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SUPPORT FOR ELECTRICAL FIXTURES AND THE LIKE

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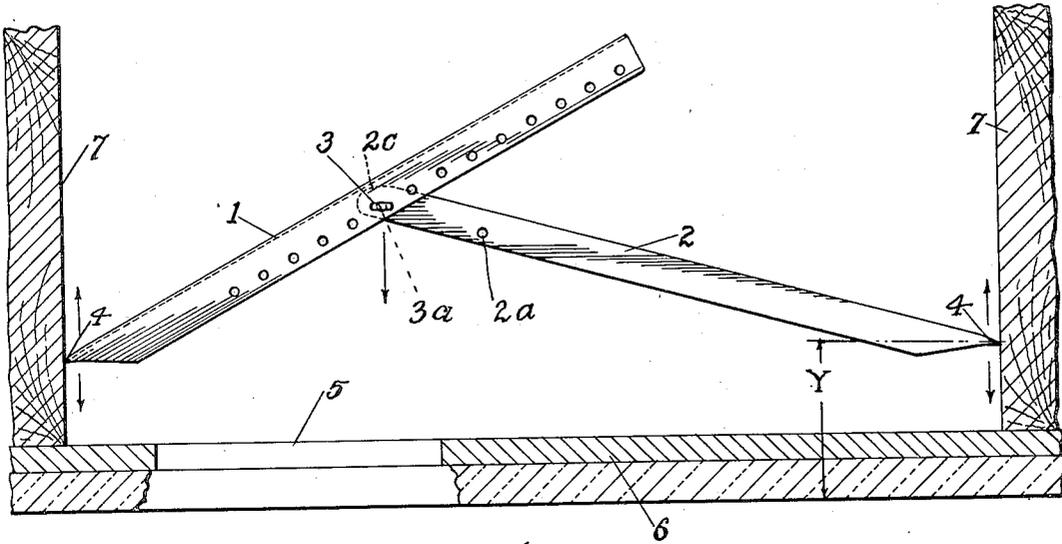


Fig. 1.

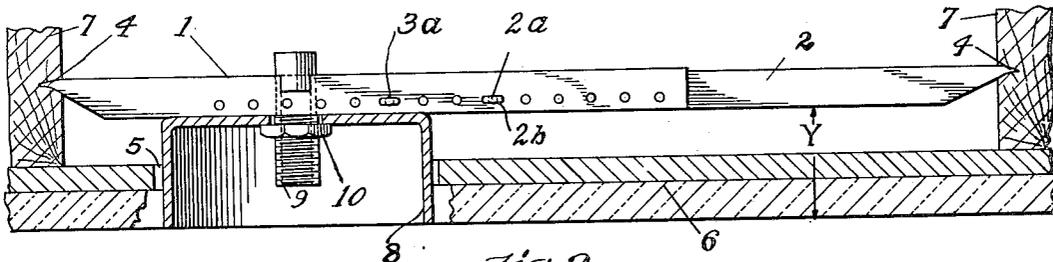


Fig. 2.

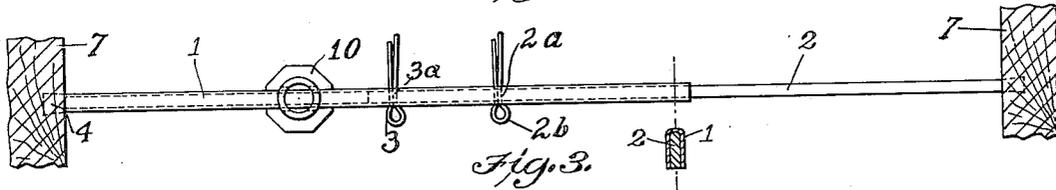


Fig. 3.

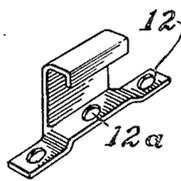


Fig. 4.

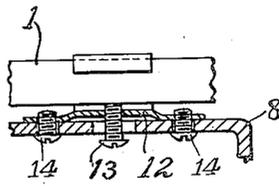


Fig. 5.

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SUPPORT FOR ELECTRICAL FIXTURES AND THE LIKE

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2 Claims. (Cl. 247-22)

This invention relates to devices for securing fixtures, such as electrical outlet boxes, hangers for ceiling type fans, loom holders and pipe hangers, within or against a ceiling or wall, to be supported by two joists.

It pertains more particularly to supports, of a novel knock-down toggle construction, that are adapted to be used in old walls or ceilings where the joists are spaced apart variantly.

The objects are, to provide a fixture support the constituent parts of which can be stamped cheaply from sheet metal or bar stock and formed so as to be nested for shipment in minimum space; to provide a simple, compact and inexpensive device characterized by having two bars that are adapted to be extended togglewise into a longitudinally alined position to serve as a strut between two joists, and then to be locked against buckling; to provide the bars with means for their longitudinal adjustment to suit variant distances between joists.

My invention also includes an improved easily attachable clip by which the outlet box can be easily and quickly secured to the fixture support.

The new results which are attained by my invention will be apparent from brief consideration of the facility and accuracy with which a workman can put the support into operation after passing it through a small hole in the wall or ceiling, in manner to be described.

With the foregoing and certain other objects in view which will appear later in the specifications, my invention comprises the devices described and claimed and the equivalents thereof.

In the drawing Fig. 1 is a cross sectional view through the joists of a ceiling showing a preferred form of my invention as it appears after having been inserted through a small hole in the facing ready to be extended and locked so as to support a standard electrical outlet box.

