

(No Model.)

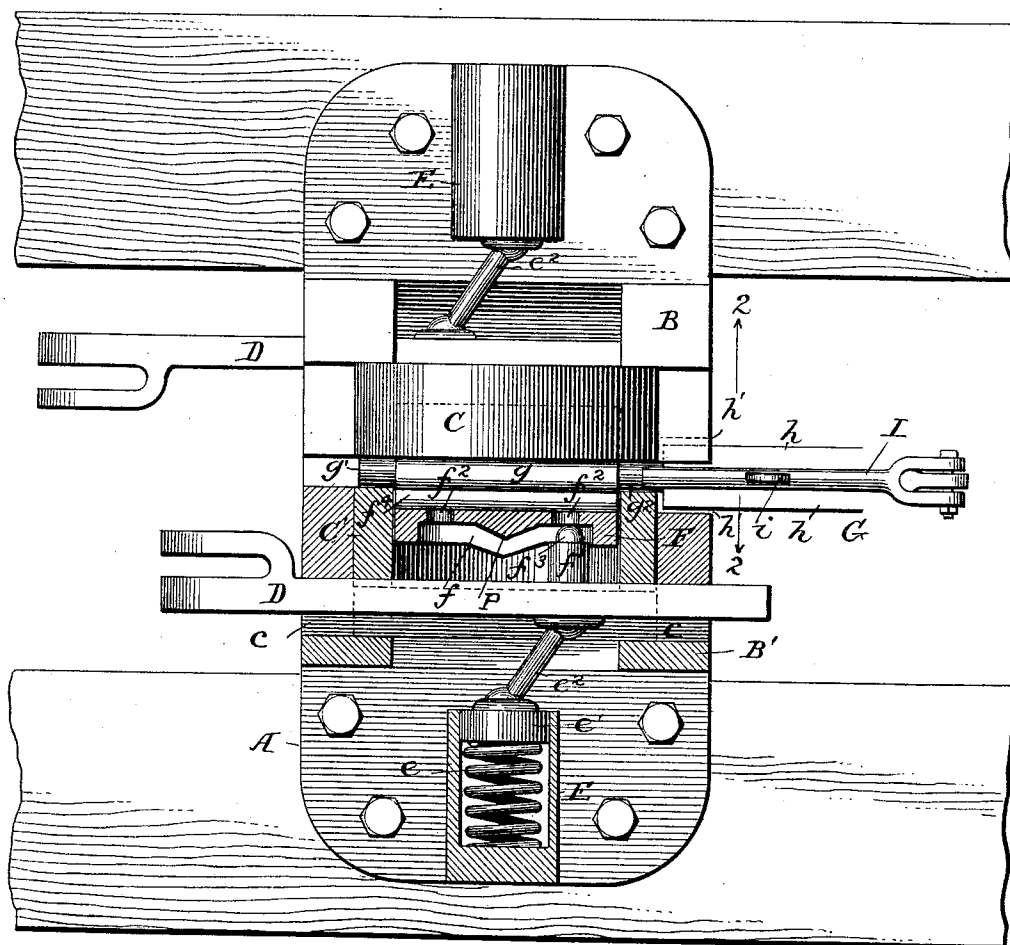
2 Sheets—Sheet 1.

F. W. SNOW.
SWITCH STAND.

No. 480,676.

Patented Aug. 9, 1892.

Fig. 1.



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Fig. 2.

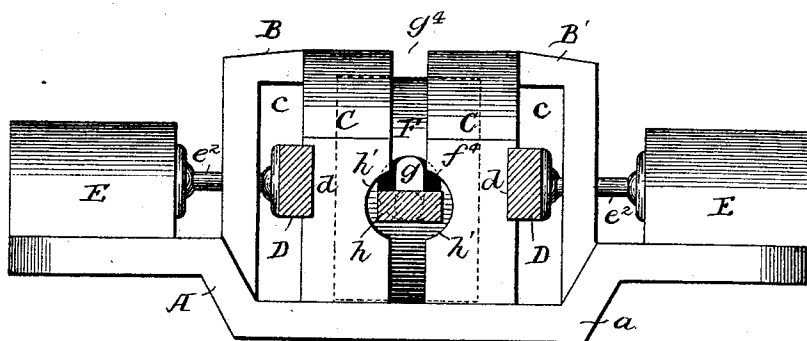


Fig. 4.

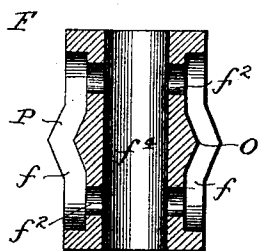


Fig. 3.

