April 5, 1932. D. T. WADSWORTH 1,852,036

SAFETY SWITCH BOX

Filed Dec. 9, 1925

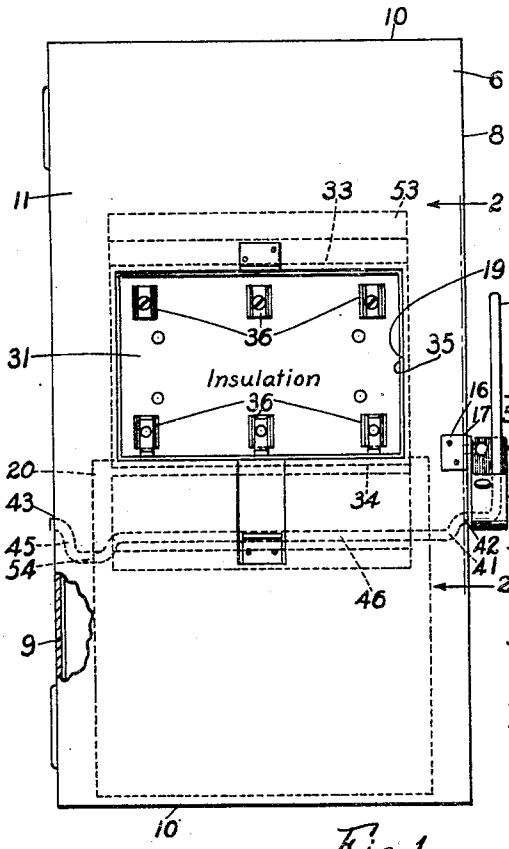

Fig. 1.

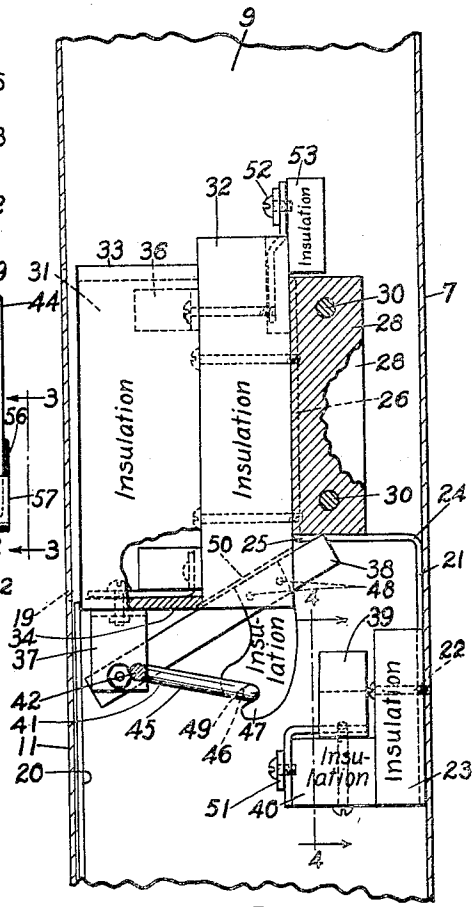

Fig. 2.

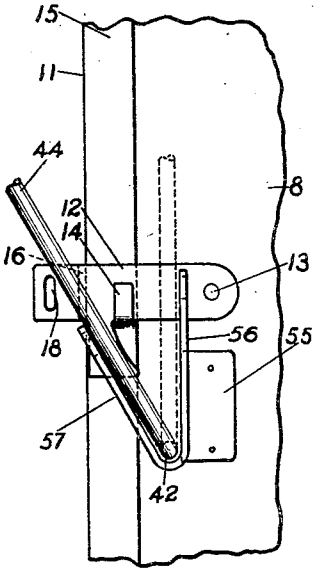

Fig. 3.

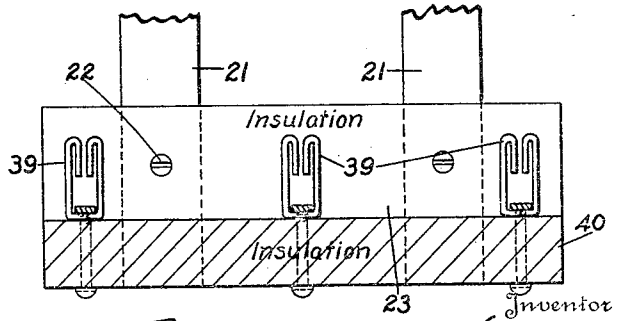

Fig. 4.

