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COMPLETE SPECIFICATION.

Improvements in Devices for the Adjustment of Sextants and other like Instruments.

We, GEORGE WILSON HEATH, and HEATH AND COMPANY, LIMITED, both of The Observatory Works, Crayford, in the County of Kent, Scientific Instrument Makers, do hereby declare the nature of this invention and in what manner the same is to be performed; to be particularly described and ascertained in 5 and by the following statement:—

This invention relates to that known kind of sextants and other like instruments in which the radius bar is provided with means whereby the devices for effecting the fine adjustment of the said radius bar can be disengaged from and re-engaged with the limb of the instrument in order to allow of the radius 10 bar being easily moved, for the purpose of effecting a rough or coarse adjustment thereof on the limb, without having to operate clamping screws. According to one known arrangement for this purpose in which the tangent screw of the fine adjustment device gears with teeth on the periphery of the limb, the said tangent screw is disengaged from the limb by means of an eccentric hand-lever 15 and re-engaged therewith by means of a spring. According to another known arrangement in which the fine adjustment is made by means of a spiral scroll engaging with curved grooves either on the periphery of the limb or on the face thereof, the said scroll is disengaged from the said grooves by means of a sliding part having a bevilled surface which acts upon a corresponding bevilled surface 20 on the scroll carrier, and is re-engaged with the said grooves by a spring.

The object of the present invention is to provide an improved device whereby the radius bar of a sextant or other like instrument may be quickly and readily adjusted in a simpler and more expeditious manner than heretofore, and for 25 this purpose we mount the traversing screw upon a spring-urged plate hinged-jointed to the radius bar in such manner that the free end of the said plate can be turned on its hinge, by pressure exerted upon it by the finger and thumb of the operator, in order to take and hold the traversing screw out of gear with the worm-teeth on the sectoral scale plate, the said hinged plate being returned automatically into gear with the said teeth by the spring when the operator 30 ceases to exert pressure upon the plate with his finger and thumb.

In order that our invention may be clearly understood we will proceed to describe the same by the aid of the accompanying sheet of drawings, in which

Figure 1 is a face view of a sextant of ordinary general construction but with our improvements applied thereto;

35 Figure 2 is an enlarged detail view of part of Figure 1 shewing our improved device for the adjustment of the radius bar;

Figure 3 is a back view, partly in section, of Figure 2; and

Figure 4 is a section on line X—X of Figure 3.

40 Similar letters of reference relate to like parts in all the figures of the drawings.

Referring to Figure 1, *a* is the frame of the sextant, *b* the radius or index bar fitted with a vernier scale *c* which is caused to traverse the sectoral scale plate *d* by special means to be hereinafter fully described. *e* is the usual magnifier for use in reading the indications of the vernier scale, *f* is the 45 telescope removably mounted in the known manner by mutilated or interrupted

[Price 8d.]



Improvements in Devices for the Adjustment of Sextants, &c.

screw threads in the dispositive rising collar *g*. The other parts of the sextant are of known construction and need not be described in detail.

Referring more especially to the detail Figures 2, 3, and 4, it will be seen that the outer end of the radius or index bar *b* is furnished with a projecting thumb-piece or button *h*, and underneath the end of the said bar is fitted a plate *i* also furnished with a thumb-piece or button *j*, the plate *i* is pivoted or hinged at *k* to lugs *m* attached to the under side of the radius or index bar *b* and its thumb-piece or button *j* is normally forced away from the said bar by a spring *n*. The plate *i* has attached thereto or formed thereon two lugs *o* which form bearings for the spindle *p* of a traverse screw *q* which is normally in gear with the worm teeth *r* on the under side of the sectoral scale plate *d*. But when pressure is put upon the two thumb-pieces or buttons *h* and *j* by the finger and thumb of the operator, the hinged plate *i* will be turned on its pivots or hinges *k* against the resistance of the spring *n*, the screw *q* will be brought out of gear with the worm teeth *r*, and the radius or index bar *b* may then be quickly moved by the finger and thumb, still holding the buttons *h* and *j*, into any position approximating to the position desired. The operator may then release the hinged plate to the action of the spring *n*, the screw *q* will again engage with the worm teeth *r*, and the final fine adjustment may be obtained by turning the screw spindle *p* by its milled head *s*. The spindle *p* and screw *q* are preferably provided with a protecting sleeve *p*¹ and a tubular casing *q*¹ respectively as shewn.

The arrangement hereinbefore described for the adjustment of the radius or index bar has the advantage that the actions for the release and re-engagement of the screw *q* and worm teeth *r* are instantaneous, no clamping screw or other like clamping device is necessary, the change of movement of the operator's hand from the thumb-pieces or buttons *h* and *j* to the milled head *s* is a very simple and natural one and the engagement of the screw *q* and worm teeth *r* being automatic, there is no danger of the radius or index bar being reft or becoming free, and consequent damage to the instrument by the free bar, or to the bar itself is thereby obviated.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

The improved adjusting device for the radius bar of a sextant or other like instrument, which consists of a spring-urged plate upon which the traversing screw is mounted, and which is hinge-jointed to the radius bar in such manner that the traversing screw can be taken and held out of gear with the worm-teeth on the sectoral scale plate by the operator exerting pressure with his finger and thumb upon the free end of the hinged plate, substantially as described with reference to the accompanying drawings.

