(No Model.)

J. G. SORENSON.

SWITCH STAND AND LOCK.

No. 598,751. Patented Feb. 8, 1898.

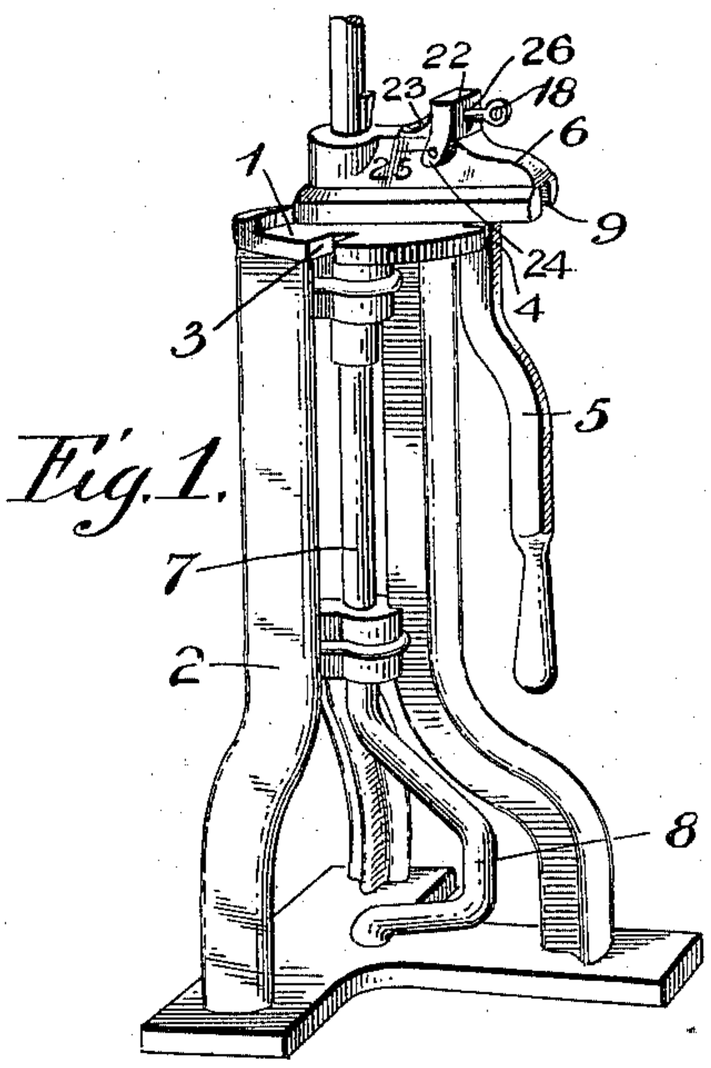

Fig. 1.

