Dec. 17, 1968 G. D. SAUDER 3,416,760

GUTTER AND BRACKET HANGER

Filed Dec. 2, 1966

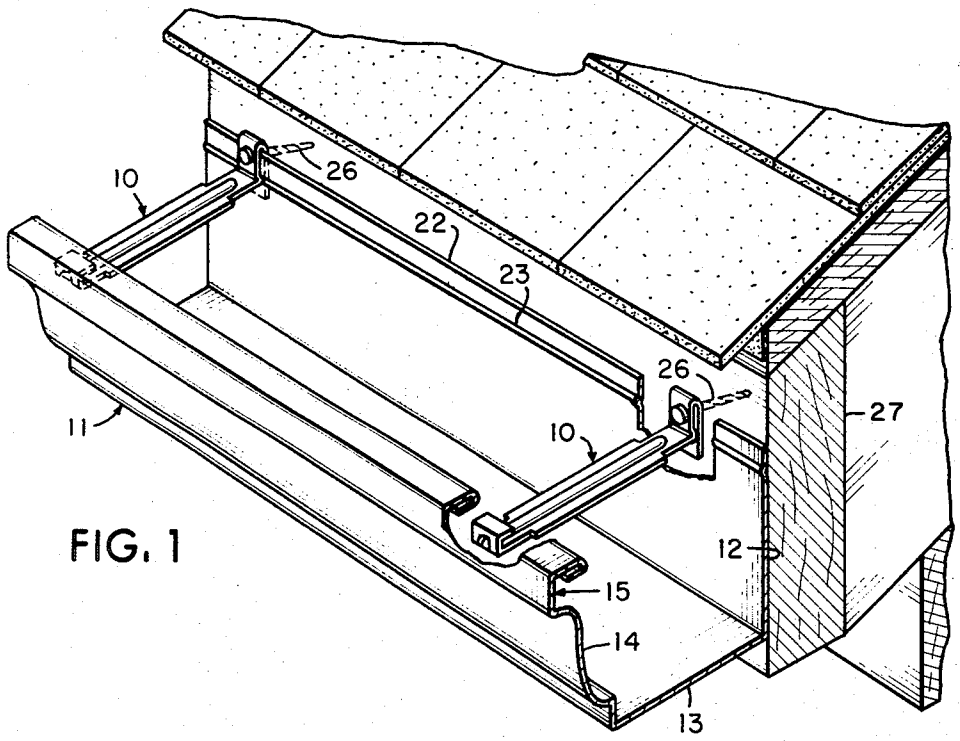
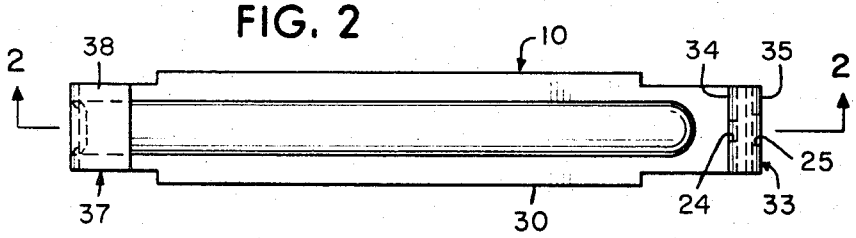


