June 30, 1936. R. E. HABEL 2,045,594

SWITCH OR OUTLET BOX MOUNTING

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Fig. 1.

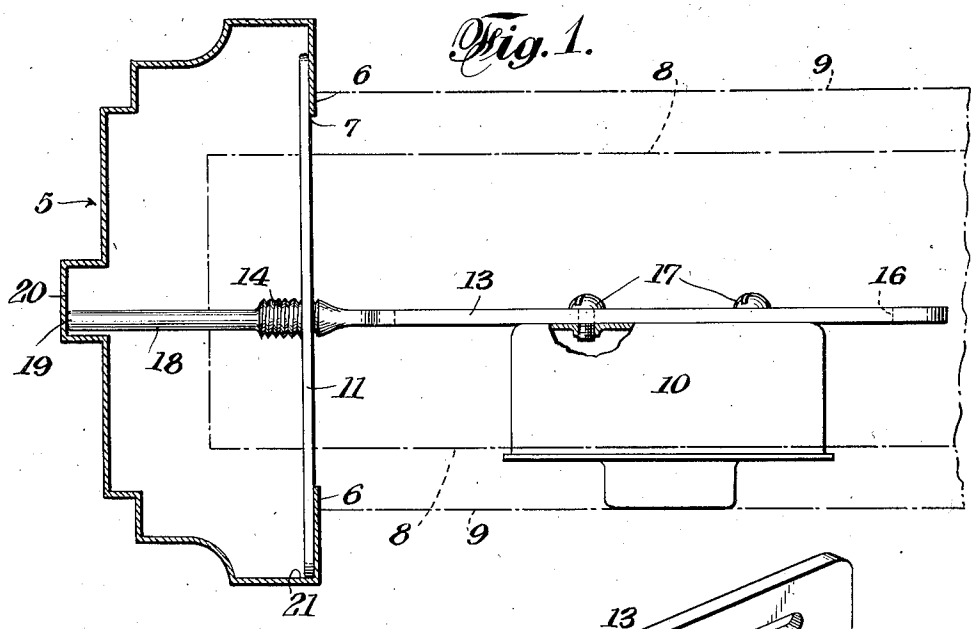

Fig. 2.

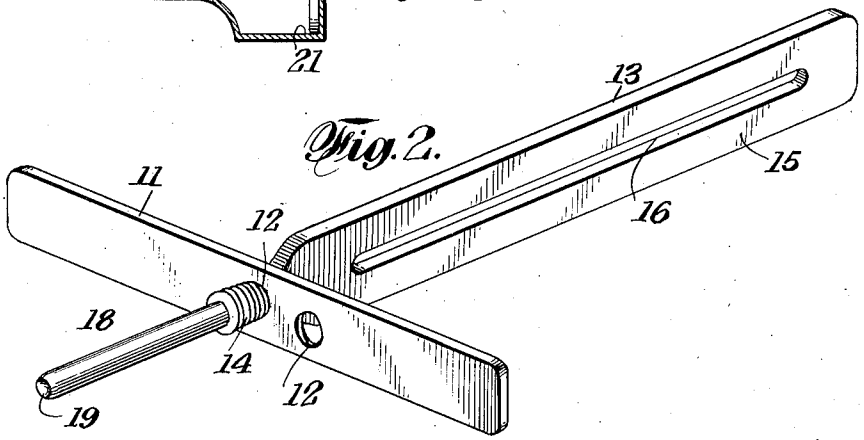

Fig. 3.

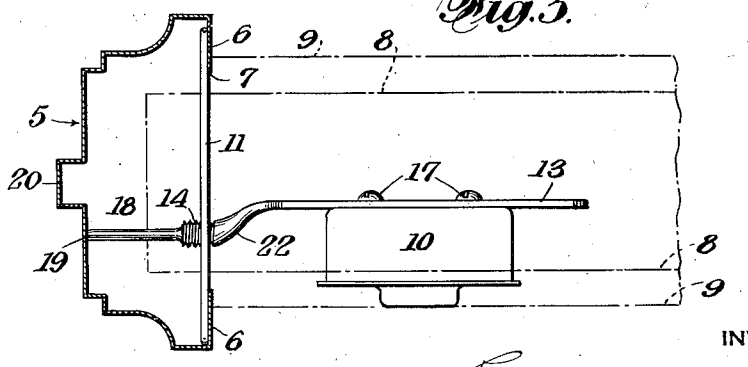

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Fig. 4.

