April 4, 1961 A. H. FURNISH 2,978,135

CLAMPING MEANS FOR AN OUTLET BOX

Filed Dec. 1, 1959

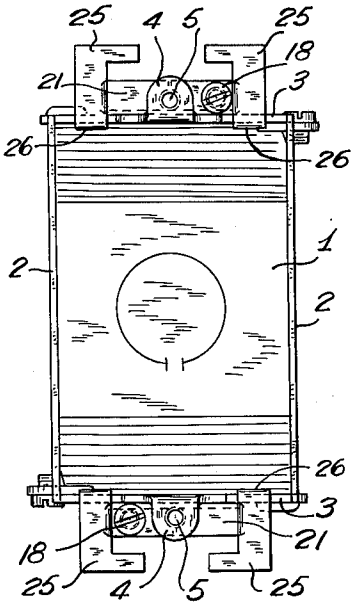


FIG. 1

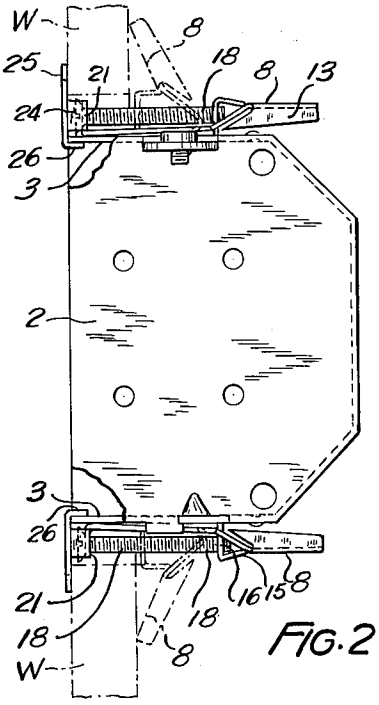


FIG. 2

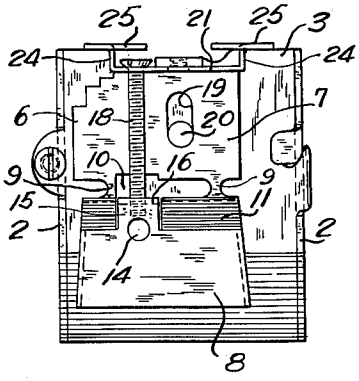


FIG. 3

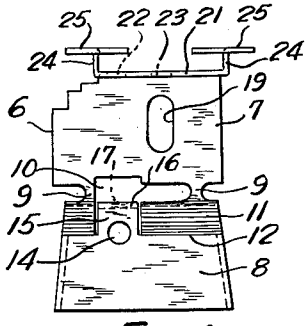


FIG. 4

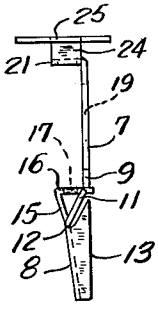


FIG. 5

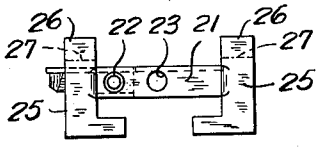


FIG. 6

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CLAMPING MEANS FOR AN OUTLET BOX

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10 Claims. (Cl. 220—3.6)

This invention relates to electrical outlet boxes and more particularly resides in a clamping means for attachment to a conventional outlet box by which the box is adapted for easy mounting in a dry wall construction, in newly plastered walls, and in older buildings where the wall surface is already in place.

This invention is an improvement over my Patent No. 2,798,630, granted July 9, 1957, for Electrical Outlet Box, and further is an improvement over the invention disclosed in my copending application Serial No. 750,969, filed July 25, 1958 and now abandoned.

It is an object of the present invention to construct a clamping means which may readily be attached to a conventional outlet box without modification of the box in any way.

Another object of the invention is a clamping means for attachment to the end walls of a conventional outlet box which may be stamped from a single piece of metal into a selected shape, and having a bendable portion for engagement with the inner surface of a wall to which the box is to be clamped.

A further object of the invention consists in a device of the kind described which embodies two main portions comprising a body portion and a dependent portion, which portions are formed as a unitary structure but which are connected together by integral webs which constitute weakened portions about which the dependent portion is movable in a manner similar to a hinge to permit the dependent portion to function as a clamping member to engage the inner surface of a wall to which the box is to be clamped.

