

Dec. 22, 1964

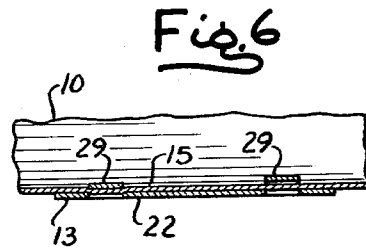
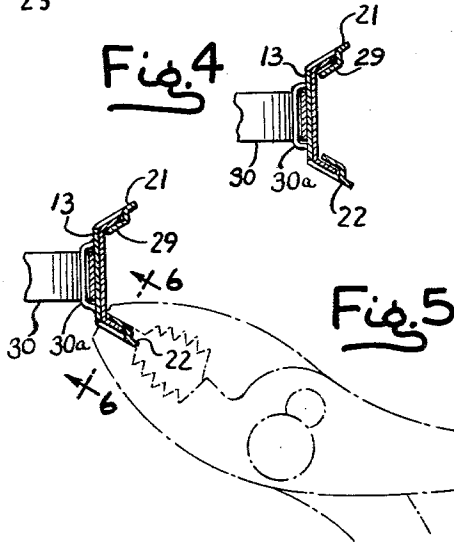
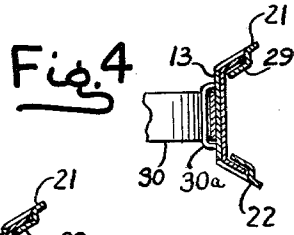
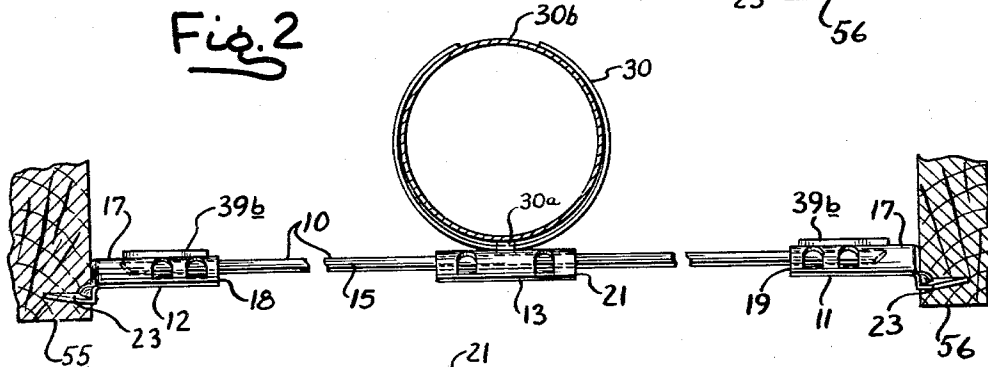
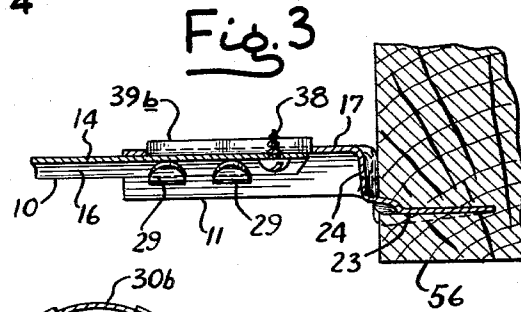
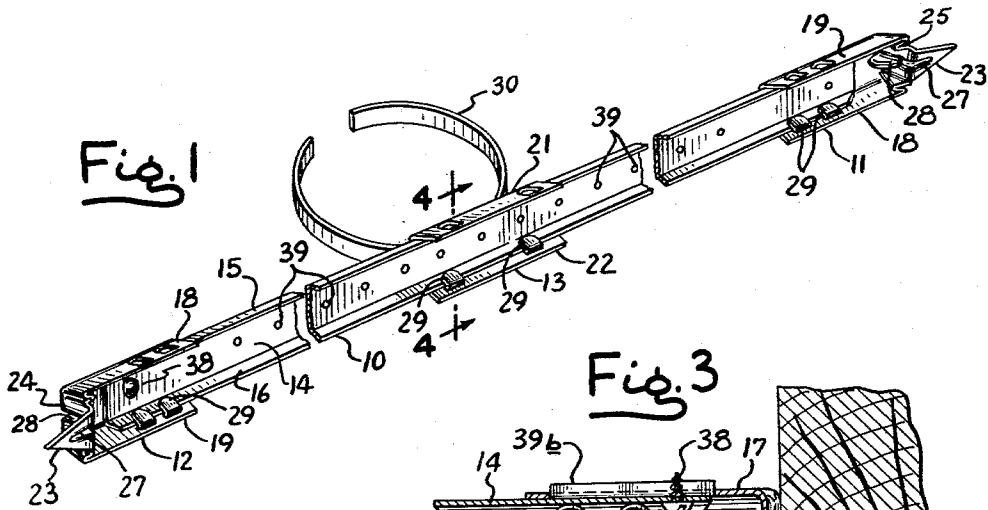
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3,162,413

