Feb. 5, 1924. 1,482,865

C. RAUS

SWITCH BOX

Filed May 29, 1920 2 Sheets-Sheet 1

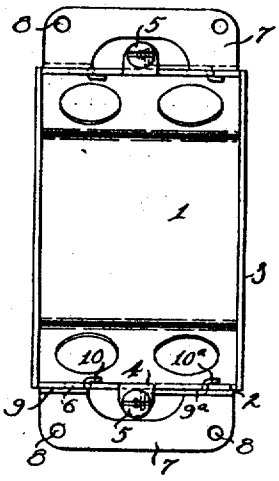

Fig-1

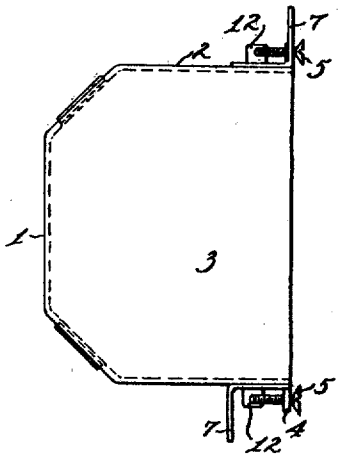

Fig-2

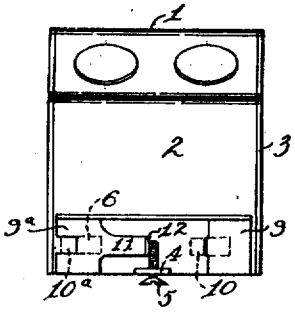

Fig-3

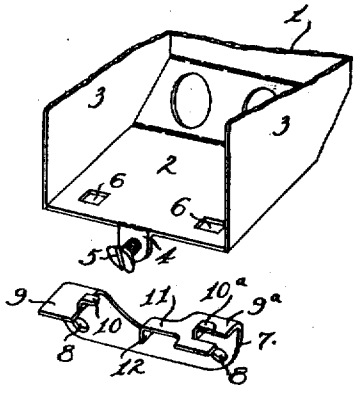

Fig-4

Inventor

Charles Raus

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C. RAUS

SWITCH BOX

Filed May 29, 1920 2 Sheets-Sheet 2

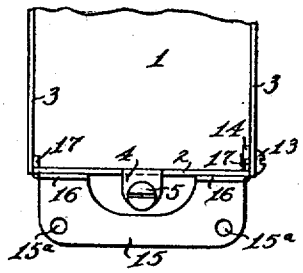


Fig-5

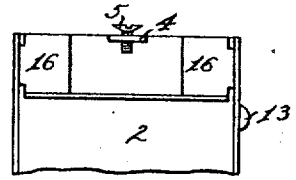


Fig-6

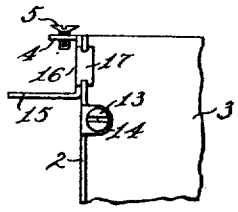


Fig-7

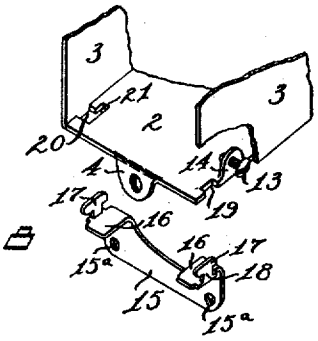


Fig-8

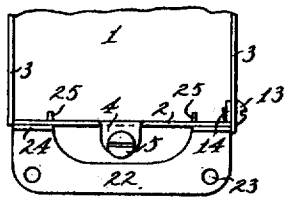


Fig-9

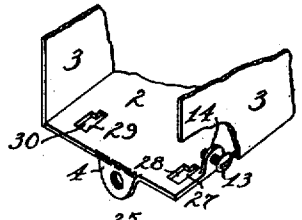
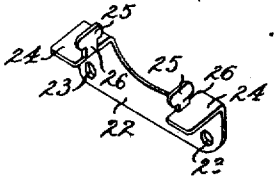


Fig-11



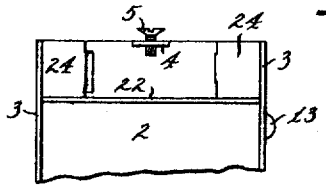


Fig-10

Inventor

Charles Raus

By Hull, Smith, Brock & West

Attys

Patented Feb. 5, 1924. 1,482,865

UNITED STATES PATENT OFFICE.

