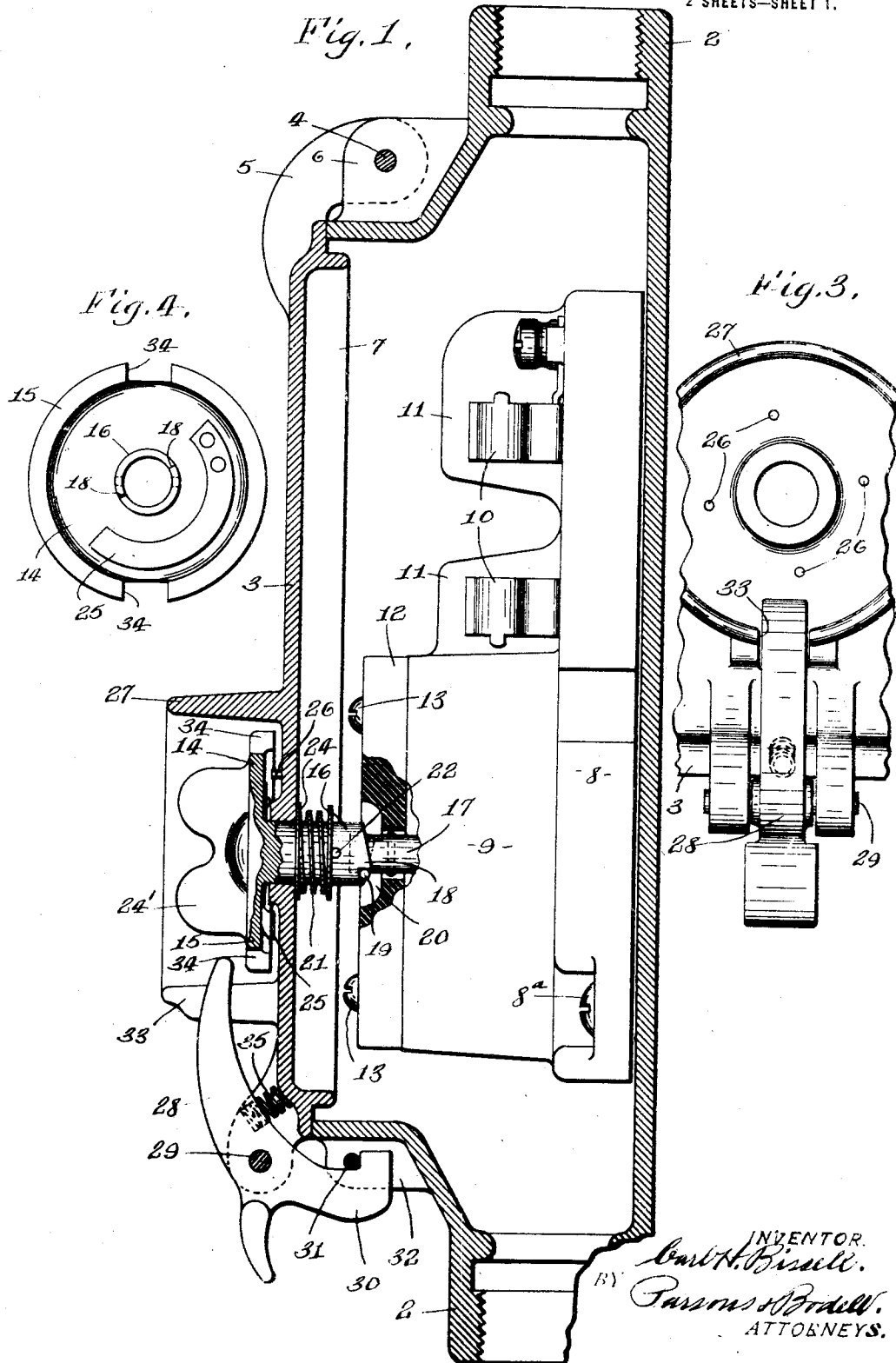


C. H. BISSELL.
ELECTRIC SWITCH AND BOX.
APPLICATION FILED JULY 27, 1916.

1,350,486.

Patented Aug. 24, 1920.

