June 15, 1965 L. M. VRANYOSOVICS 3,189,304

GUTTER HANGER

Filed Dec. 26, 1961

FIG. 2.

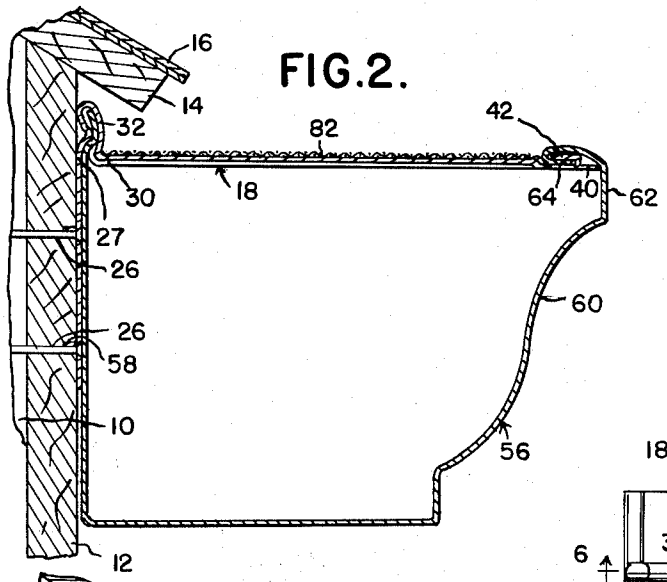


FIG. 4.

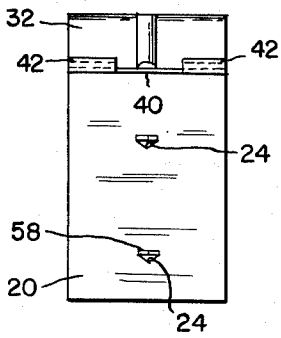


FIG. 5.

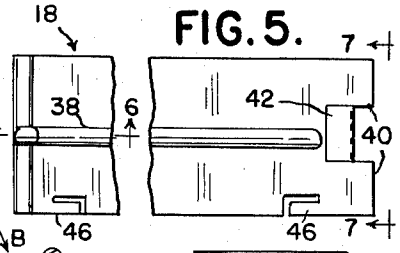
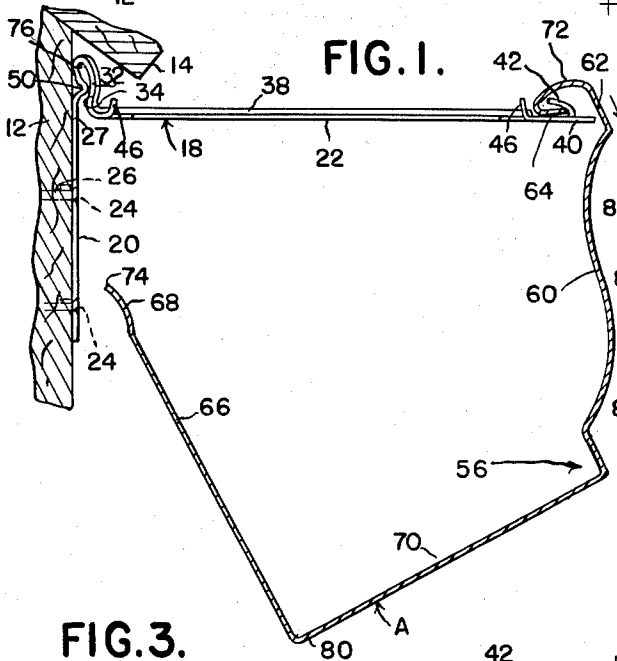


FIG. 1.



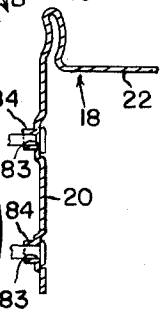


FIG. 6.

