T. A. WALKER.

AUTOMATIC SWITCH LOCK.

APPLICATION FILED JUNE 18, 1908.

907,202.

Patented Dec. 22, 1908.

2 SHEETS—SHEET 1.

Fig. 1.

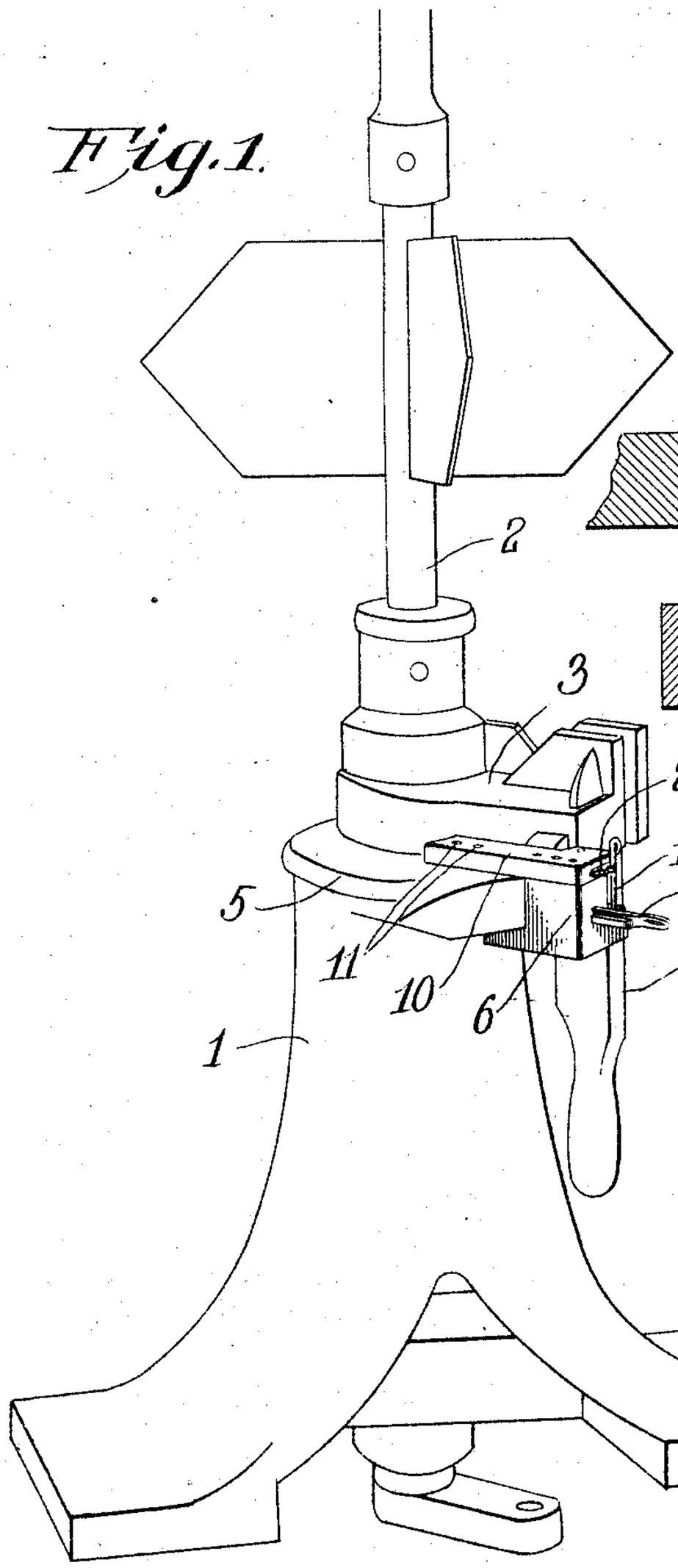
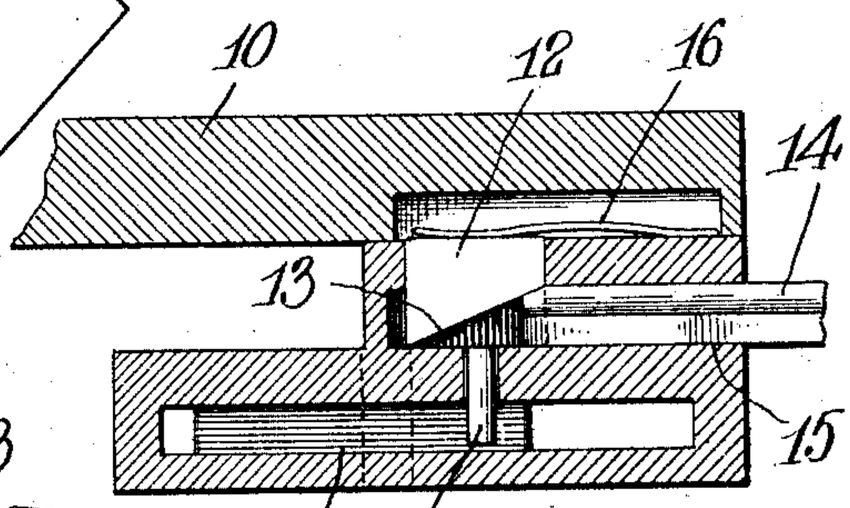


