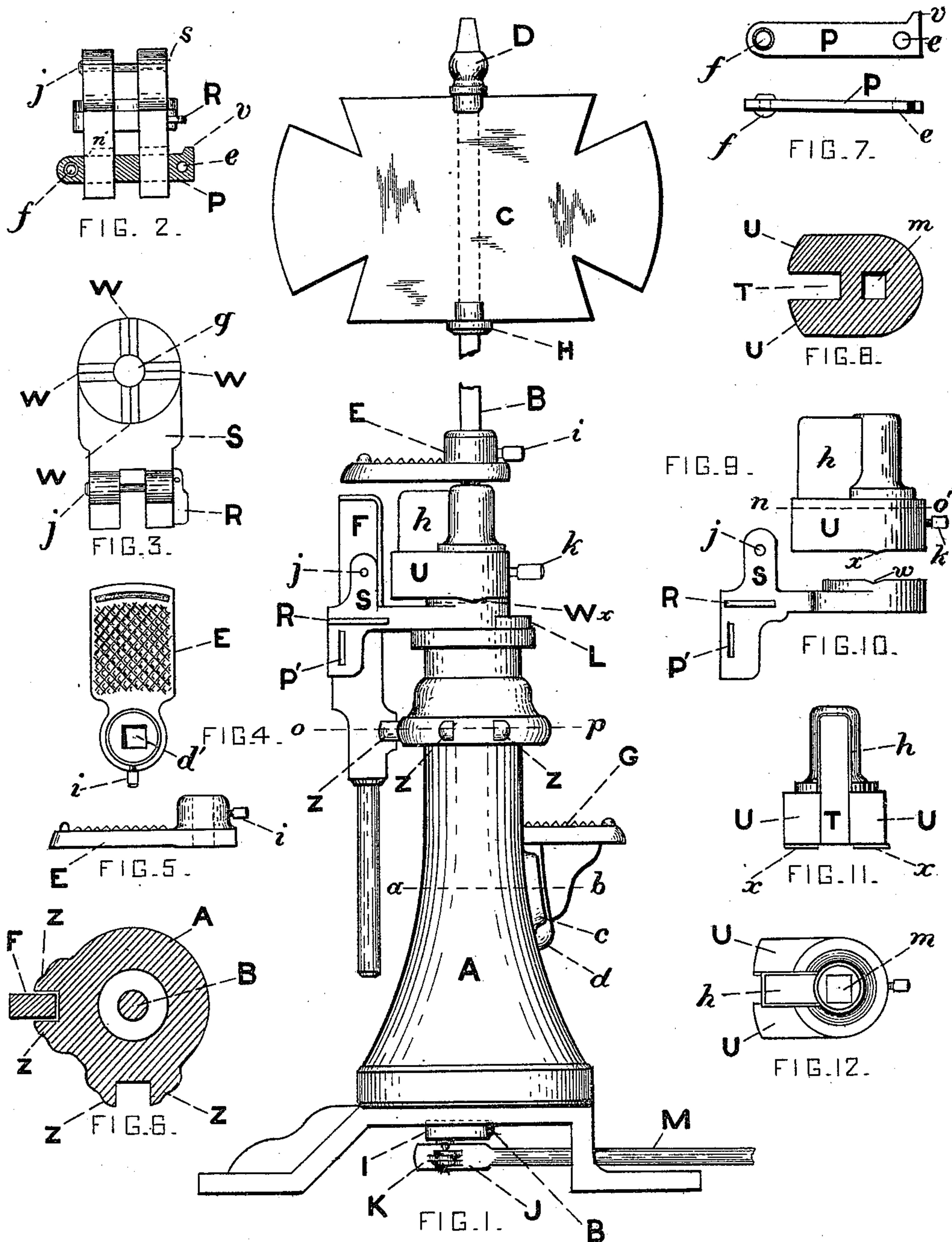


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No. 466,979.

Patented Jan. 12, 1892.



