

July 14, 1936.

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2,047,294

CLAMPING DEVICE

Filed June 28, 1935

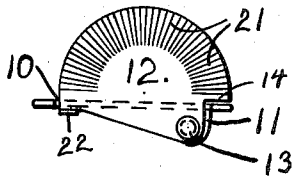


Fig. 1.

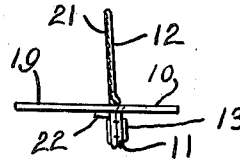


Fig. 2.

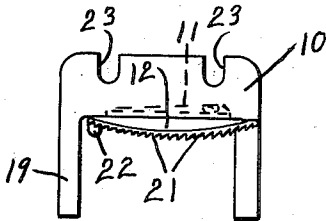


Fig. 3.

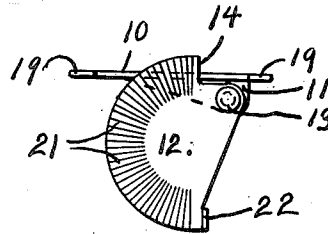


Fig. 4.

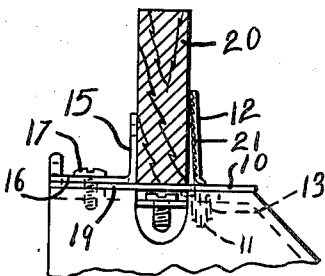


Fig. 5.

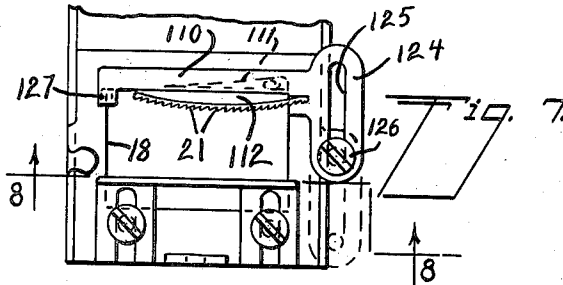


Fig. 7.

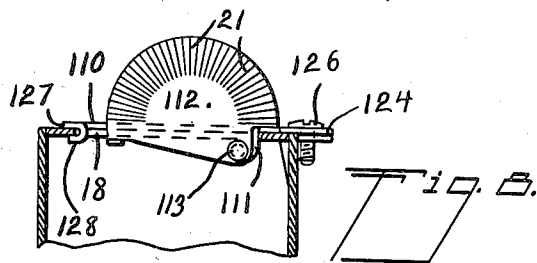


Fig. 8.

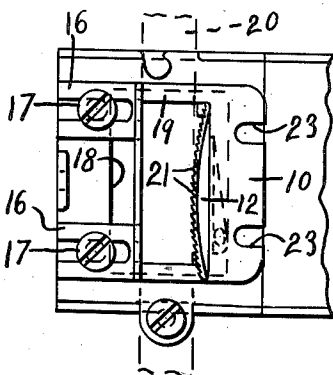


Fig. 9.

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2,047,294

CLAMPING DEVICE

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Application June 28, 1935, Serial No. 28,856

4 Claims. (Cl. 247-21)

This invention relates to the art of clamping devices and particularly such clamping devices of the type disclosed in my application for patent filed January 28, 1935, Serial Number 3,816, now Patent No. 2,031,861, Feb. 25, 1936, for use on electric switch boxes.

In its preferred embodiment the invention is a device for attachment to switch boxes and the like and particularly to switch boxes of conventional type and construction.

To fully explain the advantages of my invention I shall refer briefly to the construction and method of attachment of switch boxes now in use. Such boxes are provided with an outwardly extending flange at each end secured to the box by suitable screws, said flanges being provided with screw holes in which are received screws for securing the box to the lath of a wall. The boxes are also provided with knock-out portions which may be knocked out to provide openings in the box for conduits and wires. To adapt such boxes for use with my clamping device, additional knock-out portions are provided, oblong in shape and extending parallel with the flanges and adjacent thereto. Such additional knock-outs involve but a nominal increase in the cost of manufacturing the boxes. The boxes may therefore be attached in the usual manner with screws or the oblong knock-out portions may be removed and my clamp attached and used in securing the box in a wall.

It is therefore the object of my invention to provide a clamp attachment for switch boxes that may be attached thereto and used thereon without material alterations in construction, size, shape, or manufacture of switch boxes now in use.

Another object of my invention is to provide a device that may be attached to substantially any type of switch box having the conventional outwardly extending flange, and being provided with a suitable knock-out slot adjacent the flange.

Still another object is to provide a clamping device that may be set to clamp the box in walls of various thickness, such as lath, lath and plaster, metal lath, or wall-board.

Further objects of my invention relate to structural details for attaining simplicity of construction, durability, and inexpensiveness of manufacture.

Other objects will appear in the following detailed description taken in connection with the accompanying drawing wherein:

Figure 1 is a front elevation of my invention with the clamping member in its upward position.

Figure 2 is a side elevation of same.

Figure 3 is a plan view of same.

Figure 4 is a front elevation of my device with the clamping member in its lower position.

Figure 5 is a side elevation of my device attached to a switch box and clampingly receiving a lath between the clamping member and flange of the box.

Figure 6 is a plan view of the same, a portion of a lath being shown in dotted lines.

Figure 7 is a plan view of a modified embodiment of my invention.

Figure 8 is a partial vertical section through a switch box to which the modified embodiment shown in Figure 7 is attached, said view being taken on line 8-8 of Figure 7.

Referring more particularly to the drawing, reference numeral 10 indicates a substantially U-shaped plate having a downwardly extending, triangular ear or flange 11 to which a clamping member 12 is pivotally secured by a rivet 13. The clamping member is partly annular in shape and is provided with a shoulder 14 adapted to abut against the upper surface of the plate 10 when said clamping member is in its upward position, thereby limiting its movement in one direction.

