

No. 737,872.

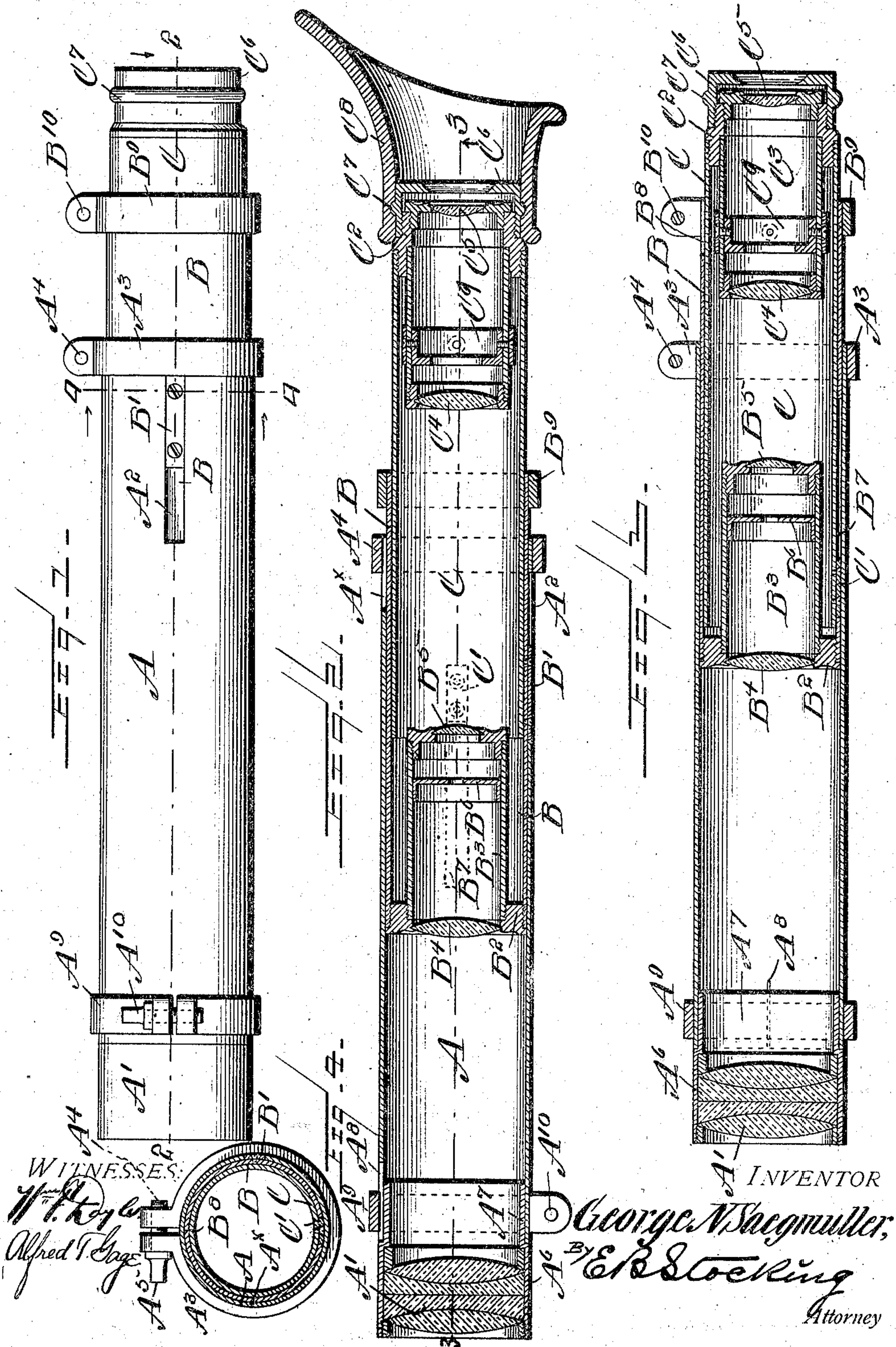
PATENTED SEPT. 1, 1903.

G. N. SAEGMULLER.

TELESCOPE.

APPLICATION FILED MAY 18, 1903.

NO MODEL.



UNITED STATES PATENT OFFICE.

GEORGE N. SAEGMULLER, OF WASHINGTON, DISTRICT OF COLUMBIA.

TELESCOPE.

SPECIFICATION forming part of Letters Patent No. 737,872, dated September 1, 1903.

Application filed May 18, 1903. Serial No. 157,686. (No model.)

To all whom it may concern:

Be it known that I, GEORGE N. SAEGMULLER, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Telescopes, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a telescope, and particularly to an instrument for gun-sighting purposes.

The invention has for an object to provide a construction whereby the telescope may be adapted for either high or low power—that is, a wide field of extended vision or a narrower field with a more clear definition of the object viewed—and this function is accomplished by the use of a variable or adjustable eyepiece mounted for adjustment relative to the system of erecting-lens and both the eyepiece and erecting-lens adjustable relative to the object-lens for the object of focusing the instrument.

