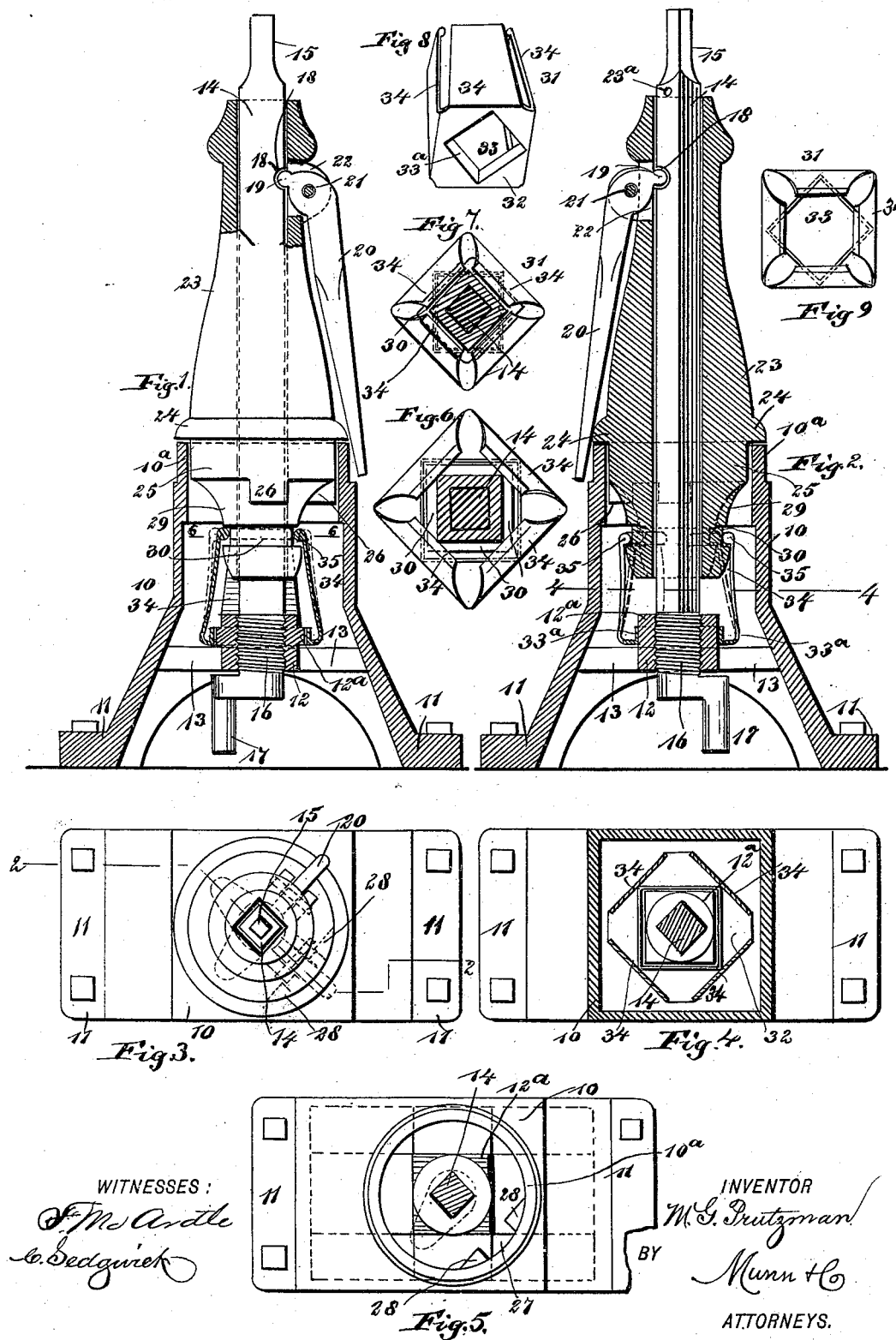


(No Model.)

M. G. PRUTZMAN.
SWITCH STAND.

No. 491,812.

Patented Feb. 14, 1893.



UNITED STATES PATENT OFFICE.

MORRIS G. PRUTZMAN, OF LEHIGH GAP, PENNSYLVANIA.

SWITCH-STAND.

SPECIFICATION forming part of Letters Patent No. 491,812, dated February 14, 1893.

Application filed May 12, 1892. Serial No. 432,753. (No model.)

To all whom it may concern:

Be it known that I, MORRIS G. PRUTZMAN, of Lehigh Gap, in the county of Carbon and State of Pennsylvania, have invented a new and Improved Switch-Stand, of which the following is a full, clear, and exact description.

