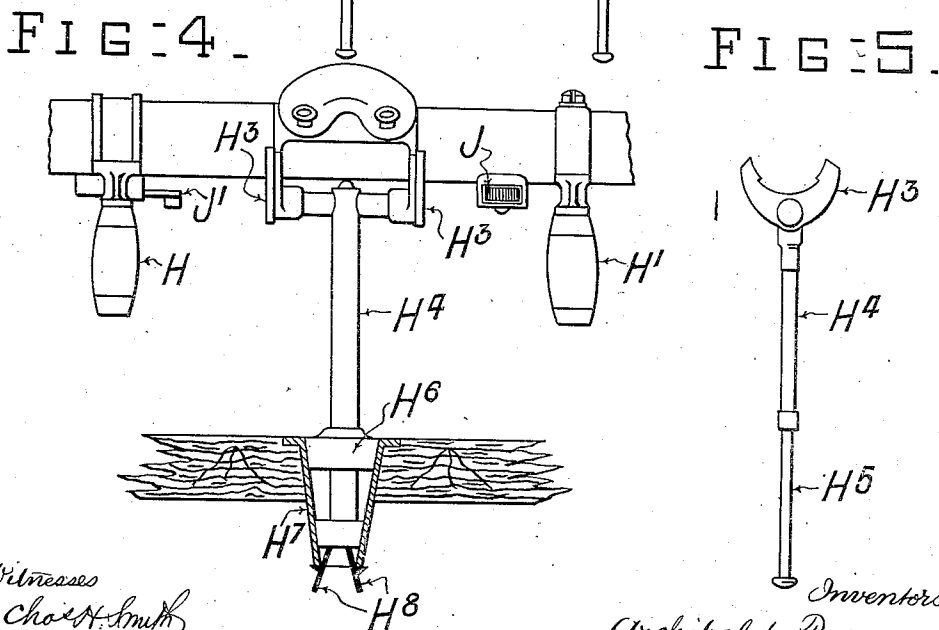
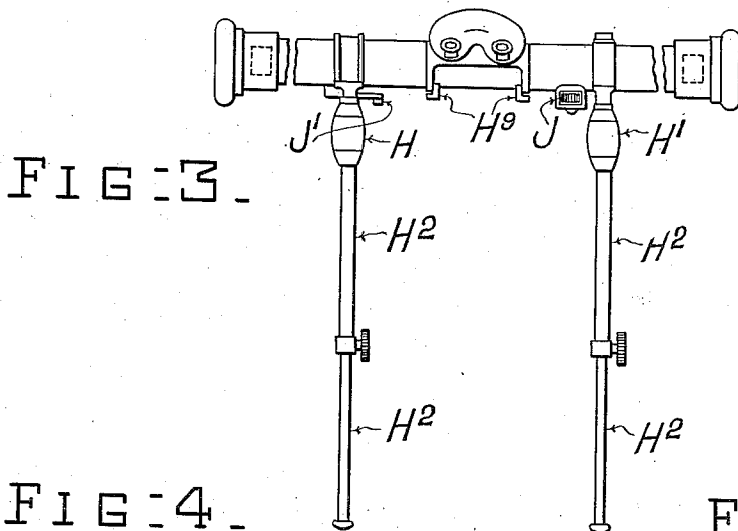
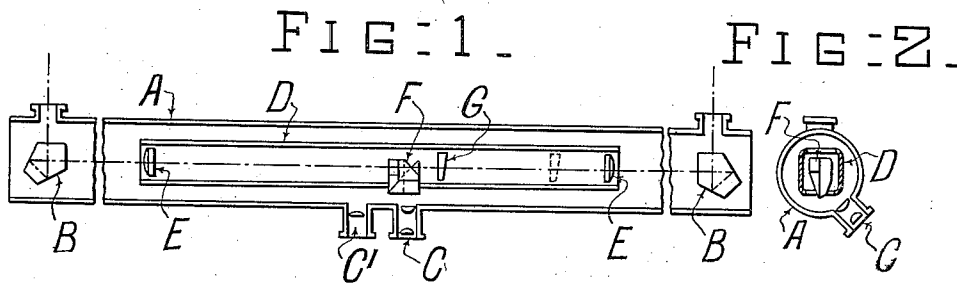


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 MEANS FOR SUPPORTING AND WORKING HEADS OF RANGE FINDERS.
 APPLICATION FILED JUNE 19, 1909.