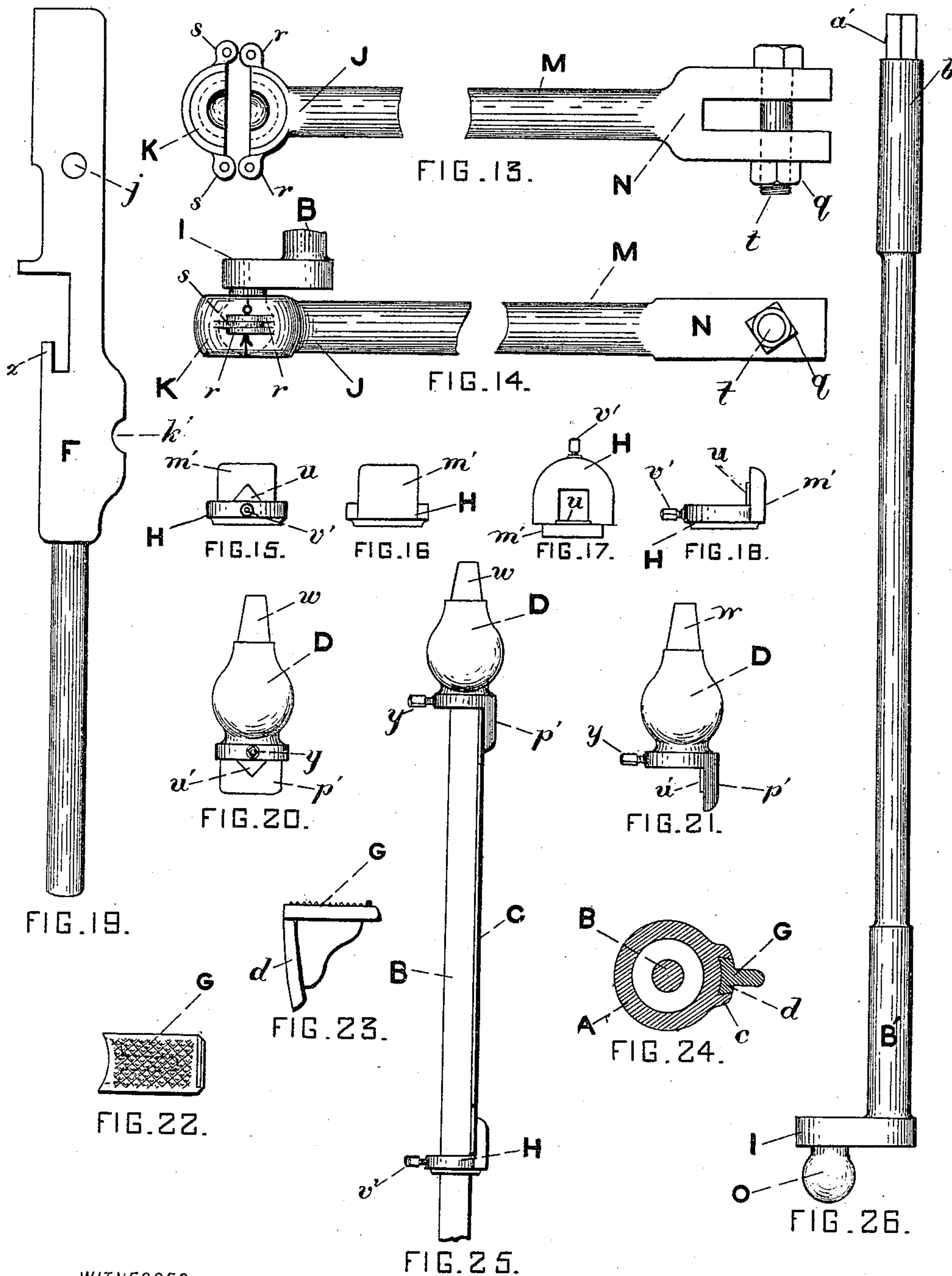
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H. A. HANCOX.  
AUTOMATIC SWITCH STAND FOR RAILROADS.

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*Philip L. Masi.*  
*Henry T. French.*

FIG. 27.  
*C*  
*u<sup>2</sup>*

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# UNITED STATES PATENT OFFICE.

HENRY A. HANCOX, OF MELROSE, MASSACHUSETTS.

## AUTOMATIC SWITCH-STAND FOR RAILROADS.

SPECIFICATION forming part of Letters Patent No. 466,979, dated January 12, 1892.