A further object of the invention is to provide a clamping means adapted to be clamped to the end walls of an outlet box without modifying the structure of the outlet box and which comprises a stamped unitary construction having a portion adapted to be relatively moved with respect to another portion thereof to clamp the box within a wall opening.

A further object of the invention is to produce a clamping member for a conventional outlet box, which is extremely simple in construction and which can be stamped in one piece from a sheet of metal and readily attached to an outlet box of conventional form.

A still further object of the invention is to produce separate clamping members for attachment to the end walls of an outlet box which are extremely economical to manufacture and which will provide an effective and positive clamping means for clamping an outlet box inserted in an opening in a wall by engaging both the inner and outer surfaces of the wall adjacent the opening and in clamping relation thereto.

Other objects and advantages of this invention will become more apparent as the following description of an embodiment thereof progresses, reference being made to the accompanying drawing in which like reference characters are employed to designate like parts throughout the same.

In the drawings:

Figure 1 is a plan view of an outlet box of conventional design showing my invention in use;

Figure 2 is a side elevation of an outlet box showing my invention applied in use and illustrating in the upper part of the figure the device shown in broken lines in clamping position against the inner surface of a wall defining an opening within which the box is to be clamped, and showing, in solid lines, the position of the clamping device in non-clamping position;

Figure 3 is an end view of the clamping means and outlet box shown in Figure 1;

Figure 4 is a front elevation of a clamping member embodying my invention and which is shown as a stamping from a single sheet of metal;

Figure 5 is a side view of the device shown in Figure 4; and

Figure 6 is a top plan view of the clamping member shown in Figure 4.

In carrying out my invention, as distinguished from my issued patent and from the structure disclosed in my copending application, both above identified, I have provided an improved clamping means for electrical outlet boxes which is extremely simple in construction and which is positive and effective in its operation. The invention also contemplates the use of a clamping means entirely separate and distinct from the structure of the outlet box but which, by virtue of its construction and design, is easily applied to each of the end walls of a conventional outlet box and which, when so applied becomes a permanent part of the fixture without modifying the box itself.

More specifically, I have shown in Figures 1, 2 and 3 an outlet box of conventional design which comprises a bottom wall 1, side walls 2 and end walls 3. Each of the end walls is provided with a flange 4 having a threaded aperture 5 for receiving a screw by which a switch unit (not shown) is secured to the box.

Referring now more particularly to Figures 4, 5 and 6, I have illustrated a form of my present invention which consists of a stamping formed as a unitary structure and indicated generally at 6 which comprises an upper body portion 7 and a dependent portion 8 which is connected to the body portion by relieved weakened portions or webs 9 separated by a space or opening 10. The dependent portion 8 has an upper section 11 which is connected along its upper surface with the webs 9 and which is inclined to converge along a line 12 with the lower inclined portion of the body 8. The sides of the lower convergent portion of the body 8 are bent inwardly as clearly shown in Figure 5, as at 13, to form wing portions and thus to strengthen the dependent portion 8.

Along the line 12 where the inclined portion 11 and the inclined body portion 8 meet, there is provided an opening 14. A portion of the inclined wall 11 is struck up in forming the unitary structure to provide a substantially vertical wall 15 and a substantially horizontal wall 16, the vertical wall being weakened in its lower portion by the opening 14 located intermediate the side edges of the vertical wall 15 at its junction with the upper part of the dependent member 8. This will localize the point along which the struck up portion will bend with respect to the portion 8 when the latter portion is drawn upwardly to engage the building wall inner surface. The substantially horizontal wall 16 is provided with a threaded opening 17 to receive the threaded shank of a screw or bolt 18.

The main body portion 7 is apertured with an elongated aperture 19 which receives the button or rounded portion 20 formed outwardly of each of the end walls of a conventional outlet box, the purpose of this being

to allow for vertical adjustability of the clamping member on the box and also to centrally position the unit on the end wall of the box and to prevent lateral relative movement thereon.

The upper terminal portion of the body portion 7 is formed with a horizontal ledge 21 extending substantially across the width of the unit below the flange 4 and which is provided with an unthreaded opening 22 through which the headed bolt or screw 18 is free to pass and to engage its lower end with the threaded opening 17 of the dependent portion of the clamp.

A second opening 23 is also formed in the ledge 21 which is in axial alignment with the opening 5 of the flange 4.

The lateral extremities of the ledge 21 terminate in upwardly extending arms 24 which in turn are integrally connected with horizontal flanges 25 which latter flanges are outwardly disposed of the clamping device for the purpose of engaging the outer surface of a wall W adjacent an opening in which the box is to be supported.