943,296.

Patented Dec. 14, 1909.



Witnesses
 Chas. H. Smith
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UNITED STATES PATENT OFFICE.

ARCHIBALD BARR AND WILLIAM STROUD, OF ANNIESLAND, GLASGOW, SCOTLAND.

MEANS FOR SUPPORTING AND WORKING HEADS OF RANGE-FINDERS.

943,296.

Specification of Letters Patent.

Patented Dec. 14, 1909.

Application filed June 19, 1909. Serial No. 503,045.

To all whom it may concern:

Be it known that we, ARCHIBALD BARR and WILLIAM STROUD, subjects of the King of Great Britain and Ireland, and both of 5 Caxton street, Anniesland, Glasgow, Scotland, have invented new and useful Improvements in or Connected with Means for Supporting and Working Heads of Range-Finders, (for which we have made application 10 for a patent in Great Britain, No. 13,813, bearing date June 30, 1908,) of which the following is a specification.

This invention relates to improvements in single observer rangefinders, more especially to instruments of small size for use in the field for military or other purposes, and for use on board ship for navigational and other services, but is not necessarily confined to such, and refers to handles, and in some 20 cases supports for the rangefinder, projecting downward from the underside of the instrument associated with a working head or heads located adjacent to one or both of the handles.

In the accompanying drawings, Figure 1 is a sectional plan of a rangefinder of a known general type introduced for reference in describing, by way of example, the application of improvements according to this invention, and Fig. 2 is a cross sectional view thereof. Figs. 3, 4 and 5 are views illustrating handles, supports, and working 30 heads.

The rangefinder illustrated at Figs. 1 and 35 2, comprises an outer casing A, carrying end reflectors B, B, of the optical square type and eyepieces C, C¹, directed at right angles to the base length of the rangefinder, and D designates an inner frame supported within 40 the casing A, preferably in such a manner that it will not be sensibly deformed by forces applied to the outer casing during use. The inner frame carries at its ends objectives E, E, and near its center eyepiece prisms F, 45 and is fitted with a deflecting prism G.

In the form of construction illustrated at Figs. 3 and 4, two downwardly projecting handles H H¹ are provided for attachment as desired to the outer casing positioned on 50 opposite sides of the eye-pieces C, C¹, one of which H¹, may be placed adjacent to a working head J so that the working head may be readily accessible to the forefinger or forefinger and thumb of the right hand of an 55 operator holding the instrument by the handles. The working head J may be provided

for operating a range indicating scale and the deflecting prism G in a manner common to the type of instrument illustrated at Figs. 1 and 2, and the other handle H may, for example, be positioned adjacent to a finger 60 lever working head J¹, see Figs. 3 and 4, provided for the actuation of astigmatizing lenses, or other or additional working heads may be provided and positioned near the 65 handles for operating adjustments common to single observer rangefinders. The handles may rest on the ground for the support of the instrument when the observer lies prone. In providing means for supporting 70 a rangefinder according to this invention the handles may, in some cases, be furnished with extensions H² adjustable in length as required, which are adapted to be rested on the ground, and are convenient for use when 75 the observer kneels, or sits.

If desired the extensions H² may be supported in pockets attached to a belt or to shoulder straps, and thus they enable an observer while standing or sitting to hold 80 the instrument more steadily than is found possible when the instrument is merely held in the hands.

