

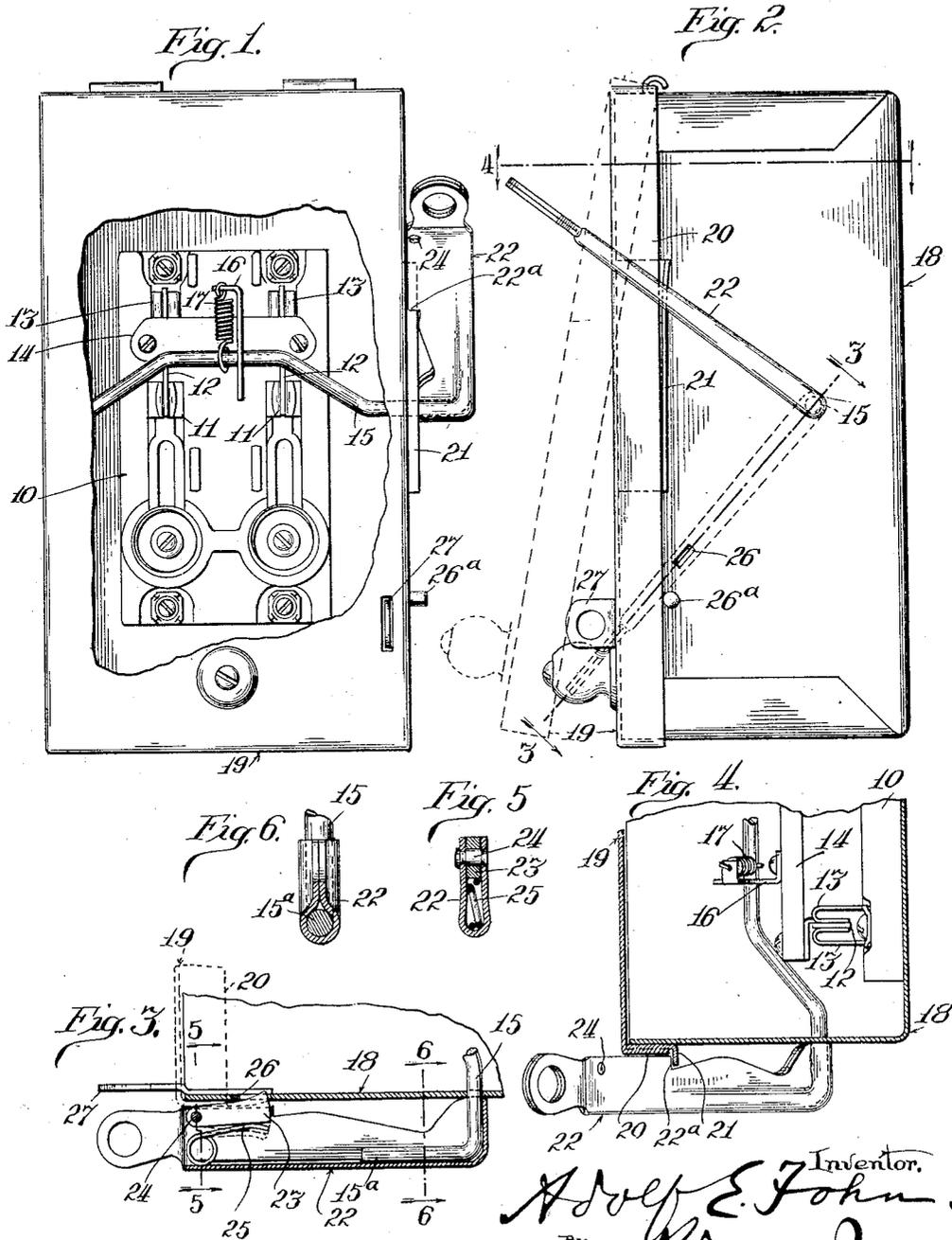
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SWITCH BOX

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# UNITED STATES PATENT OFFICE.

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## SWITCH BOX.

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*To all whom it may concern:*

Be it known that I, ADOLPH E. FOHN, a former subject of the Emperor of Germany, now a formal declarant of intention to become a citizen of the United States, and a resident of Montgomery, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Switch Boxes, of which the following is a specification, reference being had to the accompanying drawings.