Each of the horizontal flanges 25 terminates rearwardly in an end portion 26 which may be scored as at 27 to permit the end portions 26 to be easily bent over the top edges of the end walls of the outlet box as shown more clearly in Figure 2, thus providing means engaging the inner surface of the box and wall at the points 26 while the main body portion 7 lies flush against the outer surface of said end walls and is prevented from lateral movement relative to the end walls by means of the button 20 and the slot 19. It will also be seen that when the box is assembled in an opening in a wall and the switch unit (not shown) is locked in place by means of fasteners entering the openings 5 and 23, that the clamping members will be firmly attached and secured against any relative movement with respect to the end walls of the box. This is particularly true in that the lugs 4 overlie the ledge 21 and thereby prevent relatively vertical movement between the box and wall and the clamping unit once they are assembled together.

Referring to Figure 2, it will be seen, as shown in solid lines and in broken lines, that when the clamping units are attached to the end walls of the outlet box respectively as shown in full lines, that by turning the screw or bolt 18 in a direction to draw the dependent portion of the clamping device 8 in a counterclockwise direction, as shown in the upper part of Figure 2, or in a clockwise direction, as shown in the lower part of Figure 2, the said dependent portion will be drawn in such respective directions to the broken line position as shown in this figure to engage the inner surface of the wall in clamping engagement, the movement of the dependent portion 8 relative to the main body portion 7 being on an axis passing through the relieved or web portions 9.

While clamping devices such as employ my invention are simple in construction and inexpensive to manufacture, it is relatively unimportant that they be designed for multiple use, although I have found that the bending of the dependent portion 8 with respect to the body portion 7 about the tabs 9 even on several occasions in both directions will not result in a fracture of metal comprising the webs 9. Even so, the cost of producing these end wall clamping attachments is so low, and the necessity for removing boxes and replacing them in a wall is so infrequent, that these clamping devices may readily be discarded after each use and replaced by other similar clamping devices at very little cost.

Various changes may be made in the details of construction and arrangement of parts of the invention without departing from the spirit thereof or the scope of the appended claims.

I claim:

1. A clamping attachment for an electrical outlet box for clamping the box in a wall opening comprising a body portion, an integral depending clamping portion, spaced apart webs integrally connecting said portions to provide a weakened area about which said portions are relatively movable, said body portion having a horizontal flange projecting outwardly therefrom for engaging the outer surface of a wall in which the box is to be clamped, said depending portion having an integral nut formed thereon to receive a threaded fastener, said nut having a weakened connection with the depending portion whereby said nut is relatively movable thereon as the dependent clamping portion is drawn toward box clamping position, a ledge formed integral with the flange and body portion and having an opening therein for receiving a threaded fastener.

2. A clamping device for attachment to an electrical outlet box for clamping the box in a wall opening comprising as an integral structure a body portion having an outwardly projecting flange for engagement with the outer surface of a wall in which the box is clamped, a depending clamping portion, spaced apart integral webs connecting the said portions to localize and define an axis about which the said portions are relatively moved in clamping the box in the wall opening, said depending portion being engageable with the inner surface of the wall in which the box is clamped, and cooperating substantially horizontal portions formed integrally on said respective body and depending portions, said last named portions having aligned openings for receiving a threaded fastener.

3. A clamping device for attachment to an electrical outlet box for clamping the box in a wall opening comprising as an integral structure a body portion having an outwardly projecting flange for engagement with the outer surface of a wall in which the box is clamped, a depending clamping portion, spaced apart integral webs connecting the said portions to localize and define an axis about which the said portions are relatively moved in clamping the box in the wall opening, said depending portion being engageable with the inner surface of the wall in which the box is clamped, and cooperating substantially horizontal portions formed integrally on said respective body and depending portions, said last named portions having aligned openings for receiving a threaded fastener, one of the last named horizontal portions being threaded to receive a threaded fastener whereby the body and depending portions may be drawn toward each other about an axis passing through said webs.

4. A clamping device for attachment to an electrical outlet box for clamping the box in a wall opening comprising as an integral structure a body portion having an outwardly projecting flange for engagement with the outer surface of a wall in which the box is clamped, a depending clamping portion, spaced apart integral webs connecting the said portions to localize and define an axis about which the said portions are relatively moved in clamping the box in the wall opening, said depending portion being engageable with the inner surface of the wall in which the box is clamped, a rigid apertured horizontal ledge formed on said body portion, and a nut portion struck out of said depending portion and comprising a horizontal wall having a threaded opening therein in alignment with an opening in the ledge, said nut portion having a weakened integral connection with the depending portion to permit relative movement therewith.