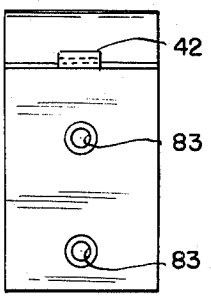
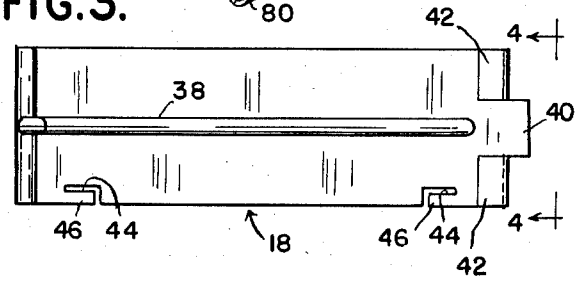


FIG. 7.

FIG. 3.



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GUTTER HANGER

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The present invention relates to supports and hangers for eaves troughs, gutters and the like, and refers more particularly, to a one-piece support and hanger to which a section of gutter may be removably attached with ease.

It is generally the standard practice in the art to utilize troughs or gutters, which are located at the eaves of a building roof, to carry the water which drains off the roof to downspouts appropriately located. The troughs or gutters are ordinarily permanently affixed to the eaves by means of relatively long spikes or nails and ferrules which are passed through one flange of the gutter and into a part of the eave or roof structure.

While this construction has worked satisfactorily, under certain conditions, when it becomes necessary to replace the gutter it is first necessary to remove the spikes or nails. This is generally a major operation since the nails are usually rusted and extremely difficult to remove thus resulting in considerable damage to the gutter itself. With a gutter mounted by means of spike nails it is generally not feasible to remove the trough for purposes of painting the building to which the trough is attached. Generally, it is necessary to gain access to the trough by means of a ladder or the roof itself, both being attended with inconvenience and some danger of a worker accidentally injuring himself.

The present invention overcomes this problem in the art since it provides a hanger-support for hanging gutters or eaves troughs in a more convenient and economical manner. With such a construction the gutter after being mounted on the hangers may be easily removed from the hangers for painting the house or for servicing the trough.

It is an object of the present invention to provide a simple, inexpensive and efficient hanger and support which may be quickly and easily applied for attaching eaves troughs or gutters to the eaves of a building or the like.

Another object of the present invention is to provide a hanger whereby a gutter may be hung in a more convenient and economical manner.

Still another object of the present invention is to provide a hanger which is capable of detachably mounting a gutter in supported position.

A further object of the present invention is to provide a gutter hanger formed from a single piece of substantially heavy gauge sheet metal or equivalent material which is adapted to be attached to a building, after which the gutter is clamped thereto and held rigidly in position upon the building.

A still further object of the present invention is to provide a gutter hanger comprising an elongated substantially straight mounting leg; a mounting aperture in the leg, an arm integrally connected to and forwardly extending from the upper extremity of the leg, said arm having an inverted substantially U-shaped portion connected at its opposite ends to adjacent portions of the leg and arm respectively, said U-shaped portion providing a small, substantially vertical slot-like space between said leg and said arm, and an integral rearwardly turned lip on the forward extremity of the arm for interlocking engagement with the forwardly turned flange provided on the forward wall of the gutter. With such a construction the gutter is appropriately carried by the hanger by subsequently applying a force to the bottom wall of the gutter so as to urge the upper edge of the back wall of the gutter into the aforesaid space to form a locking connection therebetween, the connections between the lip of the hanger and the flange of the gutter and between the U-shaped portion of the hanger and the upper edge of the back wall of the gutter forming the sole connections between the gutter and the hanger.

Another object of the present invention is to provide a gutter hanger of the aforementioned type wherein a plurality of integral lips are provided on the forward extremity of the arm for interlocking engagement with the forwardly turned flange provided on the forward or front wall of the gutter.

Still another object of the present invention is to provide a gutter hanger of the aforementioned type wherein the aforesaid space is shaped to conform to the raised, forwardly extending upper edge of the back wall of the gutter, and the walls defining the space are in surface to surface contact and interlocking engagement with the upper edge of the gutter when the gutter is properly supported by the hanger.

A further object of the present invention is to provide a gutter hanger of the aforementioned type wherein said arm is provided with a longitudinally extending reinforcing embossment between the ends thereof.

A still further object of the present invention is to provide a gutter hanger of the aforementioned type wherein a relatively small forwardly extending protrusion or dimple is provided in the back wall of the U-shaped portion of the hanger for further facilitating the interlocking engagement between the U-shaped portion and the upper edge of the back wall of the gutter.

