Aug. 4, 1953 M. W. GIBBONS 2,647,476

EAVES TROUGH CLAMP

Filed Feb. 16, 1951

Fig. 1

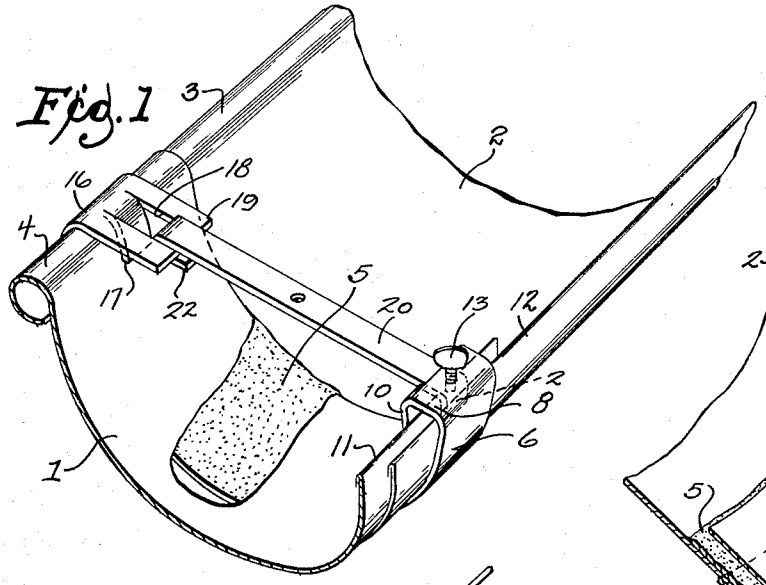
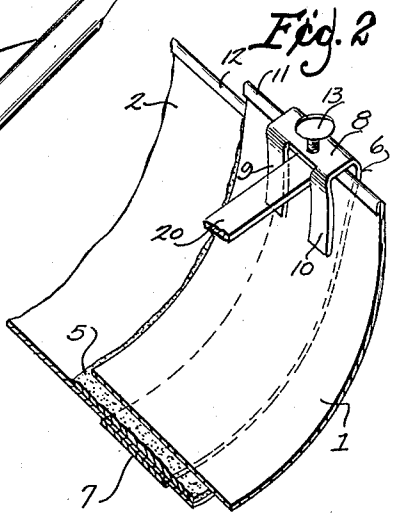


