April 7, 1953 R. H. KINGDON 2,634,319

ENCLOSURE FOR ELECTRICAL EQUIPMENT

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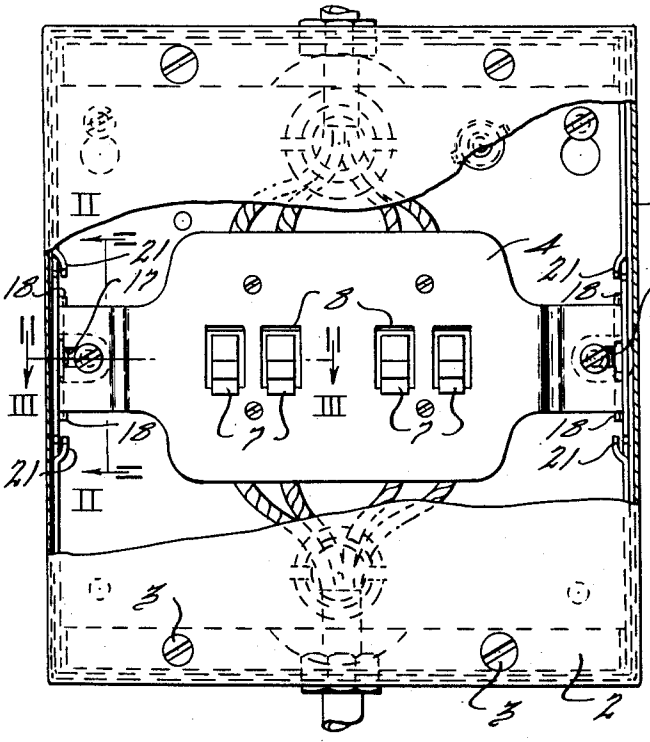


Fig. 1.

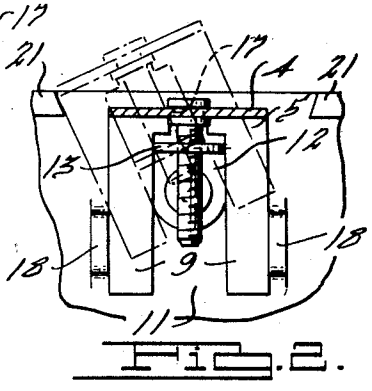


Fig. 2.

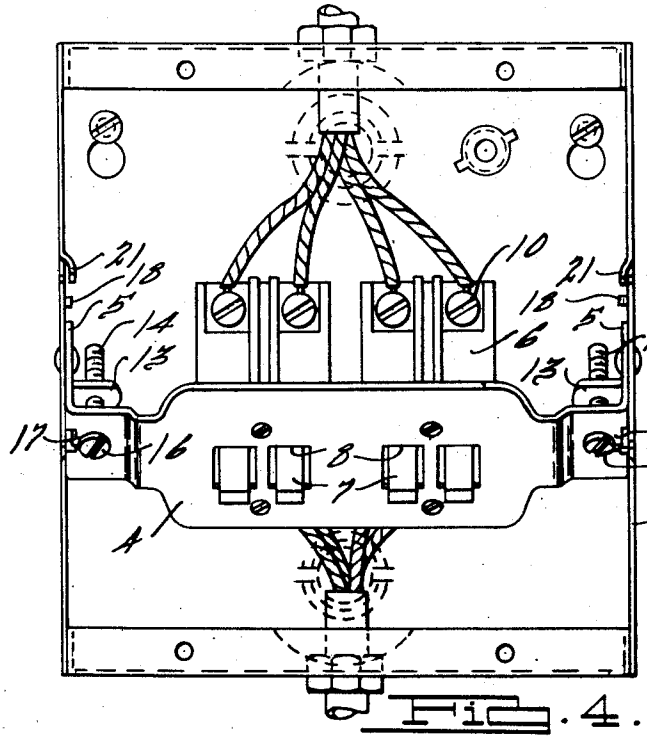


Fig. 4.

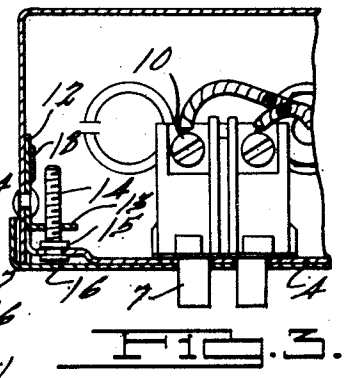


Fig. 3.

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# UNITED STATES PATENT OFFICE

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## ENCLOSURE FOR ELECTRICAL EQUIPMENT

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5 Claims. (Cl. 175—308)

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This invention relates to enclosed electrical equipment and more particularly to improved supporting means for an electrical instrumentality.

