Oct. 30, 1962 L. F. BENDER 3,060,638

EAVES GUTTER AND SUPPORTING MEANS THEREFOR

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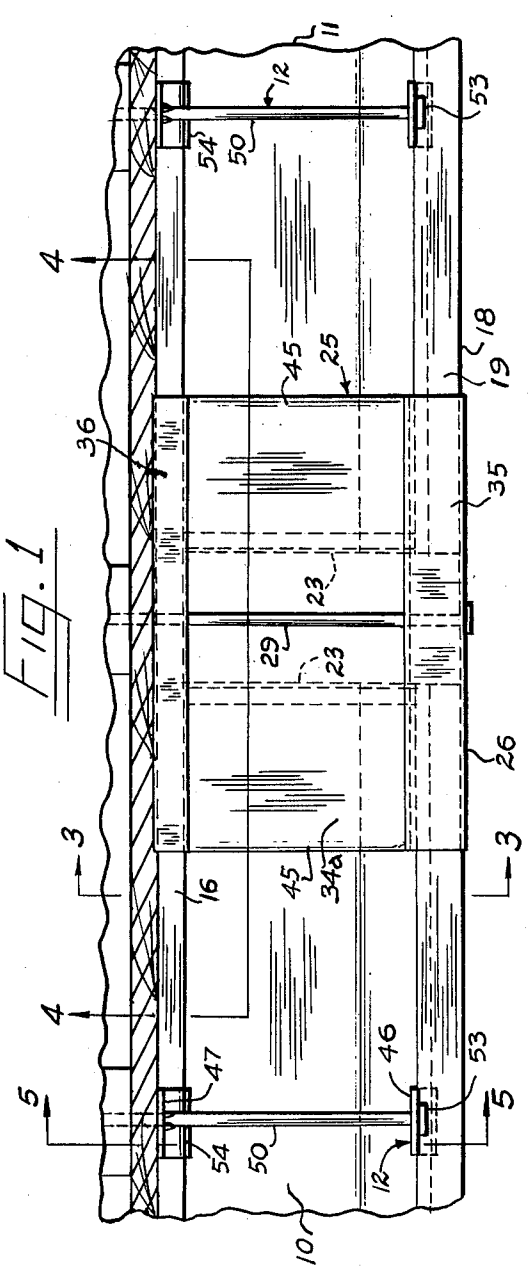