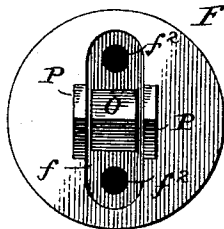


Fig. 5

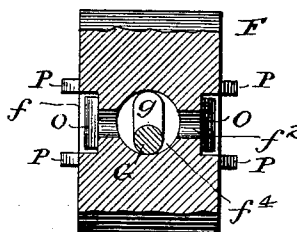
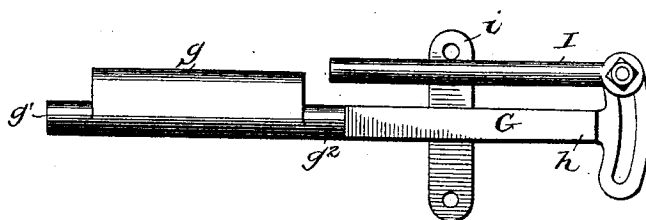


Fig. 6.



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UNITED STATES PATENT OFFICE.

FRED. W. SNOW, OF HILLBURN, ASSIGNOR TO THE STANDARD EQUIPMENT COMPANY, OF NEW YORK, N. Y.

SWITCH-STAND.

SPECIFICATION forming part of Letters Patent No. 480,676, dated August 9, 1892.

Application filed December 17, 1891. Serial No. 415,413. (No model.)

To all whom it may concern:

Be it known that I, FRED. W. SNOW, a citizen of the United States, residing at Hillburn, in the county of Rockland and State of New York, have invented certain new and useful Improvements in Switch-Stands, of which the following is a specification.

My invention relates to switch-stands, and more particularly to a stand having the general features of construction set forth in Patent No. 463,038, granted November 10, 1891; and it has for its object to improve the construction and operation of such stands in such a manner as will insure the stand operating so as to fully throw the switch when it is automatically operated by a passing train. It is well known that in this class of switch-stands the construction is such that the switch may be operated by hand by the proper party without the necessity of overcoming the pressure of the spring or other device which is brought into operation when the switch is moved automatically. It is further well known that it is desirable to provide means which shall insure the complete throw of the switch whenever it is subjected to the automatic operation, as the failure to move the switch to its complete extent is liable to cause an accident, such as derailing the train or shunting it or a part of it to the side track.

In a switch-stand constructed in accordance with the patent before referred to certain means are provided to accomplish this result; but it has been found in practice that they are not sufficient to insure the complete throw of the switch under all conditions, and my present improvement is made for the purpose of overcoming this objection and providing means whereby when the switch is automatically moved it will certainly and positively be moved to its complete extent.

In the accompanying drawings, Figure 1 is a plan view, partly in section, showing a switch-stand with my improvement applied. Fig. 2 is an elevation, partly in section, on the line 2-2, Fig. 1. Figs. 3, 4, and 5 are respectively side views and vertical and horizontal sectional views of the engaging device, and Fig. 6 is a plan view of the operating-lever.

In order that my invention may be readily understood, I will describe, briefly, the general

features of the construction of the switch-stand such as that shown in the drawings, in which—

A represents the base-plate of the stand, which is formed with a depression *a* in its center, and in this depression are arranged the castings *B B'*, which are extended so as to form the bearings *CC'*. Between these bearings and the outer sides of the castings are formed recesses *c c*, which serve as guides for the switch-operating rods *D*, and these rods normally rest in notches *d*, formed in the bearings *C C'*.

Mounted on the base-plate *A* are the cylinders or seats *E*, in which are placed the coil-springs *e*, and also in each of which is a block *e'*, normally resting against the spring and adapted to move therein. These blocks are provided with a socket to receive the spherical end of the links *e''*, the other ends of which links are also made spherical and fit in corresponding sockets in the switch-operating rods *D*, so that the operating-rods are connected to the blocks resting on the springs in the cylinders or seats by means of ball-and-socket joints, thereby providing for a movement of the switch-operating rods in the manner hereinafter set forth.

Mounted in the bearings *C C'* is a hub or engaging device *F*, which is fitted loosely and adapted to have a sliding movement therein. This hub *F* is provided on its opposite sides with an elongated slot *f*, and each of these slots has near each end a socket or perforation *f''* for the reception of the pins *f'* on the switch-operating rods *D*, the pins being provided with contracted ends *f'''*. The hub *F* is also provided with an opening *f''''*, extending longitudinally through it from end to end parallel with the slots *f*, and in this opening is placed the operating-lever *G*. This operating-lever *G* is provided with an eccentric *g*, and at each end of the eccentric it is preferably contracted to form the bearings *g' g''*, which are adapted to enter the space *g''''* between the bearings *C C'*. The operating-lever is further provided with wings *h* on its outward portion, which should be of a thickness not greater than the bearings *g' g''*, and these wings are adapted to pass through the space *g''''* between the bearings *C C'* when the

lever is operated by hand in the manner hereinafter set forth. When the lever is in its extended position, (shown in Fig. 1,) with the wings extending laterally, the ends of the wings enter notches h' in the bearings C C' and hold the lever in its normal position and prevent its being operated. In this position of the lever the hub F is held in the position shown in Fig. 1 out of engagement with the pins of either of the switch-operating levers. When, however, the lever is turned to cause the wings h to assume a vertical position, the eccentric g operates on the hub F to move it into engagement with one or the other of the pins f' on the switch-operating levers, and the operating-lever G can then be thrown over, the wings passing through the space g^4 , and the switch can be thrown in the manner hereinafter stated, when the lever is again turned a quarter round, disengaging the hub or block F from the switch-operating levers.