CHARLES RAUS, OF CLEVELAND, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO E. E. LAWRENCE, OF FAIRPORT HARBOR, OHIO, TRADING AS STANDARD ELECTRICAL MANUFACTURING COMPANY.

SWITCH BOX.

Application filed May 29, 1920. Serial No. 385,115.

To all whom it may concern:

Be it known that I, CHARLES RAUS, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Switch Boxes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to switch boxes and has for its general object to provide a box of this character wherein the ears by which the boxes are secured to their supports may be applied to the ends of the box in a novel manner and a manner which will effect a material saving in the expense of production and result in a marked convenience in the manner of securing the ears in place. A further object of the invention is to provide a securing means of this character which will enable the said ears to be applied either with their securing flanges arranged flush with the ends of the boxes or spaced therefrom, according to the installation to which the box is to be applied. I secure these objects in and through the construction and arrangement of parts shown in the drawings forming a part hereof, wherein Fig. 1 represents a plan view of a box embodying my invention; Fig. 2 a side elevation of the box; Fig. 3 an end elevation of the same; Fig. 4 a detail in perspective of one end of such box and of the ear; Fig. 5 a detail in plan, Fig. 6 a detail in end elevation, and Fig. 7 a detail in side elevation, of a portion of a box having a modified form of my invention applied thereto; Fig. 8 a detail in perspective of one end of the box and the ear shown in Figs. 5–7; and Figs. 9, 10 and 11 are views, corresponding to Figs. 5, 6 and 8, respectively, of a still further modification of the invention.

Describing the parts by reference characters and with particular reference to Figs. 1–4 inclusive, 1 denotes the bottom, 2 the ends, and 3 the sides of a switch box of ordinary or standard construction. In the box shown in Figs. 1–4 inclusive, the sides are shown as secured rigidly to the ends, though they may be detachable, it being immaterial for the purpose of my invention whether or not the sides be easily removable. Projecting laterally from the upper end of each of the ends 2 are central lugs 4 having each an aperture for a screw 5 by which the switch assembly may be secured to the open end of the box.

In each end 2 there are provided a pair of slots 6. The centers of these slots are preferably equidistant from the screw 5 and the slots are adapted to receive hooked lugs projecting from the ears, one of which will now be described. Each ear comprises a flange 7 having apertures 8 for the reception of the screws by which the box will be secured to its support. Projecting from each inner end of the flange 7 is a bearing plate 9, 9^a. One of these bearing plates, 9, is provided with a hooked lug 10 at its inner end and the other plate, 9^a, with a similar hooked lug 10^a which is conveniently struck from the central portion of such plate. These hooked lugs are adapted to be inserted into the slots 6, and the bearing plate 9^a is provided with an inward extension 11 having a projection 12 extending laterally therefrom. The slots 6 and the lugs 10 and 10^a are so arranged that, when the lugs are inserted into the slots and the ear moved into its assembled position upon the end of the box, the lugs will be engaged firmly with the interior of such end and the projection 12 will be in position to be engaged by the screw 5 at that end of the box.

By locating the lugs 10 and 10^a at substantially the midheight of the plates 9 and 9^a, the ears may be arranged with their flanges 7 flush with the open end of the box, as shown at the top of Figs. 1 and 2, or with their flanges below such open end, as shown at the bottom of Figs. 1 and 2. In either position, the screw 5 can engage the projection 12 and serve the double function of securing the cover in place and anchoring the ear to the end of the box. In all other constructions with which I am familiar, two screws in addition to the screw 5 are employed for the purpose of anchoring each ear to a box. By my construction, no screws additional to the screws 5 are necessary and the expense of these additional screws is avoided as well as the equipment and labor necessary for tapping holes for such screws. The lugs 10 and 10^a and the slots for the same are produced by a simple stamping operation, and the ears are no more expensive of production than those ordinarily employed.