FIG. 1

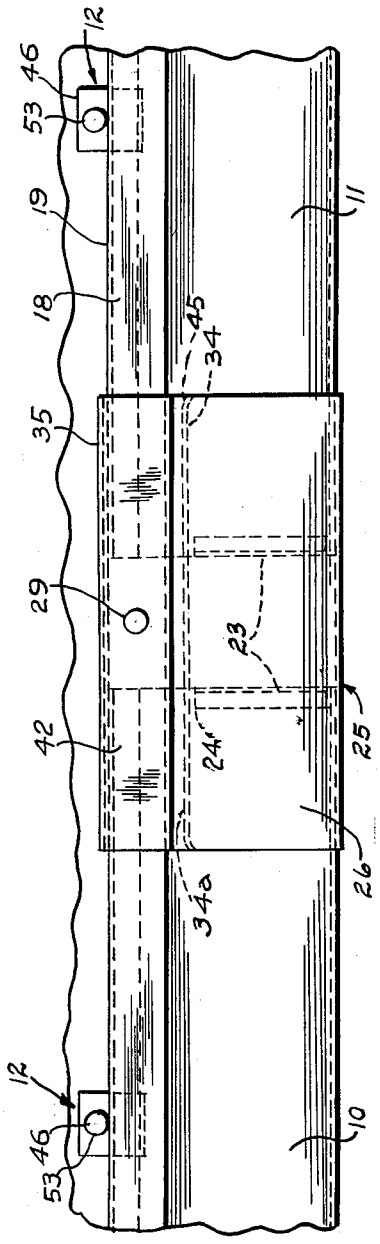


FIG. 2

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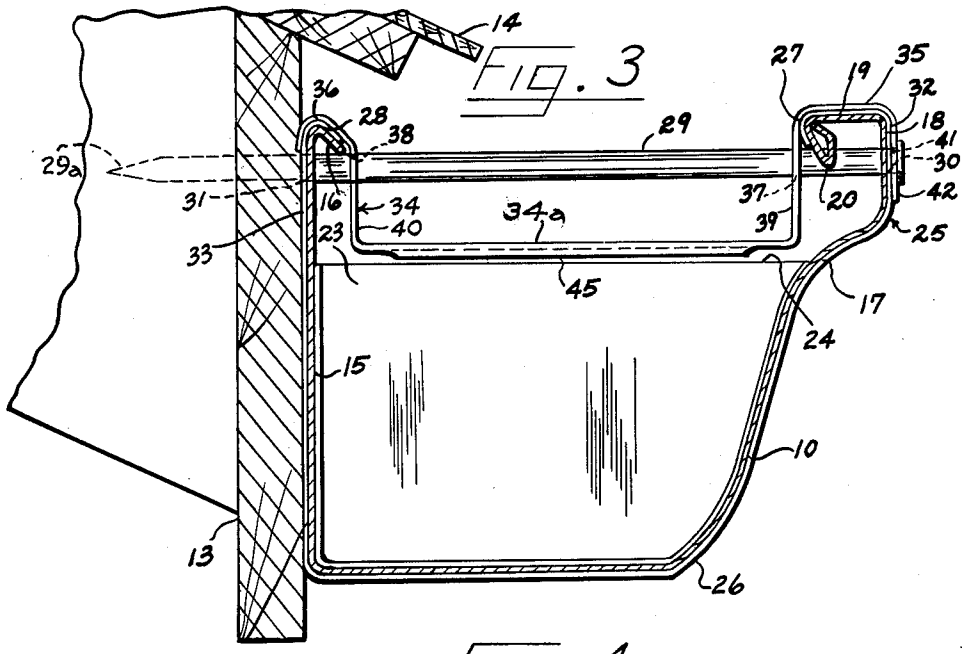