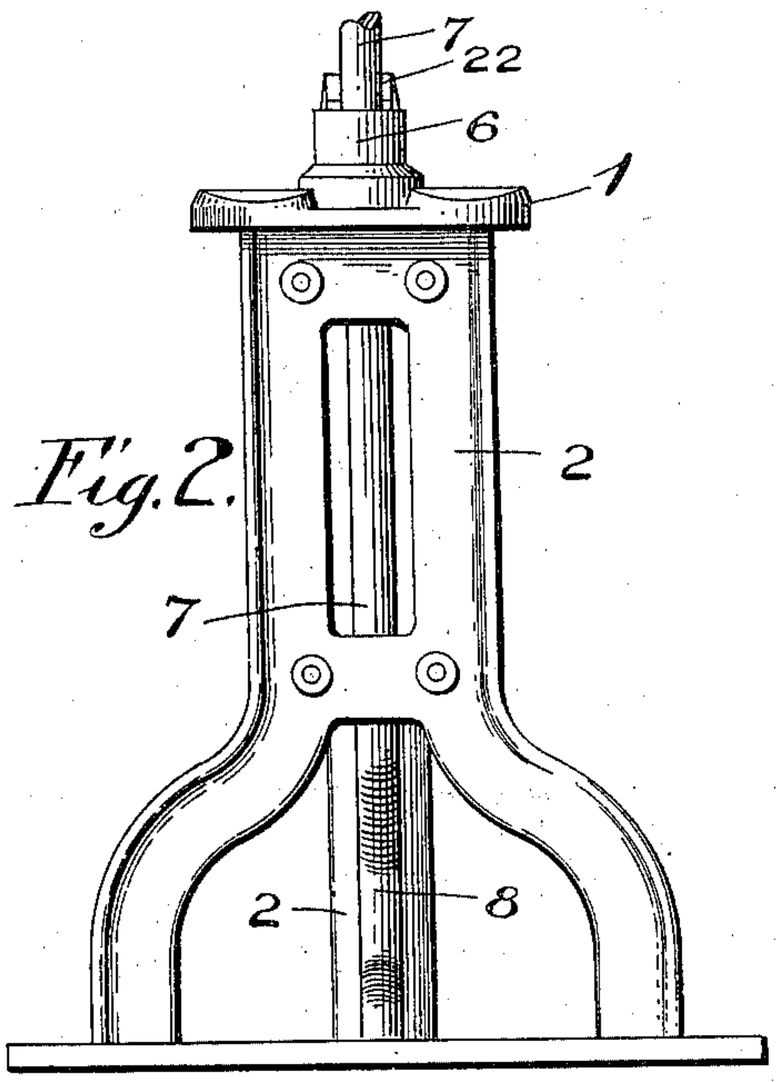

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 6.