My invention relates to improvements in that class of switch-stands known as spindle switch-stands, in which the switch actuating rod is connected with a crank shaft or spindle of the switch stand and which is adapted to operate in connection with automatic split switches which are pressed one way or the other by the pressure of the flange of a wheel, and which may also be moved by hand. This class of switch-stands are adapted to act automatically in connection with the class of switches named, and they are usually provided with locking mechanism to prevent them from being hand operated when set for automatic action, and which when set for hand action, cannot be operated in any other way.

The objects of my invention are to produce a simpler, cheaper and more efficient switch-stand of the character described, than those heretofore in use, to afford facilities for quickly and effectually converting it from an automatic to a solid throw stand or from the latter to the former, without making any material changes, to secure a more direct automatic action by dispensing with auxiliary parts which are a source of much wear and of lost motion, to lock the stand direct to the spindle independent of the hand lever, so as to better guard against unauthorized manipulation, and to arrange the parts so that if any foreign body is caught between the rails so as to interfere with the working of the switch, the fact will be immediately detected.

To this end my invention consists in certain features of construction and combinations of parts, as will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a broken vertical section of the switch-stand showing it in position for automatic use; Fig. 2 is a vertical section on the line 2—2 in Fig. 3; Fig. 3 is a plan view of

the switch-stand; Fig. 4 is a sectional plan on the line 4—4 in Fig. 2; Fig. 5 is a broken plan, with the sliding sleeve or column removed, and with the spindle in section; Fig. 6 is a sectional plan on the line 6—6 in Fig. 1, showing the dilating spring in detail, and with its wings or arms extended; Fig. 7 is a similar section, but with the wings or arms closed inward upon the flat sides of the movable sleeve or column; Fig. 8 is a perspective view of the dilating spring; and Fig. 9 is a plan of the same.

The stand is provided with a hollow base 10, having an open upper end 10^a, of cylindrical shape, and having at the bottom, broad feet 11, which enable it to be securely bolted to either one or two sleepers. Within the base and near the lower end of the same, is a fixed collar 12, which is supported centrally in the base by means of arms 13, and this collar has an upwardly extending tenon 12^a, of rectangular cross section, which is adapted to engage the mortise in the dilating spring, as hereinafter described. The spindle 14 extends vertically through the base and through the entire stand, the spindle terminating at its upper end in a wrench head 15, so that if desired a lever may be applied to it at this point to screw it to place in its bearing, which bearing is in the collar 12, the collar and the adjacent portion of the spindle being threaded, as shown at 16, so that a nice joint may be effected, and as the spindle only turns a part of a revolution at any one time, the form of bearing will not interfere with its operation. Any other suitable bearing may be used, however, if desired. At the lower end of the spindle is a crank 17, which is adapted to connect in the usual way with any switch rod. Near the upper end of the spindle is a recess 18, which is produced in one side of the spindle and is adapted to receive the tooth 19, on the inner end of the lever 20, which lever is fulcrumed as shown at 21, in a recess 22, of the vertically movable and revoluble sleeve or column 23, which sleeve or column is held to slide vertically on the spindle, and as the spindle is of rectangular cross section, it will be seen that both will turn together. It will be seen that by raising the lever 20, the sleeve or column 23 may be raised, and by dropping the lever, the sleeve or column will

drop to place. When the switch-stand is not to be operated manually, the sleeve or column is locked so that it cannot be raised, and to this end the upper end of the spindle is perforated, as shown at 23^a, the perforation being just above the top of the sleeve or column when the latter is in its lowest position, and a padlock may be secured in the perforation so as to prevent the raising of the sleeve, and the consequent hand operation of the stand.

Near the lower end of the sleeve or column 23, is a flange 24, which rests upon the upper edge of the base 10, and immediately beneath the stand the sleeve or column is made cylindrical, as shown at 25, so that it may revolve in the stand. Projecting downward from this cylindrical portion 25, are lugs 26, the faces of which are flush with the faces of the part 25, and these lugs are adapted to enter a channel 27, on the inner side of the base 10, the channel being formed between two lugs 28, which are made integral with the base, and it will be seen that when the sleeve or column is dropped, and either of the lugs 26, made to enter the channel 27, the sleeve or column will be fastened so that it cannot be turned. The lower end of the sleeve or column 23, is reduced, as shown at 29, and this reduced portion is provided with a circumferential groove 30, at which point the column is made of rectangular cross section, as shown in Figs. 6 and 7. The dilating spring 31, is carried at the lower end of the base or column, this spring having a flat bottom 32, with a central mortise 33, the side walls of which are turned up, as shown at 33^a, so as to bear firmly upon the upper portion or tenon 12^a of the collar 12. The spring has, extending upward on its four sides, wings or arms 34, which are separated at the corners so that the arms will have independent spring action, and the upper ends of the arms terminate in ribs 35, which are adapted to enter the groove 30, and press upon the rectangular portion of the column 23.