Suitable means are provided for locking the lever G in position, and in the present instance a bar I is shown, which is pivoted to the outer end of the lever G, and its free end enters the space g^4 between the bearings C C' and is secured to the lock i in the usual manner.

When the switch-stand is in its normal position (shown in Fig. 1) and the switch is wrongfully set, a passing train will operate the switch in a manner well known, so as to throw the points in the desired position. To do this, the switch-operating rods D must be free to move independently of the operating-lever G, and it will be seen that the pins f' on the switch-operating rods D are out of engagement with the hub or engaging device F and are free to slide longitudinally in the recesses d when the tension of the spring e is overcome.

It has been found that, while the wheels of the train will move the switch-points a certain distance and cause the switch-operating rod D to compress the spring e until the link e^2 has reached a position midway or, perhaps, a little more than midway of its normal position, owing to the friction of the parts or for other reasons the points may not be thrown completely over, so as to prevent danger of accidents, and it is with the object of accomplishing this result and insuring the complete throw of the switch-levers when once thrown by the passing train that my improvement is made.

In order to carry out my improvement I apply to the hub or engaging device a projection O, and this is shown as placed in the central portion of the recesses f between the openings f^2 . This projection is preferably wedge-shaped or provided with inclined edges and is so arranged that whatever may be the position of the operating-lever G it will occupy a central position with relation to the movement of the switch-operating rod D, being, as shown, in an axial line with the seats E. The reduced ends f^3 of the pins f' on the switch-operating

rods D are preferably rounded, as shown clearly in Fig. 1, so that, as will be seen, when the switch-operating rods D are moved under pressure of the car-wheels the rounded edge of the pin will ride up one inclined side of the projection O until it reaches the central position, when the pressure of the spring through the medium of the link e^2 will cause the switch-operating rods D to be positively moved forward to complete the throw of the switch.

It will be seen that in the drawings the inclined sides of the projection need not necessarily extend far enough to complete the throw of the switch-operating rods, for the reason that after the rods have passed through the greatest part of their movement the pressure of the springs through the links on the bars is at this time at such an angle as to exert its power to the best advantage, and thus insure a complete throw of the switch-operating rods and preventing any possibility of their resting in an intermediate position between their extreme movements. It will be observed that when the switch-operating rods are thus thrown in passing over the projection O the rods move out of the notches d and there will be liability to vertical movement, and in order to provide against this I provide the hub or engaging device with projecting flanges or ribs P, which in no wise interfere with the ordinary operations of the device and effectually prevent any accidental slipping or sliding of the switch-operating rods.

It is obvious that the angle of the inclined sides and their extent may be varied to suit the requirements of any particular case, and, while I have shown them of such an extent as to insure the beginning of the last half of the movement of the switch-operating rods, depending somewhat upon the pressure of the springs to complete their movement, I may in some instances so extend the inclined sides as to operate to throw the switch-rods to the limits of their movement. Any equivalent device may be applied to the switch which will accomplish this same result without departing from the spirit of my invention, and I do not deem it necessary to illustrate other forms or modifications of the invention, as I prefer the form shown in the drawings, and this sufficiently explains the principles and mode of operation of the device.

What I claim is—

1. In a switch-stand comprising a switch-operating rod and an engaging device normally out of engagement therewith, a projection on the engaging device in the path of the switch-operating rod, arranged to complete the throw of said rod, substantially in the manner and for the purposes hereinbefore set forth.

2. In a switch-stand comprising a switch-operating rod and an engaging device for the rod normally out of engagement therewith, a switch-operating lever arranged to move the engaging device, and the switch-rod to oper-

ate the same by hand, and a projection on
said engaging device in the path of the switch-
operating rod, arranged to complete the throw
of the latter when moved automatically, sub-
stantially as described.

3. The combination of the engaging device
having a slot in its side, with the switch-rod
having a projecting pin co-operating with said
engaging device and a projection arranged in
the slot in the path of the pin, substantially
as described.

4. In a switch-stand, the combination, with
the switch-operating rod provided with a pin
having a rounded end, of an engaging device
normally out of engagement with said rod and
having a slot in its side and a projection ar-
ranged in said slot to co-operate with the

rounded end of the pin to complete the move-
ment of the switch-operating rod, substan-
tially as described.

5. The combination, with the switch-oper-
ating rod having a pin projecting therefrom,
of an engaging device normally out of en-
gagement with said rod and having a slot in
its side, a projection arranged in a central
position in said slot, and ribs projecting from
said slot, substantially as described.

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

FRED. W. SNOW.

Witnesses:

F. L. FREEMAN,
W. C. DUVALL.