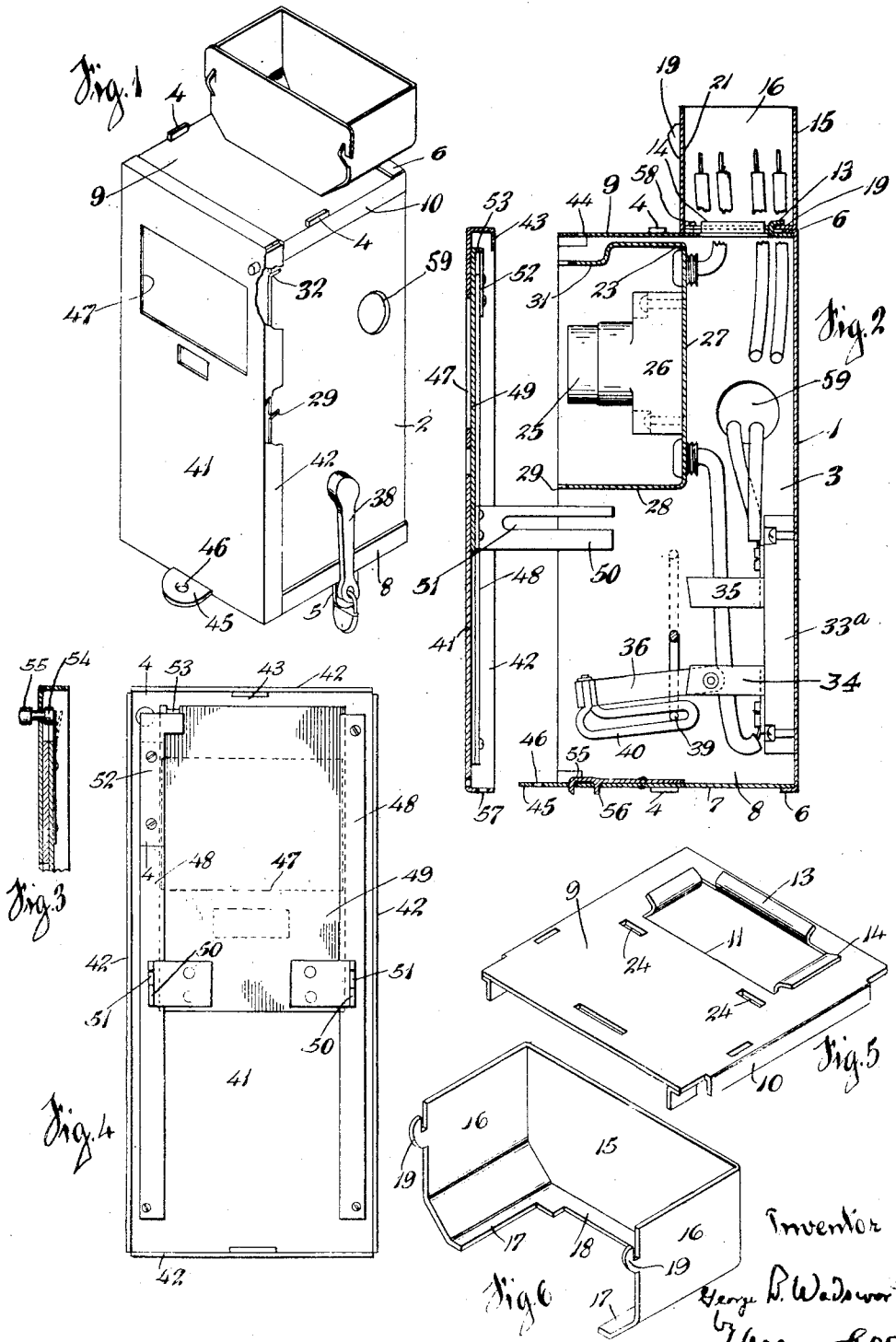


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SWITCH BOX.
FILED OCT. 11, 1917.

1,444,858.