BAR HANGER

Filed April 26, 1962

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

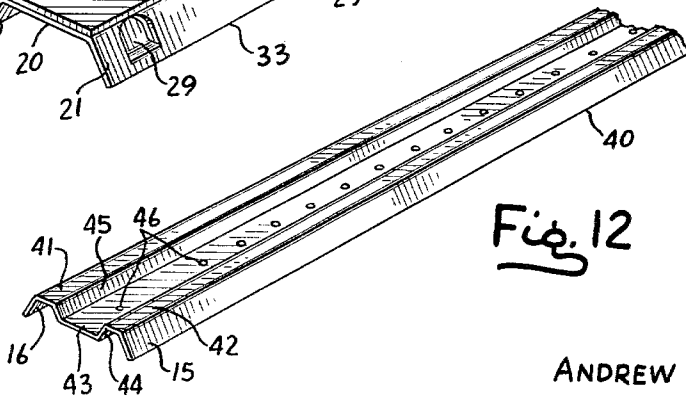
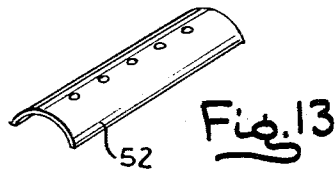
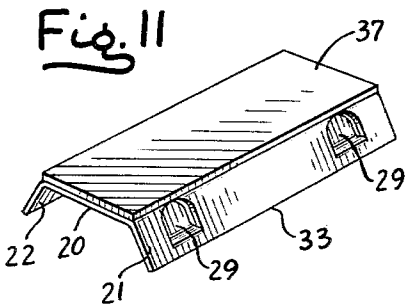
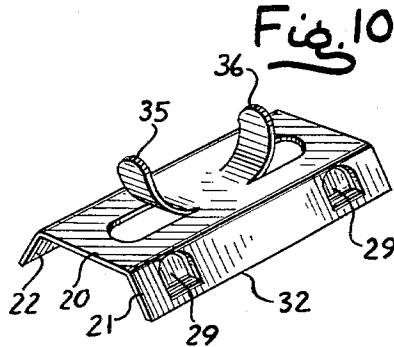
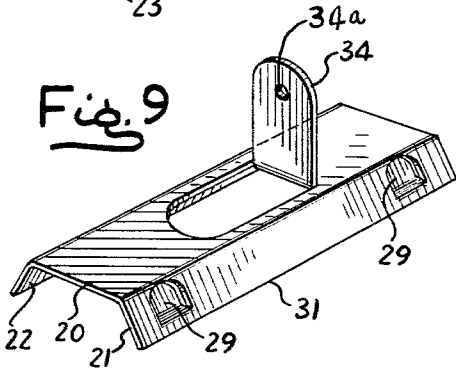
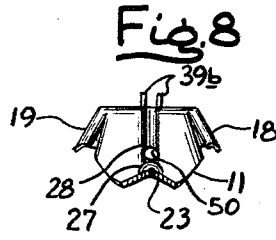
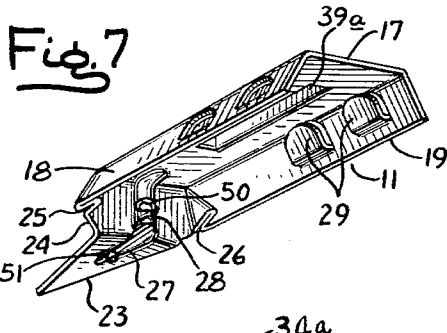


Fig. 12

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3,162,413  
BAR HANGER

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9 Claims. (Cl. 248-71)

The present invention relates to hanger bars for supporting building components, such as pipes, ducts, electrical wiring and the like.

