

Aug. 8, 1933.

M. J. LEWIS

1,921,419

ELECTRIC SWITCH

Filed May 18, 1929

3 Sheets-Sheet 1

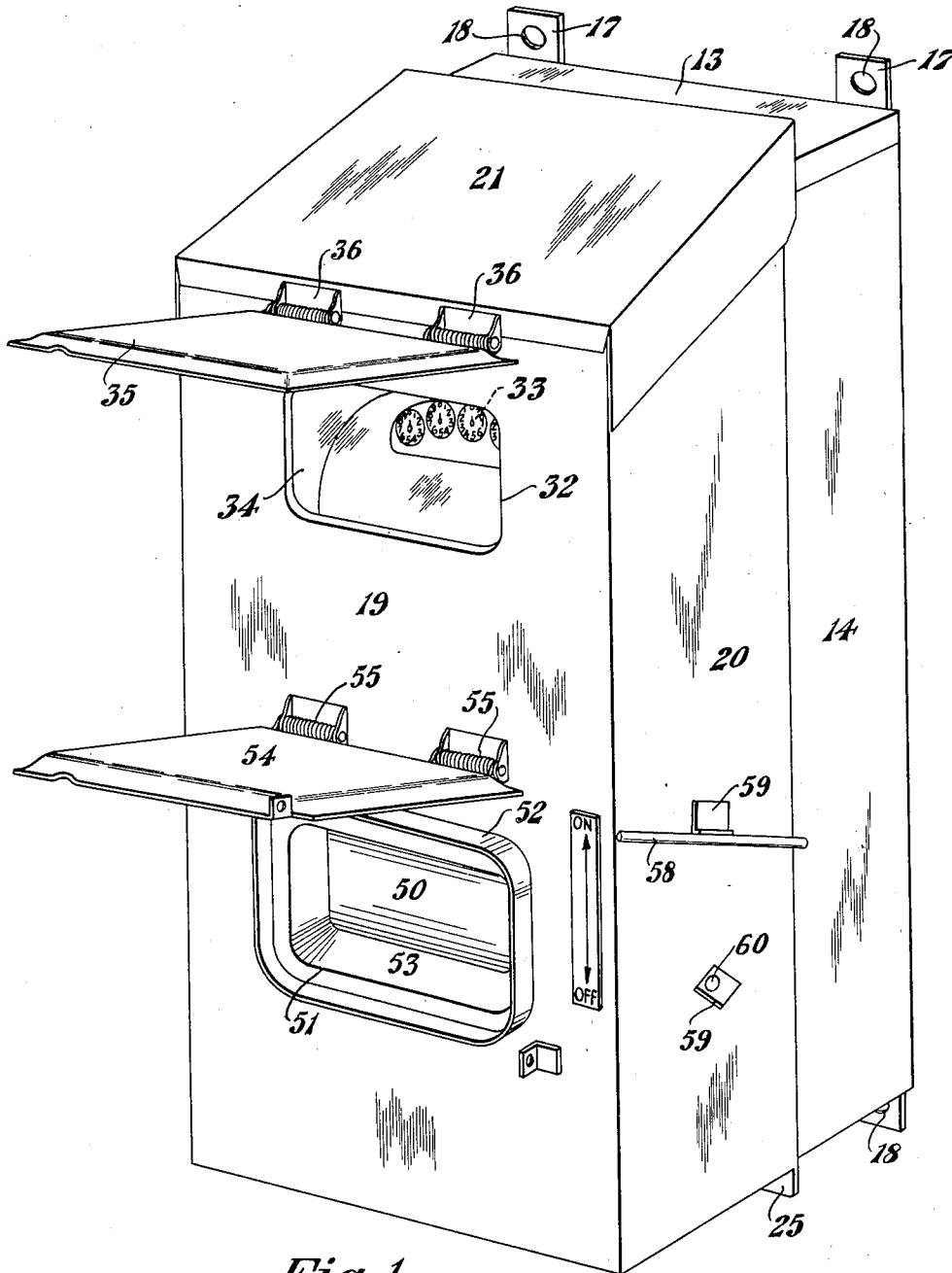


Fig. 1

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3 Sheets-Sheet 2

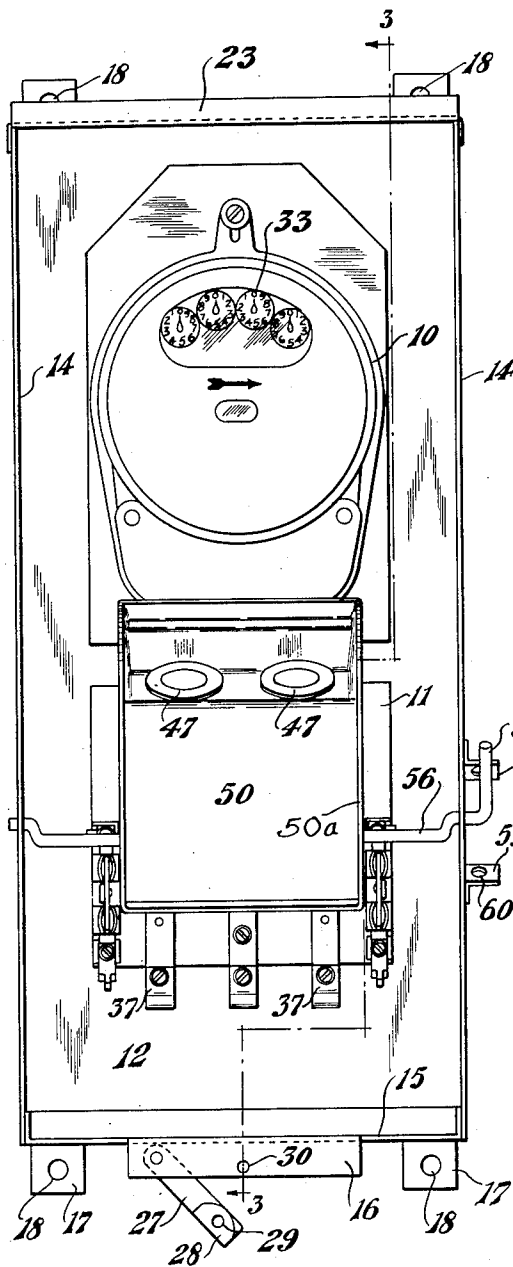


Fig. 2

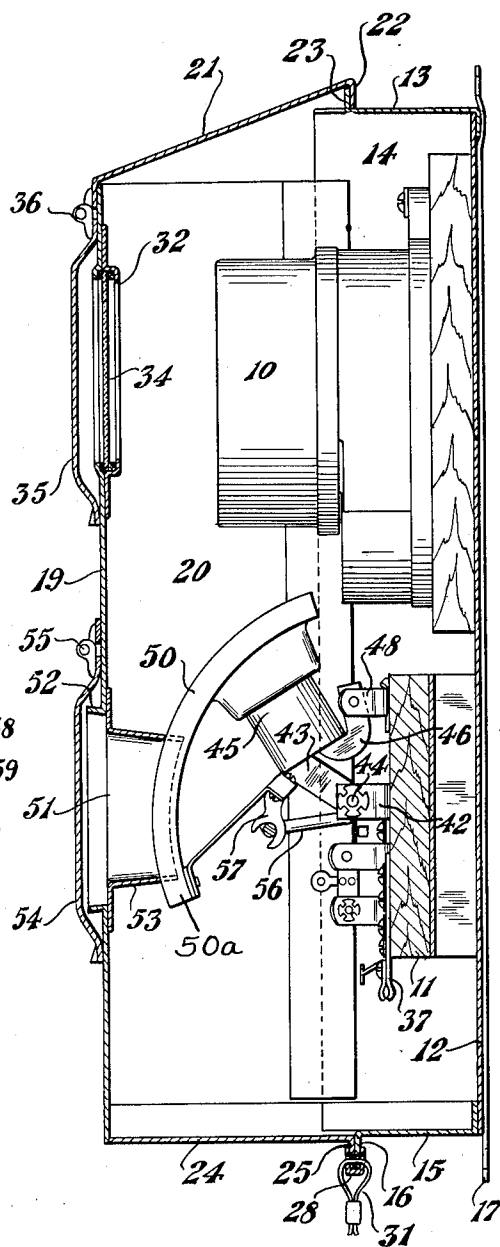


Fig. 3

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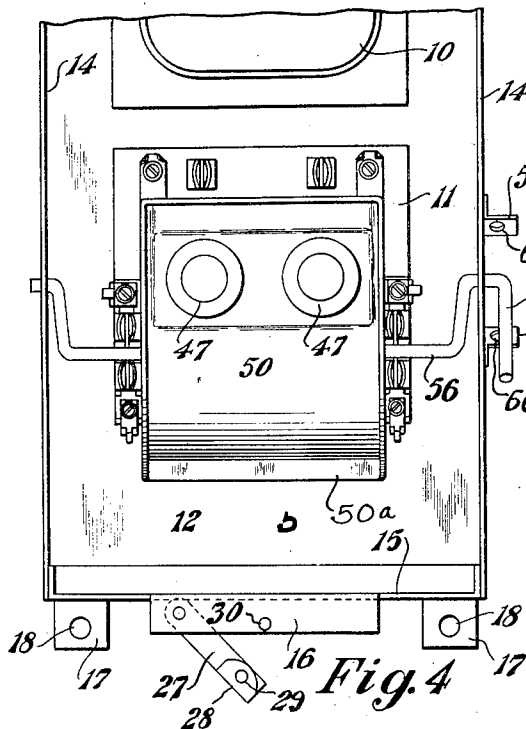
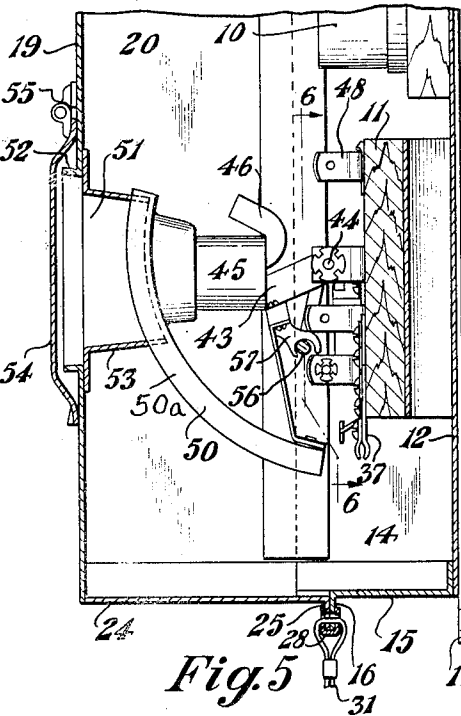
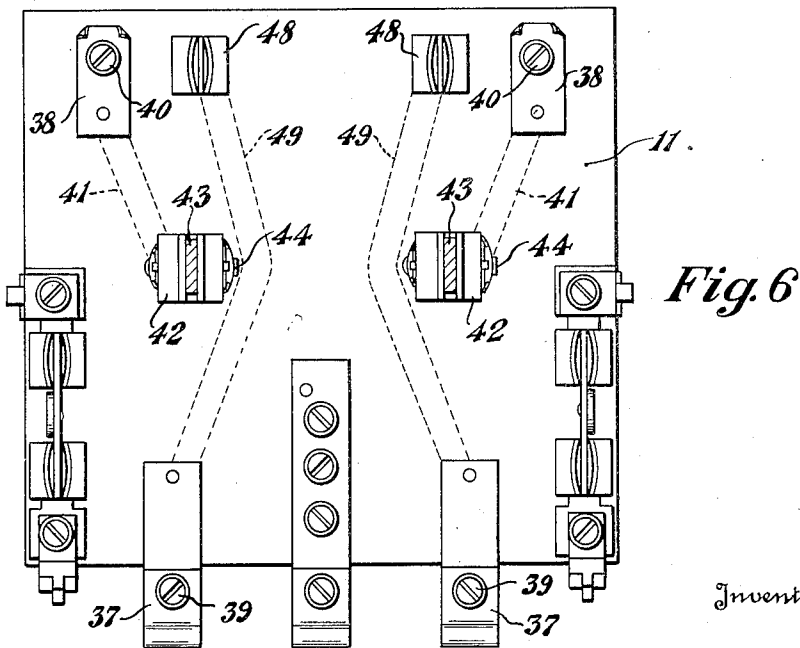
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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

1,921,419

ELECTRIC SWITCH

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Application May 18, 1929. Serial No. 364,159

4 Claims. (Cl. 200—114)

The invention relates to switch and fuse boxes and more particularly to an oscillatory plural pole make and break mechanism provided with fuses that can be replaced only in the open position of the switch, and this application is an improvement upon the switch disclosed in Patent No. 1,453,591 issued May 1, 1923 to W. S. Mayer.

The objects of the improvement are to provide a box suitable for use at the entrance to buildings and which may, if desirable, house the meter as well as the switch and fuses, in such a manner that all parts are amply protected from the weather and in such position that the dials of the meter may be visible, whereby the box may be located upon the exterior of the building.

A further object is to provide a switch pivoted to one terminal and having a blade for engagement with another terminal, a fuse block being carried by the switch and having fixed thereto a shutter, the fuses and shutter being arranged to normally register with an opening in the front wall of the box, whereby the fuses are accessible from the exterior, only when the switch is open.

