NAIL SUPPORTED GUTTER HANGER

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This invention relating as indicated to a nail supported gutter hanger is more particularly directed to a hanger comprising a combination of a nail, a sleeve, and a gutter-engaging clip.

Hereinafter it has been conventional practice to suspend gutters by means of a nail and a sleeve, but this practice has several disadvantages, the most important of which is that the nail had to be forced through the outer upper portion of the gutter. Punching the nail through the gutter usually had to be done on the ground and involved some amount of skill in order to prevent distorting the front edge of the gutter. A further and more important disadvantage is that the relatively large hole punched in the outer edge has a tendency to weaken the gutter.

It is a still further and important disadvantage that while the gutter is prevented from moving inwardly due to the sleeve surrounding the nail it is not prevented from moving outwardly, except by the frictional engagement of the inner end of the nail with the facia board, roof rafter, or other supporting surface. After a period of usage where a gutter is subjected to severe ice conditions or flash rain storms, the outer edge of the gutter would be forced outwardly until the nail became loose in its socket. It is an object of my invention to overcome the above-described difficulties by providing a clip which can be securely attached to the upper outer edge of the gutter and which is provided with an aperture for the reception of the usual nail and wherein the nail can be easily driven into place without distortion of the gutter bead.

It is a further object of the invention to provide a combination clip and nail support which costs very slightly more than the cost of the nail and sleeve.

It is a further object of the invention to provide a clip which in one form is attachable to a conventional ogee gutter, in another form is attachable to a modified ogee gutter, and in still another form is attachable to a modified half-round gutter.

A specific object of the invention is to provide a combined sleeve and clip that is formed in one piece.

Another specific object is to provide a two-piece construction comprising the sleeve and clip.

One or more attendant advantages will appear from the following description, wherein reference is made to the accompanying drawings, in which:

Fig. 1 is a side elevation of the two-piece construction with parts in section.

Fig. 2 is a perspective view of the clip shown in Fig. 1.

Fig. 3 is a side elevation with parts in section showing a modified form of clip.

Fig. 4 is a side elevation with parts in section of another modified form of clip.

Fig. 5 is a perspective view of the clip and sleeve shown in Fig. 4.

Fig. 6 is a side elevation of another form wherein the clip and sleeve are formed of one piece.

Fig. 7 is a vertical section taken on line 7—7, Fig. 6.

Fig. 8 is a top plan view of Fig. 6.

Fig. 9 is a side elevation with parts of the gutter in section showing the combined clip and sleeve in place.

Fig. 10 is a perspective view of another modification of the clip and also showing the sleeve.

Referring now to the drawings, and more particularly to Fig. 1, the gutter here illustrated is a conventional ogee gutter, sometimes referred to as a K gutter. The clip A cooperates with the nail 1 and sleeve 2 to hold the gutter securely in place and to prevent any movement either inwardly or outwardly. This clip has an outer vertical section 4 provided with an aperture 5 which is adapted to receive the nail 1, the aperture having a diameter slightly larger than that of the nail 1 so that the head 11 of the nail may seat firmly against the vertical section 4. This vertical upper section 4 has a dependent lower section 6 and the dependent section terminates in an inwardly bent flange 8. A reinforcing rib 7 extends just below the aperture 5 down and around the line of bend between the portion 6 and the flange 8 and almost to the end of the flange 8. The rib strengthens the parts and also assists in maintaining the portion 6 and the flange 8 in desired angular relationship.

Each of the ears 3 and 13 is provided with a slot 14, the slot being defined by the edges 15 and 16 which snugly embrace the outer lip 17 of the gutter G. It will be noted that the outer longitudinal edge 10 of the gutter G firmly abuts the edge 18 of the slot 14 and thus prevents inward movement of the gutter. Inward movement is also prevented by the sleeve 2. On the other hand, the lip is held in its horizontal position because of engagement with the edges 15 and 16. Outward movement of the upper outer edge of the gutter is prevented by snugging engagement of the dependent portion 6 with the portion 19 of the gutter and also by snugging engagement of the flange 8 with the upper curved portion of the gutter.

In this form of the invention installation is very easily accomplished by slipping the clip into place over the outer edge and then holding the sleeve and the aperture 5 and hitting the head of the nail 1 so as to drive the same through the rear upper portion 12 of the gutter and into the supporting surface.