A further object of the invention is to provide means for limiting the extent of adjustment of these parts and the focusing movement so that the instrument may be readily adjusted for either high or low power by simply moving the parts thereof to the full limit of their travel.

A further object of the invention is to provide a removable object-lens so that the same may be replaced by a similar lens of different power, thus increasing the range of use of the instrument to the fullest extent possible.

Other objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by the appended claims.

In the drawings, Figure 1 is a side elevation with the parts in position for low power. Fig. 2 is longitudinal horizontal section on the line 2 2 of Fig. 1 with the parts adjusted for high power and an eye-shield applied to the instrument. Fig. 3 is a vertical longitudinal section of the parts shown in Fig. 1, taken upon the line 3 3 of Fig. 2; and Fig. 4 is a vertical cross-section on the line 4 4 of Fig. 1.

Like letters of reference refer to like parts in the several figures of the drawings.

The letter A indicates a telescope-casing

adapted to receive an object-lens A' of any preferred construction and provided at one end with a slot or way A² and with a suitable split portion A^x to permit the clamping of the free end of the casing by means of the band A³, applied thereto and having a suitable threaded clamping-bolt A⁴ extending through the lugs at the free end of said band and provided with a head A⁵, of angular construction, to receive a wrench for the purpose of clamping and releasing the band. The object-lens A' is mounted within the casing A⁶, having a collar A⁷ extending within the split end A⁸ of the casing A, and surrounding this end is a clamping-band A⁹, provided with a threaded bolt A¹⁰, similar in construction to the bolt A⁴ just described. By this means the object-lens may be removed and replaced by a lens of different power or construction adapted to the particular character of work to be done by the instrument.

Slidingly mounted within the casing A is a telescoping tubular erector-casing B, which is provided upon its face opposite the slot A² of the casing A with a block or stop B', fitting said slot and traveling therein to determine the universal focus of the instrument for high and low power, respectively. This erector-casing is provided at its forward end with a holder B³, carrying any desired system of erecting-lenses within the casing or lens-tube B³—for instance, a convexed lens B⁴ at the forward end and a plano-convexed lens B⁵ at the inner end, with the usual diaphragm B⁶ interposed. This casing B is provided upon one face with a longitudinally-extending slot B⁷, as shown by dotted lines in Fig. 2 and full lines in Fig. 3, while the extended split end B⁸ thereof is provided with a clamping-collar B⁹ and clamping-bolt B¹⁰, of similar construction to those hereinbefore described.

Within the erector-casing the eyepiece-casing C is provided and telescopingly mounted therein, while the inner end thereof is provided with a block or projection C', traveling in the slot B⁷ of the casing B, so as to positively determine the extent of movement between the eyepiece and the erector necessary for the high and low power, respectively. The outer end of this casing C is provided with a holder C², carrying a tube C³, within which

any ordinary construction of lens for the eyepiece may be mounted—for instance, a convex lens C^4 and a plano-convex lens C^5 , with the interposed diaphragm C^9 . Upon the lens C^5 an apertured cap C^6 is secured and provided upon its periphery with a rib C^7 , over which a flexible eye-shield C^8 , of any preferred construction, may be placed and thereby held in position.

10 In Fig. 1 the parts are shown as adjusted for low power with the lenses in closest proximity to each other and the projection carried by the eyepiece-casing at the end of the slot in the erector-casing nearest the objective lens while the erector-casing is withdrawn from the object-casing until the projection carried thereby is at the end of the slot in the object-casing next the eyepiece, as shown in Fig. 1, thus jointly removing the adjusted system of lenses at their farthest point from the object-lens and establishing the proper universal focus for the instrument. This adjustment is secured by slightly loosening the clamping-band carried by the erector-casing, so that the eyepiece-casing can be telescoped therein to the position described, when the parts are again clamped and the clamping-band on object-casing released to permit the erector and eyepiece casings to be drawn outward in unison when all of the parts are firmly clamped in relative position by tightening the clamp upon the object-casing. When it is desired to increase the power of the instrument, the erector and eyepiece casings are separated from each other, as shown in Fig. 2, until the projection carried by the latter reaches the end of the slot in the former next the eyepiece. The erector and eyepiece casings are then clamped together and the clamping-band upon the object-casing released to permit the adjusted casings to be telescoped into the object-casing until the projection carried by the erector-casing reaches the end of the slot in the object-casing next the object-lens, as shown in Fig. 2, when all of the parts are clamped in position by means of the band upon the object-casing. The extent of movement for accomplishing these results is carefully determined and the instrument adjusted accordingly, so that the eyepiece is variable in its adjustment toward the erector system and also adjustable with the erector system toward and from the object-lens for the purpose of securing the proper focus. This variable eyepiece allows an increase in the magnifying power of from two to six diameters; but if it is found desirable to increase the power to a larger extent it may be accomplished by releasing the band at the object end of the object-casing and removing the object-lens therefrom and substituting another of longer focus. It will thus be seen that the present invention combines in a single instrument of ordinary size means for rendering the same capable of use as either a high or low power telescope, and the adjustment of the

lens systems toward each other and also the focusing thereof is accurately determined, so that no knowledge thereof is required by the person using the instrument.

