Jan. 27, 1942. P. N. LAYTON 2,271,081

EAVES TROUGH AND COVER

Filed Jan. 2, 1941 2 Sheets-Sheet 1

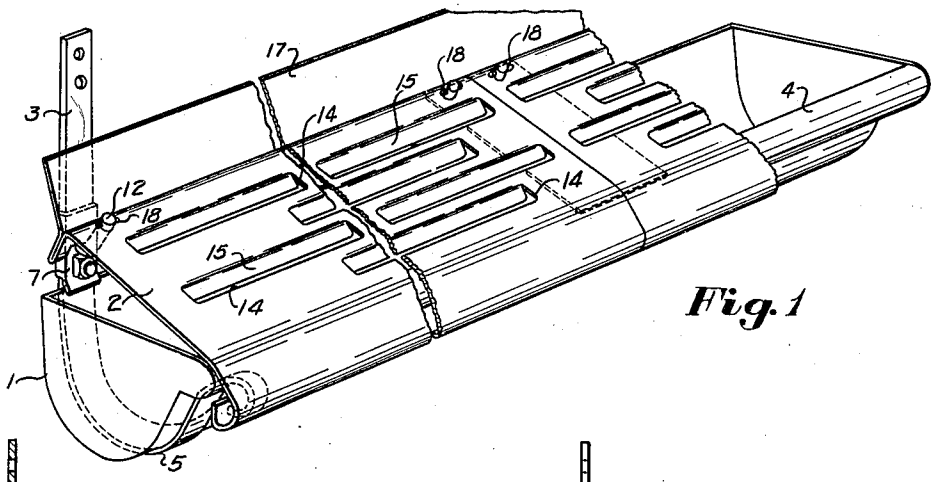


Fig. 1

Fig. 2

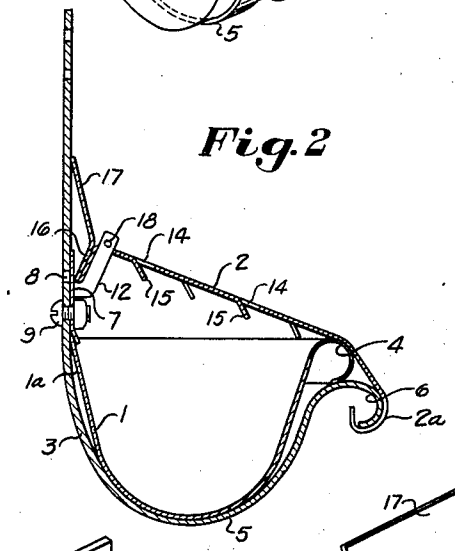


Fig. 3

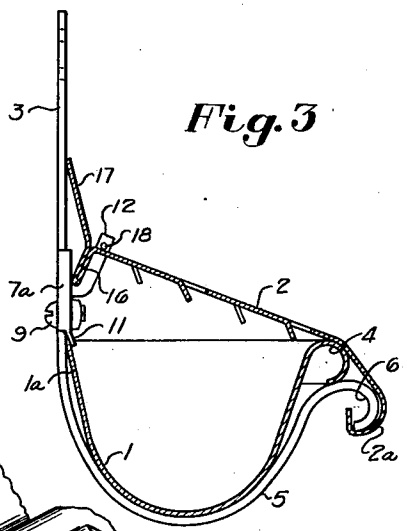
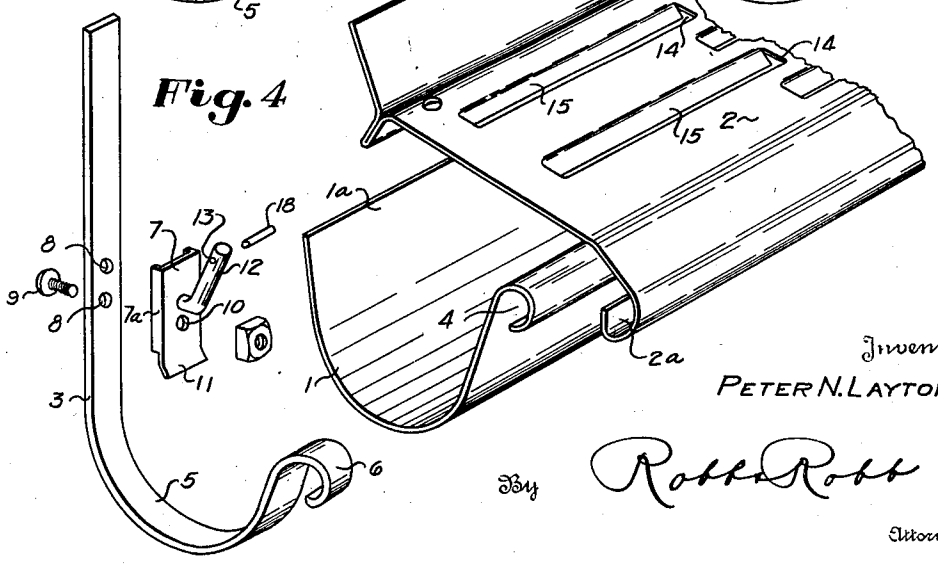


