Jan. 5, 1960 F. E. HUME 2,919,879

STRAP HANGER

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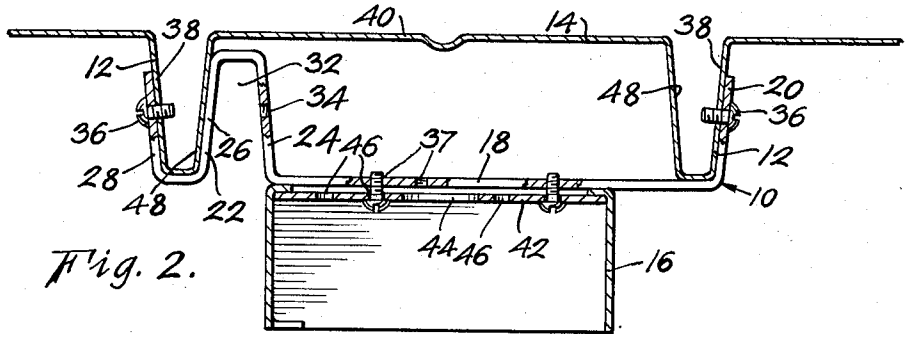


Fig. 2.

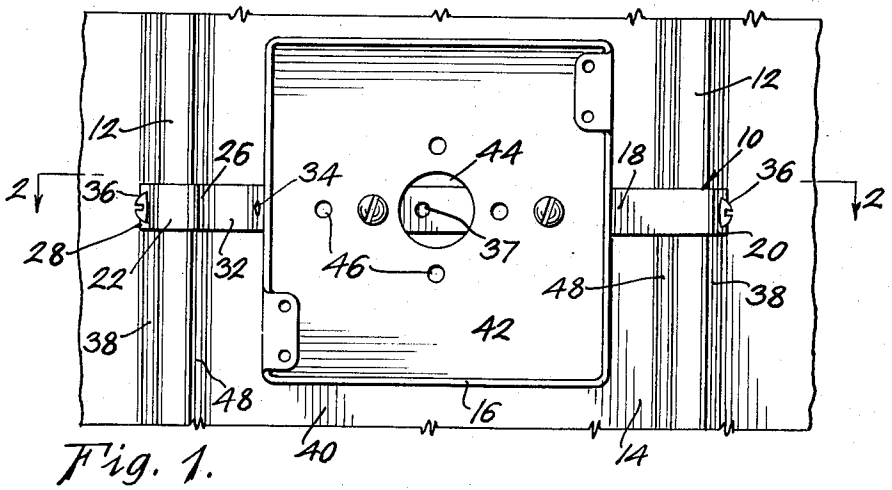


Fig. 1.

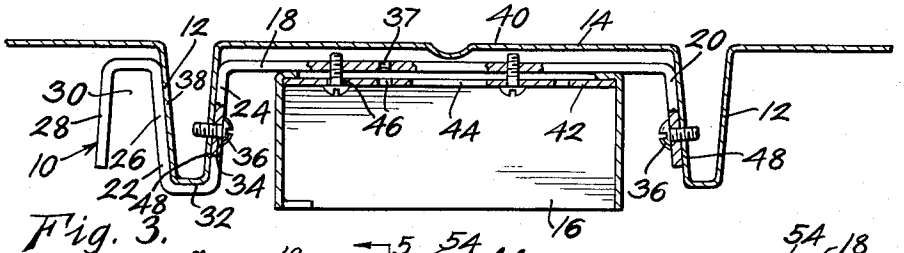


Fig. 3.

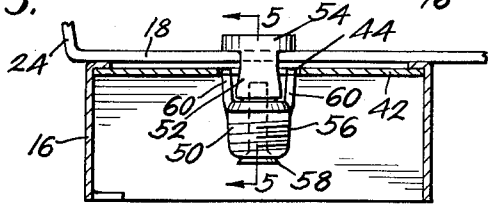


Fig. 4.

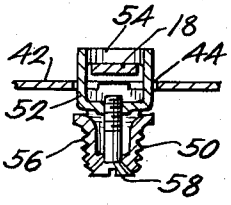


Fig. 5.

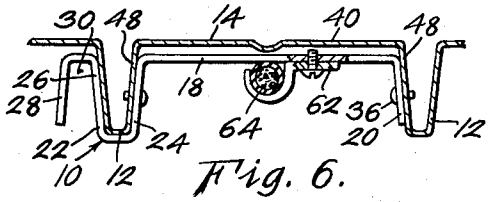


Fig. 6.

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STRAP HANGER

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7 Claims. (Cl. 248—205)

This invention relates to hanger bars and, more particularly, to strap hangers of a type ideally suited for use in supporting electrical boxes, conduit and cable.