FIG. 1

FIG. 2



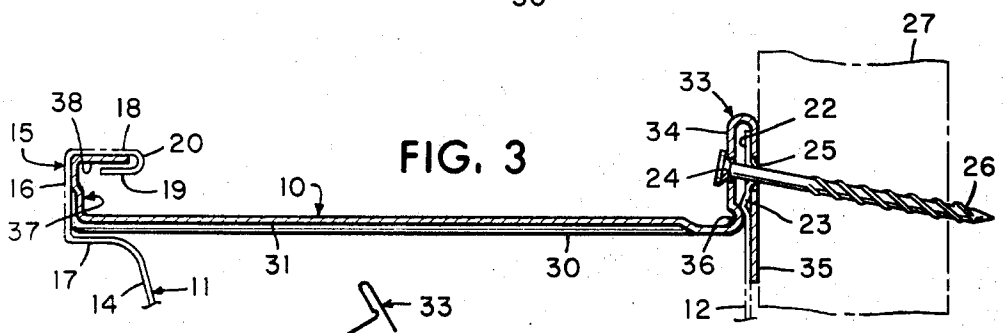


FIG. 3

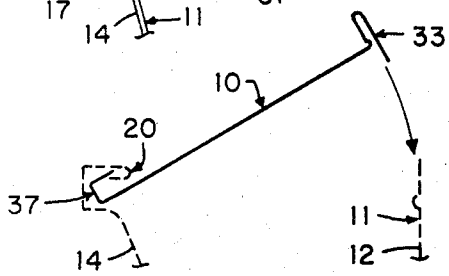


FIG. 4

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GUTTER AND BRACKET HANGER

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ABSTRACT OF THE DISCLOSURE

A support and bracing member interconnecting opposite side walls of a trough-shaped gutter, the member having a hooked front portion for connection to the front wall of the gutter and an inverted U-shaped rear portion for connection to the rear wall of the gutter, the mouth of the U-shaped rear portion being partially closed by crimping to allow a snap fit of the rear portion over a continuous longitudinal ridge formed along the rear wall of the gutter.

Background of the invention

This invention relates generally to a gutter support, and more particularly to a snap-fitting bracket hanger for an eaves rain gutter, which also serves as a gutter brace during erection of the gutter.

An essential prerequisite for a commonly used and utilitarian article, such as a gutter support, is that it should be both simple and economical to manufacture. A survey of prior art indicates that simplicity has infrequently been achieved and, where it has been achieved, it has often been at the expense of effectiveness.

A problem concomitant with gutter installation is the tendency of long lengths of gutter to be unstable because of their characteristic open box construction. As is well known, the stiffness of an open box or trough form is very much less than the rigid form presented by a closed or braced box construction. Obviously, it is a great advantage to be able to utilize a gutter support for the purpose of bracing an open gutter prior to erection, and the construction of the present gutter and hanger unit provides this feature.

U.S. Patent No. 3,150,851 shows a two-piece gutter hanger which has a hook portion adapted to interlock with a gutter lip. However, this hanger cannot be fitted into the gutter and used as a bracing member prior to installation of the gutter.

U.S. Patent No. 3,126,181 indicates a rather complicated bridge-type hanger which also displays a hook intended to interlock with a gutter lip, but this patent does not disclose any structure providing for attachment of the hanger to the gutter prior to installation of the gutter.

Neither of the above patents, nor any other of those reviewed, indicates a snap action or a spring contact action on the rear portion of the hanger which overcomes the bracing problem so effectively, and yet provides an extremely simple bracket hanger which facilitates the actual connection of the gutter to a building.

Summary of the invention

The bracket hanger, constituting a gutter support, is provided with a spring contact means on an inverted U-shaped rear portion embracedly attached to the rear gutter wall.

The spring contact means cooperates with a continuous ridge along the upper portion of the rear wall of the gutter in spaced relation with the gutter margin to provide a snap connection between the hanger bracket and the gutter.

A plurality of bracket hangers, inserted between the gutter walls before erection, without the use of independent fasteners, allow temporary bracing of the gutter to prevent warping and twisting of the gutter during the erection process, and the same bracket hangers are available to support and brace the gutter in its operating condition. More bracket hangers may be used for bracing than are required to support the gutter, and, if so, the excess of hangers may be removed quite simply by applying a sharp upward pull and forward twist to the individual hanger, thus detaching it. It may then be re-used.

The rear portion of the bracket hanger is provided with holes in each of the legs. The hole in the outer leg is of a smaller diameter than that in the inner leg and is offset vertically downward, so that the pair of holes provides a guide means facilitating the angular driving of the fastener through the embraced rear gutter wall, thereby augmenting the holding power of the fastener.

The present invention provides a bracket hanger that is simple and durable in construction, economical to manufacture and efficient in operation.