Fig. 3

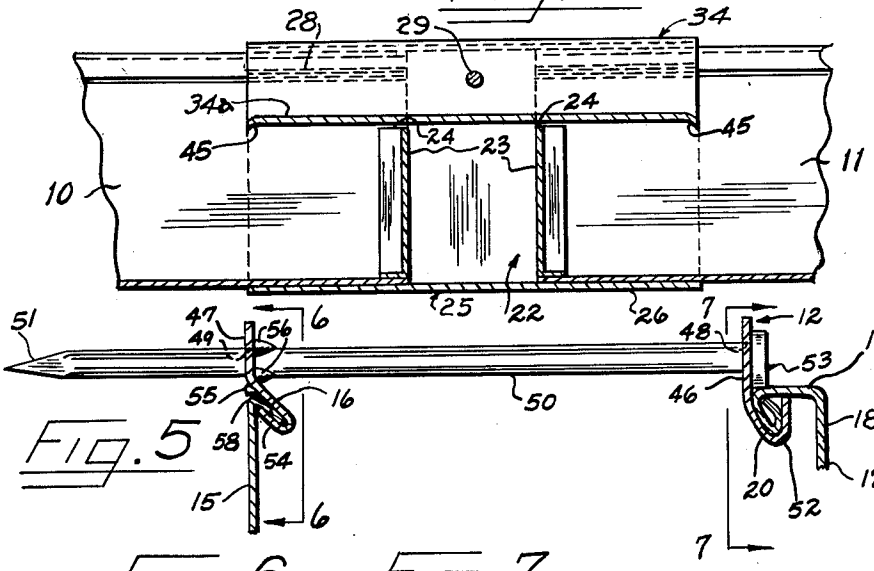



Fig. 4

Fig. 5

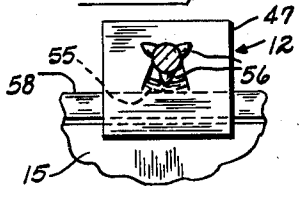



Fig. 6

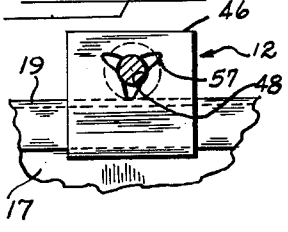



Fig. 7

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FIG. 8

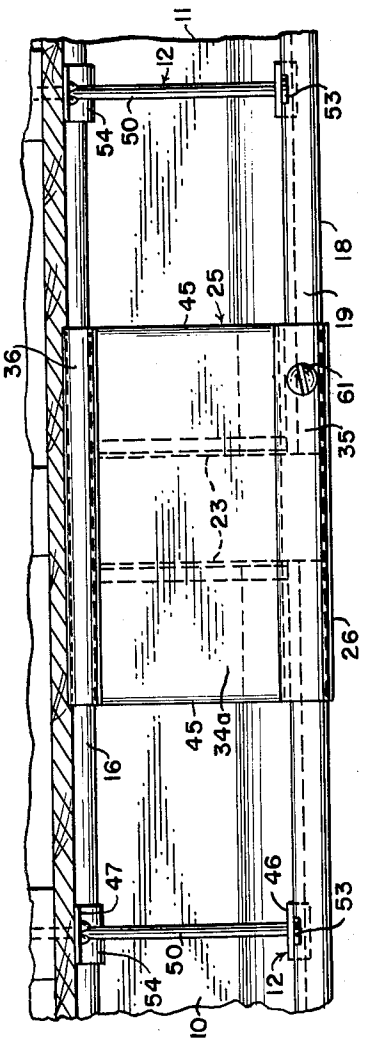
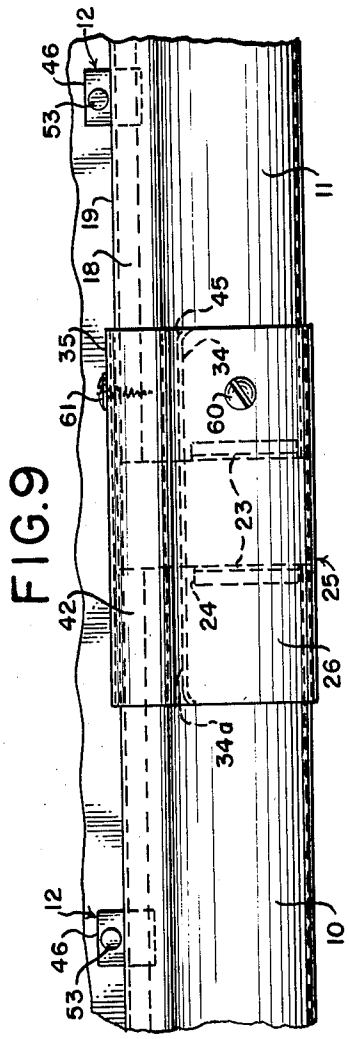



FIG. 9




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3,060,638

# EAVES GUTTER AND SUPPORTING MEANS THEREFOR

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7 Claims. (Cl. 50—4)

This invention relates to eaves gutters and to means for supporting the same on a building structure.

Heretofore, in mounting known types of eaves gutters on a building structure, considerable difficulty has been encountered due to failure to provide for seasonal expansion and contraction of the gutters, so that gutter sections frequently separated at rigid joints between the same, thereby causing leakage of drain water. This condition is most severe, for example, in the case of gutters provided on hip-type roofs, where the ends are usually anchored at opposite corners of a roof section and each anchored end has a downspout.

One object of the present invention is to provide an improved eaves gutter construction which obviates soldering the joints between adjacent gutter sections.

Another object of the invention is to provide a sectional eaves gutter of the character described, having improved expansion joint means longitudinally adjustably supporting adjacent gutter sections without damaging strain thereon, and without leakage of rain water between the sections.

Another object of the invention is to provide an improved eaves gutter hanger which is self-adjusting to the usual longitudinal expansion and contraction of the eaves gutter.

Still another object of the invention is to provide an eaves gutter hanger of the character described, having improved means which is self-operating, when installed, to become locked to the eaves gutter.

Another object of the invention is the provision of a leak-proof connection or joint between gutter ends which allows expansion and contraction of the gutter lengths.

These and other objects of the invention will be manifest from the following brief description and the accompanying drawings.

Of the accompanying drawings:

FIGURE 1 is a fragmentary top plan view, partly in section, of an eaves gutter construction embodying the features of the invention.

FIGURE 2 is a fragmentary front elevation of the same.

FIGURE 3 is a vertical cross-section, on an enlarged scale, taken substantially on the line 3—3 of FIGURE 1.

FIGURE 4 is a fragmentary vertical cross-section, taken substantially on the line 4—4 of FIGURE 1, on the same scale as FIGURE 1.

FIGURE 5 is an enlarged fragmentary cross-section, partly broken away, taken substantially on the line 5—5 of FIGURE 1.

FIGURES 6 and 7 are fragmentary cross-sections taken on the lines 6—6 and 7—7, respectively, of FIGURE 5.

FIGURES 8 and 9 are views like FIGURES 1 and 2 but of a modification.

Referring generally to FIGURES 1 to 7 of the drawings, the numerals 10 and 11 designate adjacent aligned metal gutter sections longitudinally adjustably secured, as by longitudinally spaced hangers 12, 12 to the usual wooden structural portions 13 along the eaves of a roof 14. The hangers 12 are preferably of the type disclosed in U.S. Patent No. 2,928,634 which allows expansion and contraction movement of the gutter sections without loss of the supporting function of the hangers.

