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A. M. HEXDALL

2,264,666

HANGER

Filed May 12, 1941

Fig. 1.

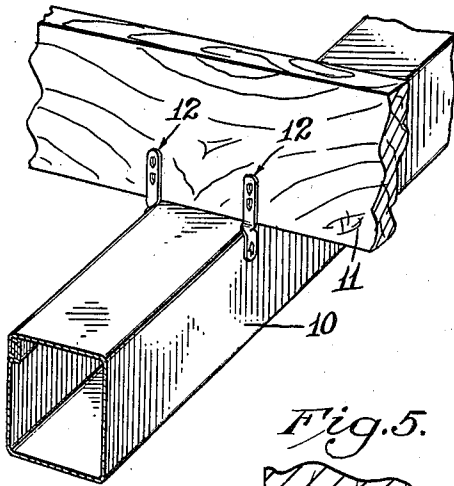


Fig. 2.

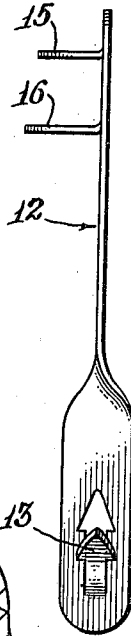


Fig. 3.

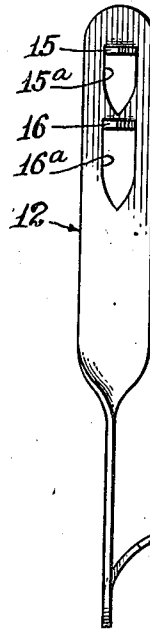


Fig. 4.

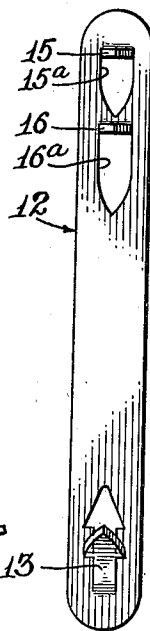


Fig. 5.

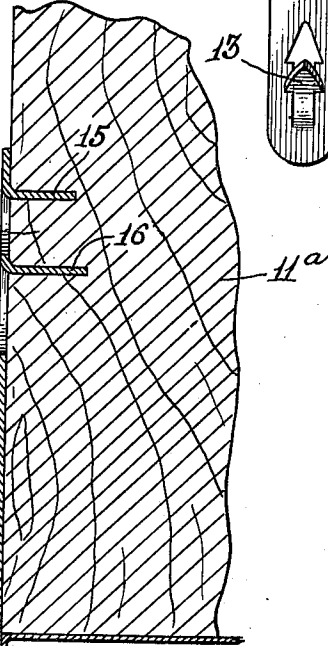


Fig. 7.

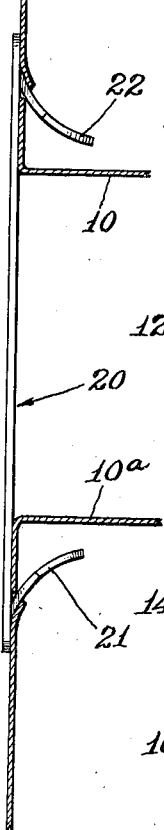
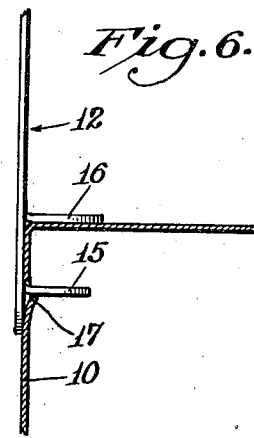


Fig. 6.



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UNITED STATES PATENT OFFICE

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HANGER

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Application May 12, 1941, Serial No. 393,016

6 Claims. (Cl. 85-13)

The present invention pertains to a novel form of hanger for use in supporting such sheet metal structures as ducts in a ventilating or heating system.

The general object of the invention is to provide a hanger of the class indicated which minimizes the installation cost of ducts and the like, affords a strong and rugged support, and has a very low manufacturing cost.

A more specific object is to provide such a hanger which embodies but a single piece of metal, fashioned in a form which can be cheaply stamped out of sheet metal, and which is so shaped as to provide integral means on it for securing the same both to a support and to a sheet metal member which it holds in place.

Another object is to provide a hanger of the character set forth in the immediately preceding statement of objects which can be installed by but one workman and with the use of but one tool, namely, a hammer.

Further objects and advantages of the invention will become apparent as the following description proceeds taken in connection with the accompanying drawing in which:

Figure 1 is a fragmentary perspective view of a duct installation in which a pair of hangers embodying the present invention are utilized for suspending the duct.

Figs. 2 and 3 are respectively side and front views of one of the hangers included in the installation illustrated in Fig. 1.

Fig. 4 is a front view of a hanger like that of Figs. 2 and 3 but shown prior to the twisting of its intermediate portion.

Fig. 5 is a vertical sectional view of the hanger of Fig. 4 installed to support a sheet metal duct.