It is an object of the present invention to provide a hanger bar which may be conveniently installed between parallel building members, such as joists, rafters or studs, without the use of nails, screws or the like. A related object is to provide such a hanger bar adapted to be readily mounted in many types of locations and positions.

A further object is to provide a hanger bar capable of being adapted to support building components of widely varying shape and size. It is also an object to provide such a hanger bar having means for adjustably positioning and holding supported elements at selected positions along the length of the bar.

It is an additional object to provide a hanger bar of the above type which is not only inexpensive to manufacture and easy to install, but which is also strong and dependable.

Other objects and advantages of the invention will become apparent upon reading the attached detailed description and upon reference to the drawings in which:

FIGURE 1 is a perspective view showing a hanger bar incorporating the features of the present invention;

FIG. 2 is an elevation of the hanger bar;

FIG. 3 is a vertical section of one end of the hanger;

FIG. 4 is a cross section taken along line 4-4 in FIG. 1;

FIG. 5 is a cross section corresponding to FIG. 4 showing how the parts are locked together;

FIG. 6 is a partial section taken along line 6-6 in FIG. 5;

FIG. 7 is an enlarged perspective view of one end piece of the hanger;

FIG. 8 is an end elevation of one end piece of the hanger;

FIGS. 9, 10 and 11 are perspective views of three alternative forms of the attaching clip;

FIG. 12 is a perspective view of an alternative channel construction of the hanger bar; and

FIG. 13 is a perspective view of another alternative channel construction of the hanger bar.

While the invention will be described in connection with a preferred embodiment, it will be understood that I do not intend to limit the invention to that embodiment, but on the contrary, intend to cover all alterations, modifications and equivalents as may be included within the spirit and scope of the invention as defined by the appended claims.

Turning now to the drawings, there is shown in FIG. 1 a hanger bar incorporating the features of the present invention. In the preferred embodiment, this hanger bar comprises an elongated body member 10 having end support means 11 and 12 and an element mounting means 13. As shown here, the body 10 is a relatively long channel-shaped member having a substantially flat longitudinal back portion 14 and longitudinal sides or flanges 15, 16, depending from opposite sides thereof. Thus, it may be seen that the body 10 may be easily formed from a single piece of flat sheet metal simply by bending over the lateral edges 15, 16. In the exemplary embodiment an angle of about 120 degrees between the back 14 and the respective edges or flanges 15, 16 allows the body 10 to be easily formed in a simple bending or stamping operation and at the same time provides the requisite stiffness to the hanger. This angle is, however, only exem-

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plary and is not critical to the practice of the invention.

The support means for the hanger bar comprises slidable members 11 and 12 shaped with channeled cross sections which are complementary to the outer surface of the body 10 to permit the members 11 and 12 to overlap and slide axially relative to the body. Since the support members 11 and 12 are similar, only one need herein be described in detail. The member 11 has a saddle or back portion 17 and laterally depending flanges 18 and 19 which are substantially longer than the body flanges 15, 16 such that they extend beyond the lower edges of the latter. Integrally formed on the outer end of the member 11 is a pointed projection 23 capable of being driven into a wooden joist or beam. In order to provide the flanges 18, 19 and the point 23, the support members are shaped from a single piece of sheet material having a rectangular main portion with a triangular portion projecting from the central part of one side. The flanges 18, 19 are formed by bending down the sides of the main portion adjacent the side having the triangular projection. As the flanges are formed, the area at the base of the triangular projection is bent downwardly to form a perpendicular end cap 24 with folds 25, 26 which merge into the flanges 18, 19 being produced as a result of crimping the material (see FIG. 7). The point 23 comprising the triangular portion of the sheet material is then bent outwardly in an axial direction in downwardly offset relation to the saddle 17. Reinforcing grooves 27, 28 extending longitudinally of the point 23 and vertically of the cap 24, respectively, are also formed in the process of crimping the extending portion of the saddle 17.