The above and other objects may be attained by the mechanism illustrated in the accompanying drawings, in which

Figure 1 is a perspective view of the improved box, adapted to house a meter together with a switch and fuses, the switch being closed and the shutter registering with the opening in the front of the box, preventing access to the fuses;

Fig. 2, a front elevation of the box with the cover removed, showing the parts in the position illustrated in Fig. 1;

Fig. 3, a longitudinal sectional view through the box, taken upon the line 3—3, Fig. 2;

Fig. 4, a view similar to Fig. 2, showing only the lower portion of the box, the switch being shown in open position;

Fig. 5, a view similar to Fig. 3, showing only the lower portion of the box, the switch being shown in open position, as illustrated in Fig. 4, the fuses being accessible from the exterior of the box; and

Fig. 6, a plan section, as on the line 6—6, Fig. 5.

Similar numerals refer to similar parts throughout the drawings.

The box in which the improved switch is housed may be of such size and shape as to properly house the meter 10, as well as the switch and fuses, as illustrated in the drawings, such a construction being preferable for outside use, although it should be understood that the improved

switch and fuse mechanism, to which the invention pertains, may be located in a switch box of more or less usual design, adapted to be associated with a meter by means of the usual meter trim or mounting.

In the construction shown in the drawings, the insulation block 11, which carries the improved switch and fuse mechanism, may be mounted within the box, below the meter.

This box may comprise the rear wall 12, top and side walls 13 and 14 respectively, preferably formed integral with the rear wall, and the bottom wall 15, having the depending flange 16 at its edge.

For the purpose of attaching the box to an outer wall of a building, or the like, straps 17 of sheet metal or the like may be welded or otherwise connected to the back of the rear wall 12, the ends thereof extending above and below the ends of the box and provided with openings 18, through which screws or nails may be driven into the wall.

A removable cover may be provided, substantially as shown, and preferably comprises the front wall 19, side walls 20, forwardly and downwardly inclined top wall 21 having the depending flange 22, at its rear edge, adapted to overlap the upright flange 23 at the forward edge of the top wall 13 of the box, and the substantially horizontal bottom wall 24 terminating in the depending flange 25 adapted to abut the depending flange 16 at the bottom of the box.

A pivoted latch 27 may be carried by the flange 16 and provided with the U-shaped portion 28 adapted to engage the flanges 16 and 25 and having apertures 29 adapted to register with similar apertures 30 in said flanges, whereby a wire 31 may be passed through all of the apertures for sealing the cover upon the box in order to prevent unauthorized access to the interior thereof, as illustrated in Figs. 3 and 5.

The front wall of the cover may be provided with an opening 32 registering with the dials 33 of the meter and a glass pane or panel 34 is preferably provided in the opening to prevent moisture from entering the interior of the box through the opening.

This glass may be shielded as by a hinged lid or door 35 connected to the cover as by the spring hinges 36 which normally hold the lid or door in closed position over the glass but permit opening of the same, as indicated in Fig. 1, when it is desired to inspect the dials of the meter.

The improved switch and fuse mechanism to which the invention pertains is mounted upon

the insulation block 11 and may include the spaced terminals 37 and 38 located at opposite sides of the block and provided with the binding posts or screws 39 and 40 respectively.

5 The line wires may be connected to the terminals 37 as by the binding posts 39 and the wires leading the meter may be connected to the terminals 38 as by the binding posts 40.

10 Each of the terminals 38 is electrically connected, as by a bus bar 41, preferably located upon the under side of the insulation block, with a bracket 42 mounted upon the block. A conductor bar 43 is pivotally connected, at its end portion, as at 44 to each of the brackets 42 and these conductor bars carry an insulation body 45 upon which are fixed the switch blades 46.

15 Each bar 43 and the corresponding switch blade 46 are electrically separated and fuse plugs 47 are adapted to be screwed into the insulation body 45, electrically connecting each bar 43 with the corresponding switch blade 46.

20 Each of the switch blades 46 is arranged to be engaged by the corresponding switch jaws 48, these jaws being mounted upon the insulation block 11, adjacent to the terminals 38, and connected, by means of bus bars 49 with the terminals 37.

25 Thus when the switch blades are in engagement with the jaws, as best illustrated in Fig. 3, the terminals 37 are electrically connected through the fuse plugs, with the terminals 38, closing the circuit from the line to the meter.

30 An arcuate shutter 50, located in a circle having its center at the pivotal point 44, is fixed upon the insulation body 45 and adapted to normally register with the opening 51, in the front wall 19 of the cover, when the switch is in closed position, as best shown in Figs. 1 and 3. When the switch is moved to open position, as shown in Figs. 4 and 5, the fuse plugs 47 are moved into position to register with the opening 51 in the cover.