Fig. 4



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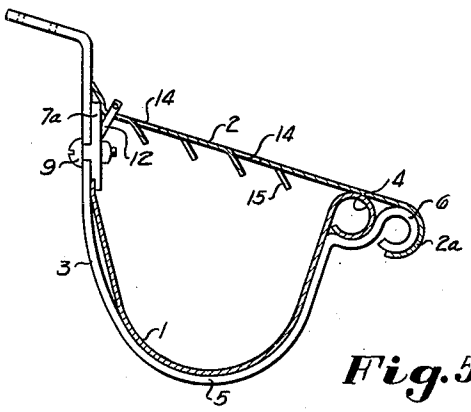


Fig. 5

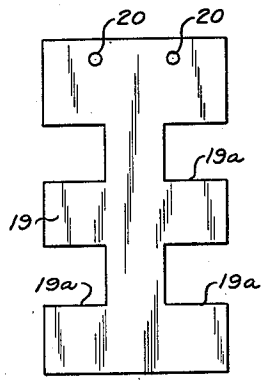


Fig. 6

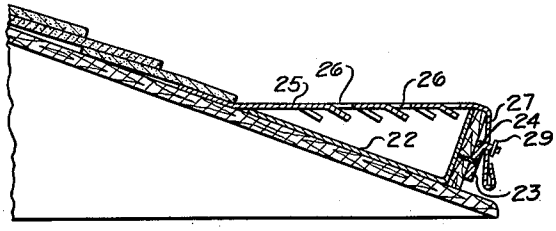


Fig. 7

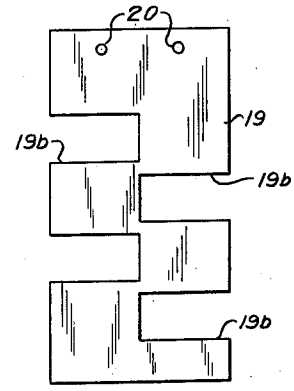


Fig. 9

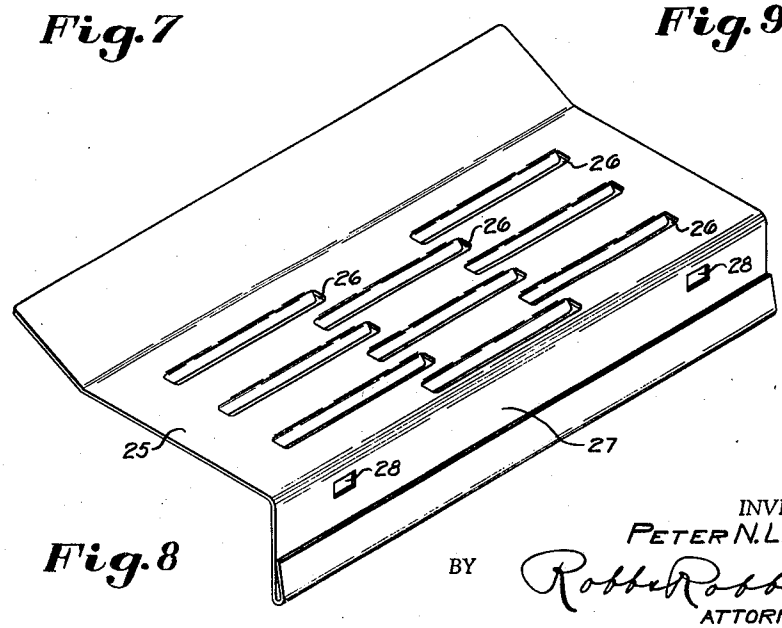


Fig. 8

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EAVES TROUGH AND COVER

Peter N. Layton, Fishkill, N. Y.

Application January 2, 1941, Serial No. 372,931

8 Claims. (Cl. 108—30)

This invention provides a novel kind of combination unit in the form of an eaves trough, a cover for the trough, and means for supporting these parts upon a roof of a house or other building.

A primary object of the invention has been to make provisions for assembling the trough, its cover, the supporting hangers, and cooperating parts in such a way as to give rise to advantages not present in the constructions of eaves troughs at present in use.