It will be seen that when the tenon 12^a, is in engagement with the mortise 33, and the free ends of the arms 34 in engagement with the rectangular portion of the column, the spring will form a lock, which will prevent the column and spindle from being turned by any ordinary power. In practice, this spring is made sufficiently stiff so that it cannot be dilated by hand, but when the switch is thrown by the pressure of a car wheel, the crank 17, spindle 14, and column 23, may be turned, as the pressure is sufficient to spread the upper ends of the arms 34, so as to permit them to pass the corners of the rectangular portion of the column, as shown clearly in Fig. 6. It will be noticed that when the spring 31 is in engagement with the tenon, it may dilate but cannot rotate, and when it is above the tenon, it will rotate freely and cannot dilate.

The operation of the switch-stand in its several ways of connecting with the switch,

is as follows: First, if the switch-stand is to be used in connection with an automatic switch, such as is operated by the pressure of the flange of a wheel, the column is adjusted so that the lugs 26, will neither of them enter the channel 27, a lock is inserted in the perforation 23^a, to prevent the raising of the column, and when the switch is operated, the pressure of the switch rod on the crank 17, will turn the spindle 14, and column 23, the pressure being sufficient to spread the arms 34 of the dilating spring 31, which will immediately close after the switch is operated, and hold it in position until it is again thrown. For use as a solid throw or hand stand, the column 23 is held normally, so that one of the lugs 26 will enter the channel 27, and consequently the movable parts will all be held in a rigid position, and the switch cannot be moved. When, however, the switch is to be thrown, the lever 20 is raised, thus lifting the column 23, so that the lugs 26 will clear the tops of the lugs 28, and this movement also raises the spring 31, so that the mortise 33, will be above the tenon 12^a, and the switch may then be thrown in the ordinary way by simply turning the lever 20, laterally.

It will thus be seen that the stand is perfectly adapted for either automatic or hand use, and it will be noticed that it is of very few parts and that the parts are arranged in such a way that the stand may be very cheaply built and will be very durable.

It will be understood that the mortise 33, will not engage the tenon 12^a, until the switch is fully thrown, and for this reason, if there are any foreign bodies between the rails, the fact can easily be detected and the obstructions removed.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent,—

1. A switch-stand of the character described, comprising a hollow base, having a vertical crank spindle journaled therein and a channel produced in one side, a vertically movable and revoluble column held to slide on and turn with the spindle, said column having lugs near its lower end to enter the channel of the base, and a hand lever fulcrumed in a recess of the column, and having its inner end arranged to engage the spindle, substantially as described.

2. A switch-stand comprising a hollow base, having a vertical crank spindle journaled therein, a channel produced in one side of the base, a movable column held to slide on and turn with the spindle, lugs produced near the lower end of the column, and adapted to enter the channel in the base, a hand lever fulcrumed in a recess of the column and having an inner end to engage the spindle, and means for locking the column to the spindle, substantially as described.

3. In a switch-stand, the combination with the base having a crank spindle journaled therein, a movable column held to slide on

the spindle and adapted to be locked to the base, a fixed tenon arranged in the lower portion of the base, and a dilating spring having in one end a mortise to engage the tenon, and
5 its opposite end formed into arms adapted to clamp the sides of the column, substantially as described.

4. The combination, with the hollow base, the fixed tenon therein, and the crank spindle
10 journaled in the base, of the movable column held to slide on the spindle and having flattened sides at its lower end, and the dilating spring having a base portion with a mortise therein, to engage the tenon of the base,
15 and spring side arms held to press against the flat sides of the column, substantially as described.

5. The combination with the base, the fixed

tenon therein, the crank spindle journaled in the base, and the movable column held to slide
20 on the spindle, and having the circumferential groove with flat back walls, of the dilating spring having a base portion with a mortise to engage the tenon of the base, and upwardly extending
25 spring side arms with ribbed free ends to engage the groove of the column, substantially as described.

6. In a switch stand, the dilating spring comprising a flat base portion having a central mortise, and upwardly extending side arms
30 terminating at their free ends in ribs, substantially as shown and described.

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Witnesses:

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