Another object of the present invention is to provide a gutter hanger of the aforementioned type wherein a plurality of rearwardly extending, relatively sharp integral prongs are provided on the mounting leg for initially mounting the hanger on its support prior to the mounting of the gutter on the hanger.

Still another object of the present invention is to provide a gutter hanger of the aforementioned type wherein a plurality of integral tabs are provided on the arms for holding a screen over the open end of the gutter extending lengthwise of the gutter.

A further object of the present invention is to provide a gutter hanger of the aforementioned type wherein the holding tabs are struck out of the plane of said arm at one longitudinal edge thereof.

A still further object of the present invention is to provide a gutter hanger of the aforementioned type wherein the opposite ends of said arm engage opposite walls of the gutter for maintaining the interlocking engagement between the hanger and the gutter and for maintaining a predetermined distance between the walls of the gutter.

It is thus another object of the present invention to provide a simplified low cost structure of the aforementioned type having certain advantages contributing to efficiency, reliability and long life as well as ease of maintenance.

Other objects, advantages and novel details of construction of this invention will be made more apparent as this description proceeds, especially when considered in connection with the accompanying drawing, wherein:

FIGURE 1 is a side elevation of one embodiment of the present invention, showing a conventional K-type gutter in position to be assembled on the hanger.

FIGURE 2 is a side elevational view in section illustrating the K-type gutter mounted on the hanger.

FIGURE 3 is a top plan view of FIGURE 1 with the gutter removed.

FIGURE 4 is an end view looking in the direction of arrows 4—4 of FIGURE 3.

FIGURE 5 is a plan view of another embodiment of the present invention.

FIGURE 6 is a partial elevational view in section taken along the line 6—6 of FIGURE 5.

FIGURE 7 is an end view looking in the direction of arrows 7—7 of FIGURE 5.

Referring now to the drawings, the hanger of the present invention is generally made from strip material and is preferably formed from a suitable gauge sheet of metal or from a plastic material. If metal is utilized, the metal may be galvanized ferrous or non-ferrous metals or otherwise coated as a protection against rust and corrosion. Various types of plastic materials may also be utilized which have the requisite structural characteristics and properties for supporting the gutter and withstanding the elements.

Referring to FIGURES 1 and 2, a typical partial sectional view of the roof of a building structure is shown which includes the roof rafter 10, the facia board 12, roof board 14 and shingles 16. A gutter hanger or bracket which is designated by the numeral 18 comprises an elongated substantially flat strap member which is provided with a series of bends according to the various figures of the drawing. The hanger 18 has two principal parts including a supporting leg 20 and an arm 22. The supporting leg 20 is substantially straight and elongated and is provided at spaced points or intervals with a plurality of apertures or openings 24. The apertures 24 are adapted to receive nails, screws or other suitable fasteners 26, which are driven into the facia board 12 for supporting the hanger 18.

At the upper end 27 of the supporting leg 20 and the rear end 30 of the arm 22 there is provided a downwardly opened substantially U-shaped clamping portion 32, the central portion of which is preferably open so as to form a substantial vertical strip-like space 34.

The arm 22 may be defined as a supporting and spacing member and extends forwardly from the clamping portion 32. The arm 22 is substantially flat and lies in a plane which is substantially perpendicular to the plane of the supporting leg 20. The arm 22 is provided with a raised rib or embossment 38 which extends longitudinally of the arm 22 between the ends thereof. The forward extremity or end 40 on the arm 22 is provided with one or more inwardly turned or rearwardly facing lips 42 which are integrally formed with the arm 22 by suitable stamping and bending operations.

The arm 22 is provided with L-shaped slots 44 as illustrated in FIG. 3, which define flexible tabs which are adapted to be bent out of the plane of the arm 22 to provide upwardly extending holding tabs 46 as best illustrated in FIGURE 1. The holding tabs 46 are utilized for retainig a screen across the open end of the gutter extending lengthwise thereof as will be subsequently explained. The back wall of the clamping portion 32 is provided with a raised forwardly extending relatively small protrusion or dimple 50 forming a detent which is utilized to facilitate the clamping or interlocking action between the hanger 18 and the gutter, as will be subsequently described.