Means for mounting and holding pipes, ducts and the like on the hanger bar body comprise clips or sliders 13 also formed of sheet material. Each clip comprises a bridge portion 20 and depending flanges 21, 22 from the respective sides thereof. The cross section of the clips 13, like that of the support members 11, 12, is of channel shape complementary to the outer surface of the body 10.

In accordance with the present invention, the end support means 11, 12 and the mounting means 13 are slidably connected to the body 10 for longitudinal movement. For this purpose, means forming a slidable mounting are provided. The mounting means includes a plurality of ears 29 struck inwardly from the flanges 18, 19, 22, 21, each leaving an opening therein. The ears 29 are connected or hinged at their base to the lower or outer portion of the flanges and extend inwardly and upwardly therefrom generally parallel to the flanges so that the ears lap over and engage the inner surface of the edges 15 and 16 of the body. Preferably, the ears 29 have a slight inward offset at the point of connection to the flanges to accommodate the thickness of the sheet material of which the body is formed. Thus, it may be seen that the edges 15, 16 in addition to stiffening the body 10 also provide runners for the slidable end members 11, 12 and the clip 13.

Telescoping on opposite ends of the body 10, the support members 11, 12 provide an extensible hanger bar with a minimum length equal to the length of the body 10 and the two protruding points 23. The minimum length is chosen so that the hanger bar may be conveniently placed perpendicularly between two parallel support members such as rafters, studs or joists 55, 56. The body length may be manufactured such that with the added length of the points 23, a standard spacing of joists, sixteen inch centers, for example, can be accommodated. By simply cutting off a part of the body length 10 at the time of installation, the hanger may be used for lesser spacing. With the hanger bar properly oriented between two joists or the like the support members 11, 12 may be telescoped outwardly so that the points 23 engage the joists, thus supporting the hanger. In this regard the

members 11, 12 may be forcibly urged outwardly merely by hitting the inner surface of the cap 24 with a hammer, thereby causing the point 23 to penetrate deeply into the wooden joist 56 (see FIG. 3).

To secure various building components to the hanger bar, one or more clips 13 are mounted on the body 10 prior to installing the hanger between its supports. As shown in FIGS. 1 and 2 a substantially circular clamp 30 is secured to the clip 13 by a transverse bracket 30a in the shape of an inverted U which is struck from the bridge 20 of the clip. The clamp 30 may be used to locate and hold a variety of building components such as a pipe or circular duct 30b between the parallel supports 55, 56. After the hanger is anchored in place with the points 23 embedded in the supports 55, 56 and the pipe or duct 30b secured in the clamp 30, the ends 11 and 12 and the clip 13 may be locked in place on the body 10. Locking of the ends and clip is accomplished simply by compressing and clamping the ears 29 firmly against the edges 15, 16 of the body 10. This may be done in any convenient manner such as by a pair of pliers as illustrated in FIG. 5. The ears 29 pressed firmly against the edges 15 (see FIG. 6) thus lock the clip 13 on the body 10.

Many alternative clip arrangements may also be employed on the novel hanger bar to anchor and hold a variety of other building components. FIGS. 9, 10, and 11 illustrate three forms of such clips, but it is to be understood that these are only exemplary and that others may also be employed to advantage. Each of these clips 31, 32, and 33 is similar to the clip 13 insofar as the construction of the bridge 20, flanges 21, 22, and the ears 29 is concerned. They differ only as to the building component holder. In this respect, clip 31 (FIG. 9) has a single tongue 34 with a suitable mounting hole 34a struck from the bridge 20 and extending upwardly and outwardly therefrom. Such a tongue 34 could, of course, be used to anchor a wooden block or metal bracket or similar component on the hanger bar between the studs, joists, or rafters merely by nailing, screwing, or bolting the component to the tongue. Similarly, the clip 32 (FIG. 10) may be used to support small pipe, conduit, cable, or heavy electrical wire. For this purpose, a pair of upwardly curved wings 35, 36, extending in opposite axial directions, have been struck from the bridge 20. The pipe, cable or the like may be either loosely nested between the wings 35, 36 or firmly clamped therein by bending the wings around the part to be secured. On the clip 33 (FIG. 11) the bridge 20 has been covered with a heat resisting material such as asbestos sheeting 37 in order that this clip might be used to support heating ducts, steam pipes or similar hot objects.