One of the most popular techniques used in modern building construction provides roofs formed from a plurality of prefabricated metal panels laid in parallel rows and covered with successive layers of roofing felt, tar and gravel. Of the many types of pre-fabricated metal panels used for this purpose, perhaps the most common one includes spaced parallel webs which are hollow and stamped or otherwise pressed from the sheet. The electrical boxes and conduits connected therebetween are customarily positioned between these spaced webs and attached to that portion of the panel lying between the webs by metal screws or similar fasteners. This, of course, results in punctures in the roofing composition and in the panel at a point where it is most likely to leak in bad weather. If, on the other hand, means could be provided in the form of a suitable bracket which could be used to attach these electrical components to the web of the panel, the problem of leakage would be non-existent as it would be unnecessary to puncture the felt, tar and gravel covering.

The underside of these pre-fabricated metal panels is customarily covered with a conventional acoustical ceiling which rests against the parallel webs and is thus spaced beneath the planar portions lying between the webs. The electrical conduit which extends between the boxes is usually strung along between the webs and above the acoustical ceiling; however, the boxes themselves may be either recessed above the ceiling panels or attached in flush relation to project downwardly through suitable openings in the panels. A universal hanger bar would thus provide means for attaching the electrical boxes to the pre-fabricated metal panels in either flush or recessed relation and it should also provide means for attaching the conduit thereto.

It is, therefore, the principal object of the present invention to provide a strap hanger ideally suited for use in supporting electrical boxes and conduits used therewith from pre-fabricated metal roofing panels of the type including spaced parallel webs.

A second object of the invention is the provision of a universal hanger strap or bar which can be used to attach electrical components to pre-fabricated metal roofing panels in either flush or recessed relation.

Another object of the invention is to provide a metal strap which is attached between the webs of a metal roofing panel in such a manner that it does not require the location of fasteners in a position to puncture the felt, tar and gravel coating customarily used to form the roofing composition.

Further objects are to provide a strap hanger which is extremely simple, lightweight, and easy to install by even inexperienced workmen.

Additional objects are to provide a hanger strap which is inexpensive, easily adapted for use with metal panels

having different web spacings, and one that is compact and decorative in appearance.

Other objects will be in part apparent and in part pointed out specifically hereinafter in connection with the description of the drawing that follows, and in which:

Figure 1 is a bottom plan view showing the strap hanger of the present invention attached between the parallel webs of a pre-fabricated metal roofing panel and positioned to support an elecrical box in flush relation;

Figure 2 is a section taken along line 2—2 of Figure 1;

Figure 3 is a section similar to Figure 2 showing the strap hanger inverted and rearranged slightly to support the electrical box in recessed relation between the webs of the prefabricated roofing panel;

Figure 4 is a fragmentary section similar to Figure 2 illustrating a slightly modified form of the hanger strap in which a conventional connector is used to support the electrical box therefrom;

Figure 5 is a fragmentary section taken along line 5—5 of Figure 4; and,

Figure 6 is a section similar to Figure 3 to a slightly reduced scale showing the manner in which the strap hanger is used with a conventional conduit clip to string the conduit along the metal roofing panel between the webs.

Referring now to the drawing, and in particular to Figures 1 through 4 thereof, the strap hanger of the present invention, indicated in a general way by numeral **10**, will be seen attached to the spaced parallel webs **12** of a pre-fabricated metal roofing panel **14** in position to support electrical box **16** therebetween. Panel **14** comprises a substantially planar sheet of metal in which is formed the hollow webs **12** that project downwardly therefrom in spaced parallel relation. These panels are customarily used to form a roof when arranged in parallel rows and covered with roofing felt, tar and gravel to provide a roofing composition that has not been shown. The webs produce the required structural rigidity and they are spaced uniformly although the particular spacing may vary depending upon the needs of a given installation.

The strap hanger **10** comprises a length of strap iron or the like formed to provide a relatively straight base section **18** terminating at one end in a lateral section **20** and at the other end in a generally S-shaped section **22**. The S-shaped section includes an inner leg **24** extending laterally from the base section **18** in generally the same direction as lateral section **20**, an intermediate leg **26** having one end integrally connected to the remote end of inner leg **24**, and an outer leg **28** connected to the other end of intermediate leg **26**. Intermediate leg **26** cooperates with outer and inner legs **28** and **24**, respectively, to form adjacent channels **30** and **32** which open in opposite directions and are sized to receive the web **12** of the metal roofing panel. Lateral section **20** and both the inner and outer legs **24** and **28** of the S-shaped section **22**, contain threaded openings **34** adapted to receive suitable screw-type fasteners **36**. In the embodiment of Figures 1 through 3, inclusive, the base section **18** is provided with a plurality of threaded openings **37** arranged in longitudinally spaced relation.