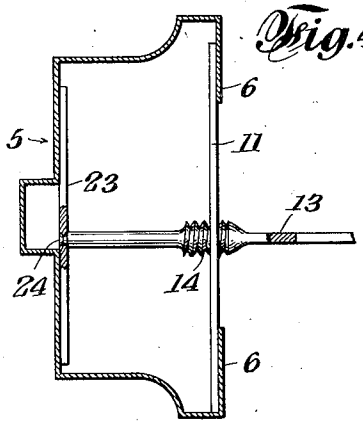

Fig. 5.

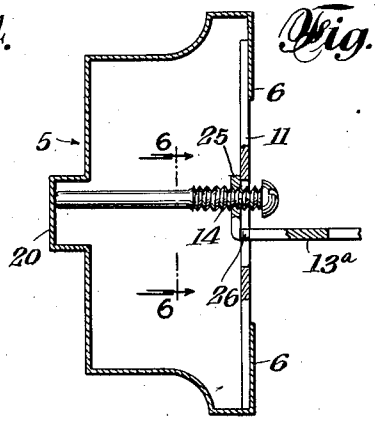

Fig. 6.

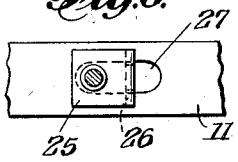

Fig. 7.

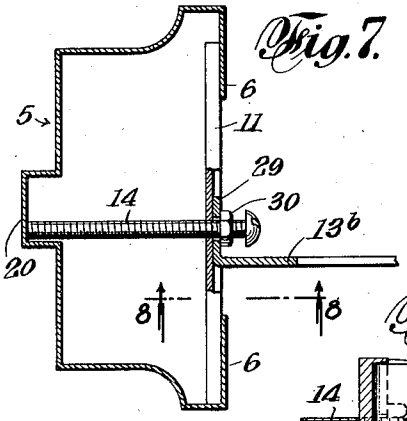

Fig. 8.

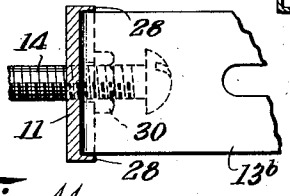

Fig. 9.

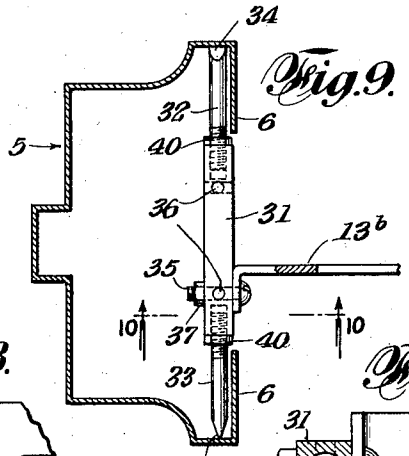

Fig. 10.

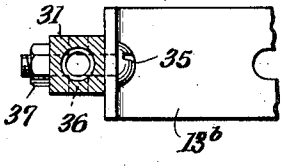

Fig. 11.

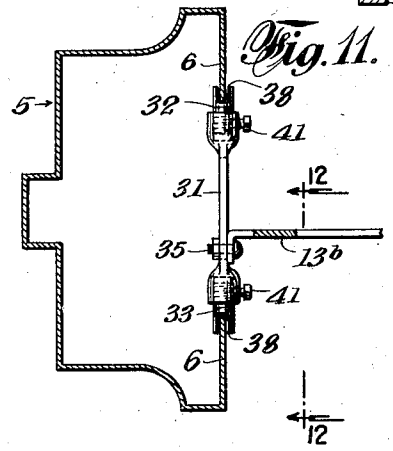

Fig. 12.

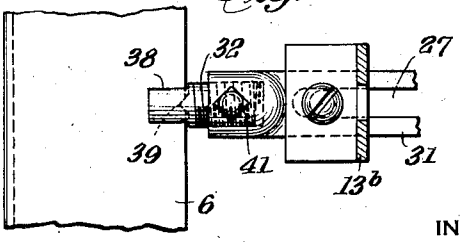

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Fig. 13.