Fig. 6.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

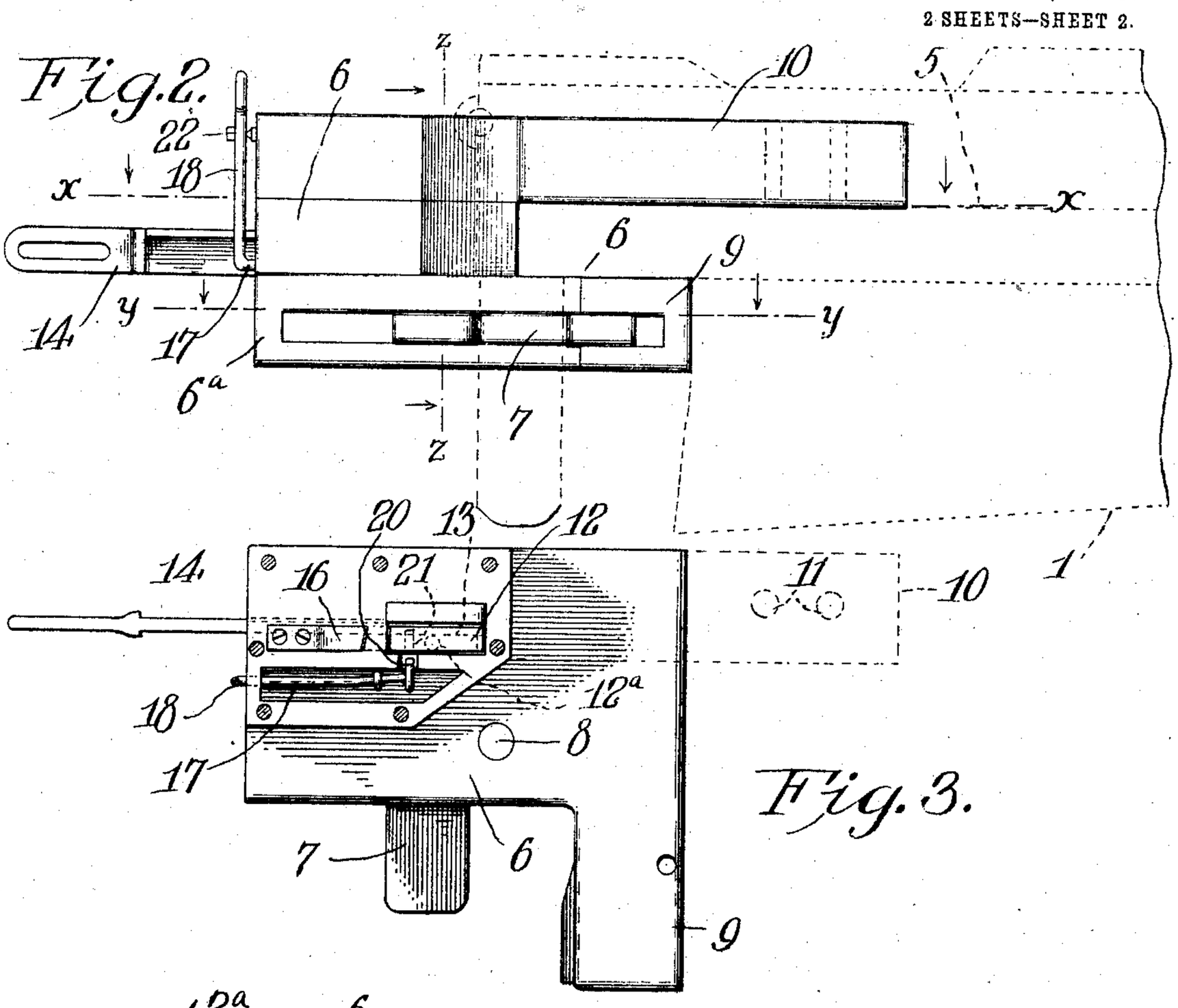

Fig. 3.