2 SHEETS—SHEET 1.



Inventor

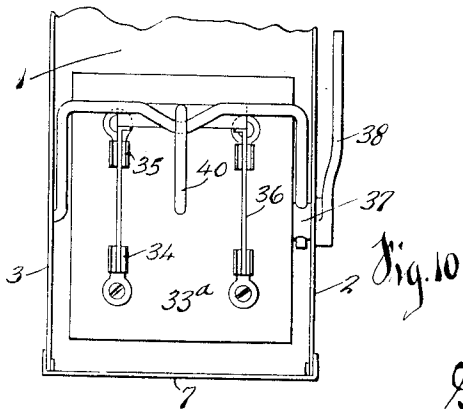
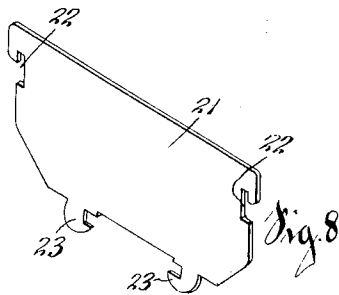
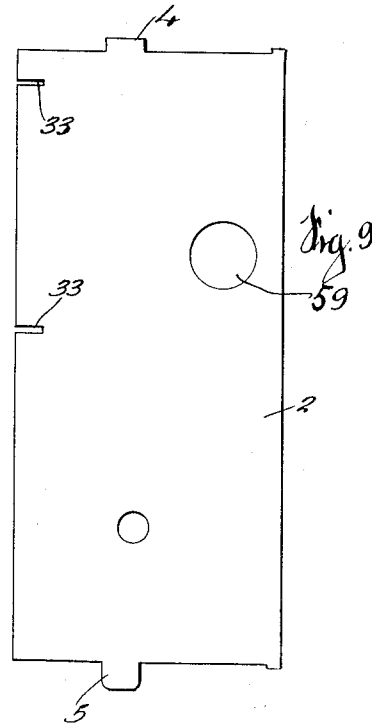
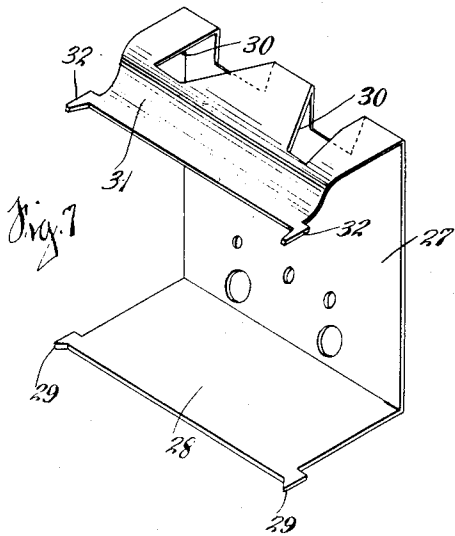
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UNITED STATES PATENT OFFICE.

GEORGE B. WADSWORTH, OF COVINGTON, KENTUCKY, ASSIGNOR TO THE WADSWORTH ELECTRIC MANUFACTURING COMPANY, OF COVINGTON, KENTUCKY, A CORPORATION OF KENTUCKY.

SWITCH BOX.

Application filed October 11, 1917. Serial No. 196,023.

To all whom it may concern:

Be it known that I, GEORGE B. WADSWORTH, a citizen of the United States, and a resident of the city of Covington, in the county of Kenton and State of Kentucky, have invented certain new and useful Improvements in Switch Boxes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention has relation to safety switch boxes of the type which shut off the switch before exposing the fuses, and to devices of this nature more particularly where the switch cannot be closed without closing off the fuses as well.

The great difficulty in making a market for safety switch boxes in ordinary domestic or commercial installation is the expense of the devices which have been hitherto devised. In the first place it is desirable in a switch box, if it be used for preventing theft of current from the fuses or switch points, that the lid be a sliding one. A hinged lid for the fuses is difficult to bring down tight enough to prevent a small wire being run out from the fuses.

Then again, a heavy cast box, or a box of the usual type wherein the parts are welded together, requires so much labor and material that the advantages to be gained by their use is to a large degree offset by the expense of manufacture.

It is the object of my invention to provide a switch box of the theft-preventing pattern, in which the parts are made of sheet metal in the fewest possible number, and in which the container portion of the box, including also the meter protector casing at the top of the box are struck out so as to be interlocking, and to make a pure assembly job without any soldering, riveting or the like.

It is also my object to provide a box which complies to the full with all present laws and rules of fire protection, and in which the usual knife blade pattern of switch may be used, and in which the fuse compartment is shut off entirely before the switch is closed.