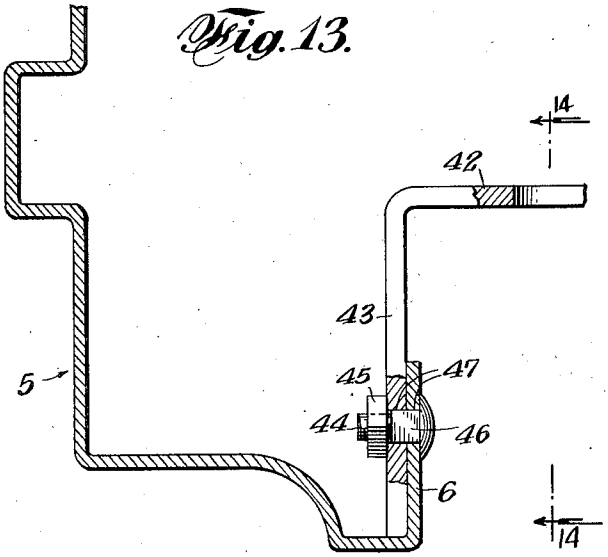


Fig. 14.

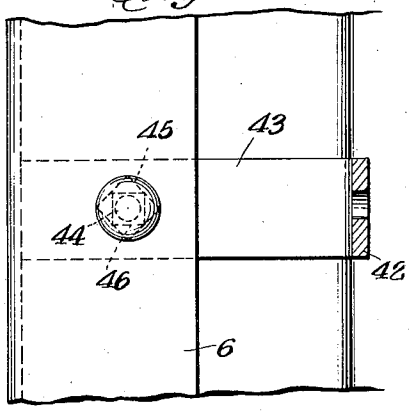


Fig. 15.

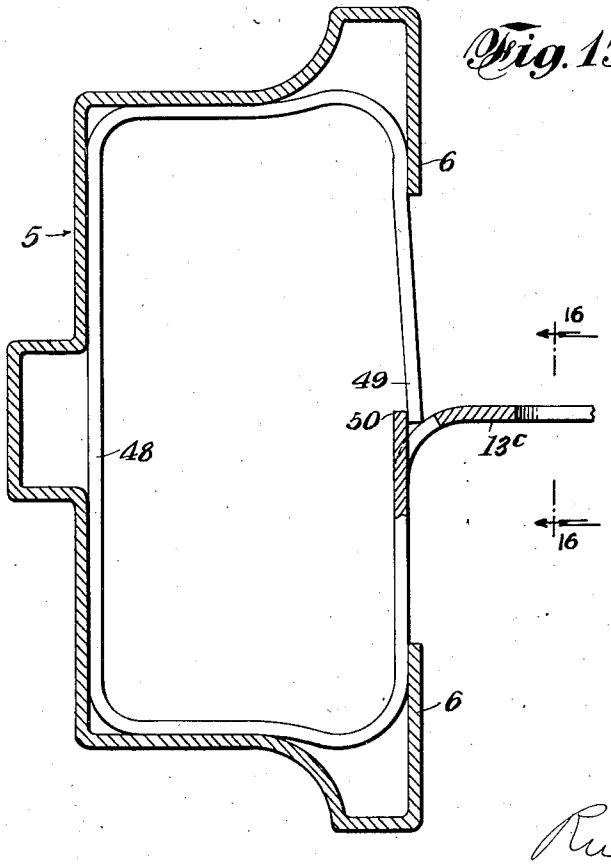
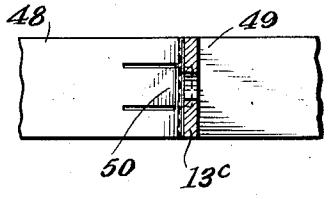


Fig. 16.



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Patented June 30, 1936

2,045,594

UNITED STATES PATENT OFFICE

2,045,594

SWITCH OR OUTLET BOX MOUNTING

Rudolph E. Habel, Bronx, N. Y.

Application February 1, 1934, Serial No. 709,251

2 Claims. (Cl. 247—21)

The objects of this invention are to provide a simple and inexpensive mounting by which switch boxes, outlet boxes and like electrical fittings may be supported in different desired relations on hollow steel door bucks.

These and other desirable objects are attained by the novel features of construction, combinations and relations of parts hereinafter disclosed and broadly claimed.

The drawings illustrate practical embodiments of the invention, but it will be understood that the structure may be modified and changed all within the true intent and broad scope of the invention.

Fig. 1 is a plan view of one simple form of the invention shown as applied to a hollow steel door buck, the latter appearing in section.

