

(No Model.)

A. B. CLEMENTS.
OPERA OR FIELD GLASS.

No. 409,927.

Patented Aug. 27, 1889.

Fig. 1.

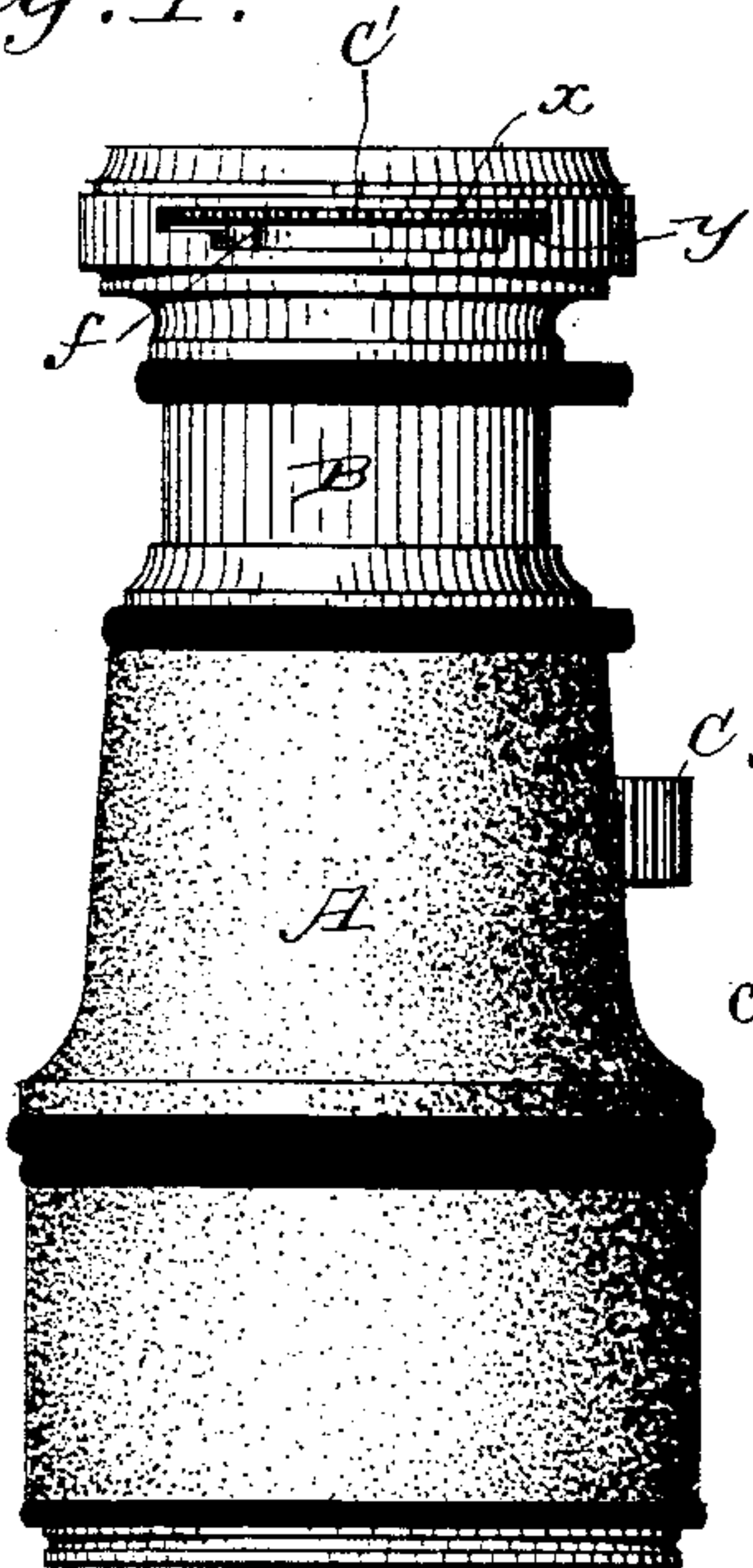


Fig. 2.