In using the gutter hanger described above for attaching a conventional K-type gutter as indicated generally at 56 in FIGS. 1 and 2, a pencil or chalk line may be drawn horizontally upon the facia board 12 immediately below the eaves of the building at the height at which the gutter is to be attached thereto. The hanger 18 may be temporarily attached to the facia board 12 at the requisite height to provide suitable drainage of water from the gutter 56 by means of the sharp piercing prongs 58 which are formed in the supporting leg 20 when the apertures 24 are formed therein. The prongs 58 are driven into the wall or facia board 12 for holding the hanger 18 temporarily in position upon the wall while suitable nails or other fasteners as indicated at 26 are driven through the apertures 24 of the supporting leg 20 into the facia board 12 to firmly attach the gutter hanger 18 thereto in its proper position with respect to adjacent hangers. The

spacing of the hangers 18 is up to the individual. However, generally the recommended spacing is between two to four feet. When applying the hangers 18 the mechanic usually starts at a high point of flow and works downward to the downspout. Generally three or four hangers are temporarily installed and then permanently secured to the facia board 12 after which time additional hangers 18 are placed in their proper position and installed in like manner.

The gutter 56 is provided with a front wall 60 having the upper edge 62 substantially straight and bent in such a manner to provide the forwardly turned flange 64 which is adapted to interlock with the lips 42 provided on the arm 22. The gutter 56 also has a back wall 66 which is provided at the upper extremity thereof with the raised forwardly extending bead 68 which is adapted to be received in the space 34 provided by the clamping portion 32 of the hanger 18 so as to substantially fill the space 34.

After a suitable number of hangers 18 have been installed, the gutter 56 is assembled upon the hangers 18. Initially the forwardly turned flange 64 on the gutter 56 is interconnected or inserted underneath the lips 42 of the arms 22 after which time a force is applied to the bottom wall 70 of the gutter 56 to move the gutter 56 upwardly with respect to the hangers. As a result the upper wall 72 and the front wall 60 of the gutter 56 are moved downwardly as indicated by arrow B in FIG. 1 so as to urge or compress the lips 42 against the flange 64 of the gutter into the position illustrated in FIG. 2 thereby interlocking the lips 42 of the hangers 18 with the flange 64 of the gutter 56.

Simultaneously with forming the interlocking connection between the lips 42 and the flange 64 of the gutter 56, the bead 68 provided on the upper edge of the back wall 66 of the gutter 56 is urged into the space or slot 34 of the U-shaped portion 32 so that the top surface of the bead 68 is urged against the upper wall of the U-shaped portion 32. The urging of the bead 68 into the space 32 provides interlocking engagement between the gutter 56 and the hanger 18. The forwardly facing protrusion or dimple 50 further facilitates the locking engagement between the hanger 18 and the gutter 56. It should be observed when the gutter 56 has been assembled as illustrated in FIG. 2 that only two connections are provided between the gutter 56 and hanger 18 for supporting the gutter 56. The connections are provided between the lips 42 and flange 64 of the gutter and between the bead 68 of the gutter 56 and the U-shaped portion 32 of the hanger 18. Prior art constructions have provided a flange at the bottom of the supporting leg which was adapted to receive and support the corner 80. In the present invention, the supporting flange is not required.

After the gutter 56 has been assembled on the various support hangers 18, the tabs 46 are bent upwardly as illustrated in FIG. 1, and a screen 82 as shown in FIG. 2 is laid across the various support hangers 18 after which time the tabs 46 are bent downwardly to hold the screen 82 against the hangers 18. Prior to the present invention additional fastening means, separate from the hangers, were utilized to hold the screen on the gutter.

When the gutter 56 has been mounted, the ends 30 and 40 of the arm 22 serve as a brace for holding the gutter 56 in the desired position by maintaining a constant distance between the back wall 66 and the front wall of the gutter.

The embodiment illustrated in FIGS. 5–7 differs from the embodiment illustrated in FIGS. 1–4 in two respects. First of all, in the first embodiment two rearwardly turned lips 42 are utilized while in the second embodiment only one lip 42 is utilized. In addition, instead of punching the relatively sharp prongs 58 by a suitable punching operation, a standard punch is generally utilized which forms the holes 83 in the supporting leg 20 and displaces metal. The displaced metal forms ragged parts 84 which

are suitable for temporarily attaching the hanger 18 to the facia board 12.