Fig. 2



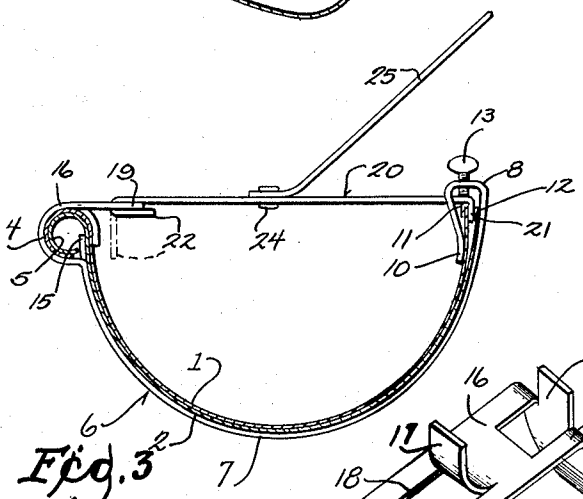


Fig. 3

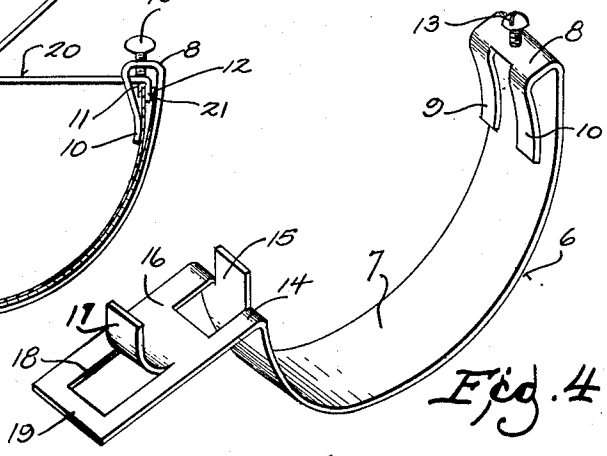


Fig. 4

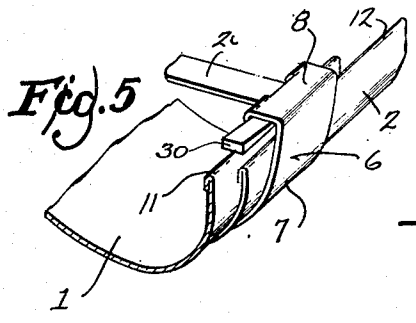


Fig. 5

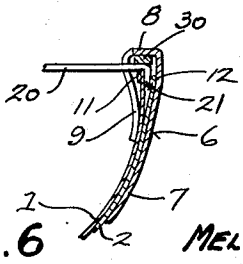


Fig. 6

Inventor
MELVIN W. GIBBONS

By

Wheeler, Wheeler & Wheeler
Attorneys

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EAVES TROUGH CLAMP

Melvin W. Gibbons, Brandon, Wis., assignor of one-third to Wayne J. Gibbons and one-third to James A. Burke, both of Brandon, Wis.

Application February 16, 1951, Serial No. 211,421

8 Claims. (Cl. 108—28)

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This invention relates to an eaves trough clamp.

The clamp is used not only to provide an anchorage for a mounting bracket or brace but, more particularly, to encircle the lapping ends of consecutive eaves trough sections and to subject them to clamping pressure which will effect a watertight connection between them with or without the use of cement, no solder or the like being required.

In achieving this objective, I provide a first clamping element which encircles the lapping ends of the trough sections, being securely formed about the telescopically engaged rolled edges thereof and providing an eye with which is engaged the hook at the end of a second element. The latter spans the eaves trough and is hooked with the rear margin of the inner section only. The first element has a hook which loosely clears the rear margins of both sections and is bifurcated to receive the hook of the second element and carries clamping means which pushes the hook of the second element downwardly and the hook of the first element upwardly.

Such a device is applicable with ease in the installation of new troughs and the repair of old troughs, saving a great deal of labor and expense as compared with other known devices for the purpose.

In the drawings:

Fig. 1 is a view in perspective showing lapping eaves trough sections clamped by the device embodying the present invention, a portion of one of the sections being broken away to show the optional use of cement.

Fig. 2 is a fragmentary detail view in perspective showing parts of the clamp and trough sections illustrated in Fig. 1 as they appear when viewed from the front side of the trough.

Fig. 3 is a detail view in transverse section through an eaves trough showing in side elevation the clamp illustrated in Figs. 1 and 2, the trough sections being illustrated without cement.

Fig. 4 is an enlarged detail view in perspective of one of the clamp elements used in the preferred embodiment of my invention.

Fig. 5 is a fragmentary detail view of lapping eaves trough sections and a portion of a modified clamping arrangement embodying my invention.

Fig. 6 is a fragmentary detail view in transverse section through the device of Fig. 5.

The eaves trough sections 1 and 2 have their ends lapped as clearly shown in Figs. 1 to 3, the roll 3 at the forward margin of the lower eaves trough section 2 being telescoped into the roll 4 at the forward margin of the upper eaves trough

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section 1. Use of plastic roofing cement 5, usually bituminous, is optional, being shown in Fig. 1 and Fig. 2 and omitted in Fig. 3.

The first clamping element, generically designated by reference character 6, and separately illustrated in Fig. 4, comprises an arcuate strap 7, which is pre-formed to fit the curve of eaves trough sections of conventional dimensions. At its rear end, the element 6 is turned inwardly at 8 and bifurcated to provide separate legs 9 and 10 which are folded downwardly along the band 7 to provide an open hook into which the beaded rear margins 11 and 12 of the respective eaves trough sections 1 and 2 are loosely receivable. The inwardly turned flange portion 8 constituting the top of such hook has a threaded aperture in which the set screw 13 is mounted.

With the set screw retracted in its threaded engagement with hook portion 8 of element 6, the bifurcated ends 9 and 10 are engaged over the lapped margins 11 and 12 and the strap 7 is carried beneath the body of the lower eaves trough section 12. In registry with the forward margin of the eaves trough sections, the strap 7 is folded outwardly at right angles at 14 and apertured to leave an upwardly projecting tongue at 15 which can readily be manipulated into the rolls 3 and 4, as shown in Fig. 3. With the tongue so engaged, the free end portion 16 of the strap is manually formed about the rolls 3 and 4 from its initial position, as shown in Fig. 4, to its applied position, as shown in Figs. 1 and 3. Near its free end, another tongue 17 is cut from the aperture 18. This tongue is now formed inwardly against the inner surface of trough sections 1 as clearly shown in Figs. 1 and 3, the apertured extremity 19 projecting horizontally over the trough.

The second element, generically designated by reference character 20, comprises a strap provided at its rear end with a downwardly turned hook at 21 which is passed between the legs 9 and 10 of the bifurcated hook of the first element. Hook 21 is engaged with margin 11 of the inner trough section 1 only, it being important that the hook 21 does not engage the margin 12 of the outer or lower trough section 2. When thus engaged, the hook 21 is directly beneath the set screw 13 and is confined between the legs 9 and 10 against displacement.