2 SHEETS—SHEET 1.

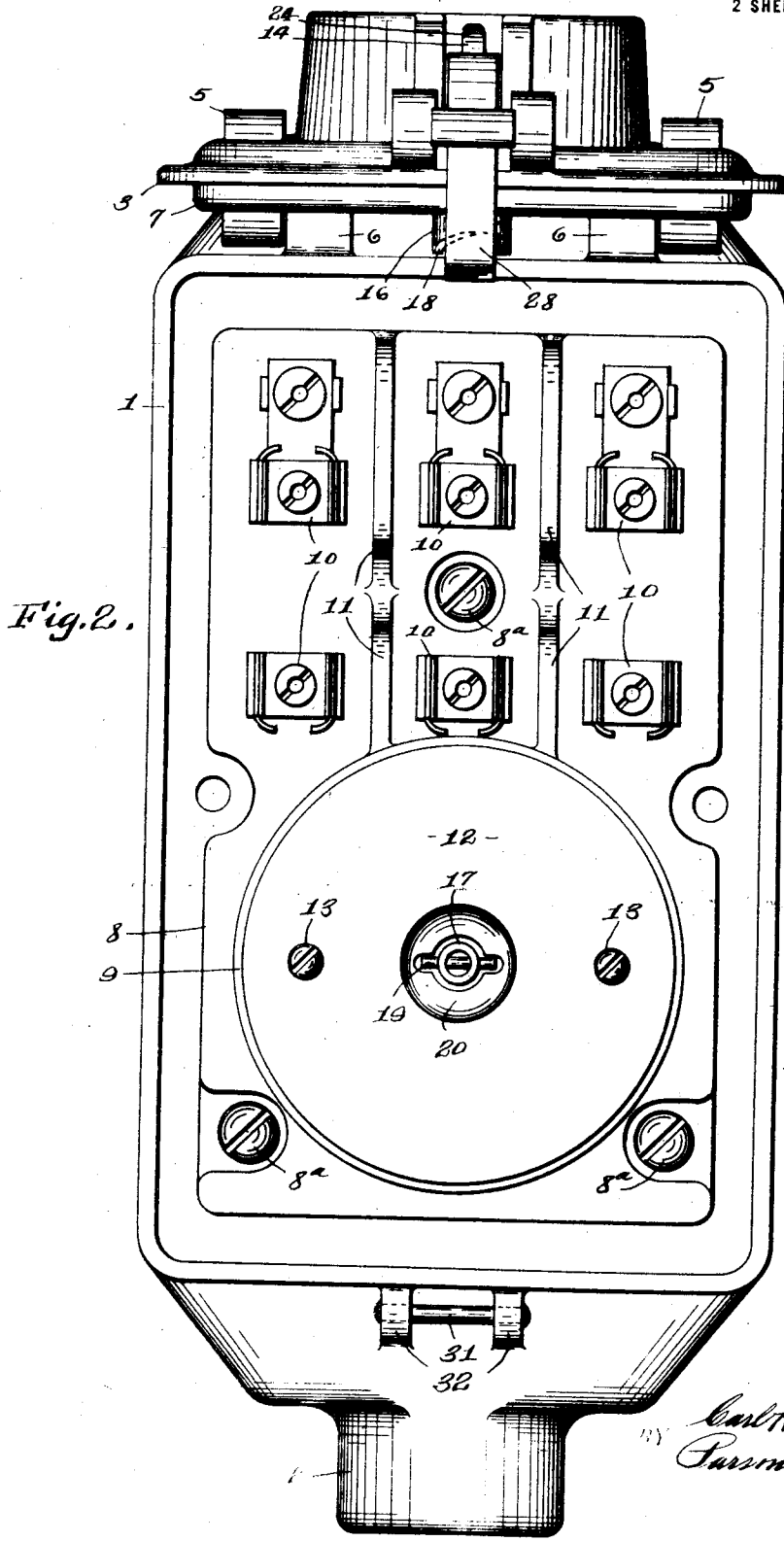


INVENTOR.
C. H. Bissell.
BY *Parsons & Bradwell.*
ATTORNEYS.

C. H. BISSELL.
ELECTRIC SWITCH AND BOX.
APPLICATION FILED JULY 27, 1916.

1,350,486.

Patented Aug. 24, 1920.
2 SHEETS—SHEET 2.



INVENTOR.
Carl H. Bissell.
Parsons & Bondell.
ATTORNEYS.

UNITED STATES PATENT OFFICE.

CARL H. BISSELL, OF SYRACUSE, NEW YORK, ASSIGNOR TO CROUSE-HINDS COMPANY,
OF SYRACUSE, NEW YORK, A CORPORATION OF NEW YORK.

ELECTRIC SWITCH AND BOX.

1,350,486.

Specification of Letters Patent. Patented Aug. 24, 1920.

Application filed July 27, 1916. Serial No. 111,688.

To all whom it may concern:

Be it known that I, CARL H. BISSELL, a citizen of the United States, and a resident of Syracuse, in the county of Onondaga and State of New York, have invented a certain new and useful Electric Switch and Box, of which the following is a specification.

This invention relates to switch boxes, and has for its object a particularly simple and efficient means for preventing the opening of the box when the switch therein is "on", and a particularly simple and efficient arrangement of the parts whereby the switch can only be operated when the box is closed.

In describing this invention, reference is had to the accompanying drawings, in which like characters designate corresponding parts in all the views.