The features referred to in this summary, together with numerous other advantages of the invention, will more clearly appear from the following detailed description of a preferred embodiment, particularly when considered in connection with the accompanying drawing.

Brief description of the drawing

FIG. 1 is a fragmentary perspective view of the bracket hanger and gutter in installed position;

FIG. 2 is an enlarged plan view of the bracket hanger;

FIG. 3 is a sectional elevational view on line 3—3 of FIG. 2, illustrating the interconnection between the bracket hanger and the gutter, and

FIG. 4 is a line diagram illustrating the manner of installation or removal of the bracket hanger.

Description of the preferred embodiment

Referring now by characters of reference to the drawing, and first to FIG. 1, it will be understood that the invention includes a unitary bracket hanger **10** snap-fitted into interconnection with an eaves rain gutter **11** of conventional type. The rain gutter **11** includes a rear wall **12**, a bottom wall **13**, and an outwardly inclined curvilinear front wall **14** which, together, form an over-all trough configuration.

The front wall **14** is shaped into an inwardly facing channel formation **15** at its upper margin as shown clearly in FIG. 3. The channel formation **15** includes a vertical web **16**, and lower and upper flanges **17** and **18** respectively projecting inwardly of the gutter **11** from the vertical web **16**. The upper flange **18** is provided with a re-entrant lip **19** forming a hook **20** below the upper flange **18**.

The upper portion **22** of the rear wall **12** includes an inwardly protuding continuous ridge **23**, constituting a protuberance, spaced below the upper margin.

The bracket hanger **10** includes an elongate body **30** having a longitudinal recess **31** and having increased width at its mid-portion, both features providing additional stiffening.

The rear portion **33** of the bracket hanger **10** is upwardly formed into an inverted U-shape having an upwardly projecting inner leg **34** and an outer leg **35** which depends downwardly below the junction of the body **30** and the upwardly projecting inner leg **34**. The junction between the body **30** and the inner leg **34** is crimped to form a lateral crimp or continuous protuberance **36** projecting inwardly of the U-shaped rear portion **33** and, thereby, narrowing the mouth of the U-shaped rear portion **33**. The U-shaped rear portion **33** embracedly interfits over the upper portion **22** of the rear gutter wall

12. The U-shaped rear portion 33 is provided with a depth greater than the width of the upper portion 22. The spring action of the two legs 34 and 35 provide a pressure connection when the U-shaped rear portion 33 is embracedly interfitted over the upper portion 22, the narrowed mouth of the U-shaped rear portion 33 being sprung over the inwardly protruding continuous ridge 23. The cooperation of the crimped protuberance 36 on the bracket hanger 10 and the continuous ridge 23 on the gutter 11 forms a snap fit connection between the bracket hanger 10 and the gutter 11.

The front portion of the bracket hanger 10 is formed into an upwardly disposed channel-shaped hook 37 which includes an inwardly facing lip 38. The width of the hook 37 is not greater than the distance between the flanges 17 and 18 of the channel means 15 provided on the front wall 14 of the gutter 11 to allow the hook 37 to be embracedly interfitted within the channel means 15. The lip 38 is received into the space between the underside of the upper flange 18 of the channel means 15 and the upper face of the re-entrant lip 19. The length of the bracket hanger 10 is sufficiently different than the distance between opposing margins of the gutter 10 to ensure that spring action created between the front wall 14 and the rear wall 12. The interaction between the bracket hanger hook 37 and the gutter hook 20, formed by the upper flange 18 and the re-entrant lip 19, attaches the bracket hanger 10 to the front wall 14, and the U-shaped rear portion 33 attaches the bracket hanger 10 to the rear wall 12, as is illustrated in FIG. 4.

A fastener hole 24 is provided in the inner leg 34 of the U-shaped rear portion 33, and a corresponding but downwardly offset hole 25 is provided in the outer leg 35. These two holes 24 and 25 serve to facilitate the driving of the fastener 26 through the unpierced rear gutter wall 12 by providing an angular guide to allow the fastener 26 to be angularly driven through rear wall 12 and into the eaves roof member 27.