Switch boxes of a type now in use are provided with an outwardly extending flange 15 at each end, said flanges having horizontal portions 16 provided with slots for adjustably receiving screws 17 therein, said screws being provided in the ends of the box for securing the flanges thereto.

For use with my clamping device each end of the box is provided with a knock-out portion, oblong in shape, and when said knock-out portions are removed, each end of the box is provided with an oblong slot 18 adjacent the respective flange and extending parallel therewith.

To attach my clamping device to a box end having the oblong knock-out portion, said knock-out portion is removed, the screws 17 loosened and arms 19 of the U-shaped plate inserted beneath the horizontal portions 16 of the flange 15, with the ear 11 extending inwardly through the slot, provided by the removal of the knock-out portion, said arms 19 being in a position adjacent the outward sides of the screws 17.

The desired spacing of the flange and the clamping member, relative to each other and their position on the box, is made, and the screws 17 tightened to secure the clamping device and flange tightly on the box. The width of the slot and the length of the arms 19 and the depth of the slots in the horizontal portions 16 determine the amount of variation in the spacing the flange

15 and clamping member to each other, as well as their respective positions on the box.

For thin wall-board the flange and clamping member are set relatively close together but where it is desired or necessary to secure the box in a thick wall comprising lath, or lath and plaster, the flange 15 and clamping member 12 are spaced further apart to accommodate the lath or lath and plaster.

In attaching the box the clamping device is secured thereto with the clamping member in proper spaced relation to the flange 15. The clamping member is moved to a position inwardly of the box through slot 18, as shown in Figure 4. The box is then inserted in a wall-hole prepared for its reception and the clamping member 12 moved outwardly of the box to clamp lath 20 between said clamping member and flange 15 as shown in Figure 5. By using a clamping device for each end of the box, said box is securely held in position in the wall.

Radially extending teeth 21 are peripherally provided on the clamping member and are adapted to permit the clamping member to be readily moved outwardly of the box, when clamping a lath or the like, but to resist movement in the opposite direction.

Should it be necessary to remove the box, the clamping member may be forced inwardly of the box, against the resistance of the teeth, a forwardly extending ear 22 being provided on the clamping member oppositely its pivotal axis. Preferably the clamping member is inclined slightly forwardly to cause the teeth to cut into the lath or wall-board and to produce a yielding pressure of the clamping member against said lath or wall-board.

The transversely extending portion of plate 19 is of sufficient width to close the rear part of the oblong slot 18 to prevent plaster or other foreign matter from entering the box at this point. Said transversely extending portion of the plate may also be provided with slots 23 extending forwardly from the rear edge thereof for receiving screws, as may be provided in some boxes, to attach the plate to the box.

The modified embodiment of my invention shown in Figures 7 and 8 is provided with a transversely extending plate 110 having an ear 111 to which a clamping member 112 is pivotally secured by a rivet 113. At one side of the plate 110 is a longitudinally extending member 124 provided with a longitudinal slot 125 for adjustably receiving a screw 126 with which standard switch boxes are provided. At the opposite side of plate 110 a forwardly extending portion 127 is provided, said portion 127 having an ear 128 turned under to slidably receive the adjacent box edge at the respective side of the slot 18. The ear 128 permits the plate 110 to be slidably moved forwardly or rearwardly, provided the screw 126 has been loosened, but holds the plate end against upward movement.

In attaching the modified embodiment of my invention to a box the screw 126 is removed, the ear 128 inserted under the slot edge of the box

and the screw replaced through the slot 125 in the longitudinally extending member 124. The clamping device is adjusted on the box relative to the flange 15 and the screw tightened. The box is clamped to lath or wall-board or the like in the same manner as is the preferred embodiment of my invention.

While I have shown my invention in combination with a switch box it is to be understood that it may be used on other types of boxes or on frames having flanges and slots in suitable association.

Having thus described my invention what I claim is:

1. The combination of a switch box having an outwardly extending flange and an opening therein adjacent to and parallel with said flange, with a clamping device comprising a plate secured to said box above the opening therein, a flange on said plate extending inwardly of the opening in a plane parallel with the outwardly extending flange of the box, and a clamp member pivotally mounted on the inwardly extending flange and adapted to be moved pivotally through the opening in the box in spaced relation with the outwardly extending flange.

2. The combination of a switch box having an outwardly extending flange and a slot therein adjacent to and parallel with said flange, with a clamping device comprising a plate having a pair of longitudinally spaced parallel arms extending laterally from one side thereof, a flange on the plate on the side having the arms, said flange being at substantially right angles to the plate and extending longitudinally thereof between the arms and extending inwardly through the slot in the box, a disk eccentrically pivoted to the flange, teeth on the side of the disk facing the outwardly extending flange on the box and pointed in one direction of movement of said disk to permit the clamp member to be readily moved into clamping association with the outwardly extending flange of the box and to resist movement of the clamp member in the opposite direction, said disk being movable through the slot, and means for securing the arms to the box.

3. The combination of a switch box having an outwardly extending flange and a slot therein adjacent to and parallel with said flange, with a clamping device comprising a plate, means for adjustably securing the plate to the box relative to the outwardly extending flange, said plate being above the slot, a flange on the plate extending inwardly of the slot in a plane substantially parallel with the outwardly extending flange of the box, and a disk eccentrically pivoted to the inwardly extending flange of the plate and adapted to be moved pivotally through the slot in spaced relation with the outwardly extending flange of said box.

4. A structure as set forth in claim 3 including teeth on the disk on the side thereof facing the outwardly extending flange of the box, said teeth being pointed in one direction of movement of the disk.

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