The modification shown in Fig. 3 involves a clip B which is designed to engage a special form of gutter. In this instance the nail 1 and sleeve 2 are employed in the same manner as described above, but the clip differs in that a section or portion 21 extends from the vertical section and this portion merges with another portion 22 extending at right angles thereto. The portion 22 terminates in a curved flange 23 adapted to engage the curved portion 27 of the gutter H. At the same time the portion 22 of the clip snugly embraces the portion 26 of the gutter and in similar manner the portion 21 snugly embraces the portion 25 of the gutter. The lip 24 of the gutter is received in a slot somewhat similar to the slot 14 of the clip C objects and does not extend in a horizontal plane, but, on the other hand, is disposed in a plane parallel to the portion 22. Here again the clip may be very easily slipped onto the outer gutter bead and then the nail driven home.

The clip C is a further modification as shown in Fig. 4 and also in detail in Fig. 5. This clip is designed to engage a special form of half-round gutter.

It is provided with a vertically extending section 32 which has an aperture 33 for receiving the nail 1. The dependent portion 34 extends at an angle to the vertically extending portion and the flange 36 extends at right angles to the portion 34. A strengthening rib 35 retains the parts in their angular relationship. The slot 37 which has a counterpart in the ear 31 is defined by the edges 38 and 39 and the rear edge which connects the two. This clip is installed in the same manner as described.
with respect to clip B, and when installed the edges 38 and 39 engage the upper and lower surfaces of the lip 40, while the dependent portion 34 engages the upper portion 41 of the gutter and the flange 36 engages the portion 42 of the gutter.

The modification shown in Fig. 6 comprises an integral member forming the clip and the sleeve. Clip D is somewhat similar to the clip B, and it has a vertically extending portion 50. It is of course to be understood that the planes set forth in the description relate to the various parts when they are in their installed position. Obviously, the combination clip and sleeve as shown in Figs. 6, 7, 8, and 9 comprises parts which occupy zones of different relationships when the device is installed. The vertically extending portion has two rearwardly extending ears 51 and 52 which are provided with slots 59.

An angular portion 53 depends from the portion 50 and it in turn merges with a portion 54 that extends at right angles to the portion 53. The portion 54 terminates in a curved flange 55. When the device is in place as illustrated in Fig. 9, the portion 53 abuts and firmly engages portion 61 of the gutter. In similar manner the portion 54 engages the portion 62 of the gutter and the curved flange 55 engages the curved portion 63 of the gutter. The gutter in this instance is not shown in its complete form but may be of the configuration shown in Fig. 3.

Each of the ears 51 and 52 are provided with slots 59 having upper and lower edges 57 and 58 which firmly engage the lip 60 of the gutter. Thus it will be seen that rearward movement is prevented by the reception of the lip 60 in the slots 59 and also because of the angle at which the slots 59 extend. Outward movement of the gutter is prevented by the foregoing described relationship of the portions 53, 54 and 55 with parts of the gutter 61 and 63, respectively. Clearly then, the gutter cannot move inwardly or outwardly.

A sleeve is attached to the clip D by means of the bend 70 and this sleeve comprises two cylindrical portions 71 and 72 which are joined by a portion 73 which is semi-circular in cross-section. In this way the sleeve can be formed of one piece of metal and at a minimum cost since the portion 73 which forms a half-cylinder may be readily stamped out of the initial full cylinder. At the inward end of the sleeve the metal of which the sleeve is formed is bent at 74 to provide a flange 75 which seats firmly against the upper inner surface of the gutter.

Another modification is shown of Fig. 10 which involves a two-piece construction somewhat similar to the forms of the invention shown in Figs. 1 to 5, inclusive. A flaring vertically extending portion 80 has an aperture 81, but the ears 82 and 83 in this instance flare upwardly and outwardly in the upper portions thereof. The lower portions 85 are substantially parallel, being bent along the line 84 as shown in Fig. 10. A slot 86 is provided which engages the outer lip of a gutter as described with respect to the preceding figures.

The vertically extending portion 80 is joined by a dependent portion 87 which terminates in an extended flange 89. The flange 89 has a width which is greater than the width of the remaining parts of the clip. This gives a larger contacting surface to engage the curved portion of a gutter such as the portion 63 as shown in Fig. 9 or the portion 27 as shown in Fig. 10. The flange 89 lends strength and also maintains the parts in planes at right angles to each other. In some instances the rear upper part of the gutter, such as the portion 76 of Fig. 9 and the portion 12 of Fig. 1, is lower than the outer upper portion of the gutter. If this is the case, small nails can be used to attach the rear portion to the supporting surface.