The plates 9 and 9^a cover the slots 6 when the ears are in place; and the lugs are prefer-

ably slightly inclined away from their respective plates to accommodate slight variations in the thickness of the end walls of the boxes and to facilitate their insertion into the slots.

In Figs. 5–8 inclusive, there is shown a modification of my invention, wherein the parts 1–5 inclusive are identical in construction with the like designated parts on Figs. 1–4 except that at least one of the sides 3 is shown as removably secured to the ends 2 as by means of one or more screws 13 adapted each to extend through a slot in the side of the box and threaded into a lug 14 carried by a side of the end adjacent to such box side. The other side of the box may be permanently secured to the ends. The ears are provided each with a flange 15 having apertures 15* by which the box will be secured to its support. Projecting from each inner end of the flange 15 is a bearing plate 16, each bearing plate having a headed lug 17 projecting from its outer end, the head of each lug being connected to its bearing plate by a narrowed portion or shank 18. Each end of the box will be provided below the top thereof with a slot. One of these slots 19 extends inwardly from one of the sides of each end plate and is of a width to receive the shank 18 of one of the lugs. The other and opposite slot comprises a narrow portion 20 extending inwardly from the side edge of such end the narrow portion merging at its inner end with a widened portion 21.

With the parts constructed and arranged as described, the side 3 being removed, the head 17 of one of the lugs may be inserted through the widened portion 21 of one of the slots. The shank 18 of the opposite lug having been brought into register with the slot 19, the ear may be moved laterally along its end plate with the heads 17 engaging the inner face of such plate. When the ears are in operative relation to their respective end plates, the side of the lug which has been inserted within the slot 20, 21, will be in proximity to the permanently attached side plate and the outer side of the other lug will be substantially flush with the outer edge of such end plate. It will be apparent that, by securing the removable side plate in place it will engage the lugs on the ears adjacent thereto and thus serve to anchor the ears in place. The plates 16 will cover the slots 19 and 20, 21.

In Fig. 7 one side of the box is removed, showing the lug adjacent thereto in position to be engaged by the said plate when the ear is positioned upon the end plate.

In Figs. 9–11 inclusive there is shown a still further modification of the invention wherein the parts 1–5 inclusive and 13, 14 are identical with the like designated parts in Figs. 5–8.

The ears employed with the box shown in the last mentioned view comprise each a flange 22 having apertures 23 for the reception of the screws for securing the box to its support. Projecting from each inner end of the flange 22 is a bearing plate 24, each having at its inner end a headed lug 25, the heads whereof are connected to their respective plates by means of a reduced portion or shank 26.

Each end plate is provided with a pair of slots. One of these slots has a widened portion 27 for the reception of the head 25 of one of the lugs with a narrowed portion 28 extending inwardly or toward the center of the box end from such widened portion, the narrow portion being adapted to receive the shank 26 of such lug. The other slot comprises a widened portion 29, similar to the portion 27, but located nearer the center of the box end than the narrow portion 30 which receives the shank of its lug. To apply each ear to the end of its box, the removable plate 3 being detached, the heads 25 are inserted in the widened portions 27 and 29 of their respective slots and the ear is then moved bodily along such end, with the shanks of the lugs in the narrowed portions of the slots. The removable plate 3 overlaps the ends 2 and the bearing plates are of such width that, when the ears are in operative relation to the ends, the plate 3, being secured to the ends, will engage the sides or edges of the ears adjacent thereto and thereby lock the said ears firmly in place.

In both forms of my invention shown in Figs. 5–11 inclusive, the arrangement is such that the ears may be reversed and still be held in proper assembled relation by securing the removable side in place. Also, in both forms of the invention, the ears are so shaped as to substantially cover the slots by means of which they are assembled upon their respective box ends.

In all forms of my invention, the same advantages are secured as is the case with the embodiment of my invention shown in Figs. 1 to 4, inclusive.