One object of the present invention is to provide an improved device for enclosing and supporting an electrical instrumentality, in which access to the terminals thereof is facilitated.

Another object of the present invention is the provision of an improved and inexpensive article of manufacture for supporting circuit controlling instrumentalities in which, in normal position, the terminals of such instrumentalities are comparatively inaccessible, the device being provided with means for making the terminals of the instrumentalities accessible with ease.

A more specific object of the invention is a device for supporting electrical circuit controlling instrumentalities, the supporting means being mounted so that both rectilinear and rotatable movements of the supporting means may be accomplished whereby access to the terminals of the instrumentalities is provided.

Other objects and features of this invention will be readily apparent to those skilled in the art from the specification and drawings illustrating a certain preferred embodiment in which:

Figure 1 is a front elevational view of the electric instrumentality supporting means according to the present invention with a portion of the enclosing cover broken away to show the internal parts.

Figure 2 is a sectional view along the line II—II of Figure 1.

Figure 3 is a sectional view along the line III—III of Figure 1.

Figure 4 is a view similar to Figure 1, but with the supporting means swung to a position wherein the terminals carried by the instrumentalities are readily accessible.

The embodiment of this invention, as illustrated in the drawings, comprises an enclosing box 1 having a front cover 2 secured thereto as by studs 3. Within the box is disposed a supporting member 4 comprising an inverted, generally U-shaped piece having depending leg portions 5. Circuit controlling instrumentalities 6 having terminals 10 at both ends thereof are mounted to the underside of the bight of the U-shaped piece, as by screws or riveting, the

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operating handles 7 of the instrumentalities extending through suitable apertures 8 in the member 4. The leg portions 5 of the supporting member 4 extend downwardly into the interior of, and along the side walls of, box 1, each of the legs 5 comprising two flat portions 9 which are parallel to the side of the enclosing box 1 and which are separated by a slot 11 as shown in Figure 2.

Disposed within each slot 11 is a generally L-shaped bracket 12 having one leg fitting snugly against the portions 9 and pivotally mounted to the side wall of the enclosing box, and another leg 13, extending inwardly, perpendicular to the side of the enclosing box 1 with each of these projections 13 having therein a threaded hole.

A screw 14 having spaced double heads 15 and 16 cooperates with the threaded hole in each of the projections 13, one of the heads 16 cooperating with the outer surface of the supporting member 4, the other head 15 cooperating with the inner surface of the supporting member 4, the screw being fitted into a suitable slot 17 at each end of the bight of the U-shaped member as may be seen in Figure 4.

Projecting inwardly and closely cooperating with the outside edges of the legs 5 of the supporting member 4 are pressed in portions 18 of the enclosing box 1, these inwardly projected portions 18 extending a part of the way along the length of the portions 9 of the legs 5, and serving as stop brackets as will be subsequently explained. The side walls of the enclosing box 1 are also provided with pressed in portions 21 at the outer edge which limit the amount of swinging movement of the supporting member 4.

The operation of the device is readily apparent and will be briefly described. In normal position, the screws 14 are screwed downwardly through the threaded holes in the projection 13 of bracket 12, the head 16 of screw 14 carrying the supporting member 4 downwardly so that the legs 5 of the supporting member extend along the inwardly pressed portions 18 of the enclosing box 1, this position being shown in full lines in Figure 2. In this position, it is readily apparent that the terminals of the circuit controlling instrumentalities are not readily accessible.

When it becomes desired to make, or to change, connections to the terminals 10 of the circuit

controlling instrumentalities 6, the screws 14 are screwed outwardly, and heads 15 thereof force the U-shaped supporting member 4, and the circuit controlling instrumentalities mounted thereon, outwardly. After sufficient outward movement of the supporting member 4, the portions 9 of the legs 5 are moved beyond the outer end of the pressed in portions 18, the supporting member 4 thereby being readily swingable about the pivots of the brackets 12. The supporting member 4 may then be rotated either upwardly or downwardly with the pivoted brackets 12 so that access may be had to the terminals 10 at the opposite extremities of the circuit controlling instrumentalities 6. The swiveled position may be seen in Figure 2, in which the swiveled position is indicated by dotted lines. The maximum rotative positions are determined by the pressed in portions 21.

After the connections have been made to the terminals 10 of the instrumentalities 6, member 4 is once again swiveled until the front face thereof is generally parallel with the back of the enclosing box 1, and the screws 14 are once again screwed downwardly through the threaded holes in the brackets 13, the heads 16 of the screws 14 forcing the supporting member 4 to return to the position shown in full lines in Figure 2. Once the ends of legs 9 engage the pressed in portions 18, rotation of member 4 is precluded.