Fig. 6 illustrates the use of the hanger as a piercing tool for conditioning the duct for attachment of the hanger.

Fig. 7 is a longitudinal sectional view of a modified form of hanger, embodying my invention, shown as arranged to suspend one duct from another.

My novel hanger has been herein disclosed (see Fig. 1) as applied to the suspension of a sheet metal duct 10 from a transversely extending beam or joist 11. This particular application has been selected since it represents a common use for such hangers but it will be appreciated by those skilled in the art that my hanger will find utility in many other instances and in the support of many other forms of sheet metal members. Accordingly, even though a particular and preferred form of my hanger has been disclosed and a

particular application or use thereof described, there is no intention to thereby limit the invention to such precise form of the hanger or use thereof, but on the other hand, I intend to cover all modifications and alternative uses, falling within the spirit and scope of the invention as expressed in the appended claims.

In the particular installation shown in Fig. 1, the duct 10, which may, for example, be part of a ventilating or heating system, is supported from the wooden joist 11 by a pair of hangers 12, each of which embodies my invention. Installing such ducts has heretofore been a tedious and time-consuming job. The workman, or more often two of them, have had to hold the duct in place, mark the location points for the hanger, drill suitable holes in the duct, secure the hanger to the duct by self-tapping screws, and nail the hanger to the joist, all the while fumbling around for the various tools, screws and nails required for the successive steps indicated. In contrast, my hanger can be readily applied by one man; he requires no screws, nails or other separate fasteners, everything needful being comprised in the one-piece hanger; and he needs but one tool, namely, a hammer.

I contemplate that my hangers 12 will be merchandised in the form shown in Fig. 4. As there illustrated, the hanger comprises an elongated strip or strap, stamped from heavy gauge sheet metal, with rounded ends to eliminate sharp corners. At the lower end of the strip is an integral suspension prong 13, struck out from the body of the strip, and curved laterally away from the strip (see Figs. 4 and 5 for configuration of the prong). This prong is barbed as indicated, having an arrowhead shaped end.

In use, the barbed suspension prong 13 is inserted into an aperture in the sheet metal duct 10 as indicated in Fig. 5. The marginal portion of the sheet metal duct wall at 14 is wedged tightly into the cleft formed between the prong and the body of the hanger. Such wedging, plus the barbed end on the prong, effectually anchors the hanger to the duct so that the latter is firmly and securely held in place. It will be observed that the lower body portion of the hanger abuts flat against the outer face of the duct wall so that when the marginal portion 14 is wedged into the cleft, as described, lateral movement of the hanger is prevented. The suspension prong 13 has some resiliency which further aids in tightly squeezing the portion of sheet metal 14, which is inserted in the cleft.

At the opposite or upper end of the hanger

strip are two further integral prongs 15 and 16 for securing the hanger to the supporting member. The securing prongs may extend from either side of the strip desired, being shown in the present instance as projecting from the same side as the suspension prong 13. These prongs are of pointed form so that they can be driven into the wooden joist or other supporting member and are bent out at substantially right angles to the body of the hanger so that the latter will, in effect, form a head for the prongs 15-16 for hammering the latter into place. Upon reference to the drawing (Fig. 2) it will be observed that the outer prong 15 is somewhat shorter than the inner prong 16. This difference in length accommodates the utilization of the hanger as a piercing tool, as hereinafter described, and also makes it easier to secure the hanger to the joist in that it is easier to drive a single one of the prong points a short distance into the wood to locate the same precisely and then drive both of the prongs home.

Fig. 5 indicates an installation in which the joist or other supporting member 11^a runs parallel to the duct 10, rather than at right angles to it as in the case of the joist 11 in Fig. 1. In case of such a parallel relation of the faces of the supporting and supported members, to which the hanger is secured, the body of the hanger is left in its initial flat configuration in applying it. The central portion of the hanger is, however, elongated so that it can be bent, twisted or otherwise deformed to accommodate the requirements of a wide variety of types of installations. For example, if the supporting and supported members are angularly disposed, the central portion of the hanger strip can be twisted (by the use of pliers or a like tool) to accommodate the particular angularity encountered on the job. The hanger 12 in Figs. 2 and 3 is twisted to accommodate the right angular relation shown in Fig. 1.

The pointed prongs 15, 16 may also be conveniently utilized in piercing the duct wall for subsequent entry of the suspension prong 13. One such use is shown in Fig. 6. As there indicated, the longer prong 16 forms a guide for locating the shorter prong 15 a predetermined distance from the corner of the duct 10. Upon striking a sharp blow on the hanger, at the butt end of the prong 15, the latter pierces the duct wall and thereby neatly forms a precisely located hole 17 for reception of the suspension prong 13. The prong 15 is preferably made substantially of the same width as the head on the suspension prong 13 so that the hole pierced will be of just the right size.

