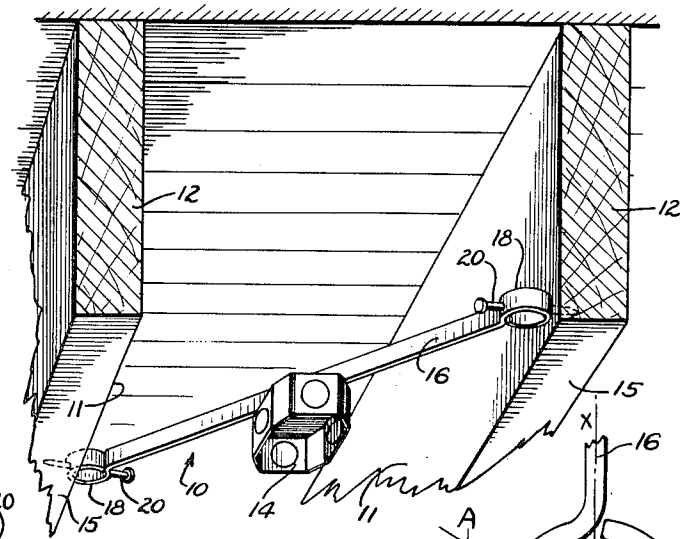
Dec. 21, 1954 A. I. APPLETON 2,697,573

BAR HANGER ASSEMBLY

Filed Nov. 24, 1950

Fig. 1



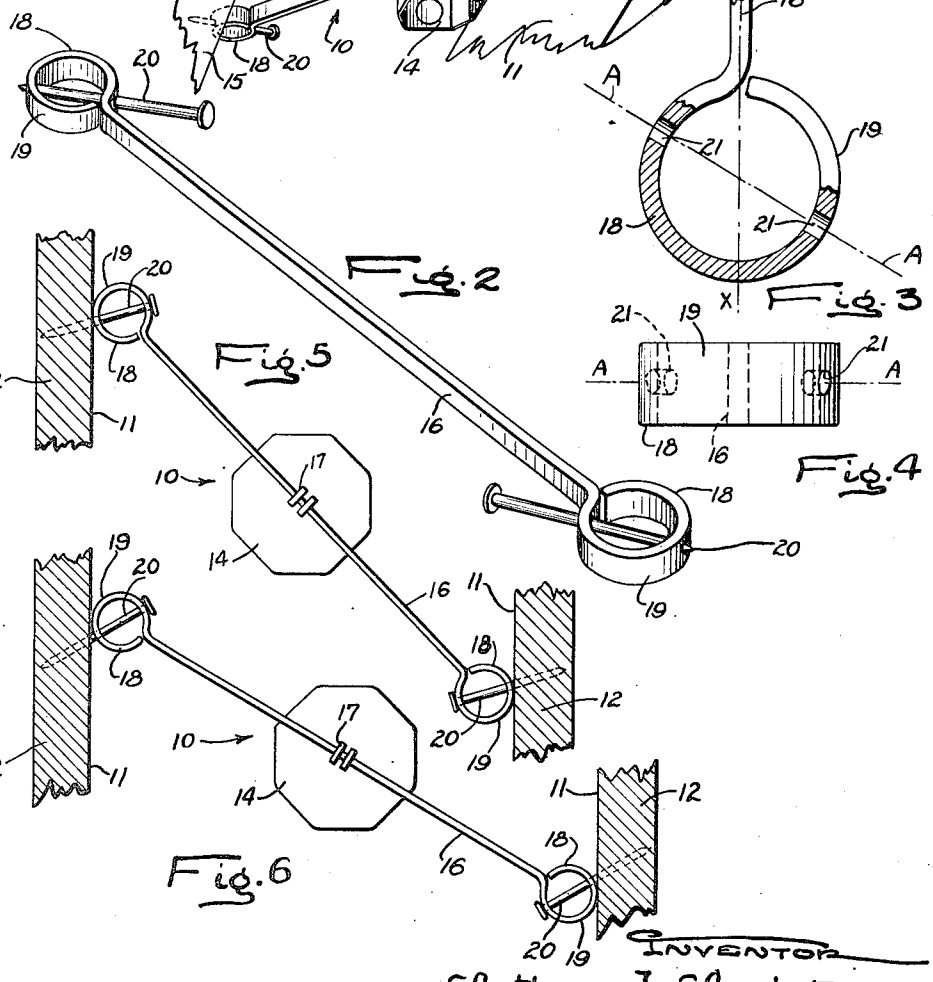


Fig. 2

Fig. 5

Fig. 6

Fig. 3

Fig. 4

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BAR HANGER ASSEMBLY

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Application November 24, 1950, Serial No. 197,292

1 Claim. (Cl. 248—57)

The present invention relates to supporting devices for electrical boxes and fixtures used in power supply systems of buildings and other structures. More particularly, the invention is concerned with a novel bar hanger assembly for mounting outlet boxes and the like in overhead positions between laterally spaced floor joists or other appropriate supporting surfaces.