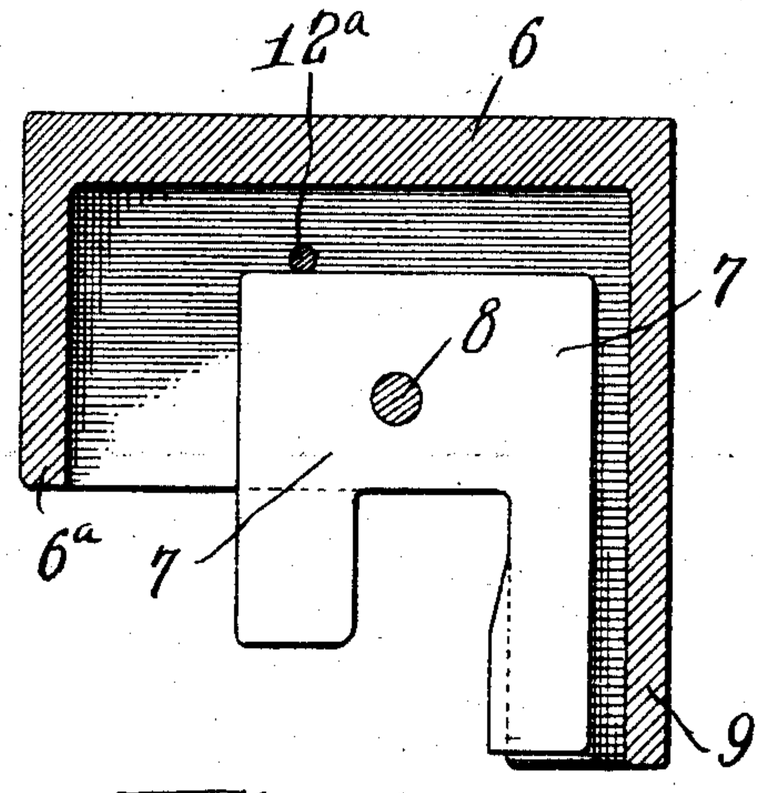

Fig. 4.

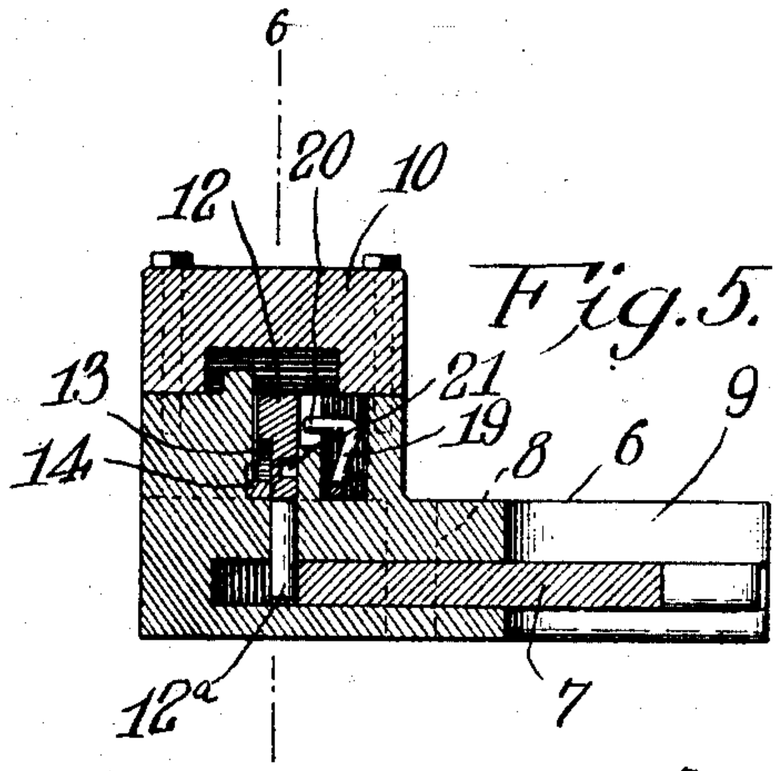

Fig. 5.