The cover provision of the invention is novel in that it is mounted in a peculiar manner upon the hanger means so that the cover may be readily detached, and by a hinging movement of the same upon the hangers it may be raised and access had to the trough therebeneath.

The invention involves a novel form of cover per se for eaves troughs, one which is supported in such a manner above the trough as to prevent the passing of leaves, debris, or foreign matter into the trough, and yet the cover is so designed and disposed in inclined relation to the trough that water may enter the trough and pass off in the usual way or if snow should accumulate on top of the cover of the trough, the water of the snow when melted will readily enter the trough for passage to the down-spout or pipes, as customary. The cover construction is one involving the use of peculiarly formed slots or openings which, while they permit the free entrance of water into the trough through the cover, do not tend to stop the movement of snow sliding down a roof, or leaves, or other debris that may pass off from the roof over the cover without collecting upon the latter.

The invention further involves hanger means with attached parts so that the eaves trough itself may be very quickly and easily disengaged from the hanger means, and securing parts after the cover has been quickly and easily removed, so that when painting of a house or building is to be done, the entire eaves trough and cover combination parts may be detached from the roof and access had to the portion of the latter ordinarily located beneath the same for the painting or other cleaning operation desired.

The invention further involves a novel type of cover for built-in eaves troughs as compared with the usual separately formed type above referred to, and which modified type of cover for the built-in construction of eaves trough is likewise readily removable and has similar advantages to the detachable type of trough as respects the advantages referred to at the commencement hereof

The invention involves the employment of a peculiar joint plate between sections of the cover for supporting the cover sections at the ends where they abut to form a continuing structure.

This invention involves other details of construction which will be more fully apparent upon reference to the following specification in conjunction with the annexed drawings, in which—

Figure 1 is a perspective view showing an eaves trough of the attachable or detachable type equipped with cover means and associated with special hangers, all embodying the invention.

Figure 2 is a vertical transverse sectional view through the parts of Figure 1 and taken through one of the hangers.

Figure 3 is a similar view to Figure 2 except that the section is taken at one side of one of the hangers.

Figure 4 is a combination view showing the various parts of the hangers, eaves trough cover, and attaching members of the unit separated to bring out more clearly details of their construction.

Figure 5 is a vertical sectional view of a modified form of trough construction.

Figure 6 is a plan view of one of the joint plates used below the abutting ends of the cover sections.

Figure 7 is a vertical sectional view of a built-in type of trough construction having my novel cover associated therewith.

Figure 8 is a fragmentary perspective view of the cover of the modified adaptation of the invention of Figure 7.

Figure 9 is a view similar to Figure 6 disclosing a modified form of the joint plate such as may be used when the said plate is arranged at a different point as respects the location of the overlapping drain openings as compared with the disposition of the plate in the illustration of Figure 1.

Referring to the drawings and describing particularly the construction of Figures 1 to 4 inclusive, 1 denotes the eaves trough member, 2 the cover therefor, and 3 one of the hangers, a plurality of which will be employed for the purposes of the invention for supporting the trough and cover parts in proper relation.

The form of the trough member 1 is best seen in Figure 4 where the parts are illustrated in detached relation said member comprising a somewhat U-shaped plate, at the outer end of which is formed a roll edge 4.

The hanger 3 is preferably made from a piece of scrap metal comprising the vertical body por-

tion and the lower outwardly and upwardly curved supporting arm 5 which will preferably be formed with its outer extremity rolled as at 6. The trough 1 will be seated in the lower curved end portion 5 of the hangers 3 somewhat after the usual manner, and it is held in place by the employement of clamping plates 7 adapted to be adjustably mounted on the hangers 3 by the provision of openings 8 through which the fastening 9, a bolt and nut, may pass, said fastening also adapted to pass through an opening 10 in the clamping plate 7. The plate 7 has rearwardly extending flanges 7a between which the hanger 3 is received, and the lower end of the plate 7 is bent slightly outwardly on a curve as shown at 11 underneath which the inner edge of the trough 1 is seated. The lower end of each plate 7 is the portion thereof which engages the upper inner edge 1a of the trough 1, and by the clamping action of the plate 7 through its fastening means the trough member 1 may be readily held in position by the various hangers by which it is carried.

