F. E. PLACE.

SWITCH STAND.

APPLICATION FILED FEB. 8, 1909.

963,646.

Patented July 5, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

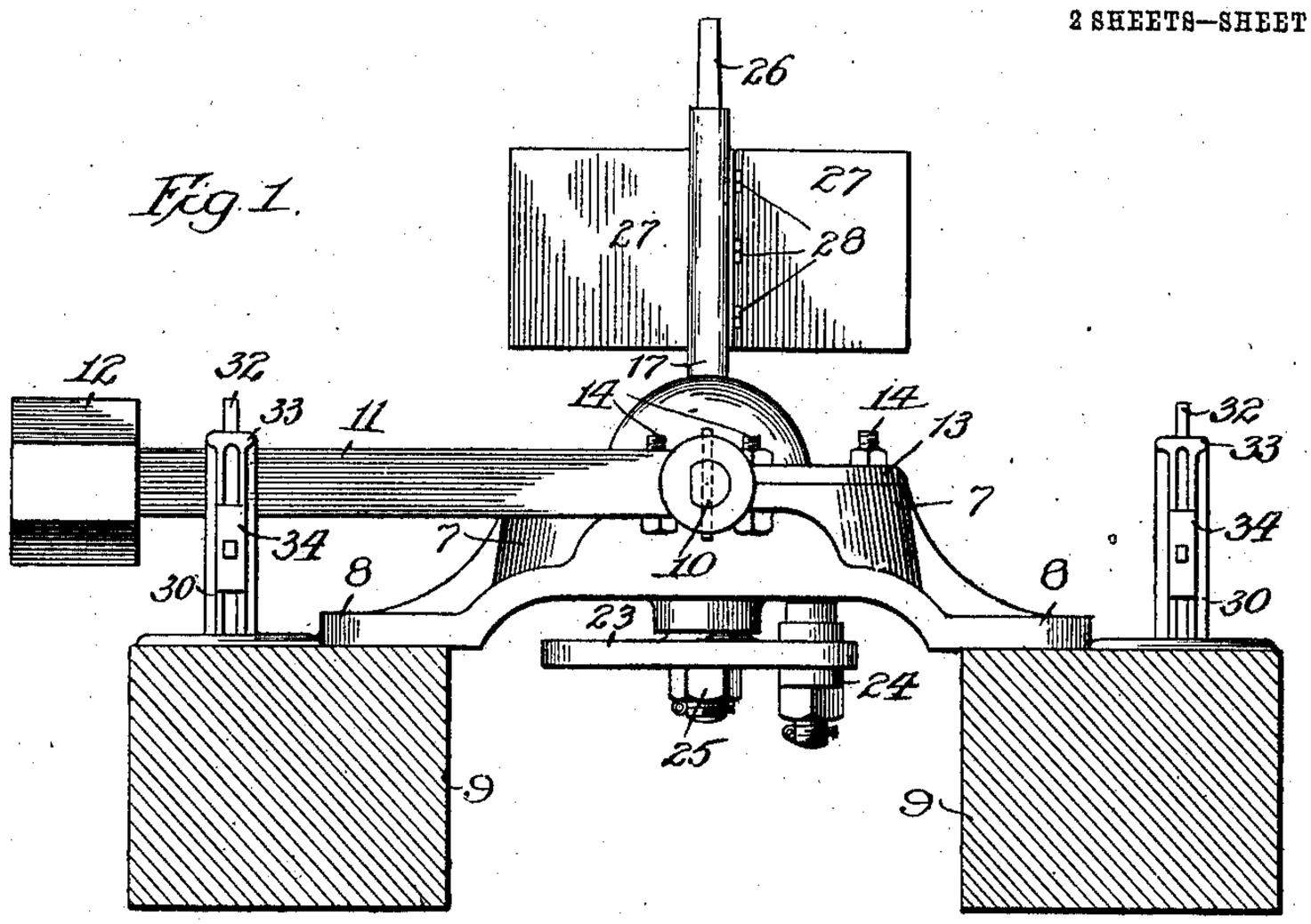
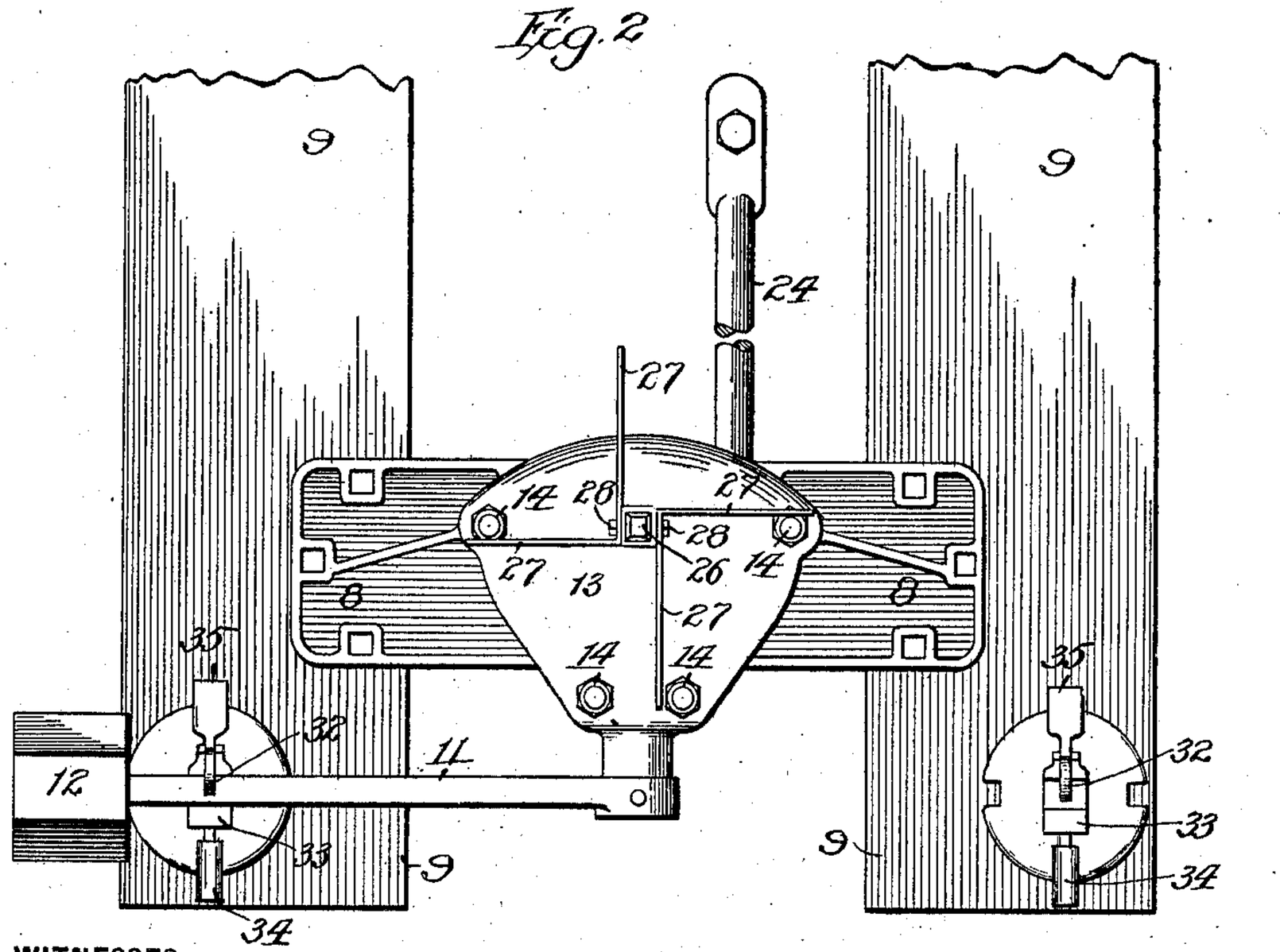


Fig. 2.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 3.

