purpose of fastening the prisms in place or for releasing them whereby they may be removed.

The invention consists in the construction and combination of parts hereinafter described, and pointed out in the claims.

25 In the drawings, Figure 1 is an end view of a telescope-tube containing my invention. Fig. 2 is a side elevation, partly in section, on line 2 2 of Fig. 1; and Fig. 3 is a sectional view on line 3 3 of Fig. 1 of a portion of said tube, &c.

30 Referring to the parts by letters, A represents a triple-tube barrel, which may be of any specific form adapted to receive and utilize the so-called "Porro prisms." The specific barrel shown is one of a pair of barrels used in a prism binocular-glass. These barrels contain three tubes 1 2 3, which may or may not be separated by longitudinal partitions. B represents a prism which spans two of said tubes and whose base is held 40 firmly against the transverse seat  $a$ , which projects inward from the walls of the barrel. The means for holding the prisms against these seats constitutes the present invention. The ends of such barrels are ordinarily closed 45 by cap-plates secured thereto by screws—as, for example, the cap-plates E at the objective end of said barrel. In the common construction these prisms are held in place by the cap-plates. I believe it to be desirable 50 that they be held in place by means which are wholly independent of the cap-plates,

thus allowing the instrument to be taken apart without in any way disturbing the prisms. It is also desirable that the means employed for holding the prisms be simple 55 in construction and adapted to be easily placed and removed, but which will not be liable to accidental displacement in the handling of the barrels. All of these ends are attained by the combinations constituting 60 my invention, as follows: A cross-bar  $a'$ , which is preferably an integral part of the barrel, occupies a position at the end of the barrel between the two tubes 1 and 2, which the adjacent prism spans, and the third tube 65 3 in the barrel. On the edge of this cross-bar is an overhanging flange  $a^2$ . On the opposite edge of the barrel is an inwardly-extended flange  $a^5$ , which for convenience is formed on the inner face of a boss  $a^4$ , which 70 is provided primarily for receiving one of the screws by which the cap-plate is attached to the end of the barrel. A bent leaf-spring  $c$  bears near its middle point on the flat top of the prism, while its ends lie respectively beneath said flanges  $a^2$   $a^5$ , the spring 75 being under considerable tension when in this position, whereby the prism is pressed firmly against its seat. In the best construction, as shown, the flange  $a^5$  is formed by cutting a horizontal and preferably arc-shaped 80 kerf or groove  $a^6$  in said boss  $a^4$ . The ends of this spring are preferably also arc-shaped. To place the spring so that it will perform its functions, one end thereof is inserted in this 85 kerf, while the other or free end of the spring is at one side of the flange  $a^2$ , the middle part of the spring bearing at this time on the flat top of the prism. The free end of the spring is then bent down below the level of the flange 90  $a^2$  and is moved beneath said flange, the other end of the spring turning in the kerf as on a pivot. In order to prevent accidental displacement of this spring, a notch  $a^3$  is formed in the under side of the flange  $a^2$ , and when 95 the free end of the spring has been turned far enough it flies up into this notch, whereby further movement of this end of the spring in either direction is prevented until said end is first pressed down out of said notch. 100

The drawings show in detail the mechanism at one end only of the barrel. It will be



understood, however, by persons familiar with this art that another prism is secured nearer the opposite end of the barrel spanning the tubes 1 and 3. The means for so securing it 5 may be precisely like those heretofore described.

Having described my invention, I claim—

1. In a Porro-prism telescope, the combination of a triple-tube barrel having a transverse seat for the base of the prism, a cross-bar near the end of the barrel, and two inwardly-extended flanges on said cross-bar and the wall of the barrel respectively, with a prism resting against said seat, and a bent 10 leaf-spring a part of which bears upon the top of the prism and whose ends engage beneath said flanges, substantially as described.

2. In a Porro-prism telescope, the combination of a triple-tube barrel having a transverse seat for the base of the prism, and, near 20 its end, a cross-bar, and, in the wall of the barrel and on the cross-bar respectively, a

kerf  $a^6$  and an inwardly-turned flange  $a^2$  in which is a notch  $a^3$ , with a prism resting upon said seat and a bent leaf-spring whose middle 25 part bears upon the top of the prism and whose ends when the spring is in place engage in said kerf and notch respectively, substantially as described.

3. In a Porro-prism telescope, the combination of the barrel having an internal transverse seat for the base of the prism, and two inwardly-extended shoulders outside of said base, with a prism whose base rests upon said seat, and a bent leaf-spring, which, between 35 its ends, bears upon the top of the prism, and whose ends engage beneath said shoulders, substantially as described.

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

GOTTLIEB FECKER.

Witnesses:

WM. E. REED,  
JOHN WEBER.