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UNITED STATES PATENT OFFICE

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SAFETY SWITCH BOX

Application filed December 9, 1925. Serial No. 74,419.

An object of my invention is to provide a safety switch and theft proof switch box which is compact in structure and one which occupies a minimum of wall space.

Another object is to provide a box of this kind which requires a comparatively small amount of material in manufacture but which affords greater accessibility and convenience to workmen than is found in the present used switch boxes of condensed design.

Another object is to provide a box having the above mentioned advantages wherein the switch blades, contacts and all of the terminals are visible as well as accessible for inspection and repairs.

These and other objects are attained by the means described herein and disclosed in the accompanying drawings, in which:

Fig. 1 is a front elevational view of a switch box of my invention, parts being broken away.

Fig. 2 is an enlarged cross sectional view on line 2—2 of Fig. 1.

Fig. 3 is an enlarged fragmental elevation taken on line 3—3 of Fig. 1.

Fig. 4 is a cross sectional view taken on line 4—4 of Fig. 2.

The cabinet 6 comprises a rear wall 7, side walls 8 and 9, top and bottom walls 10 and a cover 11 hingedly mounted on one of the side walls, for example the wall 9. The mechanism within the cabinet 6 is rendered accessible by opening the cover 11 which is adapted to be locked by means of a catch 12 pivotally mounted as at 13 upon the side wall 8 of the box. The catch 12 is adapted to engage lug 14 formed integral with and struck from the body of flange 15 of the cover 11. An L-shaped bracket 16 is secured to the outer face of cover 11 and perforate flange 17 is adapted to register with the outer perforate end 18 of the catch 12 for receiving a suitable seal such as are employed by power stations and the like. The cover 11 has an aperture 19 therein and a slidable door 20, reciprocally mounted on the inner face of the cover 11, serves as a closure for the aperture 19. A pair of strips 21 are secured in spaced relation one from the other upon the rear wall 7 of the box by means of screws or rivets 22 which also serve as a mounting means for L-shaped insulating block 23. The strips 21 are bent at right angles as at 24 and extend for a distance toward the front of the cabinet where they are turned at right angles as at 25. The remaining portion 26 of the strips 21 extend in parallelism with the rear wall 7 of the switch box and carry angularly disposed flanges 28 secured to the inner faces of side walls 8 and 9 respectively by means of rivets 30. A box-like fuse compartment indicated generally as 31 comprises a base block 32 mounted upon the portions 26 of the strips 21, top wall 33, bottom wall 34 and side walls 35. The forward edges of the walls 33, 34 and 35 of the fuse compartment 31 are substantially aligned with the sides of the aperture 19 in the cover 11 and are spaced from the inner face of the cover 11 sufficiently to permit the slidable door 20 to be reciprocated between the edges of said walls and the inner face of cover 11. From the foregoing it will be apparent that when the cover 11 is closed, the slidable door 20 may be reciprocated for opening and closing the aperture 19 thereby controlling access to the box-like fuse compartment 31. Fuse clips 36 are secured upon the exposed face of the base block 32 of the fuse compartment and are disposed in substantial parallelism with the rear wall 7 and cover 11 of the switch box. Mounted on the bottom wall 34 of the fuse compartment 31, and adjacent the forward edge thereof, are depending plates 37, having electrical connection with the fuse clips 36 and serving to pivotally mount switch blades 38. The switch blades 38, as will be noted in Fig. 2, have their pivotal mountings disposed at substantially right angles to the fuse clips 36. Contact jaws 39 are mounted upon the horizontal extension 40 of L-shaped insulating block 23 so that the switch blades 38 may be moved downwardly in a vertical plane to engage said contact jaws. A crank 41 is pivotally mounted as at 42 and 43 in the side walls 8 and 9 respectively, and has a handle member 44 disposed exteriorly of the box. The crank 41 interiorly of the box is provided with in-