35 The opening 51 may be surrounded with an outturned angular flange 52 to prevent water or moisture from the outside from entering the box at this point and preferably an inturned flange 53 is also provided in order to prevent access to the interior of the box when the switch is closed, as shown in Figs. 1 and 3 and to permit access only to the fuse plugs when the switch is open, as shown in Figs. 4 and 5. A hinged door or lid 54 having spring hinges 55 may be provided, to normally cover the opening 51.

40 The shutter 50 is provided around its entire periphery with an outturned flange 50a, and the flange 50a is located in overlapping relation to the inturned flange 53 in all positions of the shutter. Thus the flange 50a acts to limit the movement of the shutter in either direction.

45 For the purpose of operating the switch and fuse mechanism from the exterior of the box, a crank 56 is journaled through opposite sides of the box upon an axis substantially in alignment with the pivotal points 44 and operatively connected to the switch and fuse mechanism as by the bracket 57, the angular handle lever 58 being formed upon one end of this crank.

50 Stop lugs or ears 59 may be fixed upon the adjacent side wall of the cover of the box for limiting the opening and closing movement of the switch handle 58 and may, if desired, be provided with apertures 60 by means of which a seal or lock may be attached thereto for holding the handle in the open or closed position.

55 In the event the user of the box locks the handle 58 to one of the ears 59 by means of any ordinary

lock, an authorized person may still have access to the interior of the box by breaking the seal and disengaging the latch 27, when the cover may be removed, the lock sliding over the end of the handle. Thus the power company may at any time 80 open or close the switch regardless of whether the customer locks the handle or not.

From the above it will be seen that with the cover sealed upon the box, access cannot be had to any part of the mechanism within the box when the switch is in the closed position as the shutter 50 is at this time in register with the opening 51. 85

It will also be seen that in order to replace the fuses or to have any access at all thereto, it is necessary to open the switch, as shown in Figs. 4 and 5, bringing the fuse plugs into register with the opening 51, thus providing safety in both the open and closed positions of the switch. 90

I claim:

1. An electric switch including a box provided with an opening, a shutter movably mounted in the box, means between said shutter and said opening operative to seal the interior from said opening in all positions of said shutter, a fuse receptacle mounted in said shutter and adapted to register with said opening, a fuse in said receptacle, a switch blade carried by said receptacle, a conductor bar carried by said receptacle and spaced from the switch blade, said fuse electrically connecting the switch blade and conductor bar, and contact jaws in the box adapted to engage the switch blade when the shutter is swung to move the receptacle out of registry with said opening, said sealing means acting to limit the movement of the shutter in either direction. 95

2. An electric switch including a box provided with an opening, an inturned flange on the box around the opening, a shutter movably mounted in the box, an outturned flange around the entire periphery of the shutter and located in overlapping relation to said inturned flange in all positions of the shutter, an insulation body mounted in one end of the shutter and adapted to register with said opening, a switch blade carried by the insulation body, a conductor bar carried by the insulation body and spaced from the switch blade, a fuse in the insulation body for electrically connecting the switch blade and conductor bar, and contact jaws in the box adapted to engage the switch blade when the shutter is swung to move the insulation body out of registry with said opening, the outturned flange on the shutter acting to limit the movement of the shutter in either direction. 100

3. An electric switch including a box having a removable cover, switch contacts mounted in the box, a switch closing member pivotally mounted on one of the switch contacts, a manually operated crank bar journaled in the box and operatively connected to the switch closing member, a handle upon the crank bar located outside of the box, means for locking the handle in closed position when the box is closed by the cover, latch means on the box for engaging the cover, the latch means adapted to be sealed when the box is closed, and the handle locking means permitting removal of the cover when the latch means are disengaged. 105

4. An electric switch including a box having a removable cover, an opening in the cover, a conductor bar pivoted in the box, an insulation body carried by the bar, a switch blade carried by the insulation body and electrically separated from the bar, a fuse in the insulation body for electrically connecting the switch blade and bar, 110

contact jaws in the box adapted to engage the switch blade, the fuse being arranged to register with said opening only when the switch blade is disengaged from the jaws, a manually operated 5 crank journaled in the box and operatively connected to the pivoted conductor bar, a handle on the crank located outside of the box, means for locking the handle in switch closing position when the box is closed by the cover, latch means on the box for engaging the cover, and the handle locking means permitting removal of the cover when the latch means are disengaged. 80

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