

(No Model.)

F. F. CULVER.
SWITCH STAND.

No. 551,076.

Patented Dec. 10, 1895.

Fig. 1.

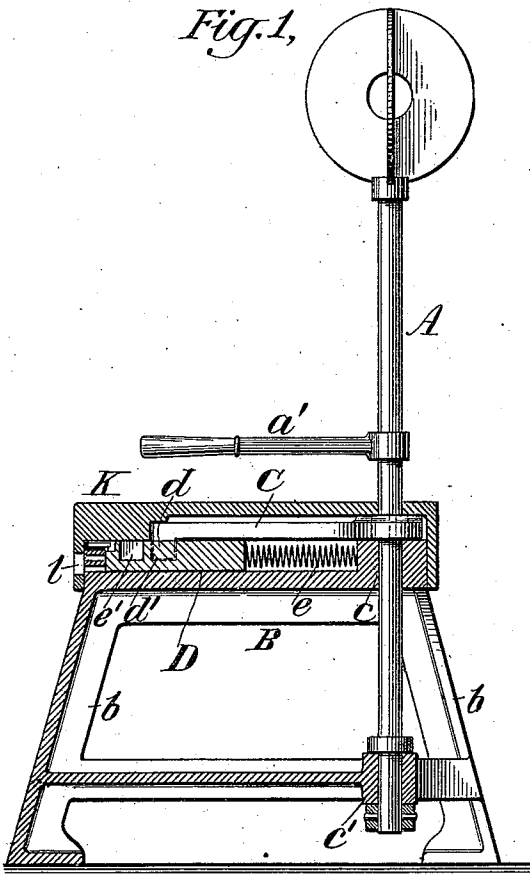


Fig. 3.

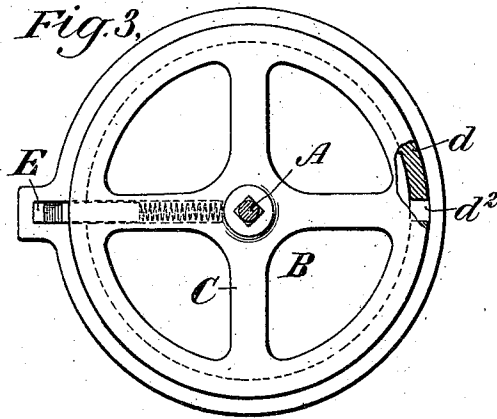
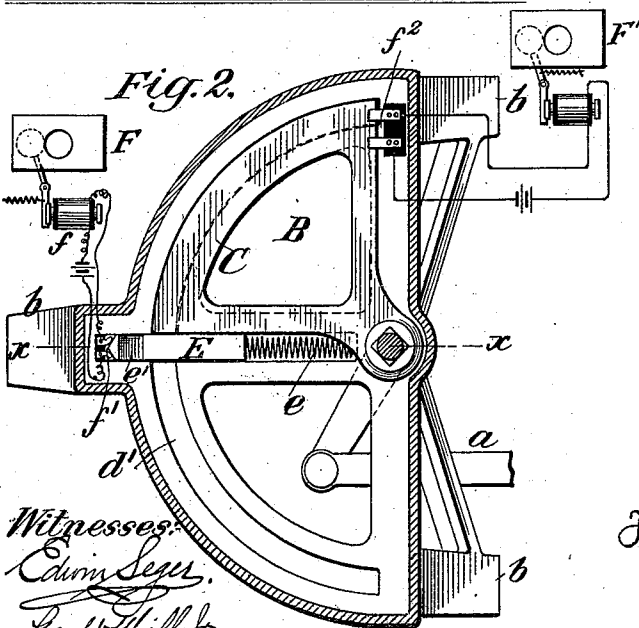


Fig. 2.



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UNITED STATES PATENT OFFICE.

FREDERIC F. CULVER, OF NEW YORK, N. Y.

SWITCH-STAND.

SPECIFICATION forming part of Letters Patent No. 551,076, dated December 10, 1895.

Application filed May 8, 1895. Serial No. 548,481. (No model.)

To all whom it may concern:

Be it known that I, FREDERIC F. CULVER, a citizen of the United States, and a resident of New York, in the county and State of New York, have invented certain new and useful Improvements in Switch-Stands, of which the following is a specification.

This invention relates especially to switch-stands for use on railways, and the principal object of the invention is to provide a simple and efficient device whereby the switch may be locked automatically in either closed or open position.

Another object of the invention is to indicate the position of the switch at any point—as, for example, to a signal-man in a distant tower or directly at a distant signaling-point controlling traffic.

The invention consists of the construction hereinafter pointed out in the drawings, in which like letters designate corresponding parts throughout.

Figure 1 is a vertical section of a switch-stand embodying my invention, taken on the line *xx* of Fig. 2. Fig. 2 is a plan view of the stand shown in Fig. 1, but with the cover removed. Fig. 3 is a plan view of a modified form of switch-stand embodying the invention.

The staff *A* carries at its upper end a target or other suitable indicator, and at or near its lower end is connected in any suitable manner with the rod *a* for operating the switch. The staff is also provided with suitable means for rotating it, which in Fig. 1 is the handle *a'*. The table or support *B* for the staff rests on legs *b* and is provided with bearings *c c'* for the staff *A*.