Application filed May 20, 1891. Serial No. 393,506. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY A. HANCOX, a citizen of the United States, and a resident of Melrose, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Automatic Switch-Stands for Railroads; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to an automatic switch-stand especially adapted to self-locking switches for steam-railroads; and my object has been to design a stand that can be moved freely when the switch is operated automatically by the wheels of a passing train and yet is so arranged that it can be at the same time securely locked, so as to successfully resist the attempts of a mischievous or malicious person to tamper with it. I accomplish these objects by means fully shown in the accompanying drawings, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of my high target-stand, in which A represents the cast-iron barrel and base; B, the target-spindle; C, the target; D, the lamp-ball; E, the adjustable upper step; F, the handle; G, the adjustable lower step; H, the target-clamp; I, the crank to the spindle B; J, the ball-and-socket connection, and K the hinged cap for fastening the switch-bar M to the ball O of the crank-spindle. L is a collar that confines the movement to a quarter-turn. P' is a slot-seat for the key for locking the handle down; R, a snow-hood for sheltering the key and attaching the lock-chain. S is the swivel-casting; U, the jaw for receiving the handle. W<sup>x</sup> indicates the position of the saw-tooth *x* on the jaw U, which fits into a corresponding depression *w* in the swivel-casting S. Z Z are bosses cast on the collar of the stand to prevent the handle moving when locked down.

Fig. 2 is an end elevation of the swivel-casting S, showing the key P in place, and *j*

indicates the position of the handle-pivot. Fig. 3 is a plan view of the same.

Fig. 4 is a plan of the adjustable upper steps; Fig. 5, a side elevation of the same.

Fig. 6 is a horizontal section of the handle and collar of the shell on the line *o p* of Fig. 1, showing the bosses Z Z and handle in place.

Fig. 7 is a top view and side elevation of the key P, of which *f* is a rivet that prevents the key from being pulled through, and *e* is the lock-hole for receiving the padlock. *v* is a projection on the key, which fits into a notch cast in the opposite side of the swivel-casting S, as shown at *n'* in Fig. 2. This prevents the key from being pulled wholly out when thrown back to lift the handle.

Fig. 8 shows a horizontal section through the jaw of the casting U, and Fig. 9 is an elevation of the same.

Fig. 10 is a side elevation of the casting S or swivel-fulcrum which has depressions or notches *w* transversely bisecting its face, as fully shown in Fig. 3, and which exactly corresponds in shape to the saw-tooth *x* of the casting U.

Fig. 11 is an elevation of the jaw, showing the snow-hood *h* and mouth T for receiving the handle F. (Shown elsewhere.) Fig. 12 is a plan of the same.

Fig. 13 is a plan view of the switch-bar M, of which K J represent the hemispheres which incase the ball O of the boot-crank of the spindle. Fig. 14 is a side elevation of the same, showing the ball of the crank-spindle in place, *s* being an ear which interlocks with ears *r r* cast upon J and held in place by a rivet or key.

Figs. 15, 16, 17, and 18 show, respectively, rear, front plan, and side views of the target-clamp H, of which *v'* is a set-screw that holds the collar to the target-spindle B, *m'* the apron, and *u* a saw-tooth-shaped projection cast upon it, which fits a corresponding depression *u''* in the target, and serves to hold it in place.

Fig. 19 is a side view of the handle F, of which *z* is a projection that guides the key P when passed through its bearings.

Figs. 20 and 21 show a rear and side elevation of the lamp-ball with its target-clamp



attachment, similar to that represented in Figs. 15 to 18, inclusive.

Figs. 22 and 23 show the adjustable lower step, of which Fig. 22 is a plan view and Fig. 23 a side elevation.

Fig. 24 is a horizontal section through the barrel A and step G on the line *a b*, as shown in Fig. 1.

Fig. 25 is a side view of the target clamped in position on the spindle B.

Fig. 26 shows the crank-spindle B with the ball O, which is attached to the switch-bar M, as shown in Figs. 13 and 14.

When it is desired to manually operate the switch, the padlock is withdrawn, the key P is displaced, and the handle F, pivoting at *j*, is lifted to a horizontal position, the head passing into the snow-hood *h* and hollow cavity T of the riding jaw U, where it forms a bite and direct connection through the spindle B and switch-bar M with the switch itself. When the handle F is again returned to its former position, or vertical, it clears the jaw U. The casting S revolves on the crank-spindle B, while the riding casting U is fastened to B at *a'* by a square socket *m* and set-screw *k*. When the handle F is placed in vertical position, it is wholly disconnected from the crank-spindle and switch, and leaves the spindle B free to be operated by the switch when automatically thrown.

