No. 822,751. PATENTED JUNE 5, 1906.

T. H. MITCHELL.

COMBINED SCOPE AND DISTANCE FINDER.

APPLICATION FILED FEB. 1, 1904.

Fig. 3.

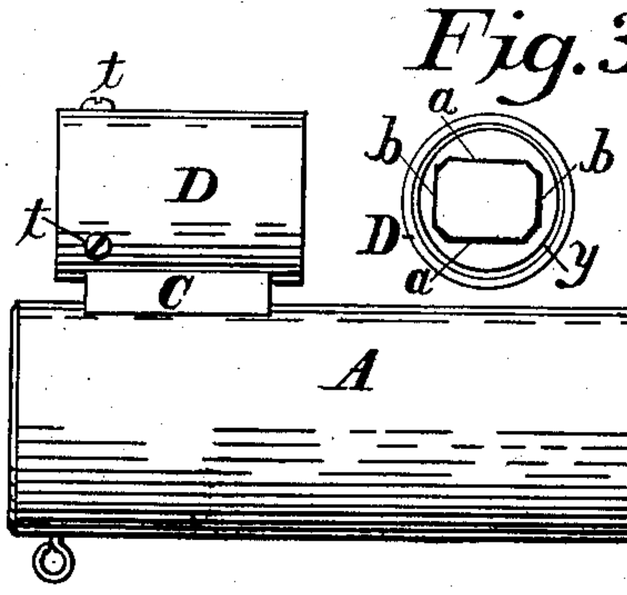


Fig. 1.

Fig. 2.

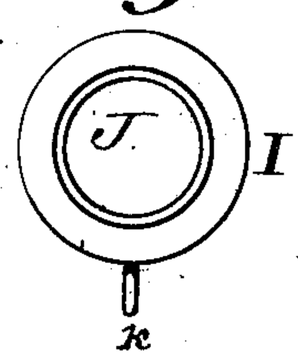


Fig. 5.

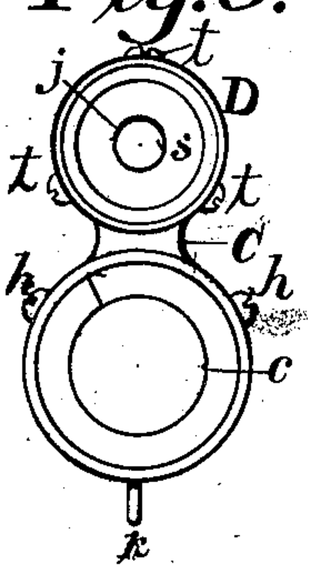


Fig. 4.