To increase the utility of the hanger bar the back 14 of the hanger body 10 defines a plurality of small holes 39. These holes may be used for securing building components directly to the hanger bar such as by metal screws or nails. In addition, the supporting members 11, 12 and the clips 13 may be permanently secured to the body 10, after installation, by drilling a matching hole through the saddle 17 or bridge 20 and inserting a self-tapping metal screw 38 (FIG. 1). In another aspect of the invention the supporting members 11, 12, and clips 13 are provided with a longitudinal slot 39a positioned centrally of the saddle 17 or bridge 20 in overlying relation to the holes 39 in the hanger body 10. If desired, the slot may be formed by bending upwardly short ridges or lugs 39b. By this means drilling of holes in the members 11, 12 or clips 13 at the time of installation is eliminated. Fastening devices, such as self-tapping screws, can be used for holding the parts of the hanger bar securely in position as previously described. Such securing means is particularly advantageous when the hanger bar is used to support heavy horizontal components since the screws would prevent any slipping of the body 10 in the ends 11 and 12.

Further provision may be made for securely holding

the hanger bar in a desired position and for increasing the range of ways in which the bar may be mounted. To accomplish one aspect of the foregoing, means is provided for receiving a fastener, such as a nail or a screw, positioned such that the fastener can engage the wood joist or other building on which the bar is mounted (FIG. 7). For this purpose, a perforation or hole 50 is formed in the perpendicular end cap 24 of the end supporting members 11, 12 above and in line with the center line of the pointed projection 23. After the bar has been mounted as previously described, additional strength is obtained by driving a nail or screw through the hole 50 and into the joist 56. Since the undersides of the hanger bar 10 and end members 11, 12 are recessed due to their channel cross-section, space is provided for a hammer or other driving tool to engage the fastener. An additional perforation or hole 51 is formed in the projecting point 23 located approximately centrally of its length. Means is thus provided for receiving a fastener pointed in a direction perpendicular to the hanger bar, increasing the number of ways in which the bar can be mounted. Such means permits the attachment of the hanger bar point projections to the bottom of a joist by driving a fastener upwardly into the joist through the hole 51. These additional mounting means permit the use of the hanger bar in unusual and difficult installations if the pointed projection alone is not adaptable to the particular circumstances.

For supporting extremely heavy components, an alternative body construction may be employed to provide added stiffness to the hanger bar. Such a body member 40 is shown in FIG. 12. The body 40 has depending edges 15 and 16 similar to the previously described body 10. However, a strengthened channeled cross section is formed by a pair of flat ridges 41, 42 and a recessed back 43 connected by inner channel sides 44, 45. A plurality of holes 46 may also be punched or drilled in the recessed back 43, to add to the versatility of the body 40. It is preferable that the alternative body 40 is the same width as the body 10 so that the clips 13, 31, 32, 33 may be mounted interchangeably on either body member. However, the size of either body member may be altered so long as the mounting clips are adjusted to conform to the outer surface of the body.

Another alternative form of body construction 52 is formed with a semicircular cross section having the concave side opening downwardly. In this form the outer edge portions of the semicircular section comprise the flanges of the body while the central portion forms the back portion in the same manner as the previously described forms. As with the other forms of body construction, the end members 11, 12, and clips 13 may be formed complementally with the outside contour of the body member.

I claim as my invention:

1. A bar hanger for supporting building components between a pair of laterally spaced supports such as wooden joists or the like, comprising, in combination, a relatively long channel-shaped body member having depending longitudinal edges, a pair of channel-shaped end members having depending flanges shaped to lie over and conform to the outer surface of said body, a plurality of ears struck from said flanges to leave an opening therein, said ears being hingedly connected at their lower edge and extending inwardly from said flanges to engage the inner surface of said longitudinal edge, and said end members being slidably mounted on opposite ends of said body and having axially protruding points for penetration into the laterally spaced supports.