The downwardly depending outer leg 35 of the U-shaped rear portion 33 provides a bearing pad against which the pressure of the crimped protuberance 36 is exerted.

It is thought that the functional advantages of this bracket hanger 10 have become fully apparent from the foregoing description of parts, but for completeness of disclosure, the installation of the bracket hanger 10 and gutter 11 will be briefly described.

The bracket hanger 10 performs the functions of both bracing the gutter 11 prior to and during erection, and providing a support for facilitating the erection.

The configuration of the bracket hanger 10 is such that it may be conveniently inserted at spaced intervals along the length of a conventional gutter 11 to brace the gutter 11 prior to erection without the need for fasteners.

The channel-shaped hook 37 at the front end of the bracket hanger 10, is attached to an inwardly-facing channel means 15 formed at the upper part of the front wall 14 of the gutter 11. This attachment is achieved by hooking the lip 19 of the bracket hook 37 into interconnecting relation with the reciprocative hook 20 located at the upper flange 18 of the channel means 15, as is clearly shown in FIG. 4. The hanger bracket 10 is swung downward by a pivotal movement about the front hook connection into contact with the rear wall 12 of the gutter 11. The upper portion 22 of the rear wall 12 is embracedly received into the U-shaped rear portion 33 at the rear of the bracket hanger 10. The crimped protuberance 36 between the junction of the hanger body 30 and the inner leg 34 of the U-shaped rear portion 33 is sprung over the cooperating protuberance formed by the ridge 23 to provide an interlocking connection, and the insertion of the bracket hanger 10 is complete.

The spring contact means forming the snap connection between the rear wall 12 and the bracket hanger 10, and the positive hook connection between the front wall 14 of the gutter 11 and the bracket hanger 10 ensure that the bracket hanger 10 will be retained between the rear wall 12 and the front wall 14 of the gutter 11. The bracket hangers 10 are provided in sufficient number to bear the weight of the gutter 11 and inhibit warping due to the incidental erection loads normally encountered in the installation process.

The installation of the gutter 11 in its elevated location is facilitated by the provision in the rear portion 33 of the bracket hanger 10 of holes 24 and 25 in the inner and outer legs 34 and 35 respectively, of the embracing U-shaped rear portion 33. The hole 25 in the outer leg 35 is of a larger diameter than the hole 24 in the inner leg 34, and is offset vertically downward so that the pair of holes 24 and 25 provide a guide means facilitating angular driving of the fastener 26 through the embraced rear gutter wall 12, thereby augmenting the holding power of the fastener 26. Bracket hangers 10, which are not needed for supporting the gutter 11, may be removed by grasping the hanger body 30 of the bracket hanger 10 and applying sharp upward pull to disengage the hanger 10. The bracket hanger 10 may be retained for re-use. It will be clear that if it is so desired, the bracket hangers 10 may be utilized as lifting straps to further facilitate the installation of the gutter 11.

The bracket hanger 10 may be inserted and connected in any position along the length of gutter 11. To make a relatively minor adjustment in position longitudinal of the gutter 11 before attachment to the eaves roof member 27, the bracket hanger 10 may be simply shifted while maintaining the operative connection of the hanger 10 and gutter 11.

Although the invention has been described by making detailed reference to a single preferred embodiment, such detail is to be understood in an instructive rather than in any restrictive sense, many variations being possible within the scope of the claims hereunto appended.

I claim as my invention.

1. In combination, a substantially trough-shaped eaves gutter having a rear wall, a bottom wall and an outwardly inclined front wall, the front wall including an inwardly facing channel formation at its upper margin, the channel including a bottom flange, a web upwardly projecting from the bottom flange and an inwardly projecting upper flange, the upper having a re-entrant lip forming a hook therebelow; and a unitary bracket hanger, bracing and supporting the gutter, comprising an elongate body portion extending between and interconnecting with the front and rear walls of the gutter, wherein the improvement comprises:

(a) an inverted, substantially U-shaped rear portion of the bracket having an upwardly projecting inner leg and a downwardly projecting outer leg, the rear portion embracing the upper margin of the rear wall of the gutter,