In actual tests with the supports as described foregoing, the gutters withstood loads up to double the standard load for a gutter.

Further saving on overall cost can be accomplished by forming the sleeve of lighter gauge metal than the clip since it is not subjected to the severe stresses that the conventional nail-supported gutter hanger encounters.

The gutters as described above have a number of advantages, one of which is ease of installation, another of which is definite ability to prevent inward or outward movement of the gutter bead even though heavily overloaded.

A further advantage is that the punching or forming of a hole in the outer bead is not necessary and its consequent disadvantage of weakening the gutter is eliminated.

In the form of the invention shown in Fig. 6 the rear hole of the upper portion 76 of the gutter is definitely positioned due to the fixed relationship of the sleeve with respect to the clip D.

Another advantage of the supports shown is that they may be used on conventional ogee gutters, half-round gutters, modified half-round gutters, and modified ogee gutters.

Although several embodiments of the invention have been herein illustrated and described, it will be evident to those skilled in the art that various modifications may be made in the details of construction without departing from the principles herein set forth.

I claim:

1. A gutter hanger comprising a nail, a sleeve, and a clip, said nail, clip, and sleeve being constructed and arranged as follows, when said hanger is installed upon a gutter: said sleeve embracing said nail and said sleeve contacting and extending from the upper rear portion of a gutter to a point above the upper front portion of said gutter, said clip having a vertically extending portion with a hole therein, said hole having a diameter greater than that of said nail but smaller than that of the head of said nail, said nail head seating against the outer surface of said vertically extending portion that surrounds said nail, said sleeve contacting the inner surface of said vertically extending portion, a pair of substantially parallel ears extending inwardly from said vertically extending portion of said clip and being integral therewith, said ears having slots therein engaging the outer lip of said gutter, said vertically extending portion of said clip having an integral dependent portion terminating in an inwardly bent flange, said dependent portion and flange snugly engaging the upper portions of the outermost surfaces of said gutter.

2. A gutter hanger as set forth in claim 1 wherein said sleeve comprises one piece of metal having terminal portions defining cylinders and a central portion defining a half cylinder.

3. A gutter hanger as set forth in claim 1 wherein said flange is directly connected to said dependent portion and has a greater width than that of said dependent portion.

4. A clip for attaching the outer edge of a gutter to a supporting nail comprising a vertically extending portion with a hole therein for the reception of said nail, a pair of ears extending inwardly from said vertically extending portion, said ears having parallel slots therein lying in a common plane, said slots being open at one end and as to receive the flat outer edge of a gutter of the generally ogee type, said vertically extending portion having an integral dependent portion terminating in an inwardly bent flange, said flange being spaced from said slots, said dependent portion extending below the plane in which said slots lie, that part of said dependent portion adjacent said vertically extending portion lying in a plane at right angles to said common plane of said slots.

5. A clip as set forth in claim 6 wherein said slots extend in a horizontal plane.

6. A clip as set forth in claim 6 wherein said flange
and dependent portion are connected by a part that extends in a plane at right angles to the plane of said dependent portion.

9. A clip as set forth in claim 6 wherein said slots extend in a plane at an angle of approximately 90° to the plane in which said dependent portion lies.

10. A clip as set forth in claim 6 wherein said ears diverge away from said vertically extending portion and said flange is provided with a strip to extend the width thereof.

References Cited in the file of this patent

UNITED STATES PATENTS

<table>
<thead>
<tr>
<th>Patent Number</th>
<th>Inventor</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>142,016</td>
<td>Hammond</td>
<td>Aug. 19, 1873</td>
</tr>
<tr>
<td>171,253</td>
<td>Abbott</td>
<td>Dec. 21, 1875</td>
</tr>
<tr>
<td>357,839</td>
<td>List</td>
<td>Feb. 15, 1887</td>
</tr>
<tr>
<td>1,962,785</td>
<td>Nord</td>
<td>June 12, 1934</td>
</tr>
<tr>
<td>2,144,225</td>
<td>Neisworth Jan. 17, 1939</td>
<td></td>
</tr>
</tbody>
</table>