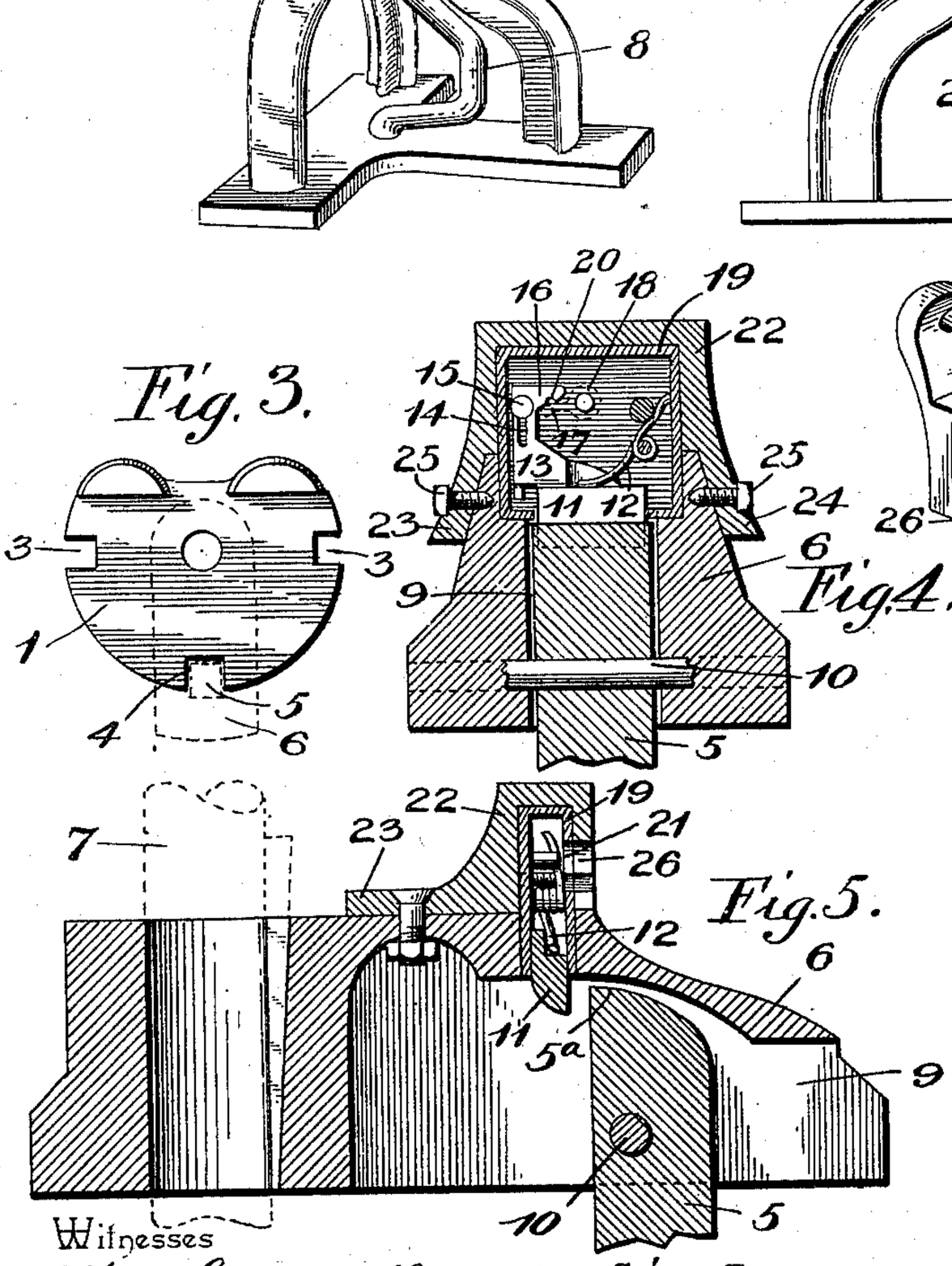

Fig. 5.

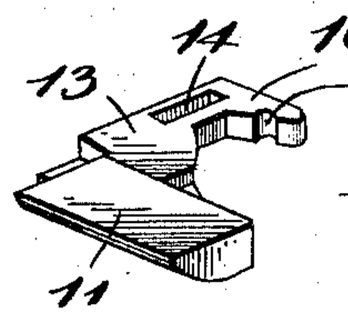

Fig. 7.

Witnesses
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UNITED STATES PATENT OFFICE.

JOHN G. SORENSON, OF DAVENPORT, IOWA.

SWITCH STAND AND LOCK.

SPECIFICATION forming part of Letters Patent No. 598,751, dated February 8, 1898.

Application filed September 13, 1897. Serial No. 651,535. (No model.)

To all whom it may concern:

Be it known that I, JOHN G. SORENSON, a citizen of the United States, residing at Davenport, in the county of Scott and State of Iowa, have invented a new and useful Switch Stand and Lock, of which the following is a specification.

My invention relates to switch-stands, and particularly to means in connection therewith for securing the switch-lever in its several adjusted positions; and the object in view is to provide a simple and efficient construction and arrangement of locking device and coöperating parts whereby the effective engagement of the switch-lever is insured, whereby the locking device is protected from accumulations of dust and from moisture and at the same time is readily accessible for purposes of repair and adjustment, and whereby said locking device is capable of manipulation, adapting the switch-lever to be successively operated to move the switch-rails to different positions without successive operations of the lock-key.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

Figure 1 is a perspective view of a switch-stand constructed in accordance with my invention. Fig. 2 is a rear view of the same. Fig. 3 is a plan view of the table. Fig. 4 is a vertical sectional view taken parallel with the switch-lever pivot and through the lock mechanism. Fig. 5 is a longitudinal sectional view of the head. Fig. 6 is a detail view of the lock-shield detached. Fig. 7 is a detail view of the bolt detached.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

The table 1, which may be supported by any suitable frame 2, constituting the body portion of the stand, is provided with lateral notches 3 and an intermediate notch 4 for engagement by a switch-lever 5, pivotally mounted upon a head 6, which is secured to the switch shaft or spindle 7, having the usual crank 8. The switch-head 6, which is keyed to the switch-shaft 7, is arranged to traverse the table 1 and is of a length greater than a radius of said table in order to project terminally beyond the periphery thereof, and in the under side of the head is formed a longitudinal switch-lever seat 9, in alinement with which the contiguous portion of the switch-lever may be arranged when it is desired to turn the switch shaft or spindle. The switch-lever is extended beyond its pivot 10 to form a beveled or rounded tougue 5^a, and coöperating with this tongue and adapted to secure the switch-lever in its pendent position in engagement with one of the notches of the table is a locking device having a bolt 11. This bolt is mounted for vertical movement and is adapted when depressed, as shown in Figs. 4 and 5, to occupy a position in the path of the terminal tongue 5^a of the switch-lever, said bolt being yieldingly held in its depressed position preferably by an actuating-spring 12. It will be seen, however, that by reason of the position of the bolt it is also adapted to be held in engagement with the tongue of the switch-lever by gravity, whereby in case of injury to or breakage of the actuating-spring the bolt is still capable of performing the function for which it is designed.