tegral arms 45 which serve to position a throw-rod portion 46 in parallelism with the rear wall of the cabinet. Slotted insulating pieces 47 are secured to the switch blades 38 by means of suitable rivets 48 at one end and receive the throw rod portion 46 in slots 49 at the opposite end. From the foregoing, it will be apparent that by moving the crank 41 about its pivotal mountings 42—43, the throw rod portion 46 will be moved arcuately upward and downward to carry the ends of the switch plates into and out of contact with contact jaws 39. By disposing the contact jaws 39 and the pivotal mounting of switch blades 38 and depending plates 37, it will be apparent that these parts will be conveniently accessible as well as visible when the box is open. It will also be apparent that by disposing the pivotal mounting of the switch blades at right angles to the fuse clips, there is required a minimum of operating space so that the dimensions of the switch box 6 may be comparatively small as to length and depth. The width of the box being no greater than that of the ordinary switch box.

The insulation base 32 of the fuse compartment 31 may be recessed as at 50 in order to accommodate the switch blades when in an open position. The line wires may be led into the interior of the box through the customary knock-outs, not shown, disposed either in the side walls, bottom or rear of the box and are conveniently attached to terminals 51 disposed upon the forward face of the extension 40 on insulating block 23. Load terminals and test terminals such as 52 may be conveniently mounted upon a suitable insulating block 53 disposed adjacent the top of the base 32 of fuse compartment 31, the lines from these terminals being conveniently carried through suitable knock-outs to the meter and load. The applicant is aware of switchboxes of a condensed design wherein the switch and contact jaws are mounted upon the rear wall of a fuse compartment so that these parts are concealed between the fuse compartment and the rear wall of the switch box. In this device, it is especially desired to avoid any structure wherein any part of the switch or contact jaws is concealed. In this way a workman or a meter tester can always get a plain view of the switch parts, and since these switch parts are not mounted behind the fuse compartment, there is no likelihood of the switch blades scraping the wires and thus destroying the insulation thereon.

The slidable door 20 is so arranged as to be locked in a closed position when the switch blades 38 engage contact jaws 39. This locking structure is disclosed in detail in my co-pending application, filed of even date herewith, and consists of a short independent offset portion 54 in the crank 41 (see Fig. 1) which co-operates with a flange (not shown) carried by a slidable door 20. A suitable stop for the handle member 44 of the crank 41 is provided adjacent the pivotal mounting 42 on the side 8 and comprises angularly disposed arms 56 and 57 for defining the opposite limits of movement safe in the lever. The arms 56 and 57 may be perforated for receiving the staple of a suitable pad-lock whereby the handle member may be locked in an open or closed position.

What I claim is:

1. In a device of the class described the combination of a switch box comprising a rear wall, side walls and having an open front, a box-like fuse compartment comprising a base mounted in spaced relation to the rear wall of the switch box and having a forward opening substantially in a plane with the forward edges of the switch box, fuse clips mounted on the base of the fuse compartment, switch blades pivotally mounted on an outer wall of the fuse compartment, and contact jaws mounted adjacent the rear wall of the switch box and in alignment with the pivotal mounting of the switch blades whereby the switch blades may assume a closed position in a plane substantially transverse to that of the fuse clips.

2. In a device of the class described the combination of a switch box comprising a rear wall, a fuse compartment in the switch box, comprising a base disposed in spaced relation to the rear wall of said box and side walls extending at angles thereto, contact jaws electrically insulated from the rear wall of the switch box and disposed in a plane intermediate said rear wall and the base of the fuse compartment, switch blades pivotally mounted on the exterior of the fuse compartment, and means for moving the said blades about their pivotal mountings into and out of engagement with the contact jaws.

3. In a device of the class described the combination with a cabinet comprising a rear wall, a fuse compartment comprising a base mounted in spaced parallelism with said rear wall and a bottom wall extending forwardly at right angles to said base, fuse clips mounted upon the base, contact jaws disposed adjacent the rear wall of the cabinet and in a plane parallel to and spaced from the bottom wall of the fuse compartment and switch blades pivotally mounted on the bottom wall of the fuse compartment and movable toward and away from said wall for opening and closing an electrical circuit embracing the contact jaws and said switch blades.

