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EAVES TROUGH

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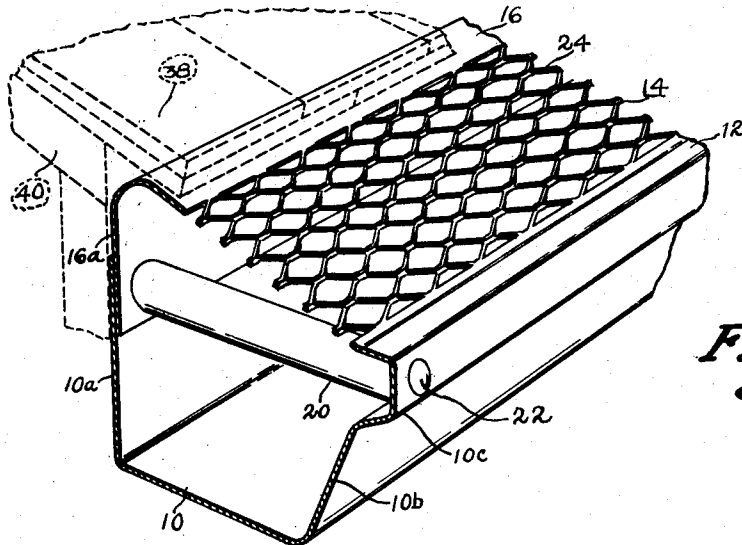


Fig. 1.

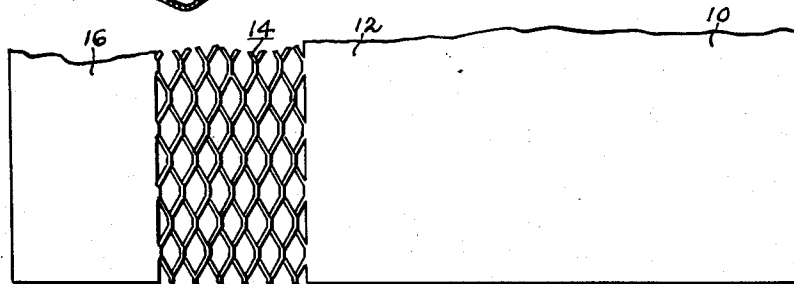


Fig. 2.

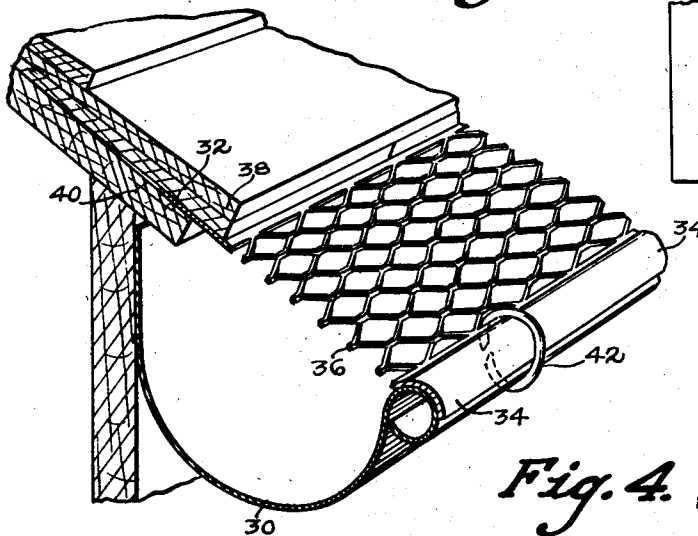


Fig. 4.

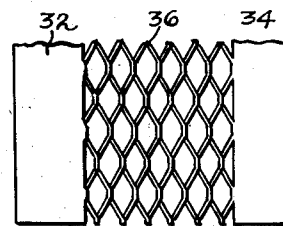


Fig. 3.

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EAVES TROUGH

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6 Claims. (Cl. 108—30)

This invention relates to eaves-troughs or gutters and more particularly to eaves-troughs having an expanded metal protector.

5 An object of this invention is to provide a unitary eaves-trough and expanded metal protector for preventing leaves, birds, debris and other foreign matter from dropping into the eaves-trough.

10 Another object of this invention is to provide an expanded sheet metal protector for eaves-troughs.

15 Another object of this invention is to provide a stranded eaves protector wherein the strands are diagonally disposed with respect to the longitudinal axis of the eaves-trough.

Another object of this invention is to provide a protector for eaves-troughs from a strip of sheet metal having a longitudinally extending expanded strip and intact marginal strips.