5. A clamping device for attachment to an electrical outlet box for clamping the box in a wall opening comprising as an integral structure a body portion having an outwardly projecting flange for engagement with the outer surface of a wall in which the box is clamped, a depending clamping portion, spaced apart integral webs connecting the said portions to localize and define an axis about which the said portions are relatively moved in clamping the box in the wall opening, said depending portion being engageable with the inner surface of the wall in which the box is clamped, a rigid apertured hori-

zontal ledge formed on said body portion, and a nut portion struck out of said depending portion and comprising a horizontal wall having a threaded opening therein in alignment with an opening in the ledge, said nut portion having a weakened integral connection with the depending portion to permit relative movement therewith, and a threaded fastener operating in the aperture of the ledge and in the nut portion of the depending member to draw the depending member upwardly about its turning axis to bring the flange and depending portion into clamping engagement with the outer and inner surfaces of an apertured wall in which the box is to be clamped.

6. A clamping device for attachment to an electrical outlet box for clamping the box in a wall opening comprising as an integral structure a body portion having an outwardly projecting flange for engagement with the outer surface of a wall in which the box is clamped, a depending clamping portion, spaced apart integral webs connecting the said portions to localize and define an axis about which the said portions are relatively moved in clamping the box in the wall opening, said depending portion being engageable with the inner surface of the wall in which the box is clamped, and cooperating substantially horizontal portions formed integrally on said respective body and depending portions, said last named portions having aligned openings for receiving a threaded fastener, said flange having a rearwardly extending member bendable over one of the walls of the outlet box in attaching the member to the box.

7. A clamping device for attachment to an electrical outlet box for clamping the box in a wall opening comprising as an integral structure a body portion having an outwardly projecting flange for engagement with the outer surface of a wall in which the box is clamped, a depending clamping portion, spaced apart integral webs connecting the said portions to localize and define an axis about which the said portions are relatively moved in clamping the box in the wall opening, said depending portion being engageable with the inner surface of the wall in which the box is clamped, and cooperating substantially horizontal portions formed integrally on said respective body and depending portions, said last named portions having aligned openings for receiving a threaded fastener, said flange having spaced apart box attaching lugs extending rearwardly of the device.

8. A clamping means for an electrical outlet box including as a unitary structure a body portion for rigid attachment to an end wall of the outlet box, a dependent clamping member carried by said body, spaced apart webs connecting the member with the body to readily permit said member to move upwardly into wall clamping position about an axis deformed by said webs, said

body having a rigid flange for engagement with the exterior of a wall adjacent an opening in which the box is to be installed, said dependent member being inclined to the plane of the body and having a portion struck up from the member adjacent its upper portion and between the spaced apart lugs, a substantially horizontally inwardly disposed wall having a threaded opening therein and formed integrally with said struck-up portion for receiving a threaded member, and a threaded member operatively connecting said rigid clamping flange and said dependent clamping portion to draw the latter toward the rigid flange and the inner surface of a wall adjacent the opening in which the box is to be installed, said struck-up portion of the dependent clamp having an integral bendable connection with said dependent member.

9. A clamping means for an electrical outlet box including as a unitary structure a body portion for rigid attachment to an end wall of the outlet box, a dependent clamping member carried by said body, spaced apart webs connecting the member with the body to readily permit said member to move upwardly into wall clamping position about an axis deformed by said webs, said body having a rigid flange for engagement with the exterior of a wall adjacent an opening in which the box is to be installed, said dependent member being inclined to the plane of the body and having a portion struck up from the member adjacent its upper portion and between the spaced apart lugs, a substantially horizontally inwardly disposed wall having a threaded opening therein and formed integrally with said struck-up portion for receiving a threaded member, and a threaded member operatively connecting said rigid clamping flange and said dependent clamping portion to draw the latter toward the rigid flange and the inner surface of a wall adjacent the opening in which the box is to be installed, said struck-up portion of the dependent clamp being integral with the dependent clamping member and connected thereto by a weakened area in the said horizontal inwardly disposed wall to permit said dependent clamping portion to be drawn toward the rigid flange about said weakened area.

10. The invention as defined in claim 9 in which the horizontally disposed wall has bearing engagement at its free end with said body during movement of the dependent clamping member toward box clamping position.

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