Generally the object is to provide a box of the safety and theft-preventing pattern which can be put out cheaply and still provide the greatest possible number of advantages

from the point of view of installation and use. Thus among other things, the wires may be connected up to my box while it is partly attached to the wall and still open, prior to assembling the balance of the parts thereof. Also the box may be shipped in knockdown condition, thereby saving considerable freight charges.

These objects and other advantages, as will appear from the following description, I accomplish by that certain construction and arrangement of parts to be hereinafter more specifically pointed out and claimed.

In the drawings,

Figure 1 is a perspective view of the box complete.

Figure 2 is a longitudinal section thereof, showing the lid slightly removed from place on the box.

Figure 3 is a detail section of the spring catch for the sliding lid, taken on the line 4, 4, of Figure 4.

Figure 4 is a bottom plan view of the lid.

Figure 5 is a perspective view of the closing piece of the upper end of the box, on which the meter protector is mounted.

Figure 6 is a perspective view of the main body of the meter protector casing.

Figure 7 is a perspective view of the fuse mounting plate which is inserted in the box.

Figure 8 is a perspective view of the front wall of the meter protector casing.

Figure 9 is a side elevation of the main box portion.

Figure 10 is a detail plan view of the switch closing means and the yoke for closing the sliding plate in the lid of the box.

In the embodiment of my invention shown in the drawings for illustrative purposes, the container proper is formed up in a three-sided structure having a base 1 and sides 2 and 3. A little forward of the center line of the box, at the ends, there are formed on the sides the tongues 4, 4, one of which as at 5 is longer than the rest to serve as a sealing or locking plate for the switch, as will be described. The base is turned up to form flanges 6, 6, at each end for holding the end pieces. The ends of the box comprise a plain lower end 7 which fits under the flange 6, and engages over the outside of the sides 2 and 3 by means of flanges 8, 8. Cut in the ends 7 are slots to permit the passage of the tongue 4 at one side and the special tongue 5 at the other.

The end now described forms the bottom of the box when it is secured against a wall-board or the like, with the base of the box forming the part that is secured to the wall.

5 The top of the box is formed of a plate 9 (Figure 5), which fits down inside of the flange 6, and engages over the sides 2, 3, by means of flanges 10. There are slots in this piece also for the two tongues 4 at the upper
10 end of the box.

There is a cut-away opening 11 in the top which provides a passage for wires from the interior of the box to a meter adapter or casing. The metal of the piece is bent over in
15 forming this hole 11 so as to form a locking abutment flange 13 for the meter adapter and slideways 14, 14, beneath which the adapter is moved into place, and which then hold it down firmly against the top 9, over
20 the hole 11 therein.

This adapter is made of two pieces. The main portion is a three-sided stamping having a back 15 and two sides 16, 16. The sides slope in and a sort of skeleton base for the
25 stamping is formed having ribs 17, 17, that engage in the slideways 14 above mentioned, and a rib 18 that slips under the flange 13. Two hooks 19, 19, are formed on the sides of this stamping at the forward edge.

30 The adapter has a front plate 21 which has slots 22 therein for engaging the hooks 19. This brings it tightly up against the sides 16 of the main body of the adapter. The plate 21 fits the front of the adapter and
35 has hooked tongues 23 which pass into the interior of the box through slots 24 in the top 9 thereof.

As so far described, the box has sides, base and ends, with a casing secured thereto
40 and having a tapering contour to fit an ordinary electric watt-meter, said casing also having communication from its base to the inside of the box. These parts are interlocked with each other, but not so far as
45 now described are they formed into a complete interlocked unit.

The fuses 25, which may be of any type usually employed for electric lighting, electric motors and the like are mounted on a
50 plate 26 in the usual manner. This plate is supported on a stamping which is set into the box and locks the meter adapter in place. This stamping has a base 27 on which the fuse block or plate 26 is mounted, and an end
55 plate 28, which terminates at its upper end in tongues 29. The other end of the base 27 has two slots 30 and extends upwardly and is bent at 31, said bent ends 31 having
60 tongues 32, 32, at their tips. The top edges of the sides of the main box portion are slotted as at 33, 33, to receive the tongues 29, 29, and 32, 32, of the fuse support. This support is of such dimensions preferably that it hangs in the sides of the box with
65 its base held considerably away from the

base of the box, so as to clear the opening 11.