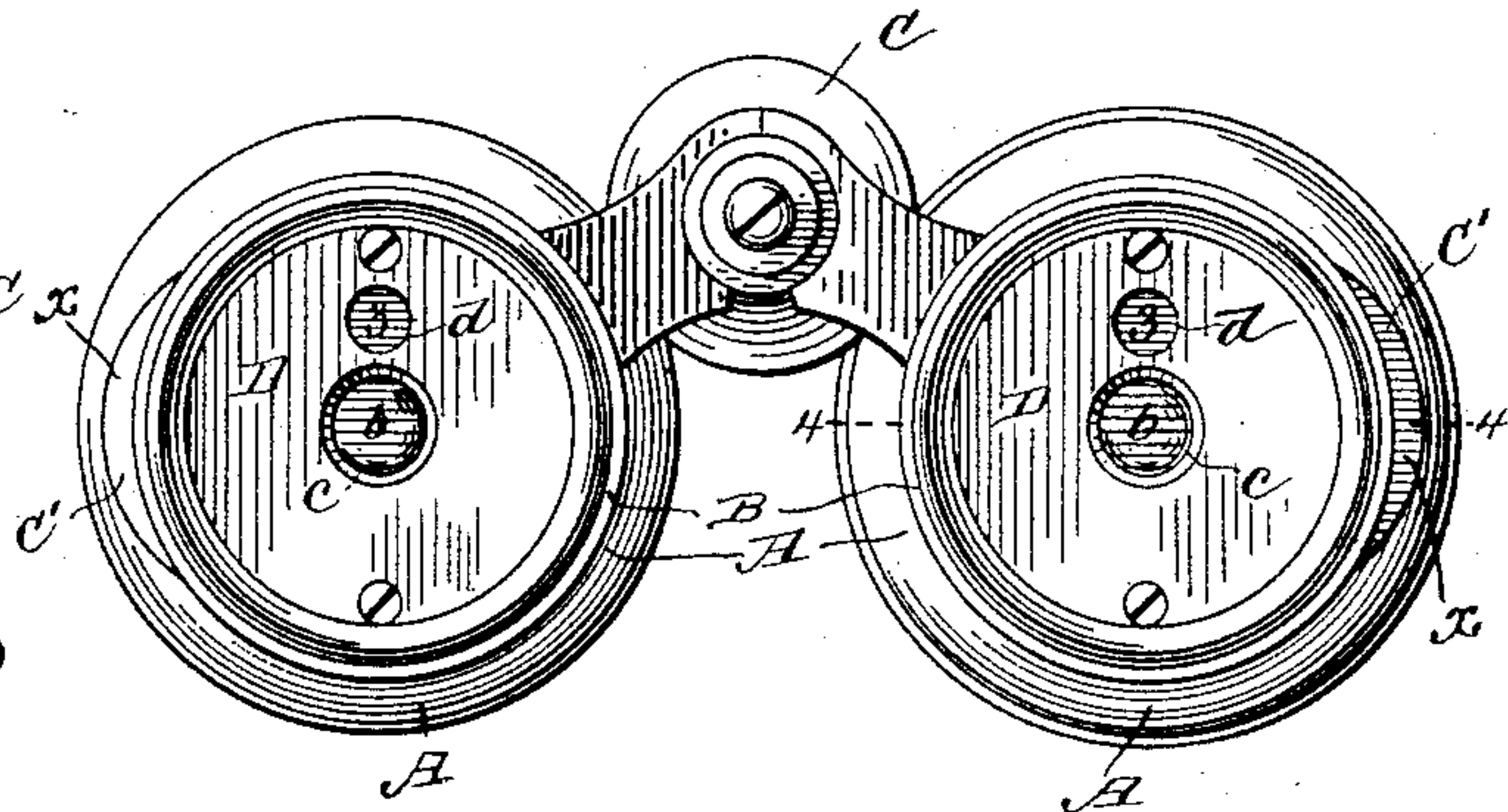


Fig. 3.