20 Another object of this invention is to provide an eaves protector that is cheap, easily constructed, economical, strong and durable and at the same time efficient and dependable.

25 Other objects and advantages reside in the construction of parts, the combination thereof and their mode of operation as will become more apparent from the following description.

30 Referring to the drawing, Figure 1 is a fragmentary, perspective view of the preferred embodiment.

Figure 2 is a plan view of a fragment of a strip of material having a portion expanded, which strip of material may be formed into an eaves-trough, as for example, the one shown in Figure 1.

35 Figure 3 is a fragmentary, plan view of a strip of material to be formed into an eaves protector adapted to be mounted upon a conventional eaves-trough.

40 Figure 4 shows a strip of material having a portion thereof expanded similar to the disclosure in Figure 3, which strip of material has been mounted in position over an eaves-trough.

In the past, considerable difficulty has been experienced with leaves, debris, birds' nests and other foreign matter accumulating in the eaves-troughs, so as to dam the water, thereby defeating the purpose of the eaves-troughs. This has been overcome by utilizing a screen woven from longitudinally and transversely disposed strands, which screen has been placed over the eaves-trough, so as to form a protector. However, this is objectionable for the reason that the woven screen usually has a raw or selvage edge which is not easily secured in position. Furthermore, 55 the wires running either parallel to the longitudinal axis of the trough or in a direction normal thereto, do not conduct the water coming from the roof as readily as when the strands or bonds are diagonally disposed with respect to the general direction of the longitudinal axis of the trough.

5 Other attempts have been made to solve this problem by providing a cover for the eaves-trough that may be integral with the material forming the trough, which cover is provided with a plurality of holes so as to provide a perforated top. This, however, is expensive and objectionable in that it obstructs the free flow of the water, thereby resulting in an inefficient structure during extremely heavy rain.

10 In the present embodiment, instead of using woven material or instead of using a punched sheet metal, expanded sheet metal has been used, the strands of which are diagonally disposed with respect to the general direction of the longitudinal axis of the spout, thereby, so to speak, forming passages tending to drain the water coming from the eaves directly into the trough without forming a passage for the water extending across the trough. Furthermore, by using expanded sheet metal, the structure is extremely cheap, far cheaper than if woven screen were used. In addition thereto, expanded metal is a very efficient structure in that the strands bounding the apertures may be of very 30 light material, thereby leaving the greater portion of the expanded strip of material available for the passage of water, the strands occupying only a small percentage of the total area. Although the strands are of comparatively light material, the resulting expanded structure has greater rigidity and stiffness than most screen woven from the same weight material.

40 In the preferred embodiment shown in Figures 1 and 2, the reference character 10 indicates the spout or trough mounted directly under the edge of the shingles or of the eaves, shown by dotted lines. This eaves-trough may have an upwardly projecting inner flange 10a and a diagonally disposed outer flange 10b merging into a channel 10c. The upper side of the channel 10c forms an inwardly projecting flange 12 bounding a strip of expanded metal 14. This expanded portion may be formed by suitable machinery, as is well known to those skilled in the art, which machinery is used in expanding sheet metal such as expanded metallic lath and the like. The opposite side 16 of the expanded portion 14 merges into a downwardly projecting flange 16a, which may be arranged to overlap the 55

upwardly projecting flange 10a. From the foregoing, it may be readily seen that the spout 10, the flange 12, the expanded portion 14 and the inside portion 16 are formed from a unitary piece of sheet metal, which before being formed into shape has been shown in Figure 2. The piece of sheet metal having the expanded portion 14, as seen in Figure 2, may be bent into the contour of the trough shown in Figure 1.

The trough may be held in position in any suitable manner. In the embodiment disclosed herein the trough is held in position by spikes 22 passing through the base of the channel 10c, the lower edge of the flange 16a, the upper edge of the flange 10a into the frame work of the roof. A tubular member 20 is used in spacing the channel 10c in fixed spaced relation with respect to the flanges 10a and 16a. The eaves-trough may be held in position in any other suitable manner.

Although the flanges 10a and 16a have been shown to overlap on the inner side of the trough, the overlapping edges or the abutting edges, as the case may be, may extend throughout any suitable portion of the trough. For example, one edge of the trough could terminate and form a portion of the channel 10c, the other edge overlapping so as to form a juncture on the outside of the trough, rather than on the inside. Likewise, the contour may be changed to meet the particular requirements so as to harmonize with the architecture of the building, or so as to have the desired utility.