Figure 1 is a vertical longitudinal sectional view of this box and switch.

Fig. 2 is a front elevation, the cover being open.

Fig. 3 is a fragmentary plan view, illustrating the lock for the cover of the box, and contiguous parts.

Fig. 4 is an inverted view of the operating member for the switch.

1 designates the box which is usually oblong in general form and formed with nipples 2 at its ends for connection with the conduits which inclose the service wires.

The box 1 is open at one side, as its front side, as the box is usually arranged in vertical position.

3 is a cover for the open side of the box, said cover being here shown as hinged at 4 at its upper end to the box, and provided with brackets or hinge leaves 5 which lap complemental brackets or hinge leaves 6 on the box. The hinge pin or pivot 4 extends through the brackets 5, 6. The cover 3 laps the edge of the box around the open side and is formed with an inwardly extending flange 7 which laps the inner face of the box contiguous to said edge.

8 is an electric appliance as a switch and fuse block located in the box and secured by screws 8^a to the bottom or back of the box, that is, the side opposed to the cover 3. This appliance 8 includes a base of insulating material having a socket or housing 9 rising therefrom for receiving a snap switch of any well known construction and also supporting fuse plug terminals 10 at one side of

the socket, these terminals being connected to the service wires and to the terminals of the switch in any suitable manner.

Suitable barriers 11 are interposed between the different sets of terminals 10. The socket or housing 9 is provided with a detachable cover 12 secured in position by screws 13.

The switch is provided with a suitable operating member located on the outside of the box, and means is provided for locking the cover in its closed position, the operating member and the locking means coacting to prevent the operation of the locking means when the switch is "on", and to prevent the operation of the operating member when the locking means has been moved to its inoperative position to unlock the cover.

In this embodiment of my invention, the operating member for the switch is carried by the cover and also the locking means includes an element carried by the cover and coacting with the operating member.

14 designates the operating member for the snap switch located in the socket 9, said member being movable about an axis step by step alternately into "on" and "off" positions, as will be understood by those skilled in the art, and in this form of my invention said member includes a discoidal part 15 located on the outside of the cover, and a shank 16 extending through the cover and movable into and out of interlocking engagement with a member 17 associated with the snap switch located in the socket 9, the shank 16 and the member 17 being here shown as formed with interlocking clutch teeth in the form of jaws 18 provided on the member 16 and a transversely extending pin 19 provided on the upper end of the member 17, the pin 19 being located in a depression in the cover 12 of the socket 9. The operating member is yieldably mounted in order to yield when the cover is closed and the jaws 18, 19 do not come into proper engagement, and as here shown, a buffer spring 21 encircles the shank 16 and presses at one end against a shoulder 22 on the shank 16 and at its other end against the washer 24 which presses against the inner face of the cover 3. The member 14 is provided on its upper side with suitable finger engaging part as a wing 24' and on its lower side with a ratcheting pawl, as a flat spring 25 which coacts with

pins or teeth 26 rising from the cover for preventing retrograde movement of the operating member 14.

The portion of the operating member on the outside of the cover is located within a suitable shield or socket 27 projecting from the cover 3.

The locking means includes a pivoted element 28 carried by the cover 3, said element being in the form of a latch pivoted at 29 to the free end of the cover 3 and having a hook shaped part 30 for interlocking with a fixed shoulder 31 extending between two lugs 32 provided on the lower end of the box 1. Said element 28 is also provided with an arm extending over the outer face of the cover and through a slot 33 in the socket 27 in position to overhang the margin of the discoidal part 15 of the switch operating member 14. The discoidal part normally prevents the unlocking operation of the element 28, as, upon the depression of the arm of said element 28, the end of said arm will engage the margin of the discoidal part 15. In order to permit the unlocking of the element 28, the operating member 14 is provided with transverse passages 34 in the form of notches in the margin of its discoidal part 15, the notches being arranged to be brought into alinement with the end of the arm of the element 28 so as to permit the unlocking operation of the element 28.

When the element 28 is in its unlocked position the end of its arm extends into one or the other of the passages or notches 34 and locks the operating part 14. Hence the switch cannot be operated when the operating element is in its unlocked position and the cover is closed. As is well known to those skilled in the art, snap switches have a quick break action, and the operating members have a step by step movement as the movable parts are first turned against the action of a spring to tension the spring up to a certain amount, whereupon the switch arms are snapped by the spring into "off" position or "on" position.

In this embodiment of my invention, the passage 34 is located to be brought into alinement with the arm of the element 28 when said operating member is turned beyond the position it normally assumes when the switch is "off." The unlocking movement of the element 28 is against the action of a suitable returning spring 35.