The clamping plate 7 performs an additional function in providing means for connecting the cover 2 to the hanger and to the trough member 1. For this purpose each plate 7 is provided with a supporting pin 12 projecting outwardly from the middle portion of the plate and having a transverse opening 13 in its upper end. The pins 12 of the several clamping plates 7 are adapted to pass through openings in the upper portion of the cover or cover plate 2 and the location of the plates 7 on the hangers 3 is such that the pins 12 will support the cover sections 2 in a position inclining downwardly from the inner portions of the hangers 3 to the outer members 6 of said hangers. This inclination of the cover members or sections 2 is necessary and desirable in order that snow or other foreign matter passing from the roof over the eaves trough 1 may move downwardly and slide across the cover sections and not, therefore, be retained by the eaves trough unit. Also, the inclination of the cover member 2 is such that water passing from the roof on to the same will flow rapidly downward thereover and pass through staggered slots or openings 14 that are formed at intervals in the cover member, as seen in Figures 1 and 4 as well as in Figures 2 and 3. The slots 14 are made by punching out the material of the cover member and pressing inwardly the punched out portions so that the latter form inclined flanges 15 as seen in the sectional views Figures 2 and 3. At its upper edge the cover member 2 is folded downwardly and upwardly to provide a double thickness flange 16 adapted to seat behind and conforming in inclination to the inclination of the pins 12 on the clamping plates 7. From the flange 16 the inner edge of the cover member extends upwardly as shown at 17 to provide an upwardly and inwardly extending flange member, the edge of which abuts against the outer surface of the several hangers 3.

For holding the cover member or cover sections 2 from displacement, a crosspin 18 is passed through the opening 13 of each pin 12 just above the cover plate. The outer end portion of the cover plate is rolled as shown at 2a so as to extend down and around the rolled end portion 6 of the hangers and provide a sort of interlock of the parts 2a and 6 just mentioned, the cover plate 2 is likewise seen to afford an additional support for the outer end of the hangers 5 and the eaves trough 1 connected therewith.

The connection between the parts 2a and 6 as stated affords a sort of hinge-like connection so that when it is desired to inspect the eaves trough 1 to ascertain whether there is any foreign material collected therein or whether it is disintegrated because of rust or the like, all that has to be done is to remove the pins 18 and quickly raise the sections of the cover 2, whereby free access or visibility is afforded as respects the interior of the trough member 1.

Th rolled portion 4 of the trough 1 is adapted to seat upon the outer ends of the hangers as illustrated in Figures 2 and 3 of the drawings, having a firm bearing thereon by this arrangement as well as being firmly connected to the inner portions of the hangers 3 by means of the clamp plates 7 and caused to frictionally bind against the parts 1a of the trough member 1.

Should it be desired to paint the portion of the building or roof carrying the eaves trough 1, something that cannot be done readily at the present time where the eaves trough is secured permanently to the roof, my present invention affords a very advantageous detachability of the parts. Thus, by removing the pins 18, the cover member 2 or any of the sections thereof may be completely disengaged from the pins 12 and from the outer portions 6 of the hangers 3. Thereafter, by loosening the fastenings 9, the pressure of the clamp plates 7 may be relieved as regards the upper inner portions 1a of the trough members 1, and thus by merely lifting upwardly on the outer portions of the trough members, they may be disengaged entirely from the lower ends of the clamp plates and taken off the hangers 3 at the same time that the cover sections are removed. This will leave only the hangers attached to the building or roof, and a painting operation on the parts beneath the previously mounted eaves trough and cover members may be readily accomplished.

For supporting the sections of the cover member 2 at the joints where the edges of the sections abut, I provide a joint plate 19 which may have openings 20 at the upper edge to receive two of the pins 12, and said joint plates will be disposed beneath the sections of the cover member 2 so that the outer end of each joint plate rests upon the trough portion 4. Each joint plate will have slots formed therein corresponding to and matching the slots 14 of the cover member.

In Figure 5 I have illustrated an alternative construction of eaves trough combination parts which are very similar to those previously described excepting that the form of the hanger is slightly different, the cross sectional formation of the cover member is slightly different, and the manner in which the hangers are formed at their outer ends is slightly different from the parts previously described. Since the differences are only a matter of shape and are clearly seen without special description, they are not described in detail.

Figures 7 and 8 illustrate a form of eaves trough of the so-called built-in type. In this type the trough is designated 22 and is provided on its outer wall with attachment plates 23 having pin receiving lugs 24, the attachment plates and lugs being designed for connecting the cover member 25 therewith. The cover member 25 performs the same function as the cover member 2 previously described, except that it is a flat plate having the large inclined body portion provided with the slots or openings 26 that function

like the slots 14 previously referred to. The cover plate 25 has at its outer edge a downwardly projecting attachment flange 27 that engages over the outer wall of the built-in trough 22 while the upper edge of the cover member 25 will be inserted between shingles at the edge of the roof, as illustrated, so that any foreign matter or snow or rain passing down the roof may readily pass on down to and over or through the cover member 25. The outer attachment flange 27 of the cover member 25 may be reinforced by rolling its edge, and is equipped with openings 28 to receive the attachment lugs 24, after which pins 29 are passed through the pin receiving lugs and thus lock or fasten the cover member 25 above the built-in trough and to its outer wall. Simply removing the pins 29 and pulling outwardly upon the cover member 25, it may be quickly detached from the roof when painting operations are performed, or ready access had to the trough 22 for inspection, repair, or any other like purposes.