Figs. 4 and 5 show a modification of the mounting in which the rangefinder is supported in forks H³ to which a single rod H⁴ 85 may be attached. In the form shown at Fig. 5 the rod H⁴ is furnished with an extension H⁵ adapted to be rested on the ground or other support, or it may rest in a pocket attached to the observer's belt or shoulder 90 straps. In the form shown at Fig. 4, the rod H⁴ is provided at its foot with a fitting H⁶, (conveniently made in conical form) arranged to rest in a seating H⁷ which may be 95 attached to a rail on board ship, or to some other support. The part H⁶ may have springs H⁸ which clip under the lower edge of H⁷ so as to prevent the mounting from being accidentally removed from H⁷. When 100 it is desired to remove the mounting the springs H⁸ are pressed inward so that they may be withdrawn upward through the hollow of H⁷. To prevent the rangefinder being accidentally removed from the forks 105 H³, any suitable arrangement of catch may be used, such, for example as straps, not shown in the drawing, passing over the casing, or the faces of H³ may have grooves into which tongues H⁹ see Fig. 3, attached 110 to the casing may pass, and from which the casing will only be relieved when the range-

finder is turned about its axis through a greater angle than that to which it is usually moved in observing upon objects at different heights.

5 What we do claim as our invention, and desire to secure by Letters Patent, is:—

1. The combination with a rangefinder having eye-pieces at its center directed at right angles to its base length, of two handles projecting downward from the under-side of the rangefinder and positioned on opposite sides of the eye-pieces, in association with a working head located on the under-side of the rangefinder between one of the handles and the eye-pieces and adjacent to the said handle, for the purposes set forth.

2. The combination with a rangefinder having eye-pieces at its center directed at right angles to its base length, of two handles projecting downward from the under-side of the rangefinder and positioned on opposite sides of the eye-pieces, in association with working heads located on the under-side of the rangefinder between the handles and the eye-pieces and adjacent to the handles, for the purposes set forth.

3. The combination with a rangefinder having eye-pieces at its center directed at right angles to its base length, of two handles projecting downward from the outer casing of the rangefinder and positioned on opposite sides of the eye-pieces, in association with a cylindrical working head located on the under-side of the rangefinder between one of the handles and the eye-pieces mounted to rotate about an axis approximately parallel with and adjacent to the said handle, for the purposes set forth.

4. The combination with a rangefinder having eye-pieces at its center directed at right angles to its base length, of two handles projecting downward from the outer casing of the rangefinder and positioned on opposite sides of the eye-pieces, in association with a working head located on the under-side of the rangefinder between

one of the handles and the eye-pieces and adjacent to the said handle together with means for supporting the rangefinder, for the purposes set forth.

5. The combination with a rangefinder having eye-pieces at its center directed at right angles to its base length, of two handles projecting downward from the outer casing of the rangefinder and positioned on opposite sides of the eye-pieces, in association with working heads located on the under-side of the rangefinder between the handles and the eye-pieces and adjacent to the handles, together with means for supporting the rangefinder, for the purposes set forth.

6. The combination with a rangefinder having eye-pieces at its center directed at right angles to its base length, of two handles projecting downward from the outer casing of the rangefinder and positioned on opposite sides of the eye-pieces, in association with a working head located on the under-side of the rangefinder between one of the handles and the eye-pieces and adjacent to the said handle, the handles being provided with extensions adjustable in length, for the purposes set forth.

7. The combination with a rangefinder having eye-pieces at its center directed at right angles to its base length, of two handles projecting downward from the outer casing of the rangefinder and positioned on opposite sides of the eye-pieces, in association with working heads located on the under-side of the rangefinder between the handles and the eye-pieces and adjacent to the handles, the handles being provided with extensions adjustable in length, for the purposes set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ARCHIBALD BARR.
WILLIAM STROUD.

Witnesses:

O. H. PORTER,
GEO. H. STEVENSON.