

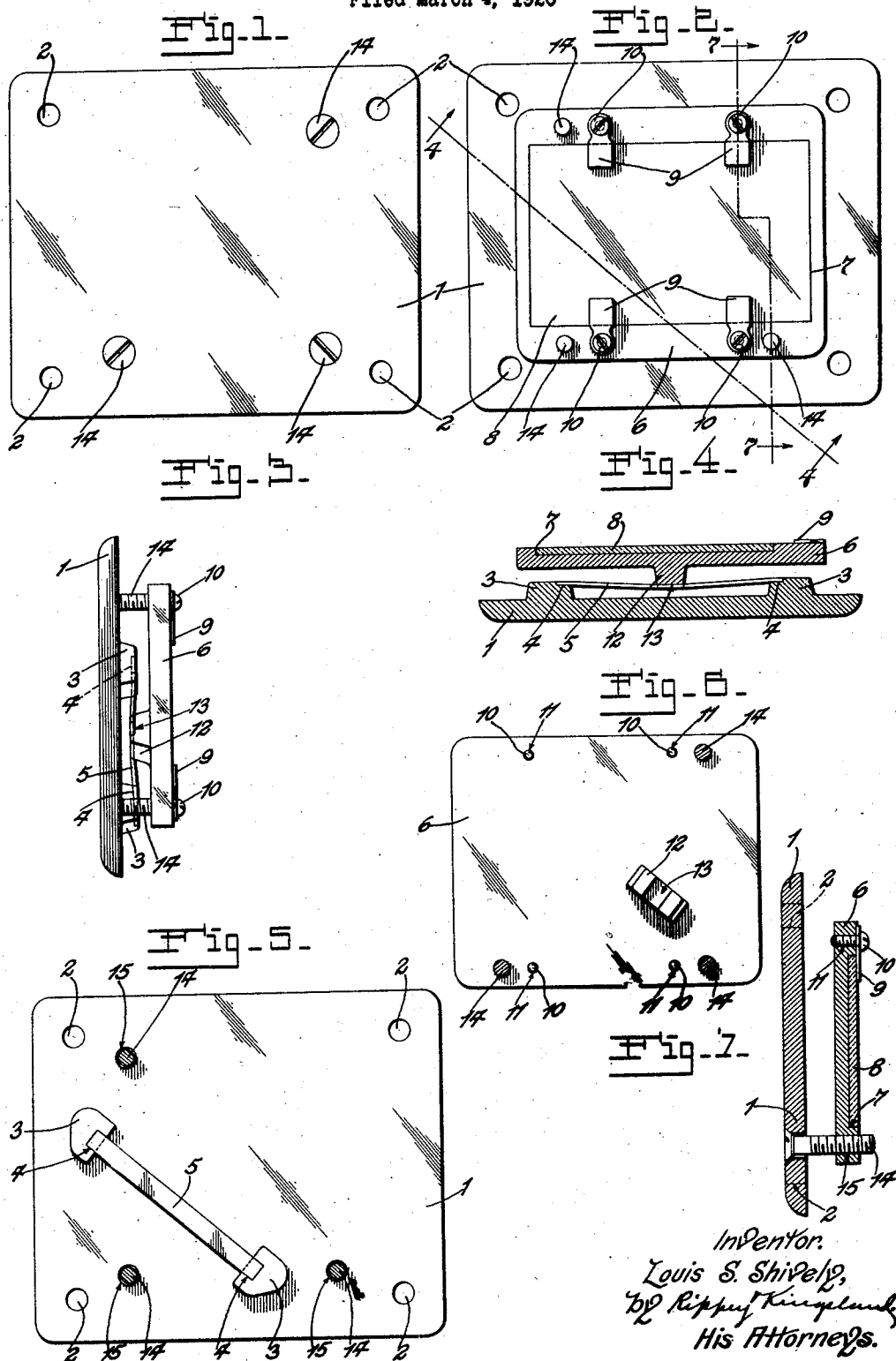
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ADJUSTABLE REFLECTOR FRAME

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UNITED STATES PATENT OFFICE.

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ADJUSTABLE REFLECTOR FRAME.

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This invention relates to improvements in adjustable reflector frames and consists of the novel construction hereinafter disclosed.

In certain instruments in which an optical system of lenses and reflectors is utilized for projecting and deflecting light rays, extremely accurate adjustment of the plane of the reflectors is necessary in order to center the light rays. Such a device is shown in my copending application Serial Number 90,806.