This invention relates to switch boxes of that type wherein the switch within the box can be freely turned while the cover of the box is closed, to carry the blades of the switch into and out of contact with the stationary jaws or clips that are provided for their reception. The object of the invention is to provide novel operating means comprising a pivoted or rocking switch-controlling handle on the outside of the box which must be in a position to have completely withdrawn the switch blades from operative position before the box can be opened by the raising of its cover and which when in fully retracted position will, upon such opening of the box, be locked against movement until the cover is again closed whereupon it will be automatically unlocked and free to be turned for again operating the switch. It is a further object to so construct the hinged cover of the box that it cannot be raised except at such times as the switch within the box is wholly drawn away from the jaws or clips with which its blades engage when the switch is in operative position. These objects I accomplish by the construction and arrangement of parts shown in the drawing and hereinafter particularly described.

In the drawing,—

Fig. 1 is a plan view of a switch-box embodying my improvements, the cover member thereof being partly broken away;

Fig. 2 is a side elevation of the box with the switch-operating handle shown in position to force the blades of the switch into contact with their respective jaws or clips, and showing in broken lines said handle in position to be in locked engagement with the box, and the hinged cover member of the box in partly opened position.

Fig. 3 is a detail, being a sectional view taken approximately on the line 3—3 of Fig. 2 and with the switch-operating handle in

the position indicated by the broken lines in said Fig. 2.

Fig. 4 is a cross-section taken at line 4—4 of Fig. 2; and

Figs. 5 and 6 are sectional views of the switch-operating handle, taken, respectively, on lines 5—5 and 6—6 of Fig. 3.

Referring to the several figures of the drawing,—10 indicates a switch base. Upon the usual two-part posts 11 that are secured thereto are respectively pivotally connected the blades 12 that are adapted to make contact with the jaws or clips 13 in the ordinary manner, such blades being connected together by the usual cross-bar 14. The blades are operated through the turning of a cranked rock-shaft 15, the connection of such shaft with the switch being through a slotted arm 16 and coiled spring 17 fastened to the cross-bar 14—all as is common and well understood, and therefore requiring no further description.

18 indicates a box, preferably made of heavy sheet-steel, and within which is located the switch, the base 10 of which is secured against the inner face of the rear wall of the box. Opposite said rear wall the box has a cover member 19 which is hingedly secured in place at one end,—the upper end of the box in the construction shown. Such cover is provided with a flange 20 at its marginal portions which lies against the outer faces of the end and side walls of the box body, and at one side of the cover the flange 20 carries an outwardly-extending member or ledge 21, which stands at substantially right angles to the cover flange 20, and constitutes by itself another flange. This member 21 could, of course, be formed integral with the cover flange 20, but it is more economical of material to make it of a separate piece, as indicated, and weld a turned portion of it to the inner face of the cover flange 20, inasmuch as such part 21 is much shorter than the length of the cover flange to which it is attached.

22 indicates the switch-operating handle that has been referred to, which as here shown is formed from a single piece of sheet-metal bent upon itself substantially along its longitudinal center and at one end being compressed around and enclosing an end portion of the rock-shaft 15 which projects through one of the side walls of the box, and which projecting portion, as best