To complete the installation, the prong 15 is then withdrawn from the pierced duct, the hanger reversed, and the suspension prong 13 inserted into the aperture 17. The workman then pulls upwardly on the hanger to wedge the edge portion 14 of the sheet metal solidly into the cleft between the hanger body and the suspension prong. The angularity of the prong 13 serves to cam the sheet metal edge into the cleft. Thereafter he hammers on the outer face of the upper portion of the hanger to drive the pointed prongs 15, 16 into the wooden beam. Due to the fact that a plurality of securing prongs are used, since they have flat opposed faces as shown, they serve to compress the wood at 18 between them (Fig. 5) so that there is extreme rigidity

of attachment of the hanger to the joist. The duct is thus rigidly secured in place.

If the attachment of the hanger to the beam should appear to be insecure for any reason, as for example because of the presence of dry rot in the portion of the beam into which the pointed prongs are driven, nails can be used to supplement these prongs. The apertures 15^a and 16^a (see Figs. 3 and 4) left in the body of the hanger by the striking out of the prongs 15 and 16, afford suitably located holes for the driving of large headed nails to accomplish the supplemental attachment of the hanger in the more or less unusual cases where it may be required.

The hanger 12 effectually closes the hole 17 in the duct when the hanger is in place. Thus, since the shank of the suspension prong 13 is narrower than the hole 17 the latter will be covered by the body portion of the hanger strip at the base of the prong shank. If further sealing is desired a little putty can be smeared over the base of the prong 13.

It will, from the foregoing, be seen that I have provided a hanger which is extremely simple in form and can readily be manufactured at low cost by a simple die forming operation. Moreover, the installation of the hanger is very simple since the only tool required is a hammer and its manipulation during installation can readily be carried out by a single workman, it being unnecessary for him to handle any screws, nails or separate fasteners. Finally, the design of the hanger for utilization as both a piercing tool and hanger further facilitates and simplifies its use.

In Fig. 7 I have shown a modified form of hanger 20 embodying my invention. This hanger is especially adapted for supporting one sheet duct from another and has, accordingly, been shown as supporting a duct 10^a from the duct 10. The hanger 20 differs from the hanger 12 heretofore described in that a second suspension prong 22 is substituted for the pair of prongs 15, 16. The prongs 21 and 22 on the hanger 20 are identical with each other and with the suspension prong 13 of the hanger 12. The prongs 21, 22 are, as it appears in Fig. 7, disposed to project generally toward each other.

In using the hanger of Fig. 7 the ducts are pierced at suitable points, the hanger 20 engaged with the upper duct, and the lower duct hung on the prong 21. Each of the prongs 21, 22 coacts with the body of the hanger to define a cleft in which the edge of the hole in the sheet metal duct is securely lodged.

I claim as my invention:

1. A hanger of the type set forth comprising an elongated strip of metal having a prong struck out from one end portion thereof and extending angularly away from the body of the strip and toward the opposite end of the latter to define a cleft for engaging the margin of a portion of sheet metal to support the same, and said strip also having a second integral prong on said opposite end portion thereof adapted to be driven into a supporting member, said second prong projecting substantially at right angles to the body of the strip so that the latter forms a head for such second prong for use in hammering the latter into place.

2. A hanger of the type set forth comprising an elongated strip of metal having a prong struck out from one end portion thereof and extending angularly away from the body of the strip and toward the opposite end of the latter to define a cleft for engaging the margin of a portion of

sheet metal to support the same, and said strip also having a second integral prong on said opposite end portion thereof adapted to be driven into a supporting member, said second prong projecting substantially at right angles to the body of the strip so that the latter forms a head for such second prong for use in hammering the latter into place, and the portion of said strip between said pronged end portions being elongated and deformable to accommodate various angular relations of the pronged portions thereof for corresponding location of the supporting and supported members.

3. A hanger for suspending a sheet metal member from a support comprising an elongated metal strip having the upper end thereof adapted to be secured to a support, the lower end thereof having an integral prong thereon projecting laterally outward and upward for insertion into an aperture in a sheet metal member to be supported, and said prong having a barbed end thereon to resist withdrawal from the supported member.

4. A hanger for suspending a sheet metal member from a support comprising an elongated metal strip having the upper end thereof adapted to be secured to a support, the lower end thereof having an integral prong thereon projecting laterally outward and upward for insertion into an aperture in a sheet metal member to

be supported, and said prong being smoothly curved outwardly away from the body of the strip.

5. A hanger of the type set forth comprising an elongated strip of metal having a prong rigid therewith adjacent one end thereof, said prong extending outward from the body of the strip and toward the opposite end thereof to define a cleft for engaging the margin of a portion of sheet metal to support the same, and said opposite end of said strip being attachable to a supporting member.

6. A hanger of the type set forth comprising an elongated strip of metal having a prong struck out from one end portion thereof and extending angularly away from the body of the strip and toward the opposite end of the latter to define a cleft for engaging the margin of a portion of sheet metal to support the same, said strip also having a pair of prongs integral with said opposite end portion thereof, said pair of prongs being spaced longitudinally of the strip and bent laterally outward substantially at right angles to the strip, and said pair of prongs being pointed for driving the same into a supporting member and presenting flat opposed faces of substantial lateral width for compressing therebetween a portion of the member into which they are driven.

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