Each gutter section is formed channel-shaped, with a vertical rear wall 15 terminating at the top thereof in an inturned flange 16, which extends downwardly at about a



forty-five degree angle to the vertical. A curvate front wall 17 has a flat vertical portion 18 along the top thereof, and an inturned horizontal extension 19 therefrom terminates in a downturned beaded edge 20. Adjacent ends of the sections 10 and 11 are spaced apart, as indicated at 22 in FIGURE 4, and the ends are closed to passage of water by end walls 23, 23, the upper edges 24 of which are spaced slightly below the top edges of the front and rear walls, as best shown in FIGURES 3 and 4, for purposes to be described.

Bridging the gap between the gutter sections may be an expansion joint unit 25, which self-adjustingly supports the adjacent end portions of the gutter sections. This unit may include an elongated bracket 26 of thin sheet metal formed to have a channel-shaped cross-section complemental to the cross-section of the gutter sections, thereby to embrace substantial portions of the ends thereof as shown, terminal edge portions of the bracket being oppositely inturned at 27 and 28 about the tops of the front and rear gutter walls, slidably to retain the bracket conformed to the same (see FIGURE 3). An elongated spike or nail 29 may be received through aligned apertures 30 and 31 in front and rear wall portions 32 and 33, respectively, of the bracket, near the tops of the gutters and centrally within the space 22 between the ends thereof, and the spike 29 has a pointed inner end 34 forcibly received in the wooden portion 13 of the building structure. Thus, the bracket supports the ends of both gutter sections along the roof eave, and yet permits relative longitudinal sliding movement of the gutter sections caused by seasonal expansion and contraction of the same.

To prevent rain water from falling within the space 22 between the ends of the gutter sections, a water-diverting pan 34 may be provided. Pan 34 may be of thin sheet metal, formed channel-shaped and having oppositely outturned upper flange portions 35 and 36, longitudinally slidably supported on the terminal edge portions 27 and 28, respectively, of the bracket 26. The pan 34 may be retained centered on the bracket 26 by reception of the spike 29 through aligned apertures 37 and 38 in vertical wall portions 39 and 40 of the pan, and also through an aperture 41 in a downward extension 42 of front flange portion 35. The bottom wall 34*a* of the pan bridges the space 22 between the gutter sections, and has downturned lips 45, 45 which facilitate flow of rain water into the respective gutters (see FIGURES 3 and 4).

As a modification of the invention just described, and as seen in FIGURES 8 and 9, the spike 29 may be omitted from the expansion joint unit 25 so that the unit 25 merely serves as a joint and not as a support bracket. In this embodiment of the invention, the hangers 12 perform the gutter support function and allow expansion and contraction of the gutter lengths as heretofore stated. With the spike 29 omitted, the extension or joint unit 25 is usually secured to one gutter length as by sheet metal screw means 60. Even without the spike 29, the pan 34 is held in frictional snap in engagement by vertical wall portions 39 and 40 thereof engaging with inturned flanges 27 and 28 on the joint unit 25. If desired, sheet metal screw means 61 may be employed to secure the frictionally engaged channels together at the same gutter end as receives the screws 60.

Referring particularly to FIGURES 5, 6 and 7, still another form of the invention is shown wherein the improved gutter hanger 12 may include separate front and rear plates or members 46 and 47 having therein apertures 48 and 49, respectively, through which an elongated spike 50 is received for forced reception of a pointed end 51 of the same in the building structure 13, in the manner of the spike 29. For longitudinally slidably supporting the gutter section at the front thereof, the front hanger plate

46 may have a downward extension formed with a U-shaped guide portion 52 in which the beaded portion 20 of the front wall 17 is downwardly received. Accidental displacement of the plate 46 from this gutter supporting position is prevented by engagement of a head 53 on the spike with the flat upper edge 19 of the gutter. The gutter section is similarly longitudinally slidably supported at the rear thereof by downward reception of the angular flange 16 in a U-shaped guide portion 54, formed in a downward extension of plate 47. Accidental displacement of the plate 47 from the gutter flange 16 may be prevented by provision of a punched-out tang 55 in the plate 47 engaging the top of the rear wall 15 (see FIGURES 5 and 6).

For maintaining the plates 46 and 47 in positive spaced-apart relation, and thereby to hold the front and rear gutter walls against distortion, the spike 50 may have integrally formed thereon a plurality of peripherally spaced protuberances 56, 56, providing shoulders which engage the forwardly presented face of the plate 47 (see FIGURES 5 and 6). When the spike 50 is initially inserted through the apertured plates 46 and 47, as at the time of installation on a building structure, the protuberances 56 are received through correspondingly spaced notches 57 in the edge portions of the recess 48 of the front plate. At the time of installation, also, one of the protuberances 56 may be utilized to form the punched-out tang 55 from the plane of the rear plate 47, over the top edge 58 of the rear gutter wall 15 (FIGURES 5 and 6).