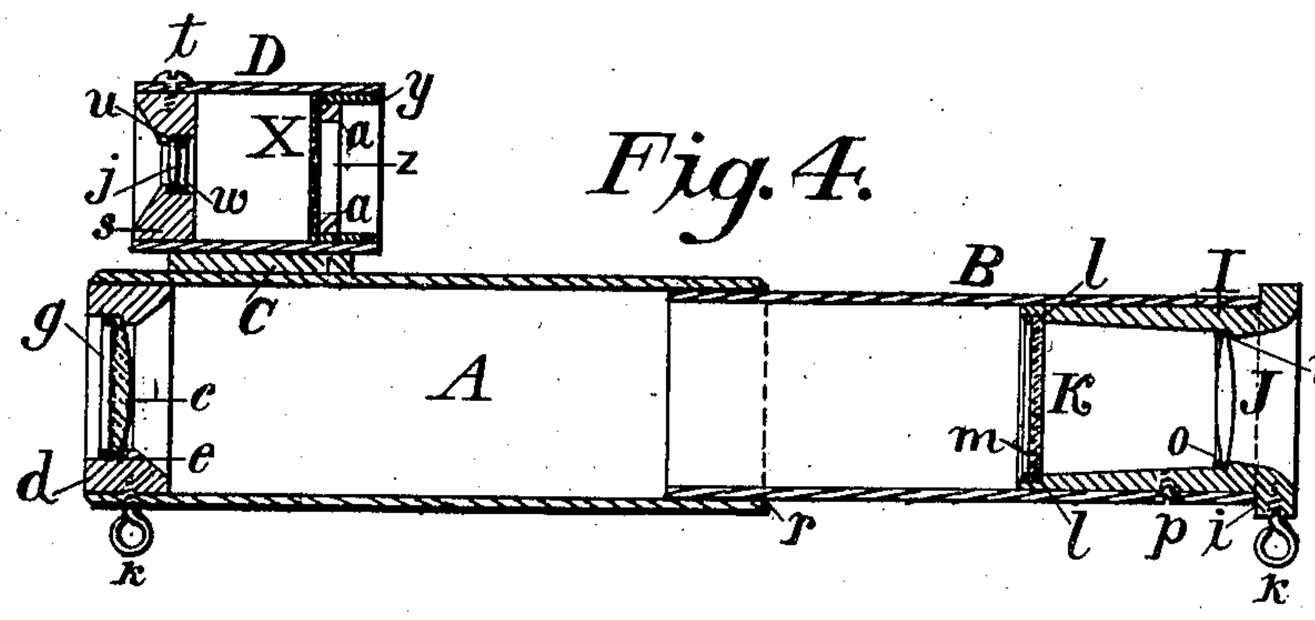
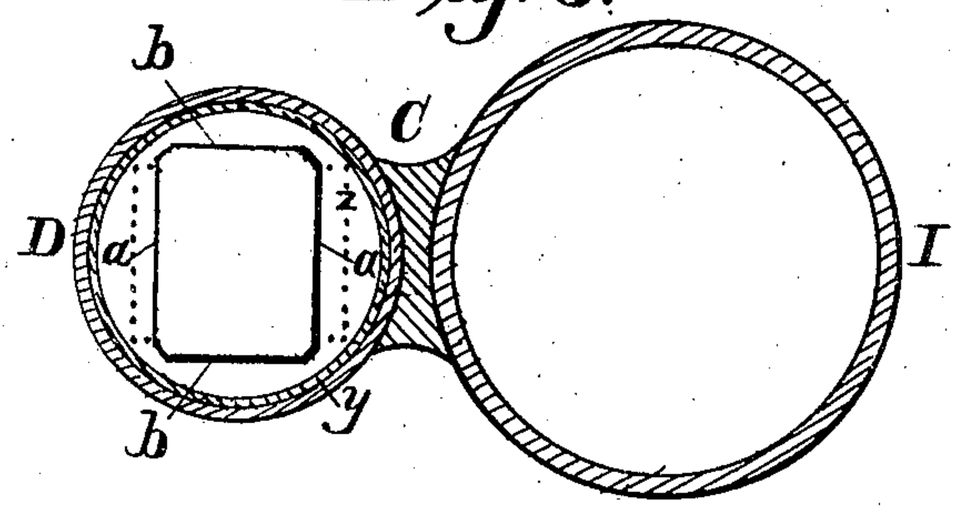


Fig. 6.



Witnesses.

William Gee Westlake Jr.

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Inventor:

Thos H. Mitchell.

UNITED STATES PATENT OFFICE.

THOMAS H. MITCHELL, OF NEW YORK, N. Y.

COMBINED SCOPE AND DISTANCE FINDER.

No. 822,751. Specification of Letters Patent. Patented June 5, 1906.

Application filed February 1, 1904. Serial No. 191,631.

To all whom it may concern:

Be it known that I, THOMAS H. MITCHELL, a citizen of the United States, residing in the borough of Brooklyn, city and State of New York, have invented a new and useful Instrument Called a Combined Scope and Distance Finder in the Art of Photography, of which the following is a description.

The object of the invention is to provide a new and improved combined scope and distance finder for use in connection with a photographic camera and arranged to permit the user to quickly and conveniently determine the scope of the object to be photographed and the exact focal distance between the camera and the object, to allow quick, convenient, and accurate adjustment of the camera according to the distance obtained, to produce a sharp focus of the object and the subsequent production of photographic views of high quality and merit.