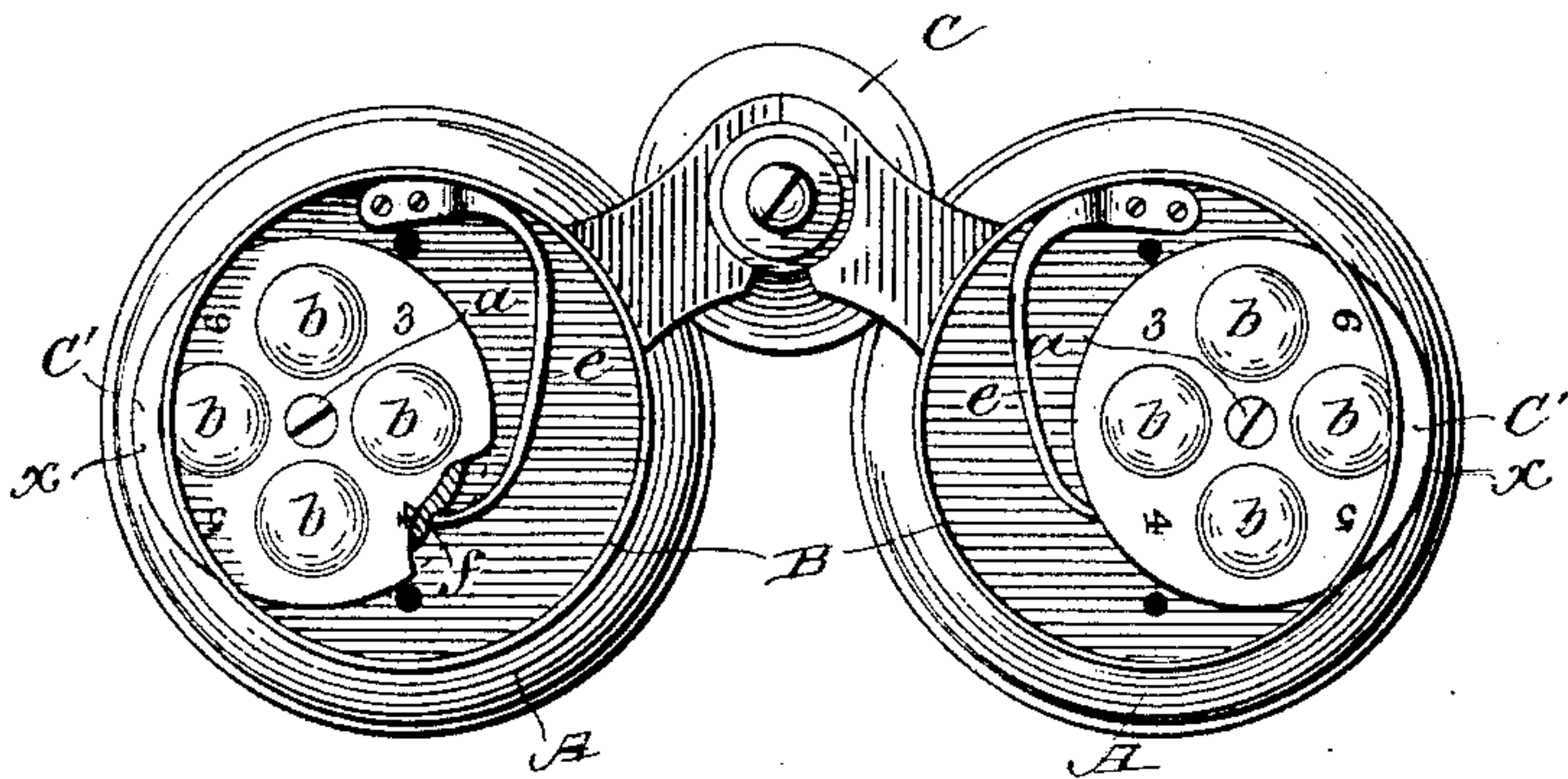


Fig. 4.