The hook 22 at the forward end of strap 20, initially projecting downwardly as shown in dotted lines in Fig. 3, is passed through the aperture 18 of the terminal portion 19 of the first element of the clamp and is then bent upon itself

to the full line position in which it appears in Figs. 1 and 3.

When the set screw 13 is tightened, the rear margin of the inner or upper eaves trough section 1 is forced downwardly. At the same time, the reaction developed by the thrust of the set screw 13 draws upwardly the entire strap portion 7 of the first clamp element to subject the lower eaves trough section to upward thrust. Thus the two eaves trough sections are securely clamped to each other, the interlocking of the tongues 15 and 17 with the respective eaves trough sections at their forward rolled margins being such as to preclude any shifting or escape of the eaves trough sections from the high clamping pressure thus developed.

The strap which comprises the second clamp element 20 can have fastened to it, as by rivet 24, a brace or hanger bracket 25, as shown in Fig. 3.

Any other means of developing the required relative movement between the two parts of the clamp may be substituted for the set screw, an example being the wedge shown at 30 in Figs. 5 and 6, wherein the rest of the structure is identical with that already described, the parts being identified by the same reference characters.

Whether the set screw 13 or the wedge 30 be used for developing the clamping pressure, it will be observed that such pressure is directed downwardly upon the margin 11 of the inner trough section 1, and is thereby communicated to the entire cross section of the said eaves trough member. The reaction thrust of the pressure developing element, whether it be the screw or the wedge, is exerted upon the strap 7 of the first clamping element 6 to draw the entire outer eaves trough section upwardly. Thus, whether or not cement is used between the parts of the eaves trough, it has been found possible to make a waterproof joint without solder. The device is so easily applied that eaves troughs can be fitted, section by section, the extent of lap between the sections being relatively immaterial, and a great deal of time and labor and material being saved as compared with the costly operation of fitting the sections on the ground and soldering them together and lifting and mounting them in one piece.

I claim:

1. An eaves trough clamp applicable about the lapping ends of successive eaves trough sections having front and rear margins, said clamp comprising a first element having an arcuately shaped portion and adapted for encircling engagement about the lower sides of the eaves trough sections and for hooked engagement over both the front and the rear margins thereof, said arcuately shaped portion having a bifurcated hook for engagement over one of said margins, together with a second clamp element having a hook at one end for interlocking engagement with said first element and having at its other end a hook receivable through the bifurcated hook of the first element for engagement with the margin of the inner eaves trough section only, and pressure exerting means acting upwardly through the bifurcated hook upon the first element and the lower of said lapping trough sections, and downwardly upon the last mentioned hook of the second element and upon the upper of said lapping trough sections.

2. The device of claim 1 in which said pressure exerting means comprises a screw.

3. The device of claim 1 in which said pressure exerting means comprises a wedge.

4. A joint comprising lapping eaves trough sections having inner and outer margins, said joint comprising an outer clamping element having a bifurcated hook loosely engaged over the inner margins of said lapping sections and extending thence about and beneath said sections and upwardly across the forward margins thereof in tight clamping engagement with such forward margins and having a free extremity provided with an aperture and overlying the innermost of the eaves trough sections, together with a second clamping element having a hook extending through said aperture and in linked connection with the said extremity of the first element and extending thence across the innermost eaves trough section and between the legs of the bifurcated hook and there provided with a second hook of its own engaged with the inner margin of the inner eaves trough section only, and thrust developing means in thrust bearing engagement between the first and last mentioned hooks and acting upwardly on the bifurcated hook of the first element and downwardly on said second hook of the second element.

5. The device of claim 4 in which said thrust developing means comprises a set screw in threaded engagement with the bifurcated hook and in bearing engagement with the second hook of the second element.

6. The device of claim 4 in which said thrust developing means comprises a wedge having its upper and lower surfaces respectively engaged under pressure with the bifurcated hook of the first element and the second hook of the second element and confined within said bifurcated hook.

7. The device of claim 4 in which the respective eaves trough sections have rolls at their respective forward margins in telescopic engagement, the first clamping element having integral tongue means projecting upwardly within said rolls externally of the nested sections and another integral tongue means formed downwardly within the nested eaves trough sections in lapping relation to the tongue means first mentioned.

8. The device of claim 7 in which the first clamping element has a free end portion provided with an aperture from which the metal of said second tongue means was derived, the first hook of the second clamping element being engaged through said aperture with the free end of the first clamping element.

MELVIN W. GIBBONS.

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