Prior to moving the gutter 56 from the position illustrated in FIG. 1 to the "snap in" position illustrated in FIG. 2, the gutter 56 may be slid lengthwise with respect to the hangers 18 to suitably locate the gutter 56 in the requisite position. When it is required to remove the gutter from the assembled position illustrated in FIG. 2 for painting the house or for maintenance purposes, all that is required is that a suitable force be placed on the bottom wall 70 of the gutter 56 to first disengage the bead 68 from the U-shaped portion 32 of the hanger 18 after which time an upward force is applied to the front wall 60 of the gutter 56 to move the lips 42 upwardly. This permits the flange 64 of the gutter 56 to be easily removed from the lips 42. With such an arrangement, the gutter 56 may be removed from the hangers 18 without any damage being done to the gutter.

It is obvious to a person skilled in the art that a plurality of hangers are utilized in supporting a length of gutter. As previously mentioned, the space in between the hangers 18 may be for example two to four feet. However, different spacings may be utilized. In mounting a long length of gutter the hangers are first nailed to the facia board along the previously drawn flow or fall line as has been previously explained to provide the requisite flow for the water in the gutter. One person may lift a length of gutter and snap it into the hangers 18 until the attachment has been completed for all the hangers. In the prior art, generally two persons have been required to do the installing. However, in the present invention it is apparent that one person may hang the gutter conveniently and efficiently.

Generally, the hanger 18 is constructed from a one inch strip of suitable gauge sheet metal or plastic material. Initially the end 40 of the arm 22 is cut and through an appropriate bending operation the tabs 42 are provided. A bending operation is utilized to form the U-shaped portion 32. Later, a piercing operation is utilized to provide the requisite prongs 26 and holes 24. In addition, suitable piercing operations are utilized to form the tabs 46. It should be understood that the tabs, prongs and lips are integrally formed in the hanger 18, and that well known bending, piercing and forming operations are utilized in making the hanger 18. An embossing operation is also required for the rib 38.

The hanger 18 has many advantages over prior art brackets including the prelocation of water flow, the manner of holding the gutter temporarily in place prior to final installation of the gutter, and a neater appearance of the gutter from the outside without detracting from the architectural lines of the gutter.

The drawings and the foregoing specification constitute a description of the improved gutter hanger in such full, clear, concise and exact terms as to enable any person skilled in the art to practice the invention, the scope of which is indicated by the appended claims.

What I claim as my invention is:

1. A one-piece support and hanger for gutters and the like comprising: an elongated substantially straight mounting leg; a mounting aperture in said leg; an arm having an inverted substantially U-shaped portion connected at its opposite ends to adjacent portions of said leg and arm respectively; said U-shaped portion providing a relatively narrow, substantially vertical, downwardly opening, slot-like space between said leg and said arm; the back wall of said U-shaped portion having a relatively small protrusion forming a detent extending forwardly towards the front wall thereof and spaced therefrom; and an integral rearwardly turned lip on the forward extremity of said arm for interlocking engagement with the forwardly turned flange provided on the front wall of a gutter to form a first connection therebetween; the raised forwardly extending upper edge of the back wall of a gutter being insertable into the aforesaid space by snap-action upon completion of the first connection to partially fill the space defined by said U-shaped portion; said detent being engageable with the back side of the back wall of a gutter for urging the front side thereof into friction locking engagement with the opposite front wall of said U-shaped portion to form a second connection therebetween; said first and second connections being the sole connections provided between a gutter and hanger; said arm constituting a rigid brace for a gutter, with the end portions of said arm engaging the front and back walls of a gutter to hold the walls in a predetermined spaced relationship.

2. The structure defined in claim 1 wherein said arm is provided with a longitudinally extending reinforcing embossment between the ends thereof.

3. The structure defined in claim 1 wherein one or more rearwardly extending, relatively sharp integral prongs are provided on the mounting leg for initially mounting the hanger on its support.

4. The structure defined in claim 1 wherein a plurality of integral tabs are struck out of said arm for securing to the hanger a screen which extends lengthwise of a gutter.

5. The structure defined in claim 1 wherein a plurality of integral lips are provided on the forward extremity of said arm for interlocking engagement with the forwardly turned flange provided on the forward wall of a gutter.

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CLAUDE A. LE ROY, *Primary Examiner.*