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UNITED STATES PATENT OFFICE.

THOMAS A. WALKER, OF AUGUSTA, ARKANSAS.

AUTOMATIC SWITCH-LOCK.

No. 907,202. Specification of Letters Patent. Patented Dec. 22, 1908.

Application filed June 18, 1908. Serial No. 439,205.

To all whom it may concern:

Be it known that I, THOMAS A. WALKER, a citizen of the United States, residing at Augusta, in the county of Woodruff and State of Arkansas, have invented certain new and useful Improvements in Automatic Switch-Locks, of which the following is a specification.

This invention comprises improvements in devices for locking switches, in order to prevent liability of accidental or unauthorized displacement of the switch from a predetermined position.

The invention is of that type of switch locks including an attachment adapted to be applied to switch stands of various types, whereby the operating lever by which the switch is thrown may be locked whenever desired, for the purposes of the invention.

For a full understanding of the invention reference is to be had to the following detail description and to the accompanying drawings, in which—

Figure 1 is a perspective view showing a switch stand having the invention applied thereto; Fig. 2 is a side elevation of the lock device or attachment; Fig. 3 is a horizontal sectional view taken about on the line *x*—*x* of Fig. 2; Fig. 4 is a horizontal sectional view on the line *y*—*y* of Fig. 2, Fig. 5 is a vertical sectional view on the line *z*—*z* of Fig. 2, the key for operating the lock mechanism being shown in operative position, and Fig. 6 is a fragmentary section taken about on the line 6—6 of Fig. 5.

Throughout the following detail description and on the several figures of the drawings similar parts are referred to by like reference characters.

Specifically describing the invention and referring to the drawings, 1 denotes the switch stand, 2 the target spindle, 3 the arm projecting from the upper portion of the spindle, and 4 the operating handle or lever pivoted at one end of the arm 3 and by which the target spindle is rotated in order to open and close the switch connected with the lower end thereof. The switch stand construction above described is of a common type at present in use, the upper portion of the stand 1 being formed with a flange 5 which is notched so as to receive the lever 4 when the latter is moved into the vertical position assumed thereby after adjustment of the switch rails.

The present invention comprises essentially a locking device in the form of an attachment for the stand 1, said device comprising a casing 6 the base portion of which is denoted 6^a and is comprised of upper and lower plates arranged in spaced relation so as to receive therebetween a horizontal lock 7. The lock member 7 consists of a U-shaped body, the spaced ends of which virtually constitute hooks. The member 7 is pivoted to the base 6^a of the casing, as shown at 8. A lateral extension 9 of the casing 6 and a similar extension 10 extending at an angle to the extension 9 and projecting from the upper portion of the casing 6 are secured by means of bolts or other substantial fastenings 11 to the flange 5 of the stand, the lock device being thereby permanently secured to the stand after it has once been applied.

When applied to the stand 1 the casing 6 is so disposed that the lever 4 is adapted to readily operate or move between the hooks of the lock member 7, after the switch has been closed. In the pivotal movement of the lever or handle 4 on the arm 3 the engagement of said lever with the spaced portions of the lock member 7 is adapted to move the lock member pivotally in an evident manner.

In the middle portion of the casing 6 is arranged suitable locking mechanism for cooperation with the lock member 7 to hold the latter in such a position that the lever or handle 4 cannot be moved when the switch is closed, except under certain conditions by peculiar adjustment of the parts.

The locking mechanism above referred to consists of a vertically movable latch bolt 12 the upper body portion of which is formed at one side with a cam 13 adapted to be engaged by a key 14 movable into and out of a suitable key opening 15 in the casing 6. The latch bolt 12 has its lower portion reduced, as shown at 12^a, so as to pass through an opening in the upper plate of the base 6^a of the casing and engage behind the lock member 7 to prevent pivotal movement of said lock member. The spring 16 normally tends to force the bolt 12 into the space be-

tween the plates of the base 6ª so as to cooperate or engage with the lock member 7 for the purpose mentioned.