Fig. 2 is a perspective view of the complete support or bracket structure shown in Fig. 1.

Fig. 3 is a view similar to Fig. 1, illustrating a light modification of the invention.

Fig. 4 is a broken sectional view of a further modification.

Fig. 5 is a similar view of another form of the invention.

Fig. 6 is a fragmentary part sectional view as on line 6—6 of Fig. 5.

Fig. 7 is a broken sectional illustration of another form.

Fig. 8 is a fragmentary detail of the latter as on line 8—8 of Fig. 7.

Fig. 9 is a broken sectional illustration of another embodiment.

Fig. 10 is a sectional detail as on line 10—10 of Fig. 9.

Fig. 11 is a broken sectional view of another embodiment.

Fig. 12 is a fragmentary sectional view on line 12—12 of Fig. 11.

Fig. 13 is a broken horizontal sectional view of another form of the invention.

Fig. 14 is a broken sectional detail as on line 14—14 of Fig. 13.

Fig. 15 is a broken horizontal sectional view of another form of the invention.

Fig. 16 is a sectional detail of the same as on line 16—16 of Fig. 15.

In Fig. 1, a hollow steel door buck is illustrated in section at 5, this view showing in particular how such bucks are formed with inturned flanges 6, around the outside of the frame, leaving a wide slot 7, therebetween, receiving the wall tile indicated by the lines 8. When the plaster finish is applied to the wall tile, this slot is covered as indicated by lines 9, representing the finish surfaces of the wall.

Also in Fig. 1, there is represented an outlet box, switch box or the like at 10, which is supported at a definite distance from the buck which forms the door frame. For placing and supporting this electrical fitting, the following construction is employed, in the illustration:

A substantially rigid bar 11 of greater length than the distance between flanges 6, is positioned inside these flanges within the hollow of the buck and spanning the open slot 7. This cross bar has one or more screw-threaded openings 12, therethrough and engaged in one of these screw seats and projecting at both sides of the bar 11, is a fastening and supporting bar 13, screw-threaded or having a screw-threaded portion 14, engaged in one of the screw seats 12.

In the particular form shown, the supporting member 13 has a widened flat portion 15, forming a backing for the outlet box or other fitting and longitudinally slotted at 16, to take the screws 17, for adjustably securing the box fitting thereon. The opposite end of this bar member is shown as of reduced diameter at 18, and as having a tapered hollow terminal providing an annular reduced portion 19, for biting engagement with the back of the jamb groove 20, in the buck. The screw seats in the bridge piece 11, are shown as offset to one or both sides of the center of this bar, allowing for a certain amount of lateral positioning of the supporting member 13, with respect to the bridge piece and the bridge piece is shown as of less length than the full internal width of the steel buck, so that it may be slid one way or the other to locate the outlet box or other electrical fittings with respect to the final plaster line. Usually, the screw seats 12, are so placed that for certain sizes of bucks the bridge piece may be slid one way into engagement with the inside surface of the buck as at 21, Fig. 1, to bring a box supported on the bar 13, into proper registry with the plaster line and in such position, the holding end 19, of the box supporting bar will extend into the jamb groove 20, all substantially as indicated.

Further possibilities of adjustment may be provided by making the supporting bar with an offset 22, Fig. 3. The supporting bar may then be rotated one way or the other to locate it further away from or nearer to the plaster line 9.

Fig. 3 illustrates also the fact that the holding point of the supporting bar need not enter in the jamb groove, but may engage another portion of the back wall of the buck.

The invention it will be seen is adapted for the supporting of various kinds of electrical fittings and it will be realized also, that the actual struc-

ture may be modified and made up in various ways to incorporate the features of insertability through the open side of the buck into position back of the internal shoulders or flanges and the relative expansibility of the parts to then grip against opposed internal walls of the buck by means of screw mechanism readily accessible at the opening in the buck and which may constitute as here shown, actually part of one of the relatively expansible members. By locating and securing the anchorage portion of the support within the buck, there are no projecting parts other than the arm which carries the box or other electrical fitting.

To prevent deformation of the buck, such as might be caused by setting up the expanding screw too tight, the tip of the screw may carry a bar such as shown at **23**, Fig. 4. This bar may be swivelled on the end of the screw rod as indicated at 24, and in this relation, it provides an extended bearing distributing the pressure of the screw over an extended surface of the buck.