shown in Fig. 3, is turned at right angles to provide a member 15<sup>a</sup> that extends longitudinally of the operating handle. Carried by the said handle is a latch or dog 23 that is located within the handle near the free end thereof and is pivotally mounted on a rivet 24 that passes through the walls of the handle near the margins of the turned piece that constitutes such handle, and such rivet therefore serves the additional function of preventing spreading apart of the said handle walls. For a short distance from such pivot 24 the said handle walls are spaced apart at their marginal portions and through the opening thus provided the latch or dog can project, and is held so projected by a spring 25, which, in the construction shown is of that type comprising a wire of resilient material bent upon itself to provide two arms and an intermediate coil—one of such arms lying against the bend that forms the outer edge of the handle and the other arm bearing against the edge of the latch or dog. When the handle 22 is drawn back to the limit of its movement when withdrawing the switch out of operative position the nose of the latch or dog will enter a small opening 26 in the adjacent side wall of the box, provided that the cover member of the box is raised sufficiently so that the flange 20 of the box will not be in contact with that latch or dog and keep it forced back against the action of the spring, for, as is clearly shown in Fig. 4, the inner edge of that portion of the handle wherein is located the latch or dog stands away from the side wall of the box just sufficiently to permit the said flange 20 to freely move into such space between the said side wall and inner edge of the handle, and in the act of closing the cover such flange comes in contact with the latch or dog, and of course forces it within the handle. When thus forced within the handle the latch or dog remains there during the entire time that the cover remains in closing position because the latch or dog is of such length that it will be in constant contact with such flange 20 during every portion of the turning movement of the lever, and therefore during the time that the cover remains in closing position the lever can be swung freely to turn the switch into and out of operative position. 26<sup>a</sup> indicates a stop projecting from the adjacent side wall of the box to limit the movement of the lever when turning it to open the switch. To lock the cover in closed position I secure to the inner face of that wall of the box that is adjacent to the lever an ear 27 that passes through the top wall of the cover and such ear is provided with an opening through which the hasp of a padlock may pass, and inasmuch as the lever 22 when in switch-opening position lies in close proximity to the upper end of such

ear and is itself provided with an opening in its end, the hasp of such padlock may also pass through such last-named opening whenever it may be desired, for any reason, to lock the lever in the switch-opening position.

With the cover not locked in place it can only be raised to obtain access to the interior of the box when the switch is in such position as to be wholly inoperative—that is, having its blades 12 drawn out of and, almost to their limit, away from the jaws or clips 13. Such inoperative position of the switch to allow the cover to be opened is compelled by reason of the formation of a shoulder 22<sup>a</sup> on the inner edge of the handle that at all times overlies the outwardly-projecting flange member 21 except when the handle is turned to substantially the position indicated by the broken lines in Fig. 2. When the handle is so turned the cover can be raised, but only at such time, and hence it follows that whenever the box is opened the switch must necessarily be fully out of engagement with its blade-contact members 13.

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

1. The combination with a box-body and a cover therefor having a flange extending alongside the said body, of a lever pivotally connected with said body at a distance from said flange, and a spring-pressed latch carried by said lever and in constant contact with the flange when the cover is closed, said box having an opening adapted to receive said latch when said cover is opened.

2. The combination of a box-body, a lever pivotally connected with one wall of such body and provided with a shoulder at that side adjacent to said wall, a hinged cover for said body having a flange interposed between said body and lever, a spring-pressed latch carried by said lever and in constant engagement with said flange when the cover is closed, said body having an opening into which the latch may project when the cover is opened, and an outwardly-extending ledge on the cover lying opposite said shoulder on the lever during a portion of the stroke of the lever to prevent the cover being opened until said shoulder has passed beyond the end of said ledge.

3. The combination with a box-body and a hinged cover therefor having a flange extending alongside of and approximately parallel with a wall of the body, of a rock-shaft in the body extending through said wall, a lever connected with said projecting end of the rock-shaft and comprising a piece of sheet-metal bent upon itself with the marginal edges of said bent strip directed toward said wall, a latch pivotally secured between the sides of said lever and adapted to be projected toward said cover-flange,

and a spring in said lever for normally holding the latch in contact with such flange when the cover is closed and for forcing it into locking engagement with the box body  
5 when said cover is opened.

4. The combination with a box-body and a hinged cover therefor having a flange extending alongside of and approximately parallel with a wall of the body and having  
10 a ledge extending out from said flange, of a rock-shaft in the body extending through said wall, a lever connected with said projecting end of the rock-shaft and comprising a piece of sheet metal bent upon itself

with the marginal edges of said bent strip 15 directed toward the said wall, the inner edge of said lever having a shoulder that lies opposite said ledge during a portion of the stroke of the lever to prevent raising of the cover, a latch pivotally secured between the  
20 sides of said lever and adapted to be projected toward said cover-flange, and a spring in said lever for normally holding the latch in contact with said flange when the cover  
25 is closed and for forcing it into locking engagement with the box-body when said cover is opened.

ADOLPH E. FOHN.