With particular reference now to Figures 1 and 2 of the drawing, the strap hanger **10** has been shown mounted on the metal roofing panel in position to receive the electrical box **16** in so-called "flush" relation. Outer leg **28** of S-shaped section **22**, and lateral section **20**, will be seen to lap the adjacent webs **12** of the roofing panel with one of the webs fitting into channel **30** formed between the outer and intermediate legs **28** and **26**, respectively. Screw fasteners **36** passing through the

openings 34 in outer leg 28 and lateral section 20 attach the strap hanger to the outer walls 38 of the webs 12. The base section 18 of the strap hanger is thus positioned in spaced relation to the planar portion 40 of the panel and substantially in line with the bottom edges of the webs 12. The base 42 of the box is customarily provided with a central opening 44 and a plurality of screw openings 46 for use in fastening the box to a suitable support. The threaded openings 37 in the base section of the strap hanger are located to register with two of the usual four openings arranged in line in the base of the box when the box is positioned approximately midway between the webs of the roofing panel. Thus, using two of the openings in the box and the two openings in the hanger registering therewith, the box may be suspended from the base section in flush relation.

In Figure 3 it will be seen that the strap hanger has been inverted so that base section 18 thereof lies adjacent the planar section 40 of the roofing panel. Here, lateral section 20 and inner leg 24 of the strap hanger fit between the spaced webs 12 and lie adjacent inner walls 48 thereof to which they are attached by fasteners 36. In this position of the hanger, one of the webs 12 fits into channel 32 formed between the inner and intermediate legs 24 and 26, respectively, of section 22. The openings 37 in the base section 18 of the hanger are also arranged to register with two of the openings 46 in the base of the box which positions it approximately midway between the webs of the roofing panel in the so-called "recessed" relation.

In Figures 4 and 5 it will be noted that the box 16 may also be attached to the strap hanger by a box connector 50 of a well-known type. The box connector will be seen to include two downwardly extending legs 52 which depend from a ring 54 that rests upon the base section 18 of the strap hanger. Legs 52 project through opening 44 in the base of the box and are attached to threaded connector 56 by bolt 58 which holds the connector in a position such that arms 60 thereof rest against and support the box along the underside of the base section 18 of the hanger.

Figure 6 of the drawing illustrates a further function of the strap hanger of the present invention. Here it will be seen that a conventional conduit clip 62 is attached to the base section of the strap hanger in position to support a conduit or cable 64 between the webs 12 of the roofing panel. The hanger has been shown in the position for carrying the cable in recessed relation with respect to the roofing panel; however, it is apparent that the hanger could also be inverted so that the cable could be carried in flush position if desired.

Having thus described the several useful and novel features of the strap hanger of the present invention, it will be seen that the many useful objects for which it was designed have been achieved. Although but a few specific forms of the present invention have been illustrated and described in connection with the accompanying drawing, I realize that certain changes and modifications may occur to those skilled in the art within the broad teaching found herein; hence, it is my intention that the scope of protection afforded hereby shall be limited only insofar as said limitations are expressly set forth in the appended claims.

What is claimed is:

1. A hanger comprising a length of strap metal formed to provide a relatively straight base section terminating at one end in a lateral section and at the other end in a generally S-shaped section extending laterally in the same direction as the lateral section, said lateral section and the leg portions of the generally S-shaped section being substantially normal to the base section.

2. A hanger comprising a length of strap metal formed to provide a relatively straight base section having a lateral section at one end, an inner leg at the other end extending laterally in the same direction as the lateral section, an intermediate leg depending from the inner leg and cooperating therewith to form an inner channel, and an outer leg depending from the intermediate leg and cooperating therewith to form an outer channel adjacent the inner channel but opening in the opposite direction.

3. The hanger as set forth in claim 2 in which the lateral section, the outer leg and the inner leg are each provided with opening between the ends thereof adapted to receive a fastener.

4. The hanger as set forth in claim 2 in which the inner and intermediate legs are of substantially the same length, and the outer leg and lateral section are of substantially the same length.

5. The hanger as set forth in claim 2 in which the base section contains at least two longitudinally spaced openings adapted to receive a fastener.

6. A hanger for use in supporting an electrical box or the like from a metal roofing panel of the type including spaced parallel webs interconnected by a planar section comprising, a length of strap metal formed to provide a relatively straight base section, a lateral section formed on one end of the base section, and an S-shaped section formed on the other end of the base section, the S-shaped section providing an inner channel sized to receive one web of the roofing panel when the lateral section lies against the inside of an adjacent web thereof and the base section is positioned next to the planar section of the plate, and the S-shaped section providing an outer channel sized to receive the web when the lateral section lies against the outside of the adjacent web and the base section is spaced from the planar section, said lateral section and the legs of the S-section being substantially normal to the base section.

7. The hanger as set forth in claim 6 in which the S-shaped section and lateral section include openings positioned to receive fasteners passing into the webs and the base section includes means for supporting an electrical box.

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