In Figs. 5 and 6, the screw is threaded in a nut member **25**, bearing against the back of the bridge bar **11** and the box supporting arm **13***a* constitutes an angularly bent extension of the nut piece, notched in its opposite edges at **26**, where it passes through a slot **27**, in the bridge bar. When this screw is loose, the nut member may be slipped one way or the other along the slot 27, to locate the box supporting arm in proper position and then as the screw is tightened, the nut will be forced against the back of the bar **11**, to clamp the structure in the proper box supporting position.

Figs. 7 and 8 illustrate the point that an ordinary so-called "stove bolt" may be used as the clamping screw, this being shown as screw-threaded through the supporting bar **11** and the latter is shown in this instance as in the form of a channel bar with its edge flanges **28**, facing outward and biting against the inside faces of the buck flanges **6**. In such relation, these flanges provide between them a guideway for the angularly bent base portion **29** of the box supporting arm **13***b* and such base portion fits loosely over the bolt but is held clamped thereon by the nut **30**.

In the two forms shown in Figs. 9, 10 and 11, 12, the supporting structure is expanded in a direction across the buck flanges instead of against the back or inner side of these flanges. Also, the expanding device is in the nature of a turn buckle. Thus in Fig. 9 there is an intermediate turn buckle member **31**, into opposite ends of which are oppositely threaded the screws **32**, **33**, chisel-pointed as at **34**, to bite against the inside faces of the buck in back of the flanges **6**. The box supporting arm **13***b* is in this case held on the intermediate member by a short screw **35**, passed through one of the openings **36**, in the turn buckle member and held there by nut **37**.

The Fig. 11 form differs from that just described, mainly in that the screw members **32**, **33**, which are oppositely threaded into the ends of the intermediate member, are forked at **38**, to embrace the edges of the buck flanges and are chisel-pointed in the crotches of these forks at **39**, to bite into the edges of the buck flanges.

In order that these expanding turn buckle devices may be locked in their positions of adjustment and the box supporting arm be thereby secured in horizontal outstanding relation, there are provided in the Fig. 9 form, lock nuts **40**, on the screws to abut the ends of the intermediate member and in Fig. 11, set screws **41**, to secure the screw members as adjusted.

Figs. 13 and 14 show how the box support may consist simply of an angularly bent bracket having one arm **42**, serving for support of the outlet box or other fixture and the other arm **43**, placed in back of one of the buck flanges **6**, and secured there by a screw **44**, and nut **45**, said screw having a square shank **46**, in correspondingly shaped openings **47**, in the buck flange and arm **43**. In this manner, the bracket is supported and held against turning on the buck and the single fastening serves for the purpose. The square openings in the buck flanges necessary for such fastening may be made with the buck in position on the job by a hand tool operating a square punch. As an alternative, in the course of manufacture, the buck may have one or a suitable number of such openings punched in the flanges of the same, the workmen then using such of these openings as best suited to the particular fixtures which are to be supported from the buck.

In Figs. 15 and 16, the supporting bracket is in the nature of a generally rectangular loop **48**, of strap iron or the like, shaped to bind against the angular interior of the buck, said loop of material having the angularly projecting box supporting arm **13***c* at one end and having the opposite end **49**, proportioned to wedge behind said projecting arm against the stop lug **50**, struck out of the back of said arm, to lock the structure in its expanded relation, frictionally gripping the interior of the buck. Upon squeezing the ends of this device toward each other, the loop will be contracted sufficiently to permit adjusting in the buck and then by forcing the end **49**, into place in back of the box carrying arm, the loop part will be expanded and secured in expanded condition.

What is claimed is:

1. A switch box mounting attachable to a hollow steel door buck having an open side with internal shoulders at opposite sides of said opening and comprising a bar of a length to bridge said opening and engageable with said internal shoulders of the buck, said bar having a screw-threaded passage therethrough and a box supporting member having a screw-threaded portion to turn through said screw passage, a gripping end portion engageable with the internal wall of the buck to thrust the bridge bar against the internal shoulders of the buck as the box support is rotated to screw it through said bridge bar and an outer projecting portion extending outwardly away from said bar to support a switch box spaced away from the open side of the door buck.

2. A switch box mounting as in claim 1 in which the gripping end portion of the box supporting member is a bar rotatably swiveled on the inner end of the member and forming an extended bearing for distributing the pressure exerted by the member over an extended surface of the internal wall of the buck.

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