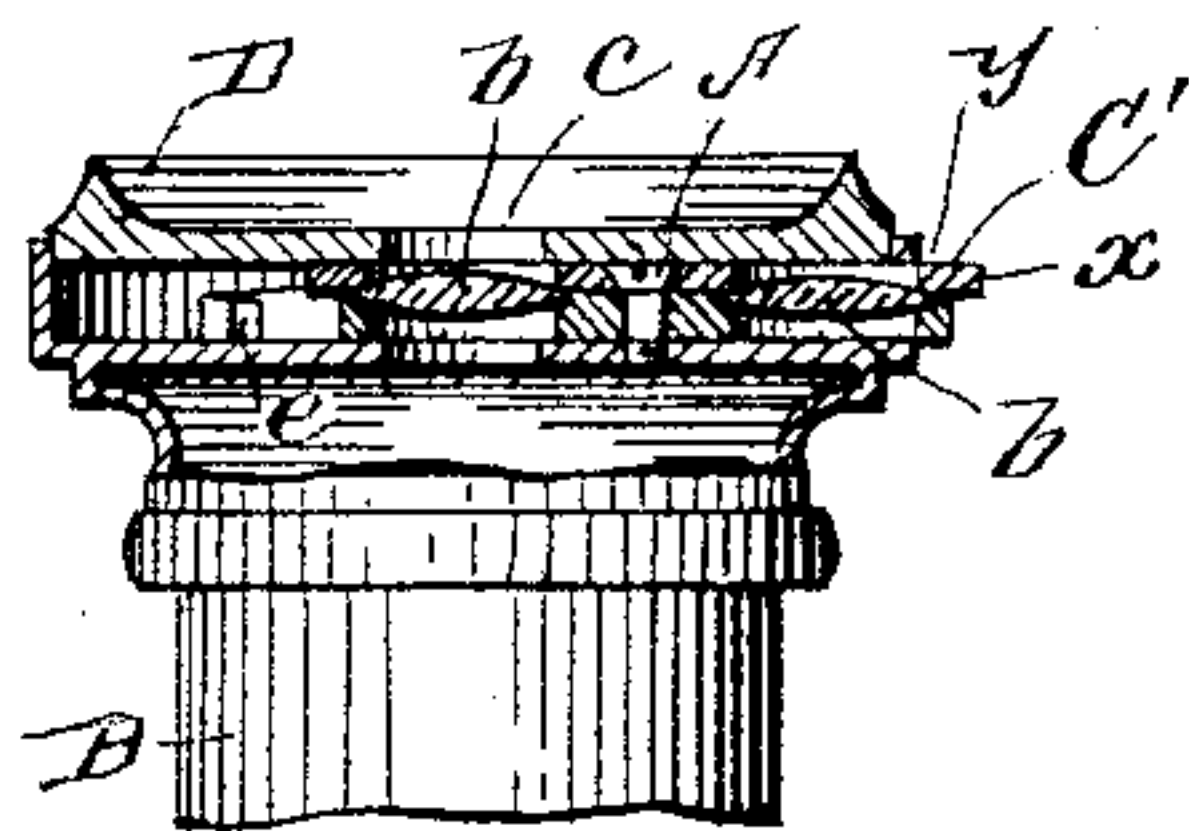
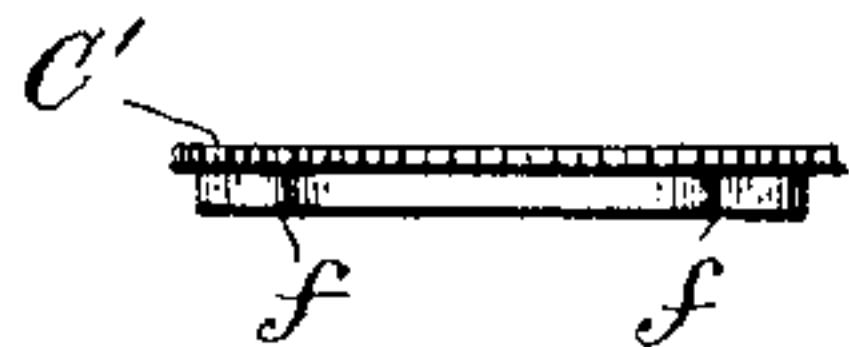


Fig. 5.



Witnesses:
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UNITED STATES PATENT OFFICE.

ABNER B. CLEMENTS, OF THE UNITED STATES NAVY, ASSIGNOR TO LEVY,
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OPERA OR FIELD GLASS.

SPECIFICATION forming part of Letters Patent No. 409,927, dated August 27, 1889.

Application filed March 30, 1889. Serial No. 305,479. (No model.)