While I have described in the foregoing specification a particular form of clamping-band and arrangement of lenses, the present invention is not in any wise confined thereto, as any suitable clamping means or arrangement of lenses may be used and are within the scope of the invention, and changes may also be made in the details of construction and configuration without departing from the spirit of the invention as defined by the appended claims.

Having described my invention and set forth its merits, what I claim, and desire to secure by Letters Patent, is—

1. In a telescope the combination with an object-lens, of an eyepiece and erector adjustable toward and from each other and jointly adjustable in their adjusted relation relative to the object-lens.

2. In a telescope the combination with an object-lens, of an eyepiece and erector adjustable toward and from each other and jointly adjustable in their adjusted relation relative to the object-lens, means for securing the eyepiece and erector in their adjusted positions, and means for securing the jointly adjustable eyepiece and erector in focus relative to the object-lens.

3. In a telescope, a casing provided with an object-lens; a casing provided with a system of erecting-lenses, a casing provided with an eyepiece, means for adjusting the eyepiece relative to the erecting system, and means for jointly adjusting the erecting system and eyepiece in their adjusted relation relative to the object-lens.

4. In a telescope, a casing provided with an object-lens; a casing provided with a system of erecting-lenses, a casing provided with an eyepiece, means for adjusting the eyepiece relative to the erecting system, means for jointly adjusting the erecting system and eyepiece in their adjusted relation relative to the object-lens, means for clamping the erector and eyepiece together, and means for clamping the erector and eyepiece casings within the object-lens casing.

5. In a telescope, a casing provided with an object-lens, a casing provided with a system of erecting-lenses, a casing provided with an eyepiece, means for adjusting the eyepiece relative to the erecting system, means for jointly adjusting the erecting system and eyepiece in their adjusted relation relative to the object-lens, means for clamping the erector and eyepiece together, means for clamping the erector and eyepiece casings within the object-lens casing, and a removable object-lens.

6. In a telescope, a casing provided with an object-lens, a telescoping adjustable casing provided with an erector, and an eyepiece

mounted in a telescoping casing carried by the erector-casing and adjustable relative to said erector.

7. In a telescope, a slotted casing provided with an object-lens at one end, a slotted telescoping casing provided with an erector and having a projection extending into the slot of the object-casing, and a casing carried by the erector-casing and provided with an eyepiece and projection extending into the slot in the erector-casing.

8. In a telescope, a slotted casing provided with an object-lens at one end, a slotted telescoping casing provided with an erector and having a projection extending into the slot of the object-casing, a casing provided with an eyepiece and projection extending into the slot in the erector-casing, clamping means at the end of the object-casing opposite the lens, and clamping means at the end of the erector-casing opposite the lens.

9. In a telescope, a slotted casing provided with an object-lens at one end, a slotted telescoping casing provided with an erector and having a projection extending into the slot of the object-casing, a casing provided with an eyepiece and projection extending into the slot in the erector-casing, clamping means at the end of the object-casing opposite the lens, clamping means at the end of the erector-casing opposite the lens, a removable casing carrying an object-lens, and clamping means for securing said lens-casing within the main casing.

10. In a telescope, a casing provided with an object-lens at one end, a telescoping casing provided with an erecting system comprising a convexed and a plano-convexed lens, and a telescoping casing provided with an eyepiece comprising a convexed lens and a plano-convexed lens and jointly adjustable with the erecting-lens relative to the object-lens.

11. In a telescope, a casing provided with an object-lens at one end, a telescoping casing provided with an erecting system compris-

ing a convexed lens and a plano-convexed lens, a telescoping casing provided with an eyepiece comprising a convexed lens and a plano-convexed lens, and jointly adjustable with the erecting-lens relative to the object-lens, a projection carried by the erector-casing and traveling in a focusing-slot formed in the object-casing, and a projection carried by the eyepiece-casing traveling in an adjusting-slot formed in the erector-casing.

12. In a telescope, a casing provided with an object-lens at one end, a telescoping casing provided with an erecting system comprising a convexed lens and a plano-convexed lens, a telescoping casing provided with an eyepiece comprising a convexed lens and a plano-convexed lens, a projection carried by the erector-casing and traveling in a focusing-slot formed in the object-casing, a projection carried by the eyepiece-casing traveling in an adjusting-slot formed in the erector-casing, a clamping-band at the end of the object-casing opposite the lens, and a clamping-band at the end of the erector-casing opposite the lens.

13. In a telescope, the combination with an object-lens, of an eyepiece and erector adjustable toward and from each other and jointly adjustable in their adjusted relation relative to the object-lens, and means for limiting and determining the extent of adjustment of each of said parts.

14. In a telescope, the combination with an object-lens, of an eyepiece and erector, and means to permit the adjustment of said eyepiece and erector toward each other and jointly in their adjusted relation away from the object-lens for low power, and away from each other and jointly toward the object-lens for high power.

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

GEORGE N. SAEGMULLER.

Witnesses:

JOHN L. FLETCHER,
LOUIS DIETERICH.