Fig. 2 is a similar sectional view showing this support anchored to the joists, the outlet box being secured to the support with its marginal edge flush with the facing.

Fig. 3 is a plan view of the toggle members as viewed from above in Fig. 2, the outlet box being omitted.

Fig. 4 is a perspective view of a preferred form of clip for securing the box to the toggle bar.

Fig. 5 is a fragmentary side view of the clip applied to a toggle bar and to the outlet box.

As is clearly shown in the drawing, the toggle consists of two bars 1 and 2 releasably secured together by a pivot pin 3. Each bar is prefer-

ably formed at the upper edge of its outer end with a prong 4, preferably chisel-shaped.

The bars 1, 2 may be of any appropriate cross sectional shape to enable them to be nested for convenience in shipping and handling. Bar 1 may be made of sheet metal formed to U-shaped cross section, presenting a trough into which the companion bar 2, which may be either solid or U-shaped, can be nested for shipment or else telescopically engaged for use, as shown. An end of bar 2 is rounded as at 2c to permit its jack-knife action with U-bar 1. Near the bottom marginal edge of each bar is a hole 3a, or else a row of spaced holes, as shown, through which is inserted a pintle 3, usually a cotter pin. Preferably bar 2 has a second hole 2a positioned to come in register with one of the holes 3a of bar 1 when the bars are in the extended position shown in Figs. 2 and 3. A pin 2b may be passed through the registering holes to lock the bars in extended position. The workman manipulates the bars in the following manner:

Having pivotally joined the bars 1 and 2 by means of pin 3 he takes the resultant toggle in one hand, passes it in partly folded form through a small hole 5 made in the lath-and-plaster facing 6, into the space between the joists 7, 7. With the fingers of that hand he then spreads the toggle until the ends of its bars 1, 2 touch the joists 7, 7, as shown in Fig. 1. Next he brings the ends 4, 4 of the support into their permanent position by moving them along the faces of the joists 7, bringing them more or less toward or away from the wall facing 6 as indicated by the arrows. The toggle is then straightened by pulling the joint downwardly as shown in Fig. 1, that is, in a direction at right angles to the length of the toggle. The ends 4, 4 are thus driven into anchored engagement with the joists.

No measurements need be taken in order to position the support 1, 2 at the proper distance, Y, to accommodate a given outlet box 8 and bring its marginal edge flush with the facing, or into other desired position, because after a few trials the operator's sense of touch becomes a sufficiently accurate guide.

The outlet box 8 can be fastened to the bars 1, 2 in any convenient way, for example by means of the hook-bolt 9 shown in Figs. 2 and 3. The hook bolt 9 is hooked over bar 1, as shown in Fig. 2, outlet box 8 is put in place, its top resting against the lower edge of the bar 1 and the threaded shank of the hook bolt 9 projecting into the "knock-out" hole of the box. A lock nut 10

is then run onto the threaded shank of the bolt to clamp the box to the bar 1.

A preferred structure is shown in Figs. 4 and 5 as shown, having a flanged base 12 formed with a central threaded hole 12a to receive a clamping screw 13. The ends of base 12 have threaded holes that receive the fastening screws 14.

The clip is first hooked over the bar 1 as shown in Fig. 5 and the screw 13 is tightened, after which the outlet box 3 is placed against the base 12 of the hook and secured by the screws 14. The effective length of the fixture support is adjusted to suit each installation according to the distance apart of the joists 7, 7, the adjustment being made by means of the removable pin 3 and the row of holes along the marginal edge of bar 1.

The function of pin 2b, which is remote from pin 3, is to prevent the bars 1, 2 from buckling and becoming unlocked. This pin, 2b, therefore prevents accidental unfastening of the fixture while the workmen are attaching connections to the outlet box.

From the foregoing description it will be apparent that the device, in the preferred form illustrated is simple, compact, inexpensive to manufacture and capable of being easily applied between two concealed joists through a small hole in the wall or ceiling, that is, a hole only large enough to admit the hand of a workman.

The toggle-like movement, producing longitudinal extension that results in anchoring the ends 4 into the sides of the joists 7, associated with any suitable means for locking the two members 1, 2 in their alined position will attain these desirable results which are characteristic of my invention.

While I have shown and described the bars 1 and 2 as being connected by a removable pintle

3a that can be received in any one of a plurality of holes, for adjusting the length of the support to suit various distances between the joists 7, yet it will be apparent that my invention in its broader aspect as herein claimed is not confined to the specific adjustment structure illustrated, but does include in its scope any known or usual means for making extensible either of the bars 1, 2 or both of them. It is only essential to the successful practicing of my invention that the fixture support shall consist of two hinged bars which by toggle action are caused when straightened to imbed their ends in the joists and thereby firmly anchor the fixture support between the joists for the purposes set forth.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. Supporting means for an electrical outlet box, said means being adapted to be inserted through a hole in a wall or ceiling between two spaced joists thereof comprising in combination a bar having a chisel shaped prong at the upper edge of its outer end and formed near its bottom marginal edge with a row of spaced holes, a second bar also having a chisel shaped prong at the upper edge of its outer end and formed near its end with a hole positioned to register selectively with holes of said row, a pivot pin received in said registering holes for releasably hinging said bars in overlapping relation, a clip adapted to be fastened to said outlet box, said clip releasably engaging one of said bars, means for releasably clamping said clip to said bar, and means for securing to said clip the outlet box to be supported.

2. The structure set forth in claim 1 in combination with a removable locking pin adapted to releasably secure said bars together at a point remote from said pivot pin.

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