2. A bar hanger for supporting building components between a pair of laterally spaced supports such as wooden joists or the like, comprising, in combination, a relatively long channel-shaped body member having depending longitudinal edges, a pair of channel-shaped end members having a back portion and depending flanges shaped

to lie over and conform to the outer surface of said body, a plurality of ears struck inwardly from said flanges and connected at one edge to said flanges for engaging the inner surface of said longitudinal edge, said end members being slidably mounted on opposite ends of said body and having axially protruding points for penetration into the laterally spaced supports, and said back portion of said end members defining a longitudinal slot for receiving a fastener for securing said end member in selected longitudinal position relative to said body member.

3. A bar hanger as defined in claim 2 in which said longitudinal slot is defined by a pair of parallel upstanding ridges struck from the back portion of said end members.

4. A bar hanger for supporting building components between a pair of laterally spaced supports such as wooden joists or the like, comprising, in combination, a relatively long channel-shaped body member having depending longitudinal edges, a pair of channel-shaped end members on opposite end portions of said body and having depending flanges shaped to lie over and conform to the outer surface of said body, a plurality of ears being hingedly connected at their lower edge to said flanges and extending inwardly therefrom to engage the inner surface of said longitudinal edges for slidably holding said end members on said body, each end member having a perpendicular cap portion enclosing the outer end thereof and having an axially protruding point on the lower edge of said cap portion for penetration into the laterally spaced supports.

5. A bar hanger for supporting building components between a pair of laterally spaced supports such as wooden joists or the like, comprising, in combination, a relatively long channel-shaped body member having downwardly and outwardly depending longitudinal flanges, a plurality of relatively short channel-shaped slidable members mounted on said body, said members having depending flanges shaped to overlie and conform to the outer surface of said body, said flanges on said slidable members extending downwardly and outwardly substantially farther than said longitudinal body flanges and a plurality of ears struck from said flanges on said slidable members and connected at their lower edge to said flanges and extending inwardly from said flanges to engage the inner surface of said body flanges, two of said members being slidably positioned on opposite ends of said body and having protruding pointed tips for penetrating into the laterally spaced supports to hold said bar hanger in selected position.

6. A bar hanger for supporting building components between a pair of laterally spaced supports such as wooden joists or the like, comprising, in combination, a relatively long channel-shaped body member having de-

pending longitudinal sides, a pair of channel-shaped end members having depending flanges shaped to lie over and conform to the outer surface of said body, a plurality of ears on said flanges and extending inwardly from said flange to engage the inner surface of said longitudinal side of said body member, a clip member for holding a building component on said body, said clip member being slidably mounted on said body between said end members and having clamping means for selectively positioning said clip member along the length of said body, and said end members being slidably mounted on opposite ends of said body and having axially protruding points for penetration into the laterally spaced supports.

7. A bar hanger for supporting building components between a pair of laterally spaced supports such as wooden joists or the like, comprising, in combination, a relatively long body having a channel-shaped cross section and depending longitudinal sides, a plurality of slidable members mounted on said body, said members having a shape including depending flanges complementary in cross section to the outer surface of said body member, said flanges extending substantially beyond said longitudinal edges, a plurality of upwardly and inwardly extending ears struck from said flanges and being integrally hingedly connected thereto, said ears shaped to overlap said longitudinal sides of said body and engage the inner surface thereof, a pair of said slidable members being oppositely mounted on the ends of said body and having axially offset protruding pointed ends for penetrating and gripping said laterally spaced supports, and at least one of said plurality of members having means on its upper portion intermediate said flanges for securing building components to said hanger.

8. A bar hanger as claimed in claim 7 in which at least one of said plurality of slidable members has lug means on its upper portion curved upwardly therefrom for mounting circular building components on said bar hanger.

9. A bar hanger as claimed in claim 7 in which at least one of said plurality of slidable members has an upright lug struck from the upper portion thereof, said lug defining an aperture for receiving a fastener to hold a building component to said bar hanger.

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