In order that the cavity I of the jaw U may always be directly in position for receiving the handle F when it is desired to manually operate it, a transverse saw-tooth *x* is cast on the piece U and corresponding channels made, as at W, on the bearing-surface of the casting S. When the casting S is rendered immovable by the handle F being locked between the bosses *z z* and the switch is automatically thrown, the tooth *x* jumps from its socket *w* by the forcible turning of the jaw U with the spindle B, said jaw sliding around on the surface of the casting S until the tooth *x* drops into the channel W of the next quarter, (see Fig. 3,) which is equal to the total throw of the switch.

The crank-spindle B has a ball O and socket K J connection with the switch-bar M for the purpose of securing a triple movement essential in adapting it to a self-locking switch, because of the different angular motions of the switch-bar M.

The target C is made adjustable by providing a cast-iron collar with an overlapping front or apron having the saw-tooth *u* or other projection upon the inner side which is not equal in depth to the thickness of the target.

Fig. 27 is a detail showing the notch in the lower part of the target-plate.

When the collar H is set up by the set-screw *v'*, the apron clamps the target against the spindle B, while the tooth fits into a corresponding shaped notch *u''* (shown in Fig. 27) in the target and prevents its being pulled through laterally. The lamp-ball D is provided with a similar clamp attachment.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

1. An automatic railway-switch stand having at the lower end of its spindle a horizontally-turning crank provided with a ball-and-socket connection with the rail-bar, whereby the switch is operated, substantially as specified.

2. In an automatic railway-switch stand, the combination, with the spindle, its crank provided with a ball-and-socket connection and rail-bar, and the hand-lever and its locking devices, of the turning-collar on the spindle carrying the pivot of the hand-lever, its face notch or notches and the riding-jaw engaging the spindle, and the tooth of said jaw adapted to jump the face-notch of the turning-collar when the handle is locked, substantially as specified.

3. In an automatic switch-stand, the combination, with a squared spindle and its foot-crank, the rail-bar, and ball-and-socket connection, of the hand-lever and locking devices therefor, the swivel-fulcrum of the hand-lever, its face-notch, and the toothed riding-jaw engaging said spindle, substantially as specified.

4. In an automatic switch-stand, the combination, with the hand-lever and its notched swivel-collar, of the hooded riding-jaw and its tooth, the squared spindle, the key-seat of the swivel-collar, and the key, substantially as specified.

5. In a railway-switch stand, the combination, with the squared spindle and the notched signal or target, of the clamp having a thin tooth, shoulder, or projection on the inside of its flange adapted to engage and hold securely the signal or target, substantially as specified.

6. In a railway-switch stand, the combination, with the hollow stand and crank-spindle, of the rail-bar and its ball-and-socket connection with said crank-spindle, the riding-jaw and revolving fulcrum-collar, and the target and its clamps, substantially as specified.

7. In a railway-switch stand, the combination, with the swivel-collar casting S, and the handle, of the handle-pivot in said swivel-collar casting, the squared spindle, the riding-jaw engaging said spindle, its set-screw and snow-hood, the key and its stops, and the bosses Z Z of the stand, substantially as specified.

8. In an automatic railway-switch stand, the combination, with the stand and its locking bosses, and the squared spindle and its foot-crank, of the rail-bar having a ball-and-socket connection with said spindle, the hand-lever and its locking devices, the turning-collar on the spindle, carrying the pivot of the hand-lever, and the riding-jaw engaging the spindle, substantially as specified.

9. In an automatic railway-switch stand, the combination, with the cranked spindle and its rail-bar ball-and-socket connection, and the switch-stand and its locking-bosses, of the



hand-lever and its fulcrum-collar, the face-notch of said collar, the locking-key and its seat, and the riding-jaw engaging said spindle, substantially as specified.

5 10. In an automatic railway-switch stand, the combination, with the spindle and its crank, the rail-bar and ball, and sectional socket connection, of the fulcrum-casting S, jaw U, set-screw *k*, cap K, hood *h*, and han-  
10 dle F, substantially as specified.

11. In an automatic railway-switch stand,

the combination, with the cranked spindle B, of the clamp-collar H, apron *m'*, tooth *u*, set-screw *v'*, lamp-ball D and its clamp, the notched target, the rail-bar, and the stand A, 15 substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

HENRY A. HANCOX.

Witnesses:

PHILIP C. MASI,

GEO. H. PARMELEE.