The improved gutter structure is easily mounted under the eaves of a building by use of simple tools, and without use of solder. As an example, one gutter section 10 may first be mounted on the structure 13 in horizontally extending position by means of a plurality of the hangers 12, in the manner previously described. Next, the bracket 25 is telescopically inserted over the end of the gutter 10, and then the end of the gutter section 11 is telescopically inserted in the other end of the bracket.

After attaching the gutter sections on the building structure 13 by means of a plurality of hangers 12, the two sections may be longitudinally slidably adjusted on the various hangers to locate the sections in predeterminately fitted positions, but with the closed adjacent end walls 23 substantially spaced as indicated at 22 in FIGURE 4. Now the water-diverting pan 34 may be mounted on top of the bracket 26, and both the bracket and the pan are slidably adjusted on said sections to a longitudinally centered position with respect to the space 22 in which the apertures 37, 38 and 41 in the pan 34, and apertures 30 and 31 in the bracket 26 are in alignment to receive or not receive the spike 29 therethrough as previously described. Assembly of the gutters and the expansion joint unit 25 may be greatly facilitated by initially leaving the hangers 12 nearest the jointed ends somewhat loose, and then tightening the various supporting elements, but not so tight as to prevent expansion and contraction movement of the gutter.

In any event, because the gutters 10 and 11 are not anchored either to the hangers 12 or the expansion joint unit 25, and rather are freely slidable with respect thereto, the gutters are free to expand and contract during the seasons of the year, without undue strain on the gutter attaching means 12, or the gutter sections 10 and 11. Also, the expansion joint 25 obviates the usual necessity for soldered, brazed, or welded joints between the ends of adjacent gutter sections, which joints have in the past been subject to separation due to expansion and contraction of the gutters.

This application is a continuation-in-part of application Serial No. 659,233, filed May 15, 1957, now abandoned.

Modifications of the invention may be resorted to without departing from the spirit thereof or the scope of the appended claims.

What is claimed is:

1. The combination with separate longitudinally aligned eaves gutter sections each having front, rear, and end water-retaining walls, and having means for mounting the sections on a building structure with adjacent end water-retaining walls of the aligned sections in spaced apart relation, and said front and rear walls of the sections terminating in upper edges of an expansion joint comprising a hanger bracket of sheet material upwardly conforming to the outer cross-sectional shape of the gutter sections and longitudinally slidably embracing the adjacent ends thereof, said bracket terminating at upper edges thereof in oppositely inturned flange portions downwardly engaging said upper edges of said front and rear walls of the gutter sections, said bracket having aligned apertures in front and rear portions thereof to be centrally in the space between said adjacent end walls, an elongated supporting element received through said aligned apertures for driving reception in the building structure to affix said bracket thereto, whereby said adjacent gutter sections are longitudinally adjustably supported by said bracket to allow for seasonal longitudinal expansion and contraction of the gutter sections relative to each other, and a member supported by the upper edges of said front and rear walls of the gutter sections at said adjacent ends thereof, said member including a water-diverting pan bridging said space between the end walls of the gutter sections and adapted to divert rain water into the gutter sections.

2. A combination as set forth in claim 1, said member having aligned apertures through which said elongated supporting element is received.

3. The combination as set forth in claim 2 wherein longitudinally opposite edge portions of said pan are downturned within the respective adjacent gutter sections.

4. A combination as set forth in claim 1 wherein said water-diverting pan is supported on the bracket and bridges the space between said end walls and overhangs the same for diverting rain water into the sections inside said end walls.

5. The combination in an eaves gutter of one gutter length having a channel shape in cross section, an integral end closure for one end of the length and positioned adjacent the end of the length, a second gutter length of substantially identical cross section, means forming an extension of said one gutter length and of substantially the same cross sectional shape as the gutter and slidably receiving the end of the second gutter length in telescoping relation, an integral end closure for the end of the second gutter length, pan-like means supported by the means forming an extension of said one gutter length, said pan-like means bridging over the space between the end closures to prevent the entrance of water therebetween, and means for engaging and supporting the gutter lengths, said pan-like means and said supporting means allowing expansion and contraction movements of the gutter lengths.

6. The combination defined in claim 5 wherein the means forming an extension of said one gutter length is secured to said one gutter length.

7. The combination defined in claim 5 wherein the means forming an extension of said one gutter length is adapted to be secured to the building on which the eaves gutter is placed, and with the said last-named means slidably receiving in telescoping relation both the end of said one gutter length and the end of said second gutter length.

No references cited.