It is to be noted particularly that the inner walls of the slots 30, 30, of the fuse holder engage the tongues 23, 23, of the front plate of the meter adapter, thereby
70 holding this front plate against being withdrawn, and thereby locking the adapter, the box end and the fuse holder together. The flare to the walls makes a wedged fit between the parts.

75 Located in the base of the box is a switch block 33^a, having bifurcated switch points 34, 34, and 35, 35. An ordinary double switch blade 36 is hinged between the points 34, 34, of the switch and closes by swinging
80 upwardly into contact with the points 35.

Mounted in the side of the box is a small stub shaft 37 operated by a handle 38 exterior of the box. This shaft connects with
85 a yoke 39 that extends across the box over the switch. The switch operator has a long loop 40 of suitable wire or the like, to form a slotted member to engage over the yoke at its central portion. When the handle is
90 turned, the yoke 39 will swing upwardly or downwardly as the case may be. The loop on the switch blade runs about parallel with the blade and thus the first part of the motion of the yoke will move the blade but
95 slightly. When the yoke has passed the center of its motion and begins to bear down against the switch blade, it will cause the blade to swing down into contact. On reversing the handle, the opposite will occur
100 and the switch contact will be broken before the yoke has made but a small proportion of its movement.

The lid for the box comprises a body portion 41 having flanges 42 around all four
105 sides for lapping the sides and ends of the box proper. At the central portion of the flange, at the upper end of the lid, is a re-entrant tongue 43, that when the lid is set in place is inserted in a slot 44 in the upper
110 end plate of the box. An outwardly extending tongue 45 is provided on the lower end piece of the box and the lid is slotted to come down over this tongue.

A padlock can be inserted in the eye 46
115 of the tongue 45, which will lock the lid in place. The lid holds the upper end piece against removal, which holds the meter adapted. The lower end piece is held also by the padlock and tongue, so that a box completely locked together is formed, without
120 brazing or soldering, with the parts interlocked and easily assembled. When it is considered that wiring may be done in this box, after it has been installed on the wall and the box then put together, the value of
125 the knockdown structure is further apparent. Also the sides of the main container portion are springy enough to be nested such that the box may be shipped knockdown with a
130 considerable economy.

As so far described, the box has within it a switch, and a separate compartment for fuses, cut off from the switch altogether and lifted off the base of the box entirely.

5 The lid when closed is adapted to cut off the switch entirely from accessibility, but an opening 47 is formed in the lid to give access to the fuses.

Running along the edges on the under 10 side of the lid are two guide flanges 48, 48, formed of metal strips bent lengthwise and screwed up against the under face of the lid. Running in these guides is a sliding shutter 49 for the opening 47. The shutter 15 has depending fingers 50, 50, at each side which lie in the path of the yoke 39. When the yoke is swung upwardly, the fingers 50, 50, are thrust upwardly and the shutter is moved over the opening 47. When the yoke 20 is retracted, the fingers are free to fall and bring the shutter to open position.

The dimensions of the shutter are such that it will be in position to close the opening when the yoke is about midway of its movement. 25 The switch is then closed with but slight movement of the lid. The lost motion in the loop that is attached to the switch bar permits the extended motion of the lid without equally affecting the switch, since the 30 yoke transmits motion on a much longer line to the shutter than to the switch bar. The final downward movement of the yoke which accomplishes the closing of the switch does not, as has been noted, impart much 35 movement to the shutter.

If it is desired that the opening of the switch move the shutter positively downward, it is then necessary to provide a slot 40 51 for the fingers 50, and to place the yoke in engagement with the slot when assembling the box. The fingers are on the sides of the shutter and hence do not interfere with the switch bar movement.

When the slots 51 are not used, a device is 45 preferably provided for holding the fuse cover or shutter in closed position after it has been freed for downward movement by the opening of the switch. This in its most simple form comprises a small spring plate 50 52 mounted along one of the shutter guides, and projecting into the path of a turned over tab 53 on the shutter. A button 54 is set into the lid, and has a knob 55 on its outer end on the outside of the lid. The 55 button lies between the lid and the spring plate, and pushing on the knob raises the plate out of position of engagement under the tab 53 on the shutter.