Referring now particularly to Figs. 1 and 2, the staff *A* carries a piece *C*, provided with a depending circular flange *d*, adapted to move in a corresponding recess *d'* in the top *D* of the table. Across the path of movement of the flange *d* is a locking piece or bolt *E*, fitted to move back and forth in a suitable socket and to lock the piece *C* in each of two positions. In Figs. 1 and 2 the piece *C* is a quadrant less one-half the width of *E*, and the recess *d'* is semicircular. When the piece *C* is occupying one-half the semicircular recess, the bolt *E* locks it there, and when the

piece is occupying the other half of the recess *d'* the bolt locks it in this position. These two positions are the predetermined positions of rest for the piece *C*, and the switch is so connected with the staff that when the piece *C* is in one predetermined position the switch will be fully open, and when it is in the other predetermined position the switch will be fully closed. The bolt *E* is arranged so as to lock the piece *C* only when in these positions, but normally tends to engage the piece *C* by reason of the spring *e*, or other suitable means, pushing it forward. The bolt is provided with a notch *e'*, through which, when the bolt is retracted by a key or other means, the flange *d* may travel, the flange operating at this time to restrain the bolt until the flange has passed entirely through the notch and the piece *C* has assumed one of its predetermined positions of rest. The bolt then moves automatically across the path of the flange and locks the switch.

It sometimes happens that in throwing a switch the rails do not completely open or close, although the switch-target therefor gives an indication that the switch is in such position. For example, in closing a switch a pebble may prevent one of the movable rails from completely closing to place, although the switch-target might indicate that the switch is closed. In this instance the switch-target for indicating that the switch is closed might not be in its exact full position, but it would be so nearly in such a position as to be misunderstood by an engineer, and a train passing the switch at such a time would be liable to be thrown from the track. To prevent such accidents, I have arranged an indicator to be located in a signal-tower or elsewhere—as, for example, near the track—to signal an approaching train, and operatively connected with the switch-stand, so that in case the switch does not fully close or open the fact will be indicated. In embodying this idea I may arrange a pair of electrical contacts, so as to be closed by the bolt *E* only when in its locking position. The bolt can only take this position when the switch *E* is in one of its defined positions of rest—that is, when the switch is fully open or fully closed. Such an indicator is shown in Fig. 2.

F is the indicator provided with a spring to draw it in one direction and a magnet f to draw it in the other direction. The magnet is connected with the contacts f' at the switch-stand arranged to be bridged by the bolt E only when the bolt is in locking position. At such a time the magnet will be energized and the indicator will show that the bolt is home and the switch, therefore, in full position, whether open or closed. Of course the indicator may be made in any desired form, whether visual or audible, and may be worked or controlled pneumatically, electrically, or otherwise, and it need not, of course, in all cases be controlled by the position of the piece C, but by some other piece connected with the staff or switch connections. The electrical indicator F' is controlled by the position of the piece C. Its circuit is connected with two contacts f^2 , arranged to be bridged by the piece C when in one of its positions of rest—as, for example, the position of switch closed. The indicator-circuit is then closed and the indicator F' indicates “safety” for main-line traffic. The indicators F and F' may be used jointly or separately.

In Fig. 3 the piece C is a circular plate, having its flange d running in an annular recess. The flange d is in this case provided with two opposite notches d^2 , into which the bolt E may move to engage the piece C, and the plate is turned half-way round in opening the switch and the rest of the way round in closing the switch.

The indicators F and F' are shown connected only with the construction shown in Fig. 2; but it is of course obvious that they may be connected with the other forms as well, so as to indicate whether the switch is fully open or fully closed.

In the forms of my invention shown in Figs. 1, 2, and 3 I prefer to employ a cover for the table or support securely fixed in place, so as to completely protect the top of the table and the parts working thereon from outside interference or injury. K in Fig. 1 is such a cover. It has a depending flange around its margin

to keep out water, dust, &c., and is provided with a keyhole l to give access to the box.

Various changes, which will readily suggest themselves to any one skilled in the art, may of course be made without departing from the spirit of my invention.

What I claim, and desire to secure by Letters Patent, is—

1. In a switch stand, the combination of a frame or support provided with a circular recess, a staff for operating a switch and adapted to occupy two predetermined positions of rest, in one of which the switch shall be open and in the other of which the switch shall be closed, a piece fixed to the staff and provided with a circular flange arranged to move in the said recess with the staff, a bolt intercepting the path of the flange provided with a notch through which the flange may pass when the bolt is withdrawn, and arranged to lock the piece that is fixed to the staff in either of its two predetermined positions of rest, substantially as set forth.

2. In a switch stand, the combination of a frame or support provided with a circular recess, a staff for operating a switch and adapted to occupy two predetermined positions of rest, in one of which the switch shall be open and in the other of which the switch shall be closed, a piece fixed to the staff and provided with a circular flange arranged to move in the said recesses with the staff, a bolt intercepting the path of the flange provided with a notch through which the flange may pass when the bolt is withdrawn and arranged to lock the piece that is fixed to the staff in either of its two predetermined positions of rest, and an automatic indicator operatively connected with the movable parts whereby their position may be indicated, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FREDERIC F. CULVER.

Witnesses:

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