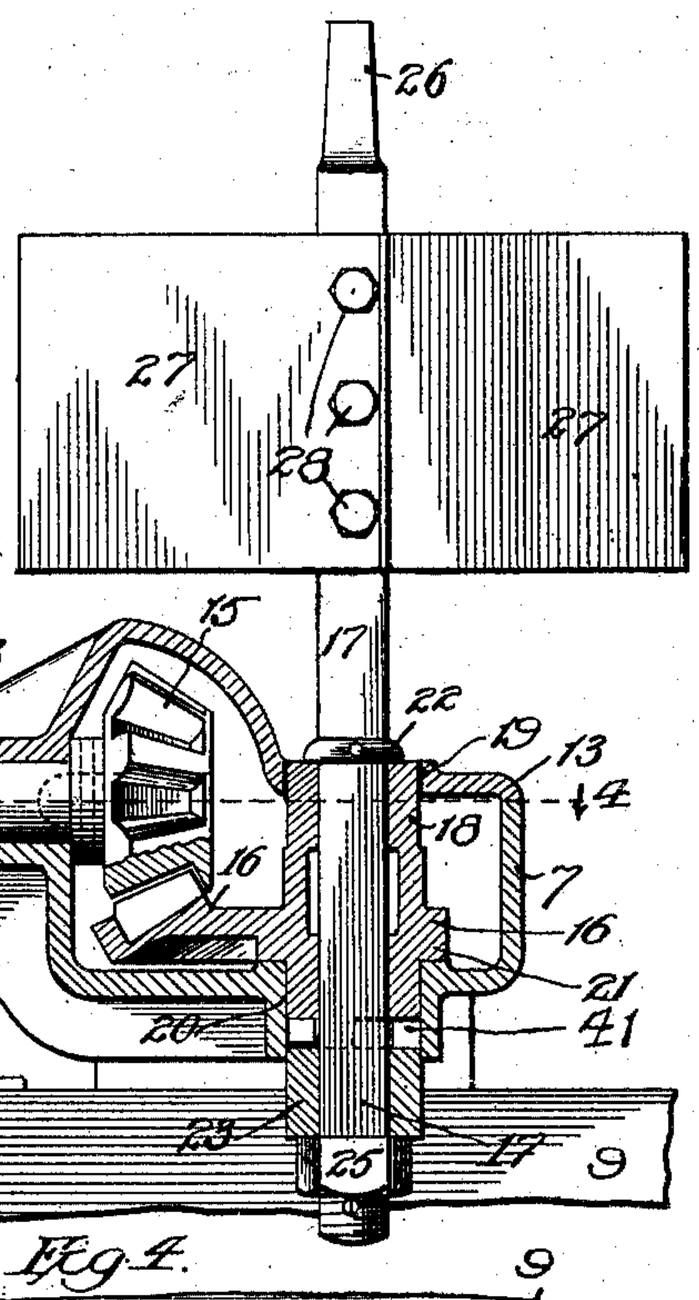


Fig. 6.

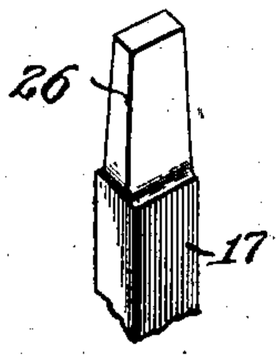


Fig. 7.

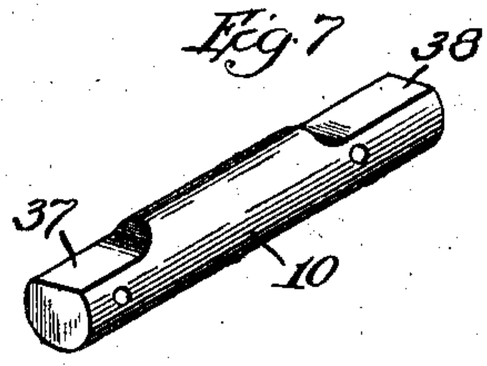


Fig. 4.