It is an object of the present invention to provide an adjusting means for the reflector frame which will accurately vary the angularity of the reflecting surface so as to deflect the light ray in a predetermined direction and with a predetermined angle of reflection.

Additional advantages of the construction will be apparent from the following detailed description thereof, taken in connection with the accompanying drawing, in which,

Fig. 1 is an elevation of the supporting plate for the frame;

Fig. 2 is a reverse view of the plate showing the reflector frame associated therewith;

Fig. 3 is an end elevation;

Fig. 4 is a diagonal section taken on the line 4—4 of Fig. 2;

Fig. 5 is an inner face view of the supporting plate with the frame removed;

Fig. 6 is a back face view of the reflector frame; and

Fig. 7 is a vertical section on the line 7—7 of Fig. 2.

In the embodiment of the invention illustrated in the drawing, the device includes a rectangular plate 1 provided with openings 2 therethrough for attaching it to the housing of the instrument through which the light rays are deflected. On the inner face of the plate 1 are lugs 3 arranged in diagonal alinement and offset from a line passing diagonally across the plate from diagonal corners thereof. The lugs 3 have oppositely disposed notches or recesses 4 in their upper face which receive opposite ends of a leaf spring 5. The leaf spring 5 is supported by the lugs 3 so that the major portion of the length thereof is on one side of the minor axis of the plate passing transversely through a median line thereof.

The reflector frame comprises a rectangular plate 6 of somewhat smaller dimensions than the plate 1, so that it may be free to move within the area bounded by lines pass-

ing through the openings 2. The plate 6 has a rectangular recess 7 in its outer face in which the reflector 8 is fitted and held in position by clips 9 extending over the marginal edge of the recess and secured to the face of the plate by screws 10 that thread into openings 11 near the marginal edge of the frame.

On the reverse face of the frame is a lug 12 having a channel 13 therein, into which the leaf spring 5 fits. The channel 13 is so disposed in relation to the spring 5 that it bears against the spring on a median line and the axis of the channel is coincident with the axis of the spring. The lug bearing against the spring 5 constitutes a pivot bearing which, on account of the torque of the spring, affords a fulcrum permitting the adjustment of the face of the reflector along both the major and minor axis of the reflector frame and also on the diagonal axes passing through the oblique corners of the frame. It follows, therefore, that the exact degree of angularity of the plane of the reflector may be precisely adjusted in order to deflect the light rays accurately.

The adjustment is effected through three screws 14, the heads of which are accessible from the outer face of the plate 1. The screws pass through openings 15 disposed adjacent to three corners of the plate 1, the openings 15 having a diameter slightly in excess of the diameter of the screws with countersunk recesses in the outer face of the plate 1 to accommodate the heads of the screws and to permit the lateral movement thereof in the openings. The inner ends of the screws thread into threaded openings 16 in the margin of the reflector frame and in alinement with the openings 15.

The screws 14, operating in opposition to the spring 5, afford means for adjusting the reflector frame in respect of the fixed plate 1 by tilting the frame to any desired angular adjustment. By properly adjusting the effective length of the three screws, it is obvious that the reflector frame may be tilted at the desired angle on both its major and minor axis and upon its oblique axes, resulting in the precise angle of reflection from the reflecting surface of the reflector that may be desired.

I am aware that my invention may be modified in various particulars without departing from the spirit and scope thereof.

What I claim and desire to secure by Letters Patent is:

1. In a device of the class described, a support, a reflector frame, a reflector carried by said frame, a resilient member eccentrically arranged in respect to the frame, a pivot bearing carried by the frame and supported by said resilient member, and screw connections between the support and the frame arranged to operate in opposition to said resilient member, whereby any desired angular adjustment of the face of the reflector may be effected.

2. A device of the class described comprising a rectangular support, lugs carried by said support in oblique alinement and offset from an oblique angle of the axis of the support, a leaf spring carried by said lugs, a rectangular frame, a reflector in said frame, a bearing support carried by said frame and arranged to connect with said spring, and three adjusting screws being in triangular

arrangement operable effectively to rock the frame in respect of said support to effect any desired angular adjustment thereof.

3. In a device of the class described, a support, a reflector, a resilient member between the reflector and the support, a bearing connected with the reflector and supported by the resilient member, and adjustable devices between the support and the reflector arranged to cooperate in opposition to said resilient member whereby any desired angular adjustment of the face of the reflector may be effected.

4. In a device of the class described, a support, an elongated spring carried by the support, a reflector, a pivot connection between the reflector and said spring, and a plurality of adjusting devices arranged substantially in triangular relationship operable to rock the reflector in respect of the support for adjusting the face of the reflector.

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