Dated this 30th day of July, 1909.

G. W. HEATH.
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[This Drawing is a reproduction of the Original on a reduced scale.]

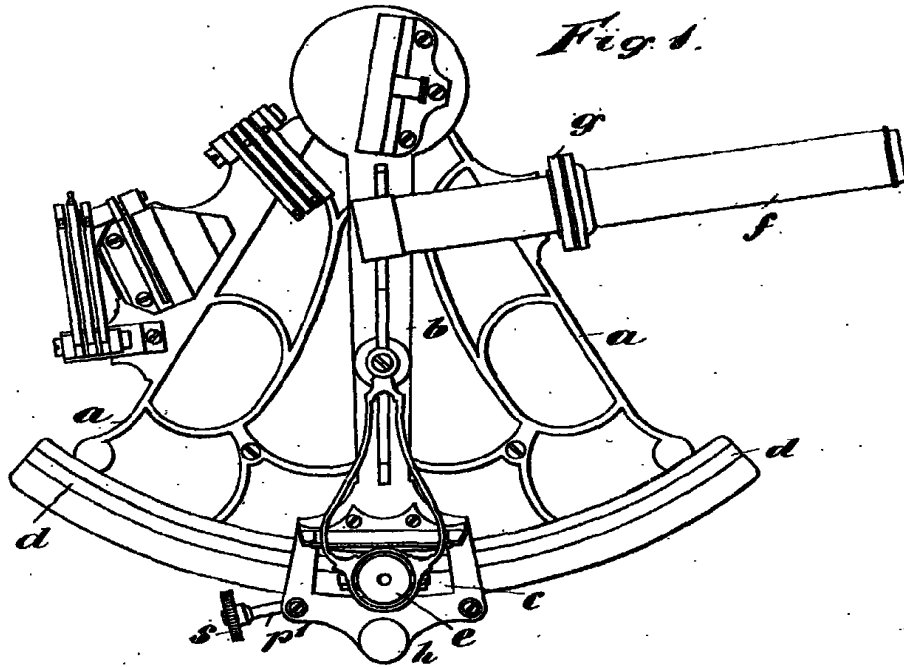


Fig. 1.

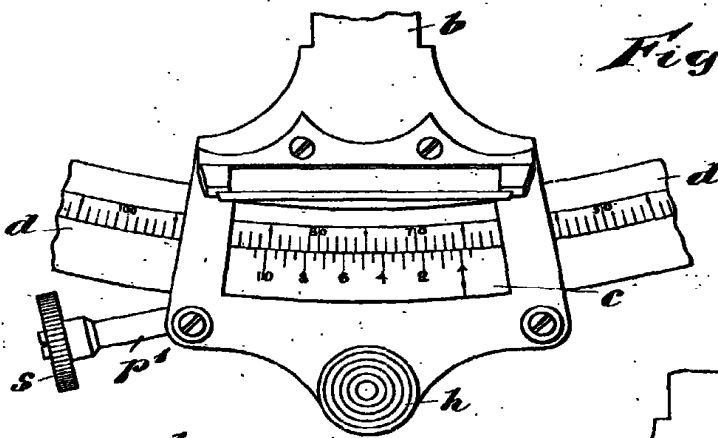


Fig. 2.

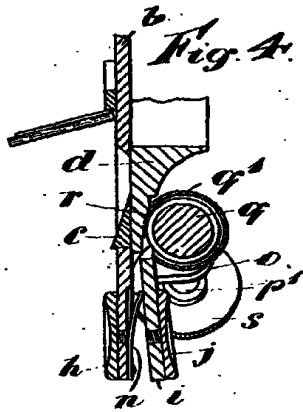


Fig. 3.

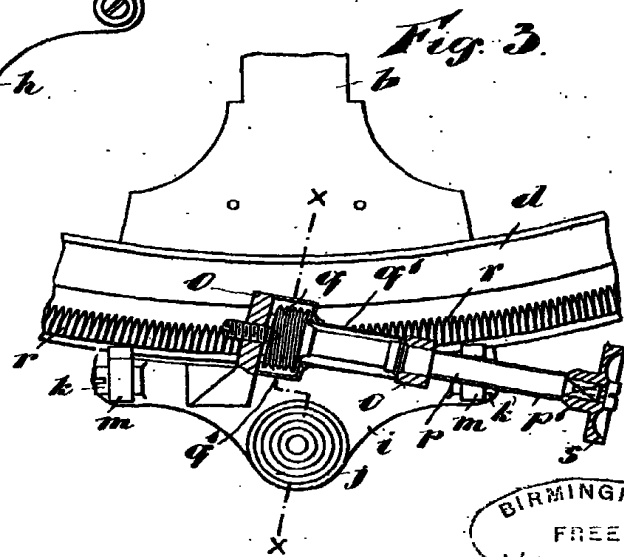


Fig. 4.

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