(b) spring contact means on the rear portion of the bracket providing a pressure connection between the rear portion and the rear gutter wall,

(c) a front portion of the bracket formed into a hook, detachedly inter-engageable within the channel formation of the front wall of the gutter, and

(d) fastening means extending through the rear portion of the bracket hanger and through the rear wall of the gutter embraced by the rear portion to fasten the bracket hanger and gutter as a unit to an external support,

(e) the spring means being provided by a lateral crimp at the junction of the hanger body portion and the upwardly projecting inner leg of the U-shaped rear portion, the crimp projecting inwardly of the U-shaped rear portion.

2. In combination, a substantially trough-shaped eaves gutter having a rear wall, a bottom wall and an outwardly inclined front wall, the front wall including an inwardly facing channel formation at its upper margin, the chan-

nel including a bottom flange, a web upwardly projecting from the bottom flange and an inwardly projecting upper flange, the upper flange having a re-entrant lip forming a hook therebelow; and a unitary bracket hanger, bracing and supporting the gutter, comprising an elongate body portion extending between and interconnecting with the front and rear walls of the gutter, wherein the improvement comprises:

(a) an inverted, substantially U-shaped rear portion of the bracket having an upwardly projecting inner leg and a downwardly projecting outer leg, the rear portion embracing the upper margin of the rear wall of the gutter,

(b) spring contact means on the rear portion of the bracket providing a pressure connection between the rear portion and the rear gutter wall,

(c) a front portion of the bracket formed into a hook, detachedly inter-engageable within the channel formation of the front wall of the gutter, and

(d) fastening means extending through the rear portion of the bracket hanger and through the rear wall of the gutter embraced by the rear portion to fasten the bracket hanger and gutter as a unit to an external support,

(e) an inwardly projecting lateral crimp being formed at the junction of the hanger body portion and the upwardly projecting inner leg of the U-shaped rear portion, the crimp tending to close the mouth of the U-shaped rear portion and thereby providing a spring contact means, and

(f) the outer leg of the U-shaped rear portion depending downwardly below the crimp to provide a bearing pad distributing load received from the crimp.

3. In combination, a substantially trough-shaped eaves gutter having a rear wall, a bottom wall and an outwardly inclined front wall, the front wall including an inwardly facing channel formation at its upper margin, the channel including a bottom flange, a web upwardly projecting from the bottom flange and an inwardly projecting upper flange, the upper flange having a re-entrant lip forming a hook therebelow; and a unitary bracket hanger, bracing and supporting the gutter, comprising an elongate body portion extending between and interconnecting with the front and rear walls of the gutter, wherein the improvement comprises:

(a) an inverted, substantially U-shaped rear portion of the bracket having an upwardly projecting inner leg and a downwardly projecting outer leg, the rear portion embracing the upper margin of the rear wall of the gutter,

(b) spring contact means on the rear portion of the bracket providing a pressure connection between the rear portion and the rear gutter wall,

(c) a front portion of the bracket formed into a hook, detachedly inter-engageable within the channel formation of the front wall of the gutter, and

(d) fastening means extending through the rear portion of the bracket hanger and through the rear wall of the gutter embraced by the rear portion to fasten the bracket hanger and gutter as a unit to an external support,

(e) an inwardly projecting lateral crimp being formed at the junction of the hanger body portion and the upwardly projecting inner leg of the U-shaped rear portion tending to close the mouth of the U-shaped rear portion, thereby providing a spring contact means,

(f) the outer leg of the U-shaped rear portion depending downwardly below the crimp to provide a bearing pad distributing load received from the crimp,

(g) the rear wall of the gutter including a continuous ridge parallel to and in spaced relation from the upper margin of the rear wall of the gutter, the ridge cooperating with the lateral crimp to provide an interlocking connection, and

(h) the inner leg of the U-shaped rear portion being provided with a hole, and the outer leg being provided with a corresponding hole located downwardly of the hole in the inner leg to guide the fastening means angularly through the rear portion of the bracket hanger.

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