I do not wish to be limited to the specific form of my hangers 3 because obviously they may be modified in shape to suit different kinds of troughs, that is, troughs of different cross sectional formations. By my construction of hangers, trough, and cover member, I have a detachable unit that possesses special advantages over the customary types of troughs so largely used today.

When the joint plate 19 is located as in Figure 1, the slots 19a thereof, see Figure 6, may be opposite each other. If, however, the location of the joint plate is at a point of intersection between the ends of overlapping openings or slots 14, then the slots 19b formed in the joint plate 19, see Figure 9, will be staggered.

If desired, the clamp plates 7 may be formed with integral projections to provide the pin members 12 under which conditions the said clamp plates may be made out of single stampings. Such construction is not illustrated, as being clearly within the purview of the invention.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is:

1. In combination, a hanger adapted to be secured to a roof, or the like, an eaves trough disposed on the hanger, a releasable member having a portion engaging the inner portion of the trough to the said hanger, a pin on the releasable member, and a cover detachably engaged with said pin and extending over the trough.

2. In combination, a hanger adapted to be secured to a roof or the like, and comprising an inner attaching portion and an outer curved arm, a trough supported by said arm, and a cover plate extending over the trough and inclining downwardly from the attaching portion of the hanger to the outer portion of said arm, said cover plate provided with a plurality of longitudinal elongated slots having inclined flanges formed therewith disposed in laterally staggered arrangement in the cover so as to admit water into the trough but prevent leaves and other foreign matter from entering same.

3. In combination, a hanger adapted to be secured to a roof or the like, and comprising an inner attaching portion and an outer curved arm, a trough supported by said arm, a cover plate extending over the trough and inclining downwardly from the attaching portion of the hanger to the outer portion of said arm, said cover plate provided with a plurality of openings longitudinally thereof, the outer portions of the hanger and cover having a hinging connection to clamp the outer edge of the trough against the hanger.

4. In combination, a hanger adapted to be secured to a roof or the like, and comprising an inner attaching portion and an outer curved arm, a trough supported by said arm, a cover extending over the trough and inclining downwardly from the attaching portion of the hanger to the outer portion of said arm, said cover provided with a plurality of openings longitudinally thereof, the outer portions of the hanger and cover having a hinging connection to permit lifting the inner portion of the cover relatively to the trough and hanger, and means detachably connecting the inner portion of the cover to the hanger, said cover supporting the outer end of the curved arm.

5. In combination, a hanger adapted to be secured to a roof or the like, and comprising an inner attaching portion and an outer curved arm, a trough supported by said arm, a cover extending over the trough and inclining downwardly from the attaching portion of the hanger to the outer portion of said arm, said cover provided with a plurality of openings longitudinally thereof, the outer portions of the hanger and cover having a hinging connection to permit lifting the inner portion of the cover relatively to the trough and hanger, and means detachably connecting the inner portion of the cover to the hanger comprising a supporting pin projecting from the hanger and a cross pin interengaged with the supporting pin above the inner portion of the cover to hold the latter engaged with the supporting pin.

6. In combination an eaves trough including a cover therefor extending over the trough and provided with longitudinal openings through which water may pass, pins arranged at one edge of the trough and interengaged with the cover, and means to secure the said trough to said pins.

7. In combination, an eaves trough including a cover therefor extending over the trough and provided with longitudinal openings through which water may pass, pins arranged at one edge of the trough and passing through the cover adjacent one edge, and crosspins passing through the first mentioned pins at the outer side of the cover to hold the latter engaged with the first mentioned pins.

8. In combination, a hanger adapted to be secured to a roof or the like, comprising, a lower curved member, an eaves trough seated in and on said member, a plate on the hanger having a seat engaging the inner edge of the trough, and a downwardly inclined cover plate engageable at its inner edge with the plate aforesaid, the outer portions of the hanger and cover plate formed with interengaging members detachably interlocked with one another to effect clamping engagement of the outer edge of the eaves trough with the said curved member, when the cover plate is engaged with the eaves trough in water receiving position in the hanger.

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