Bar hangers commercially available heretofore fall into two conventional types. One type consists of an S-shaped length of bar stock having a series of holes at either end to permit accommodation of the hanger to various joist spacings. When installing this type of hanger, the electrician must hold the bar hanger and outlet box, then insert a nail into the appropriate hole in the bar, hold the nail with his fingers, and subsequently hammer the nail in. The installation of such a bar hanger has always been an awkward and cumbersome job.

The second type of conventional bar hanger consists of a piece of bar stock with a U-shaped offset therein to permit recessed mounting of an outlet box between a pair of floor joists. Installation procedure for this particular type of hanger is similar to that just described for the S-type hanger and is equally cumbersome. Moreover, in installations where a ceiling is to be suspended from the floor joists, it is necessary to make notches in the lower edges of the joists to receive the bar hanger. This results in the obvious disadvantage of weakening the floor joists.

The general object of the present invention is, accordingly, to provide a novel bar hanger assembly which will be susceptible of installation between a pair of adjacent floor joists or the like with substantially greater ease and facility than bar hangers of any type heretofore known.

Another object is to provide a bar hanger assembly capable of being installed between joists having various lateral spacings without change or modification of such assembly.

A further object is to provide a bar hanger assembly of the character set forth having greater strength than hangers of any type heretofore known and which can easily be mounted in any desired position relative to the plane of the bottom edges of a pair of floor joists without notching or otherwise weakening the joists.

Other objects and advantages will become apparent as the following description proceeds, taken in connection with the accompanying drawing, wherein:

Figure 1 is a perspective view of an illustrative bar hanger assembly embodying the present invention and mounted between a pair of adjacent floor joists so as to support an outlet box therebetween.

Fig. 2 is a perspective view of the illustrative bar hanger of Fig. 1.

Fig. 3 is an enlarged fragmentary plan view of the end portion of the hanger of Fig. 1 with a portion of the same broken away and shown in horizontal section.

Fig. 4 is an end elevational view of the end portion of the bar hanger shown in Fig. 3.

Figs. 5 and 6 are plan views illustrating the manner in which the novel bar hanger accommodates itself to various joist spacings.

While the invention is susceptible of various modifications and alternative constructions, a preferred embodiment has been shown in the drawing and will be described below in considerable detail. It should be understood, however, that there is no intention to limit the invention to the specific form disclosed, but on the contrary, the intention is to cover all modifications and alternative

constructions falling within the spirit and scope of the invention as expressed in the appended claim.

Referring more specifically to the drawing, the invention is there shown embodied in an illustrative bar hanger assembly **10** in the process of being installed between opposed side faces **11** of a pair of adjacent, laterally spaced supports in the form of floor joists **12**. Rigidly fixed to the hanger assembly **10** is an outlet box **14**, the assembly **10** being so located relative to the bottom edges **15** of the joists that the lower edge of the box in this instance lies substantially coplanar with the lower edges **15** of the joists.

The assembly **10** comprises an elongate bar **16**, which in this instance happens to be of substantially rectangular cross section, together with an appropriate box clamp **17** which may be of any suitable construction. Preferably, the clamp **17** is of a type which will permit rotation of the box **14** in a horizontal plane to permit alinement of the box with the joist faces **11** regardless of the angle made with the latter by the bar **16**.

The bar **16** is preferably oriented so that the longer dimension of its cross section will be disposed substantially in a vertical plane or perpendicular to the box when the assembly **10** is installed, the shorter dimension of the bar cross section being disposed substantially in a horizontal plane or parallel to the box. The bar **16** comprises an intermediate or beam portion, terminating in end portions **18** each in the form of a substantially closed loop, the general plane of each such loop being substantially perpendicular to the general vertical plane of the bar **16**. Preferably, each of the loops comprising the end portions **18** is fashioned with a circular shape, the outer periphery of each such loop approximating a cylindrical bearing surface **19** adapted to abut solidly against the face **11** of the adjacent joist or other support. By properly proportioning the overall length of the bar hanger assembly **10** to make the same greater than the maximum center-to-center distance of a series of different joist spacings, it will be perceived upon reference to Figs. 5 and 6 that the hanger assembly **10** can be interposed between pairs of joists having various spacings and the bearing surfaces **19** will make solid contact with the joist faces **11** regardless of the joist spacing. The only variable, under these conditions, is an immaterial one, being the angle between the bar **16** and the joist faces **11**.