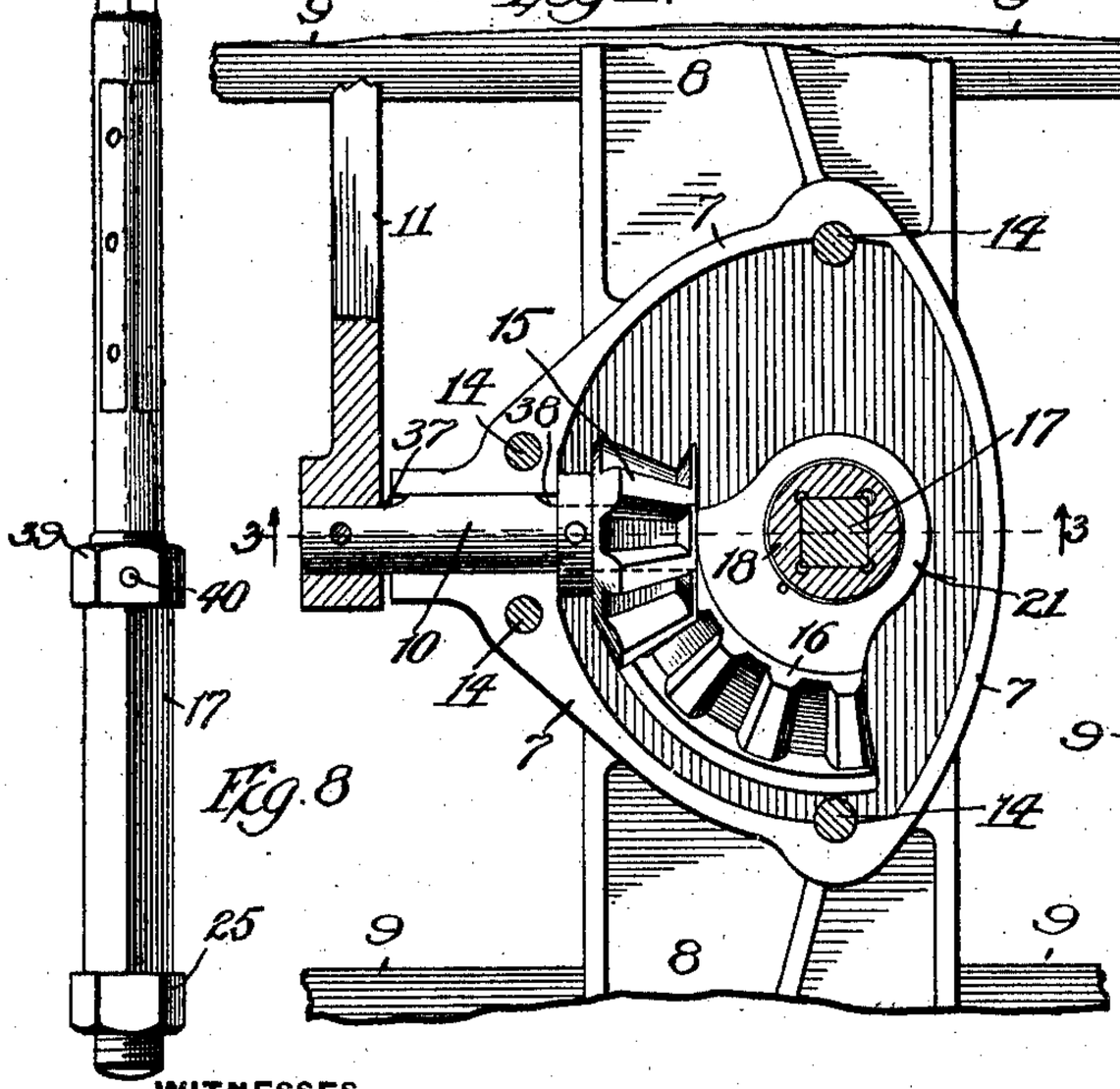
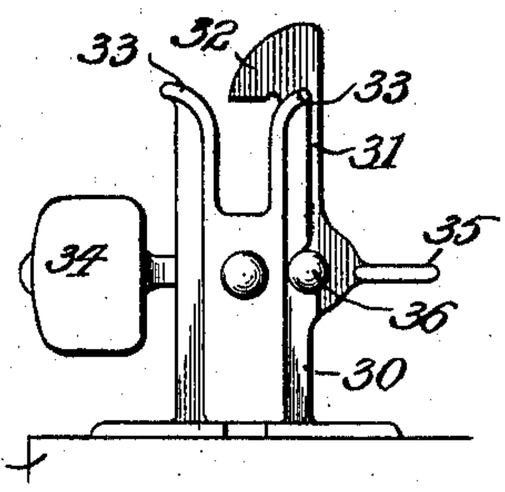