The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the improvement. Fig. 2 is an end view of the eyepiece. Fig. 3 is an end view of the finder. Fig. 4 is a longitudinal sectional view of the improvement. Fig. 5 is an end view of the same from the forward end, and Fig. 6 is an enlarged cross-section of the same.

In the inner end of the tubular body A of the focal distance-finder is mounted to slide lengthwise the tubular slide B, and on the top of the forward end of the said tubular body A is fixed a block C, supporting the short tubular body D of the scope-finder.

The detail construction of the focal distance-finder is as follows: A single plano-convex objective lens *c* is mounted on an apertured block *d*, secured in the forward end of the tubular body A by set-screws *k* and *h*, the lens abutting against an annular seat or shoulder formed in the wall of the opening *f* of the block *d*, and the lens is pressed against the shoulder by a split wire ring *g*. A tubular eyepiece-block I is secured by a screw *p* to the rear or outer end of the tubular slide B, and in this block is mounted the double convex eyepiece-lens J, held against the annular seat or shoulder *n* by a split wire ring *o*, and in the forward end of this block I is mounted a ground glass K, held on an annular seat *l* by a split ring *m*. The inward sliding motion of the tubular slide B in the body A is limited by the annular shoulder *i* on the block I abutting against the inner edge *r* of the tubular body A. On the outside of the slide B is arranged lengthwise a distance-scale E in feet or other linear measurement, the different marks on the scale being read when coinciding with the rear edge of the tubular body A on sliding the slide B correspondingly inward or outward in the tubular body A.

The detail construction of the scope-finder is as follows: In the front end of the tubular body D of the scope-finder is secured a lens-block *s* by the use of screws *t*, and in the said lens-block is mounted a small double-convex objective lens *j*, held against an annular seat or shoulder *u* by a split wire ring *w*. A ground or objective glass X is permanently attached to a tube *y*, fitted in the rear end of the body D, and on the rear face of the ground glass X is a rectangular frame or washer *z*, having the opposite walls *a a* and *b b* to enable the user to readily determine the scope of the object on the ground glass and irrespective whether the instrument is held with the scope-finder on top of the focal distance-finder or to one side thereof, as will be readily understood by reference to Figs. 3 and 6.

The operation is as follows: The operator first views the distant object to be subsequently photographed by means of the scope-finder on the ground glass X to determine the size of the image of the object as it appears on the ground glass, and then the operator looks through the distance-finder at the eyepiece-block I and views the image as it appears on the ground glass K, and if the image does not appear sharply defined the operator moves the slide B inward or outward until the image appears in proper and accurate focus on the ground glass K. When this has been obtained, the operator reads the focal distance on the scale E, as previously explained, and then sets the camera-lens correspondingly to the same figure. Thus by the arrangement described the operator, by the use of the combined scope and focal distance-finder, can readily, quickly, and accurately determine both the size of the image of the object as it appears on the

ground glass X of the scope-finder and the distance to which the camera-lens must be set.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A distance-finder comprising a tubular body, a tubular slide mounted to slide in the inner end of the said body, an objective mounted in the outer end of the said tubular body, an eyepiece mounted in the outer end of said tubular slide, and a ground glass mounted in the said tubular slide between the eyepiece and the said objective.

2. A distance-finder, comprising a tubular body, a tubular slide mounted to slide in the inner end of said body, and having a distance-scale lengthwise on the outer surface thereof, the marks of the scale being read on the inner edge of said tubular body, an objective mounted in the outer end of said tubular body, an eyepiece in the outer end of said tubular slide, and a ground glass mounted on the said tubular slide between the eyepiece and the said objective.

3. A distance-finder, comprising a tubular body, a tubular slide mounted to slide in the inner end of said body, a single plano-convex objective lens mounted on the outer end of said body, a double convex lens on the outer end of said tubular slide, and a ground glass in the said tubular slide and spaced apart from said double convex lens, the tubular slide having a distance-scale arranged lengthwise on the outside thereof.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

THOMAS H. MITCHELL.

Witnesses:

WILLIAM GEE WESTLAKE, Jr.,

JOHN LAVENDER MITCHELL.