It will be readily seen that the device of the present invention provides a very simple method of achieving access to the terminals of the circuit controlling instrumentalities, the device being both simple and economical to manufacture. Furthermore, because of the longitudinal movement of the supporting member upon rotation of the screws, the supporting member may be properly located with respect to the outer cover as in "flush" mounting of the device.

While certain preferred embodiments of the invention have been specifically disclosed, it is understood that the invention is not limited thereto, as many variations will be readily apparent to those skilled in the art, and the invention is to be given its broadest possible interpretation within the terms of the following claims.

What is claimed is:

1. Supporting and enclosing means for an electric circuit controlling instrumentality comprising an enclosing box, a supporting member for said instrumentality, means pivotally mounted upon said enclosing box swingably mounting said supporting member upon said box, means engaging said last mentioned means and said supporting member for moving said supporting member rectilinearly toward and away from the back surface of said enclosing box, and means for preventing swinging movement of said supporting member until said supporting member is moved a predetermined amount away from the back surface of said enclosing box.

2. Supporting and enclosing means for an electric circuit controlling instrumentality comprising an enclosing box, a supporting member for said instrumentality, means pivotally mounted upon said enclosing box swingably mounting said supporting member upon said box, terminal means disposed upon the end of said instrumentality and being relatively inaccessible in the normal position of said supporting member, means engaging said last mentioned means and said supporting member for moving said supporting member toward and away from the back surface of said enclosing box, means for preventing swinging movement of said supporting member in the normal position thereof, said supporting member being swingable to achieve ready accessibility to said terminals only after said means for moving said supporting member have effected a predetermined movement of said supporting member away from the back surface of said enclosing box.

3. Supporting and enclosing means for an electric circuit controlling instrumentality comprising an enclosing box, a mounting member for said instrumentality, a pivoted bracket carried by the side walls of said enclosing box and having a threaded hole therein, means projecting from said mounting member engaging said pivoted bracket whereby said bracket swingably mounts said supporting member, terminal means disposed upon the end of said instrumentality and being relatively inaccessible in the normal position of said mounting member, screw means cooperating with the threaded hole in said bracket and with said mounting member to move said mounting member relative to said enclosing box upon rotation of said screw means, abutments upon the side walls of said enclosing box for preventing swinging movement of said mounting member in the normal position thereof, said screw means upon rotation thereof in one direction carrying said mounting member free from said abutments, whereby said mounting member may be rotated with said brackets to achieve accessibility to said terminals of said circuit controlling instrumentality.

4. Supporting and enclosing means for an electric circuit controlling instrumentality comprising an enclosing box, a generally U-shaped supporting member for carrying said instrumentality, each of the legs of said supporting member having an elongated slot therein, means pivoted upon the side walls of said enclosing box disposed within said slots and having a threaded aperture therein, screw means cooperating with said threaded aperture and with said supporting member, said screw means effecting movement of said supporting member relative to said enclosing box whereby said slots are moved relative to said pivoted members, abutting means projecting inwardly from the side walls of said enclosing box and closely cooperating with the legs of said U-shaped supporting member in the normal position thereof thereby preventing swinging movement of said supporting member, said screw means carrying the legs of said supporting member free of said abutting members upon rotation of said screw means in one direction whereby said supporting member is pivotable to facilitate the attachment or removal of circuit wiring to the terminals of said circuit controlling instrumentalities.

5. Supporting and enclosing means for an electric circuit controlling instrumentality comprising an enclosing box, a generally U-shaped mounted member to which said instrumentality is secured, said mounting member having legs parallel to and adjacent to the side walls of said box and each having therein an elongated opening, rotatable means on the side walls of said box and within said elongated openings, said rotatable means having a portion extending perpendicular to the side wall of said enclosing box and having in said perpendicular portion a threaded hole, screw means cooperating with said hole comprising an elongated threaded section and a head section, said head portion comprising a pair of similar heads, one of said heads co-

operating with the uppermost surface of said supporting member while the other of said heads cooperates with the lower surface of said supporting member, depressions in the walls of said enclosing box cooperating with the legs of said supporting member and preventing rotation thereof in the normal position of said supporting member, said supporting member being movable relative to said projections by rotation of said screw means, said supporting member being movable clear of said projections upon a predetermined rotation of said screw means whereby said supporting member is rotatable with said



rotatable means to provide accessibility to the terminals of said circuit controlling instrumentality.

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## REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

| Number | Name | Date |
|---|---|---|
| 2,132,630 | Jackson | Oct. 11, 1938 |
| 2,304,923 | Jackson | Dec. 15, 1942 |