In operation, when it is desired to open the box, for the purpose of replacing fuses or for any other purpose, the operating member 14 must be first rotated to an "off" position and then slightly beyond said "off" position to bring one or the other of the passages 34 into alinement with the end of the arm of the locking element 28 whereby said arm can be depressed into the aligned passage 34 in order to move this hook 30

out of engagement with the pin or shoulder 31, and permit the cover 3 to be opened.

During the opening of the cover the jaws 18 of the shank 16 of the operating member separate from the jaws 19 of the member 17, and when the cover is again closed these jaws 18 come into interlocking engagement with the jaws 19, if in the meantime, the operating member 14 has been displaced so that the jaws 18, 19 do not come into the interlocking engagement, the spring 21 will yield and the operating member must be turned until the jaws 18, 19 interlock.

The depression 20 in the cover 12 for the housing 9 of the snap switch may be of suitable depth to prevent easy access to the shoulder 19 to operate the switch.

What I claim is:—

1. The combination of a box having an opening in one side, a movable cover for the open side, an electric switch in the box, and means for operating the switch comprising a member located in a box, and a member carried by the cover and movable into and out of coacting relation with the former member during closing and opening of the cover, means for locking the cover in its closed position, and means actuated by the operating member on the cover for controlling the operation of the locking means, substantially as and for the purpose described.

2. The combination of a box having an opening in one side, a movable cover for the open side, an electric switch in the box, and means for operating the switch comprising a member located in a box, and a member carried by the cover and movable into and out of coacting relation with the former member during closing and opening of the cover, means for locking the cover in its closed position, and means actuated by the operating member on the cover for controlling the operation of the locking means, the latter means comprising a part formed with a passage arranged to be brought into alinement with a portion of the locking member when the operating member is in "off" position thereby permitting unlocking movement of said locking member, substantially as and for the purpose specified.

3. The combination of a box having an opening in one side, a movable cover for the opening, an electric switch in the box, means for operating the switch comprising a member located in the box and a step by step rotary member carried by the cover on the outside thereof and including a discoidal part having a transverse passage, and an element for locking the cover in its closed position, said element being carried by the cover and having an arm normally lapping the margin of said discoidal part, the arm being movable in a direction transversely of the plane of the discoidal part into the passage and normally prevented from move-

ment by said discoidal part, substantially as and for the purpose described.

4. The combination of a box having an opening in one side, a movable cover for the opening, an electric switch in the box, means for operating the switch comprising a member located in the box and a member carried by the cover and movable with the cover into and out of detachable engagement with the member in the box, and means for locking the cover in closed position including a part coacting with the operating member on the cover, the operating member having means for normally preventing the operation of the locking part, and the locking part coacting with the operating member to prevent the operation thereof when said locking means is in its unlocked position, substantially as and for the purpose set forth.

5. The combination of a box having an opening in one side, a movable cover for the opening, a switch located in the box, an operating member movable about an axis, and means for locking the cover in its closed position, the operating member and the locking means having coacting parts for normally preventing unlocking of the locking means when the cover is closed and the switch is in its "on" position and the operating member having means for permitting the unlocking operation of the locking means when the switch operating member is moved beyond its position normally occupied when the switch is in its "off" position, substantially as and for the purpose described.

6. The combination of a box having an opening in one side, a movable cover for the opening, an electric switch in the box, means for operating the switch comprising a member located in the box and a member carried by the cover and movable into and out of coacting relation with the former member during closing and opening of the box, and locking means for the cover including a movable element carried by the cover, the locking element and the operating member

having coacting means for preventing the operation of the locking element when said element is in its operative position and the cover is closed, and preventing the operation of the operating member when said element is in its unlocked position, substantially as and for the purpose described.

7. The combination of a box having an opening in one side, a movable cover for the opening, an electric switch in the box, an operating member for the switch movable about an axis and formed with a passage, and a locking element for normally holding the cover in closed position, said element being movable independently of the operating member and having a part movable into the passage of the operating member upon unlocking movement of the locking element, the portion of the operating member contiguous to the passage normally preventing unlocking of the locking element, substantially as and for the purpose specified.

8. The combination of a box having an opening in one side, a movable cover for the opening, an electric switch in the box, means for operating the switch comprising a member located in the box and a step by step rotary member carried by the cover on the outside thereof including a discoidal part having a transverse passage, and an element for locking the cover in its closed position, said element being carried by the cover, and having an arm normally lapping the margin of said discoidal part, the arm being movable into the passage and normally prevented from movement by said discoidal part, the passage being located in position to come into alinement with said arm when the operating member is moved to a point beyond that normally assumed thereby when the switch is in its "off" position, substantially as and for the purpose specified.

In testimony whereof I have hereunto signed my name at Syracuse, in the county of Onondaga, and State of New York, this 24th day of May, 1916.

CARL H. BISSELL.