Provision is made for attaching the hanger assembly **10** to the joists **12** by the use of nails **20** having points projecting in opposite directions and being already secured in starting position in the end portions **18**, from which position each nail can be driven substantially radially through a corresponding one of the bearing surfaces **19** and into the adjacent joist **12**. This is accomplished by forming each of the end portions **18** with a pair of alined holes **21** for receiving one of the nails **20**. The holes **21** are of a diameter which defines a rather tight sliding fit with the nail, permitting the nail to be pressed into starting position at the factory and hammered home upon installation but meanwhile being held so that the nail cannot be withdrawn by hand. The holes **21** in each end portion **18** are disposed in straddling relation with respect to the longitudinal axis of the bar **16**, being located upon an axis AA which is non-parallel with respect to such longitudinal axis of the bar (see Fig. 3). While the particular angle between the longitudinal axis of the bar **16** and the axis AA is not critical, the latter should be so located that the pointed end portion of each nail defines an obtuse angle with that portion of the bar **16** between the looped end portions **18**. This insures that there will be a satisfactory nailing angle for the installer regardless of the particular spacing of the joists between which the hanger assembly **10** is to be mounted. Since the foregoing structural arrangement provides at each end of the bar **16** a pair of supporting points, one on each side of the longitudinal axis of the bar, and disposes each nail or fastener so that, primarily because of its resistance to transverse bending forces, it opposes twisting of the bar **16** about the longitudinal axis of said bar, twisting of the bar **16** about such axis is most effectively resisted. Such resistance is enhanced due to the solid contact between the cylindrical bearing surfaces **19** and the side faces of the joists **12**.

At this point, it will be apparent that the bar hanger assembly **10**, including the box **14**, may be installed with ease and facility by a single individual working without assistance. All the installer has to do is support the bar **16** and the box **14** with one hand so that the box will be located in the desired position relative to the plane of the bottom edges **15** of the joists. While this may be done with or without a supporting and locating jig, it will be found highly desirable to utilize a jig of the type disclosed and claimed in my copending application Serial No. 197,293, filed November 24, 1950. Holding the hanger assembly **10** and box **14** in this position with his one hand, the installer can then quickly secure the assembly and box in place by taking a hammer in his other hand and applying a few blows on the head of each of the nails **20** carried by the respective end portions **18**. There is no need for the installer to worry about starting the nail or striking his fingers or to operate in an awkward manner to support the hanger assembly **10** while it is being installed. Nor is there any need for the installer to notch out or otherwise weaken the joists **12** during installation of the hanger assembly **10**.

In addition to the features already discussed, the novel bar hanger assembly **10** possesses a number of important advantages. First of all, the box **14** may be recessed to any desired depth relative to the plane of the bottom edges of the floor joists so as to accommodate the hanger installation to various ceiling constructions. By reason of its novel end construction, the hanger assembly **10** can easily be used with various joist spacings without requiring its length to be changed or requiring other modifications. The hanger assembly **10** is also disposed with its entire span oriented for maximum resistance to bending, enabling it to support heavy overhead fixtures or other equipment from the outlet box **14** without danger of sagging. Since the forces due to the weight load on the bar **16**, as well as those forces tending to twist the bar **16** about its longitudinal axis, are applied to the nails in a direction which is normal thereto rather than axial, there is little if any tendency for the nails to pull out of the joists. The fact that each nail is continuously guided and supported at two axially spaced points while being driven in virtually eliminates the likelihood of accidental bending of the nail during installation.

I claim as my invention:

A bar hanger for securing an outlet box or the like between a pair of laterally spaced supports such as floor joists, said bar hanger comprising, in combination, a bar of substantially rectangular cross section having a longer and a shorter cross-sectional dimension, end portions on said bar each defining a substantially closed loop having a general plane lying perpendicular to said longer cross-sectional dimension and presenting a convex bearing surface curving in said general plane, each said loop having a pair of coaxially alined holes therein, the axis of each said pair of holes being generally radial with respect to said convex bearing surface and skewed with respect to the general longitudinal axis of said bar, and a pair of pointed fasteners secured respectively in each said pair of alined holes with a relatively tight sliding fit, said fasteners being disposed with their respective pointed end portions projecting in opposite directions from each other but each defining an obtuse angle with that portion of said bar between said loops, said fasteners, said loops and said bar being constructed and arranged so that twisting of said bar about said longitudinal axis after installation is positively precluded.

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