The bolt forming the essential element of the locking device is provided with a guide-arm 13, slotted, as at 14, to slide upon a guide-pin 15, and said arm terminates in a lug 16, forming a beveled shoulder for engagement by the wing 17 of a removable key 18. This key, which is inserted through a suitable opening in the front wall of the lock-casing 19, is adapted to be turned to cause the pressure of its wing 17 to elevate the bolt, and thus remove it from the path of the switch-lever; but in order that said bolt may be suspended in its inoperative position to allow successive manipulations of the switch-lever I have provided said shoulder with a notch or depression 20, adapted to receive the extremity of the wing 17 when the key has been turned sufficiently to raise the bolt. Obviously when the key is in position to support the bolt in a disengaged or inoperative position its wing is out of alinement with the key-hole 21 in the lock-casing, and hence in order to remove the key it is necessary to release the bolt, and thus allow it to resume its normal or operative position. Therefore the bolt cannot be left by a careless operator in its dis-

engaged position. Also the rear side of the projecting portion or nose of the bolt is rounded to provide for the repression of the bolt by the movement of the switch-lever toward its pendent or normal position in engagement with one of the notches of the table.

In order to protect the lock and at the same time facilitate its removal and allow access thereto for purposes of repair, I preferably incase it in a shield 22, mounted upon the upper side of the head and provided with securing-ears 23 and 24, fastened by means of suitable devices, such as screws 25, to the head. This shield is provided in its front side in alinement with the keyhole 21 with a corresponding opening 26.

From the above description it will be seen that when the locking-bolt is temporarily secured in its inoperative position the switch-lever may be moved to its operative position in alinement with the head and out of engagement with the notches of the table to allow the desired adjustment of the switch-spindle, and that even after releasing said lever and allowing it after adjustment of the switch to drop into one of the notches of the table it may be subsequently manipulated to return the switch to its former or a second adjusted position without further operation of the lock mechanism; but the removal of the key from the lock releases the bolt, and thus allows the extension of the latter into the path of the extremity of the lever, whereby when the lever is subsequently dropped into engagement with a notch of the table it is locked against disengagement.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. The combination with a switch-head and a pivotal switch-lever, of a locking device having a bolt mounted for vertical sliding movement, and yieldingly held in a depressed position for engagement with the switch-lever, and means for temporarily securing said bolt in an elevated or disengaged position, substantially as specified.

2. The combination with a switch-head and a pivotal switch-lever, of a locking device having a bolt yieldingly held in operative engagement with the switch-lever, and having a notched shoulder for engagement by the wing of a bolt-operating key when the bolt is retracted, whereby the bolt may be temporarily secured in its retracted position, substantially as specified.

3. The combination with a switch-head and a pivotal switch-lever, of a locking-bolt mounted for vertical sliding movement and yieldingly held in a depressed position in the path of the switch-lever, said bolt being provided with a notched shoulder, and a removable key for insertion through a keyhole in the bolt-casing, and provided with a wing for engagement with said notched shoulder of the bolt, when the latter is elevated, the keyhole in the bolt-casing being out of alinement with the key-wing when the latter is in engagement with said shoulder, substantially as specified.

4. The combination with a switch-head and a pivotal switch-lever, the former being provided with a longitudinal switch-lever seat and a communicating vertical opening, of a locking device having its casing fitted in said vertical opening, and provided with a vertically-sliding bolt yieldingly held in a depressed position in the path of a switch-lever, and a lock-shield closing the vertical opening in the switch-head and detachably secured to the latter, substantially as specified.

5. The combination with a switch-head and a pivotal switch-lever, the former being provided with a switch-lever seat and a communicating vertical opening, of a locking device having its casing fitted in said vertical opening and provided with a vertically-sliding bolt, yieldingly held in its depressed position in the path of the switch-lever, a separable lock-shield inclosing the upper portion of the lock-casing and provided in one of its walls with a key-opening registering with a corresponding opening in the lock-casing, and means for detachably securing said lock-shield to the switch-head, substantially as specified.

6. In a switch-stand, the combination with a peripherally-notched table, of a swinging switch-head mounted to traverse said table and extending terminally beyond the periphery thereof, said switch-head being provided in its under side with a switch-lever seat, a switch-lever pivotally mounted in said seat for engagement with the said notches of the table, and provided beyond its pivot with an extension forming a beveled tongue, a locking device including a yieldingly-actuated bolt normally arranged in the path of said tongue of the switch-lever, a removable bolt-actuating key adapted for making a complete revolution in the casing, and concealed means for temporarily securing said key in an intermediate position to maintain the locking-bolt out of the path of the switch-lever whereby the key cannot be withdrawn while the bolt is retracted, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN G. SORENSON.

Witnesses:
DELOS R. BOYDSTON,
GEO. E. HUBBELL.