4. In a switch box the combination of a cabinet having a rear wall and a forward opening, a box-like fuse compartment disposed within the body lines of the cabinet and spaced from the rear wall thereof, line terminals and load terminals mounted above and below and in substantial alignment with

the rear wall of said fuse compartment, switch blades pivotally mounted on said compartment adjacent the forward opening of the cabinet, and contact jaws mounted adjacent the rear wall of the cabinet and adapted to receive the switch blades when said blades assume a position substantially perpendicular to the rear wall of the cabinet.

5. In a device of the class described the combination of a cabinet, having a rear wall, a fuse base mounted in spaced parallelism with the rear wall of the cabinet, a switch having a hinged mounting adjacent the front of the cabinet and connector terminals disposed on opposite sides of the fuse base and in a plane with the rear face thereof, the switch being adapted to be moved about its hinged mounting between the fuse base and the connector terminals at one side of the fuse base.

6. In a switch box having a rear wall and a forward opening the combination of switch blades hingedly mounted adjacent the forward opening, contacts mounted adjacent the rear wall for receiving the ends of the switch blades, connector terminals mounted on opposite sides of the switch mounting and disposed in a plane intermediate said switch mounting and the contact jaws, and fuse clips mounted in spaced relation with the rear wall and intermediate the switch and connector terminals on a given side of said switch.

7. In a device of the class described the combination of a switch box comprising a rear wall, a fuse compartment in the switch box disposed in spaced relation to said rear wall, a contact jaw supported by the rear wall and disposed rearwardly of the fuse compartment and a switch blade pivotally mounted on the exterior of the fuse compartment, said blade being adapted to be moved about its mounting to an open position in abutment with the side of the fuse compartment whereby to provide unobstructed access to the switch blade and contact jaw.

8. In a device of the class described the combination of a box, an apertured cover for said box, a fuse compartment having side walls and a base disposed in spaced relation to the side and rear wall of the box, said compartment being accessible through the aperture in the cover when the lid is closed, the side walls and base of said compartment serving as a barrier preventing access to the remainder of the interior of the box by way of the fuse compartment, a switch blade pivotally mounted on one of the side walls of the fuse compartment and having its pivotal mounting closely adjacent the front of the box, and a contact jaw disposed adjacent the rear wall of the box, the blade being adapted to be moved toward the side wall of the fuse compartment in opening the switch whereby to render accessible the entire interior of the box when the cover is open.

9. In a safety box structure, a box having a fuse compartment mounted forwardly of the box and having an apertured cover controlling access to the interior of the box and fuse compartment, a contact jaw mounted on the rear wall and spaced to one side of the fuse compartment, and a switch blade hingedly supported by said side of the fuse compartment and adapted for movement to open position against said side of the fuse compartment whereby to minimize operating space for the switch and to provide unobstructed view and access of the parts when the cover is open.

10. In a safety and theft-proof switch box the combination with a switch box having a substantially centrally apertured cover, a box-like fuse compartment having side walls and base spaced on all sides from the walls of the switch box and accessible through the aperture in the cover, switch blades pivotally mounted on the exterior of the fuse compartment, contact jaws supported by the box rearwardly of the fuse compartment for receiving the switch blades to close a circuit, the blades being movable toward the fuse compartment for opening the circuit.

11. In a device of the class described the combination of a cabinet having an open front affording access to the interior thereof, a cover for the cabinet, a rear wall in the cabinet, a fuse compartment having outer walls spaced from the rear of the cabinet, stationary contact means at the front of the cabinet on the fuse compartment, stationary contact means adjacent the rear wall of the cabinet, spaced from said compartment and a movable contact means for connecting and disconnecting the forwardly and rearwardly disposed contact means.

12. In a device of the class described the combination of a cabinet comprising a rear wall and having an open front affording access to the entire interior of the cabinet, a fuse compartment in spaced relation to the rear wall of the cabinet, stationary contact means adjacent the rear wall of the cabinet, stationary contact means supported by the fuse compartment and exposed to access and view when the cabinet is open, and a movable member for electrically connecting the stationary contacts.

In testimony whereof, I have hereunto subscribed my name this 3rd day of December, 1925.

DAVID T. WADSWORTH.