It can be readily seen that the strands 24 are diagonally disposed with respect to the longitudinal axis of the trough 10, so as to form a diagonally disposed meshwork, each strand 24 tending to divert the water falling from the roof into the trough 10, without permitting the water to spill or splash over. Although diamond-shaped meshwork has been shown, and for many types of work this is the preferred embodiment, any other type of meshwork could be used so as to satisfy the particular needs.

Instead of the portion 14 being angularly disposed so as to have the same slope or pitch as the roof, or substantially the same, the pitch of this expanded portion may be greater or less than that of the roof. For some installations it may be desirable to have this horizontally disposed, or substantially so.

If the spout is made from ferromagnetic material or other material that is subject to corrosion, the entire assembly may be galvanized or protected with any other suitable coating. This trough may also be made from copper, brass or any other corrosion-resisting metal.

The preferred embodiment described above may be used in new installations or in installations where the eaves-troughs are replaced by new ones. However, in buildings that have already been constructed and which have eaves-troughs in good condition, it is oftentimes desirable to provide a protector which will exclude debris from the trough. A protector that has been made from expanded metal has been shown in Figure 4, wherein the protector is made from a strip of metal expanded in the manner shown in Figure 3, wherein the central portion 36 is expanded and bounded by the marginal strips 32 and 34. The upper marginal strip 32 may be tucked between the shingles 38 and the roofing 40. The other marginal edge 34 may be formed into suitable contour so as to fit the edge or the brim of the spout 30.

In the particular embodiment shown, the marginal strip 34 has been curved, so as to snugly fit the rolled edge or brim of the trough 30. This eaves protector may be held in position by any suitable fastening device, as for example, screws, bolts, soldering, welding or by metallic clips like the C-shaped metallic clip 42 shown in Figure 4. Several of these clips may be used, spaced at frequent intervals.

This cover or protector made from expanded metal may be applied to any type of a metallic trough. It may also be attached to wood troughs or gutters. When wood troughs or gutters are used, the marginal strip 34 is preferably screwed to the outer edge of the trough or gutter.

If the expanded strip is made from material subject to corrosion, it may be galvanized or otherwise coated, so as to deter corrosion. For some types of work these strips may be made from corrosive resisting metal, such as copper, brass and the like.

It has been found that the expanded metal gives excellent results, is more efficient in catching the rain and at the same time very effective in excluding foreign matter from the trough, resulting in a structure that is extremely cheap to produce and efficient.

Expanded metal or expanded strip, as used herein, designates a meshwork having interstices bounded by integral strands drawn from a single sheet metal.

Although the preferred modification of the device has been described, it will be understood that within the purview of this invention various changes may be made in the form, details, proportion and arrangement of parts, which generally stated consist in a device capable of carrying out the objects set forth, in the novel parts, combination of parts and mode of operation, as disclosed and defined in the appended claims.

Having thus described my invention, I claim:

1. A sheet metal eaves-trough including a sheet metal member extending continuously around the trough, the top of which is expanded to form diagonally disposed strands without removal of metal so as to permit the rain water to flow into the trough, but excluding foreign matter too large to pass through the interstices of the expanded portion of the metal.

2. A sheet metal eaves-trough including a sheet metal member extending continuously throughout the periphery of the trough, the top of which is expanded so as to form numerous interstices bounded by diamond-shaped mesh, providing water passages for the reception of the rain water, the strands bounding the interstices excluding foreign matter too large to pass through the interstices of the expanded portion of the metal.

3. A sheet metal eaves-trough including a sheet metal member extending continuously around the trough, the top of which is expanded so as to form diamond-shaped mesh and inclined so as to have substantially the same pitch as the roof, the expanded portion permitting the rain water to flow into the trough but excluding foreign matter too large to pass through the interstices of the expanded portion of the metal.

4. An attachment for an eaves-trough including a metallic strip having the central portion thereof expanded so as to have a plurality of interstices therein bounded by marginal strips of metal integral therewith, one marginal strip being tucked between the shingles of the roof and the other overlying the outer edge of the eaves-

trough, and means for securing said metallic strip to the eaves trough.

5 5. An eaves-trough assembly including a trough portion and a cover portion, the cover portion being inclined so as to have substantially the same pitch as the pitch of the roof and provided with a longitudinally extending expanded portion having diagonally disposed strands, which expanded portion is bounded on either side by
10 solid metal so as to form a protector for the

eaves-trough excluding debris therefrom but permitting rain to pass through the interstices.

6. An eaves protector for an eaves-trough, said eaves protector including an expanded metal portion overlying the eaves-trough for permitting
5 rain to drain into the trough but excluding debris therefrom, said expanded portion being formed from a metallic strip slitted and drawn so as to form interstices.

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