To all whom it may concern:

Be it known that I, ABNER B. CLEMENTS, of the United States Navy, have invented certain new and useful Improvements in Opera or Field Glasses, of which the following is a specification.

My invention is directed to the production, in an economical and effective way, of an improved article—viz., an opera or field glass, the distance between the barrels of which may be adjusted by means of a folding frame to suit the distance between the pupils of the eyes of different persons, and the power of which may be varied at will to adapt it to vary the distance, and for use either as a day or night glass, and in which each of the barrels is provided with a series of lenses which can be operated independently of and without reference to the other.

The nature of my invention can best be explained and understood by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of a field-glass provided with my improvements. Fig. 2 is a plan view of the same. Fig. 3 is a plan with the tops or caps removed in order to expose the eccentrically-pivoted disks which carry the eye-lenses. Fig. 4 is a section on line 4 4, Fig. 2, of that portion of one of the extension-tubes to which the lens-carrying disk is attached. Fig. 5 is a side elevation of one of the lens-carrying disks.

The glass consists of the two barrels A, hinged together so that they may be brought nearer together or farther apart, as desired, so that the axis of said barrels may be adjusted to suit the distance between the pupils of the eyes of various persons by the usual hinge-joint, and the extension-tubes B, which in effect are part of the barrels, and the screw C at the axis of the joint between the two barrels for adjusting the extension-tubes.

In the outer ends of the extension-tubes I mount the disks or carriers C', provided each with a series of lenses *b*—in this instance four lenses—equidistant from the pivot or axis *a* of rotation of the disk, which axis or pivot *a* is eccentric to the eye-aperture *c*, and is placed in such relation thereto that by ro-

tating the disk any one of the four lenses can be brought into axial adjustment with the said aperture. The eye-aperture *c* is formed in a cap D, which covers the disk, with the exception of a small portion thereof, which, as shown at *x*, Fig. 2, projects through a slot, Fig. 4, in the side of the cap, so as to form a convenient means by which the disk can be manipulated, and to facilitate this operation the periphery of the disk is milled or roughened. The projecting parts of the two disks are upon the exterior opposite sides of the two extension-tubes B.

The lenses *b* are of varying powers. In order to provide a convenient and ready way by which the user can identify the particular lens which he may desire to use, I form upon the disks a series of distinguishing marks or numbers, one for each lens. The numbers in this instance are 3 4 5 6, and corresponding numbers on the two disks indicate corresponding lenses. The arrangement should be such that as a particular lens is brought into the axis of the eye-aperture its distinguishing-number should be displayed. For this purpose I form in each cap D an aperture *d*, through which will be displayed the number appertaining to the particular lens which may be in the field of the eye-aperture.

In order to assure the disks in adjusted position, a detent is employed, the members of which engage whenever a lens is in the field of the eye-aperture. This detent consists of a spring-finger *e* on each extension-tube and a series of peripheral beveled notches or depressions *f* on or in each disk, these notches being so placed that when any one lens is in proper alignment with the eye-aperture the spring-finger will enter one of said notches. The parts of the detent engage sufficiently to hold the disk against accidental displacement without, however, preventing the disk from being rotated by hand.

Having described my improvements, what I claim, and desire to secure by Letters Patent, is—

1. As a new article of manufacture, an opera or field glass consisting of the barrels A and folding frame, extension-tubes B, each having an independently-adjustable lens-

carrying disk C', pivoted eccentrically with relation to the eye-aperture and bearing a series of numbers or symbols corresponding to the eye-lenses, substantially as described.

5 2. As a new article of manufacture, an opera or field glass consisting of the barrels A and folding frame, extension-tubes B, each having an independently-adjustable lens-carrying disk C', pivoted eccentrically with

10 relation to the eye-aperture and projecting laterally beyond the cap of the extension-tube, a series of numbers or symbols on said disk corresponding to the eye-lenses, an opening in the cap of the extension-tube through which said numbers are displayed, and a de- 15

tent for maintaining said disk in position, substantially as described.

In testimony whereof I have hereunto set my hand this 27th day of March, 1889.

ABNER B. CLEMENTS.

Witnesses:
EWELL A. DICK,
WILL E. AUGHINBAUGH.