Fig. 8.

Fig. 5.



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SWITCH-STAND.

963,646. Specification of Letters Patent. Patented July 5, 1910.

Application filed February 8, 1909. Serial No. 476,829.

To all whom it may concern:

Be it known that I, FREDERICK E. PLACE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Switch-Stands, of which the following is a specification.

This invention has reference to that class of apparatus known as switch stands, and particularly to the construction and support of the mast thereof and the housing of the mechanism which actuates the same.

The first of the objects of my invention is to provide for positive movement of the target and lamp, with a minimum danger of accidental displacement of either, and also to afford a better support for the mast and a more reliable actuating connection between the mast and the hand lever which serves to move the same.

The above, as well as such other objects as may hereinafter appear, I attain by means of a construction which I have illustrated in preferred form in the accompanying drawings, wherein—

Figure 1 is a view showing my improved switch stand mounted in position upon two adjoining ties indicated in section;

Figure 2 is a plan view of the mechanism of Figure 1;

Figure 3 is a view partly in section, indicating more in detail the mounting of the mast and the arrangement of the actuating mechanism thereof;

Figure 4 is another detail view partly in section, of the mechanism shown in Figure 3;

Figure 5 is a view of the locking device which I employ for the hand lever or actuating arm;

Figure 6 is a small perspective view of the upper end of the mast, indicating the construction thereof which I provide in order to insure a minimum danger of displacement of the lamp which is intended to be mounted thereon.

Figure 7 is a perspective view of the gear operating shaft, illustrating the design thereof which I provide in order to insure against rotation of either the gear or the lever thereon,

Figure 8 is an illustration of a modified form of the signal carrying mast.

Referring now more particularly to Figures 1 and 2, it will be seen that in carrying out my invention I provide first a main base or body portion 7 having the supporting feet 8 resting upon the ties 9, and carrying the shaft 10 upon one end of which is secured the hand lever 11 which has at its outer end the usual weight 12.

On top of the body portion 7 is a cover plate 13 secured by the bolts 14 as shown, the bearing for the shaft 10 being formed between the body portion and the said cover plate.

Referring now more especially to Figures 3 and 4 it will be seen that the shaft 10 at its inner end carries a pinion 15 which engages with a segmental gear 16 through which is formed a socket for the square mast 17, so that the mast may be turned by movement of the gear. As a means for securing better support for the gear as well as the mast, the gear itself is provided with a hub 18 that is journaled in a suitable bearing 19 at its upper end and another suitable bearing 20 at its lower end within the body portion 7.

As a further aid in supporting the gear 16 in proper position I provide the same with an integral flange 21 resting upon the lower face of the casing of the body portion 7.

As a means to prevent the mast from sliding downward I provide the collar or hub 22, and as means for securing in position on the lower end of the mast the lever device 23 which connects with the rod 24 extending to the switch mechanism, I provide the nut 25 arranged as shown.