In the actual operation of the invention it will be apparent that when the lever or handle 4 is in the position shown in Fig. 1, the outermost hook of the lock member 7 engages the outer side of the lever, and the latter is locked from movement. To permit of operation of the switch it is necessary to raise the lever or handle 4 into a horizontal position and this may be done by introducing the key 14 into the opening 15 raising the latch bolt 12 out of engagement with the lock member 7. The above permits of swinging the lever 4 upwardly which imparts pivotal movement to the lock member 7, the outer hook of said lock member being forced into the space between the plates of the base 6ª of the casing and the lower end of the bolt 12 resting upon the upper side of the lock member. When the switch is restored to its normal position and the lever 4 moved downwardly against the extension 9, the same will strike the inner hook of the lock member 7 and force the said member into its original position whereupon the spring 16 will force the latch bolt 12 downwardly and the said lock member will be automatically locked in its closed position, as shown in Fig. 1.

Under certain conditions it is desirable that the locking mechanism which coöperates with the member 7 be temporarily inoperative with reference to the lock member 7 in order that the lever 4 and the switch may be opened or closed at will. With the above in view special mechanism is provided consisting of a short shaft 17 mounted in the casing 6 and one end of which projects outwardly therefrom so as to support an operating handle 18. The shaft 17 is formed with an arm 19 provided with a catch 20 and this catch 20 is movable on actuation of the shaft 17 so as to engage with or be disengaged from the latch bolt 12. When the handle 18 is moved in one direction the shaft 17 will carry the catch 20 into engagement with a recess 21 in a side of the bolt, assuming that the bolt has been elevated so as to be disengaged from the lock member 7 by introduction of the key. The bolt will thus be held in its elevated position so that the lock member 7 can move freely when the switch is being closed or opened, on engagement thereof by the lever 4 connected with the target spindle 2. Should it be desired to cause the locking mechanism, including the bolt 12, to again coöperate with the lock member 7 it is only necessary to move the handle 18 so as to throw the catch 20 out of engagement with the bolt 12, and said bolt will be forced downwardly by the spring 16, or will be free to engage the lock member 7 and prevent movement of the latter. The key 14 will be carried by the switch-man and will of course control the operation of the locking mechanism. It will be apparent that when the bolt 12 is in operative position with respect to the lock member, preventing movement of the latter, the shaft 17 is not operable by the handle 18 so as to engage the recess 21 in the bolt 12. It is only when the key 14 has been introduced into the key opening 15, and the bolt 12 raised out of engagement with the lock member 7, that the handle 18 may be actuated to force the catch 20 into operative engagement with the bolt, whereby the latter will be held in elevated position and will not prevent free pivotal movement of the lock member 7.

Any suitable means such as a notched bar 22 may be applied to the outer end of the casing 6 to hold the handle of the shaft 17 in an adjusted position with the catch 20 either engaged with or disengaged from the bolt 12.

Having thus described the invention, what is claimed as new, is:

1. In combination, switch mechanism including an operating lever, and locking mechanism for holding the switch mechanism in a predetermined position and comprising a casing, a lock member mounted therein and engageable with the operating lever, locking mechanism mounted in the casing and embodying a latch bolt movable into and out of engagement with the lock member, a device for holding the latch bolt temporarily out of coöperation with the lock member, a key for actuating the lock bolt to disengage the same from the lock member, and auxiliary means adapted to coöperate with the lock bolt to render the same temporarily inoperative with respect to the lock member and permit free movement of the operating lever engaged thereby.

2. In combination, switch mechanism including a switch stand, a target spindle mounted thereon, an operating lever connected with said spindle for actuation thereof, locking mechanism applied to the stand and consisting of a casing, a lock member mounted thereon and arranged in the path of movement of the operating lever aforesaid, locking means for holding the lock member from movement and comprising a latch bolt movably mounted on the casing and adapted to engage the lock member, a key for actuating the latch bolt, and spring means normally tending to hold the latch bolt in cooperation with the lock member.

3. In combination, switch mechanism including a switch stand, a target spindle mounted thereon, an operating handle for said spindle, means for locking the operating handle of the spindle in a predetermined position and comprising a casing applied to the

stand, a lock member mounted in said casing and embodying hooks arranged in the path of movement of the operating handle aforesaid, locking mechanism comprising a latch bolt movable into and out of the path of movement of the lock member, a key for operating the latch bolt, a spring normally tending to force the latch bolt into the path of movement of the lock member, a mechanism for rendering the latch bolt temporarily inoperative with respect to the lock member and consisting of a shaft, an operating handle therefor, means for holding the shaft handle in adjusted position, and a catch carried by the shaft and movable into and out of engagement with the latch bolt as specified.

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

THOMAS A. WALKER.

Witnesses:

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MAMIE ROBINSON.