Having thus described my invention, what I claim is:

1. A box of the character described comprising an end having a pair of slots therein, an ear having a pair of projections adapted to be inserted into said slots and to engage the inner wall of such end, and a screw carried by said box and adjustable toward a cooperating portion of such ear thereby to engage such portion and anchor the said ear upon such end.

2. A box of the character described comprising an end having a pair of slots therein, an ear comprising an attaching flange and a pair of bearing plates projecting from the inner ends of such flange, each bearing

plate having a lug projecting therefrom adapted to be inserted through a slot in such end and to engage the inner wall of such end, each bearing plate being adapted to substantially cover its slot, and a screw carried by such box and adapted to anchor said ear is assembled position upon such end.

3. A box of the character described having an end provided with a pair of slots, an ear comprising a flange having a pair of bearing plates at its inner end adapted to engage the outer surface of such end, lugs struck from the central portions of said plates, respectively, and adapted to be inserted through said slots and to engage the inner surface of such end, and adjustable means including a screw carried by said box for engaging a portion of such ear thereby to anchor the latter in assembled position upon such box end.

4. A box of the character described comprising an end having an outwardly projecting lug in the middle thereof, and a screw mounted in said lug, the said end having a pair of slots therein on opposite sides of said screw, and an ear having a pair of bearing plates adapted to engage the outer face of such end and each having a lug adapted to be inserted through a slot in such end and to engage the inner face of such end, one of said plates having a projection adapted to be engaged by the said screw thereby to anchor the ear in assembled position upon such box end.

5. A box of the character described comprising an end having an outwardly projecting lug in the middle thereof and a screw mounted in said lug, the said end having a pair of slots therein on opposite sides of said lug, and an ear adapted to engage the outer face of such end and having a pair of lugs each adapted to be inserted through a slot in such end and to engage the inner face of such end, said ear having a projection adapted to be engaged by the said screw thereby to anchor the ear in assembled position upon such box end.

6. A box of the character described comprising an end member having an outwardly projecting lug and a screw mounted in such lug, an ear member adapted to engage the outer face of such end member, the said members having the one a pair of hooked lugs and the other a pair of slots for such lugs, and a projection on said ear member adapted to be engaged by said screw, thereby to lock the latter member upon the end member with their lugs and slots in operative relation to each other.

7. A box of the character described comprising an end member having an outwardly projecting lug and a screw mounted in such lug, an ear member adapted to engage the outer face of such end member, the said members having the one a locking projection and the other an opening for such projection, and a projection on said ear member adapted to be engaged by said screw when the first-mentioned projection and the said opening are in inter-engaging relation, thereby to lock the ear member upon the end member.

8. A box of the character described comprising an end member having an outwardly projecting lug and a screw mounted in such lug, an ear member adapted to engage the outer face of such end member, one of said members having a pair of slots and the other a pair of projections adapted to be inserted into said slots and to form an interlocking connection between the said members through a movement of the ear member laterally along the end member, and a projection carried by the ear member and adapted to be engaged by said screw when the said members are so interlocked.

9. A box of the character described comprising an end member having an outwardly projecting lug and a screw mounted in such lug, an ear member adapted to engage the outer face of such end member, one of said members having a slot and the other a projection adapted to be inserted into said slot and to form an interlocking connection between the said members through a movement of the ear member laterally along the end member, and a projection carried by the ear member and adapted to be engaged by said screw when the said members are so interlocked.

10. A box of the character described comprising an end having at the central portion thereof an outwardly projecting lug, a screw threaded into said lug, the said end having a slot therethrough on each side of the said lug, an ear comprising a flange having at its inner end a pair of bearing plates, a lug struck from the inner end of one of said ears and having an inclined portion adapted to engage the inner surface of such box end, and a lug struck from the central portion of the other plate and having an inclined portion adapted to engage the inner surface of such box end, one of said plates having a projection extending inwardly therefrom, said projection being provided with a second projection adapted to be engaged by said screw when the said ear is assembled upon the end of the box with the lugs thereof in said slots.

In testimony whereof, I hereunto affix my signature.

CHARLES RAUS.