It will be seen that the mast 17 is continuous from end to end and integral, and being square in section and fitting within a square socket passing through the gear 16, will be sure to move in unison with said gear, and will be well supported by the hub of said gear within the upper portion of the casing, as well as below, as the hub itself is cylindrical exteriorly and fits within the casing as indicated at 19 and 20.

Upon the upper end of the mast the same is arranged of rectangular shape, as clearly shown in Figure 6, such rectangular portion 26 serving to better hold the lamp in place to avoid misplacing the same and cause reliable movement thereof whenever the mast is turned. The usual target or signal blades 27 are provided secured to the mast as indicated, by bolts 28.

It will be observed that there are no pins or bolts employed which must carry the turning or moving strain, which in practice are sometimes liable to wear out or shear off, causing the lamp or target to register a false signal. The lower end of the hub 18 and the upper face of the lever 23 are provided at 41 (Fig. 3) with interlocking lugs for taking the twisting strain off of the mast shaft 17.

Referring now to the apparatus illustrated in Figure 5, it will be seen that as a means for locking the hand lever 11 I have provided a base casting 30 to which is pivotally secured a bell crank latch 31 having the projecting end 32 which passes over the hand lever when in lowered position, and the jaws 33 for guiding the hand lever into place. Integral with said bell crank lever is the weight 34 and a foot piece 35 located opposite said weight on the other side of the pivotal pin shown intermediate the sides of the base, so that by pressing downward on the foot piece 35 the lock can be released. The parts are locked in the position shown by means of the pin 36 passing through the latch.

In Figure 8 I have illustrated a modified form of integral mast which is vertically adjustable by the nut 39 secured against rotation by the pin 40.

From Figure 7 it will be apparent that in order to insure the movement of the gear 15 in unison with the lever 11 and prevent any relative rotation of the gear or lever on the shaft, I provide the shaft 10 with irregularly shaped end portions 37 and 38.

Having thus described my invention and illustrated its use, what I claim as new and desire to secure by Letters Patent, is the following:

1. A switch target comprising in combination a main casing, a mast, and a gear carrying said mast provided with bearings in said casing at its upper and lower parts, substantially as described.

2. A switch stand comprising in combination a main casing or body portion, and a mast-actuating means contained therein having a gear which has a bearing above and below in said casing.

3. A switch stand comprising in combination a main casing or body portion, a mast-actuating means contained therein having a gear which has a bearing above and below in said casing, and a mast of irregular shape in cross section fitting an irregularly shaped opening through said gear, substantially as described.

4. The combination in a switch stand, of a casing, an operating gear supported therein and having an axial opening of angular cross section, a mast having its lower portion of angular cross section to fit the opening through the gear, and a switch lever also having an opening of angular cross section to fit the mast.

5. A switch stand comprising in combination a main casing or body portion, a mast actuating means contained therein having a gear, and an operating shaft of irregular shape in cross section fitting an irregularly shaped opening through said gear, substantially as described.

6. A switch stand comprising in combination a main casing or body portion, a mast actuating means contained therein, a shaft of irregular shape in cross section for actuating said mast actuating means, and a lever for moving said shaft having an irregularly shaped opening fitting said shaft, substantially as described.

7. A switch stand comprising in combination a main casing or body portion, a mast actuating means contained therein having a gear, a lever for moving said gear, and an operating shaft of irregular shape in cross section fitting irregularly shape openings through said gear and lever, substantially as described.

8. The combination in a switch stand, a mast shaft of irregular cross section, a gear fitting thereon, and an operating lever fitting the shaft adjacent the gear, the gear and lever having interlocking surfaces.

9. The combination in a switch stand, of a casing, an operating gear having its hub supported on opposite sides of the casing and provided with an axial opening of angular cross section, a mast having its lower portion of angular cross section to fit the opening through the gear, and a switch lever also having an opening of angular cross section to fit the mast.

In testimony whereof I have hereunder signed my name in the presence of the two subscribed witnesses.

FREDERICK E. PLACE.

Witnesses:
PAUL CARPENTER,
DONALD C. WILLIAMS.