For retaining the lid in place in case it 60 should be forgotten to padlock the same to the tongue 45, it is preferred to have a spring catch. Preferably a bent finger 55 is mounted on the inside of the lower end piece of the box. This finger projects through

the end piece, and has a second extension 56 65 through the end of the box for a release. The flange of the lid has a hole 57 therein into which the projecting portion of the pin will engage automatically when the lid is thrust home over the box. 70

Should it be desired to permanently ground the meter adapter to the body of the box against all chance of insulating due to the japanning on the metal, a screw 58 75 may be turned into the adapter shell at any desired point.

One of the advantages of the structure desired is that it will permit of doing away 80 altogether with the complicated and expensive wiring for meter boards in installations in apartment and office buildings. All that is needed for a number of installations is a number of the boxes. They may be set side 85 by side and the service mains run through the row of boxes, through the holes 59 in the sides of the boxes. The fuse compartments are removable and raised from the bases of the boxes so that the space through the boxes is an enclosed wire gutter which is readily 90 available. The meters will be set in the adapters in each box, and as many more boxes as are desired may be set in line.

The removability of the fuse chambers, and the fact that they are raised from the 95 base of the box greatly facilitates wiring up the switch and the fuses and meter from the box. The removable ends and lid permit the binding posts on the switch to be reached easily, which is not the case in safety boxes 100 which have been brought to my attention.

Then again the boxes may be made up with or without the meter adapter without 105 departing from the construction of the rest of the box, and also the ends will be interchangeable so that the meter adapter can be put on either end of the box as desired.

The great economy of the box, its ready 110 locking facilities and easy installation resulting from the knockdown structure and the arrangement of parts make it a valuable electric installation device, in place of the usual nonprotective switch, without taking 115 into consideration the protection against shock in removal of fuses, and the prevention of theft of current.

From the point of view of perfection of 120 mechanical details of the device, it should be noted that the crank works direct on the yoke which itself is permanently connected to the switch, such that no reliance is had on sliding switch closing bars, or connections 125 from the shutter to the switch bar which might result in a partial closing of the switch and its attendant dangers. In closing a shutter, one pulls it shut, and feels that this is sufficient, but a crank will be turned as far as it will go.

When the switch handle is locked down

and the switch is open, the fuses may still be covered up by the shutter so as not to be exposed in an unsightly manner.

It should be noted that it is not essential that the fuse mounting means shall be the one that is removable from the box so as to provide the wire gutter that is available for further connections, since the switch member might be the removable one. At this time I cannot see the possibility of complying with proper practice and still placing the switch in a removable, raised shell or compartment member, and accordingly do not show or describe this as a modification of my invention.

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

1. A safety box for electric installation having sides, base, ends and a lid or cover, a fuse housing formed as an independent insert, means for seating said insert demountably in the box, said lid adapted to hold the fuse housing in place, and having a shuttered opening to expose fuses within the housing, said fuse housing, lid and box so arranged as to leave a compartment within the box for a switch which is inaccessible from the fuse housing as same is exposed by the shuttered opening in the lid.

2. A safety box for electric installation having sides, base, ends and a lid or cover, a fuse housing formed as an independent insert, means for seating said insert demountably in the box, said lid adapted to hold the fuse housing in place, said fuse housing, lid and box so arranged as to leave a compartment within the box for a switch

which is inaccessible from the fuse housing as same is exposed by the shuttered opening in the lid, said fuse housing and seating means so arranged as to leave clearance between the base of the box and the inner portion of the housing.

3. A safety box for electric installation having sides, base, ends and a lid or cover, a fuse housing formed as an independent insert, means for seating said insert demountably in the box, said lid adapted to hold the fuse housing in place, said fuse housing, lid and box so arranged as to leave a compartment within the box for a switch which is inaccessible from the fuse housing as same is exposed by the shuttered opening in the lid, said fuse housing and lid forming a compartment entirely enclosed from any other portion of the box interior and accessible only through the shuttered opening of the lid.

4. A safety box for electric installation having sides, base, ends and a lid or cover, a fuse housing formed as an independent insert, means for seating said insert demountably in the box, said lid adapted to hold the fuse housing in place, and having a shuttered opening to expose fuses within the housing, said fuse housing, lid and box so arranged as to leave a compartment within the box for a switch which is inaccessible from the fuse housing as same is exposed by the shuttered opening in the lid, the seating means for the housing comprising tongues on the housing and slots in the sides of the box in which the tongues engage.

GEORGE B. WADSWORTH.