Feb. 23, 1954 G. A. BARTHOLOMEW 2,669,950

NONCLOGGING EAVES STRUCTURE

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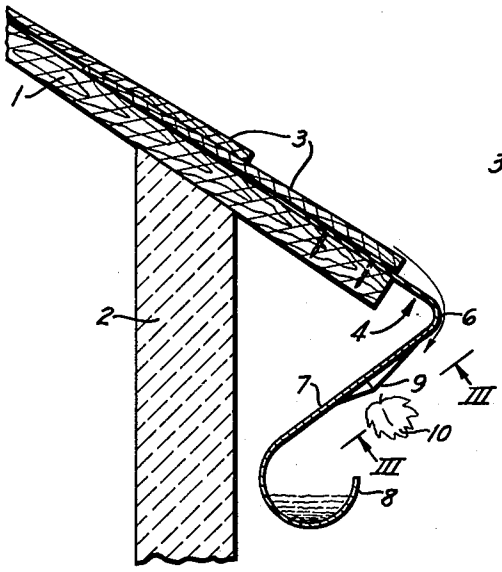


Fig. 1

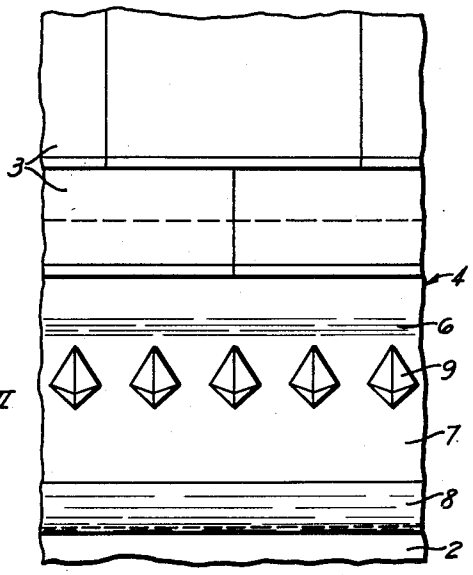


Fig. 2

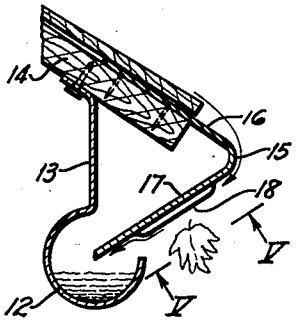


Fig. 4

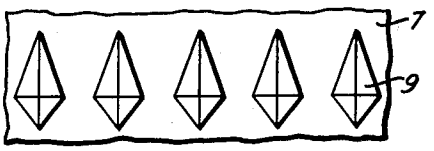


Fig. 3

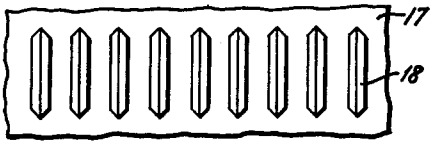


Fig. 5

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NONCLOGGING EAVES STRUCTURE

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This invention relates to eaves structures for houses and other buildings, and more particularly to means for preventing sticks, leaves and like debris from falling into the eaves troughs or being washed into them by rain or snow flowing down the roof.

Ordinarily eaves troughs collect practically all of the foreign objects that are washed off a roof by rain water or melting snow. Such objects also fall directly into the troughs or first fall on the roof and then slide or blow down into the troughs. Unless the troughs are cleaned periodically, and often in spite of it, the down spouts and drains may become clogged. Long ago it was suggested that this problem could be solved by locating the trough in a protected position back under the overhanging eaves and then conducting the water from the roof into the trough by means of a sheet metal strip or diverter extending along the lower edge of the roof and bent lengthwise to form upper and lower inclined portions connected by a curved portion or nose. The upper portion was nailed to the edge of the roof beneath the shingles, and the nose was located a few inches beyond the roof. The inclined lower portion of the strip extended back under the eaves to the trough. In some cases the strip and trough were formed from a single piece of sheet metal. Such a construction is shown in Nye Patent No. 603,611. It has been proven that water flowing down the roof will spread out in a film over the metal strip and adhere to it well enough to flow around the curved portion of the strip and down the lower inclined portion to the trough. On the other hand, sticks or any other objects that are too stiff to conform to the curved nose, or that have a small surface area for their weight, will not follow the water around the curve but will cascade over it and fall to the ground. Such a diverter solved only part of the problem, however, because wet leaves, pieces of paper and other flexible objects that have great surface area for their weight simply flowed with the water around the curved nose of the diverter and into the trough.

It is among the objects of this invention to so improve the type of diverter described above that it will also separate leaves and other similar objects from the water so that only water and harmless objects will enter the eaves trough.

The invention is illustrated in the accompanying drawings in which:

Fig. 1 is a fragmentary vertical section showing my eaves structure;

Fig. 2 is a fragmentary view as seen from the front of the trough;

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Fig. 3 is a smaller fragmentary view as seen along the line III—III of Fig. 1; and

Figs. 4 and 5 are views similar to Figs. 1 and 3, respectively, of a modification.

Referring to Fig. 1 of the drawings the lower edge or eaves of a pitched roof 1 projects some distance beyond the side wall 2 of a house or other building in the customary manner. Beneath the lower ends of the lowest row of shingles 3 is fastened the upper edge of a sheet metal strip 4 which extends the length of the roof. This strip extends a short distance beyond the edge of the roof and then is curved downward and backward to form a nose 6. The portion 7 of the strip below the nose is inclined back under the overhanging eaves nearly to the wall of the building, and then is curved outward and upward to form an eaves trough 8. The strip thus has upper and lower inclined portions which diverge toward the building from the connecting curved portion or nose. The type of diverter described thus far was tried in the past, but it did not prove successful because wet leaves or any other objects that could follow the water around the nose of the strip would do so and would flow with the water down into the trough. This objection has been overcome by me in the manner that now will be pointed out.

In accordance with this invention the lower surface of the inclined lower portion 7 of the diverter is provided with a plurality of laterally spaced projections 9 throughout its length. These projections are so formed and arranged that, as the water carries the debris along, they strip leaves and paper and any other like material from the lower surface of the diverter to an extent sufficient to reduce materially the contact area between the foreign objects and the flat lower surface of incline 7 so that the water film binding them to the metal will be unable to keep the leaves and the like from falling away from the diverter.

The projections 9 may take various forms, but preferably they should be elongated in the direction of flow of water and they should extend from the strip at their highest point a distance roughly between one-fourth and one-half inch. By locating the projections about an inch downstream from nose 6, they will not interfere with flow of water around the nose. The distance that the projections are spaced apart depends somewhat on the nature of the objects expected to be stripped from the plate, but in general they should be in the neighborhood of about an inch apart. If they are much closer together, the projections may form a dam that will cause the water to flow

down over them and separate from the diverter before it can reach the trough. On the other hand, if the projections are too far apart, some of the leaves etc. obviously will pass between them and enter the trough. A very good form of projection is one that tapers towards its upstream end, especially one of general pyramidal shape. Such a shape is V-shape in cross section and has a gradual increase in height from the upstream end of the projection to its vertex. The preferred form of projection is a modified pyramid, in which the upstream portion is elongated relative to the downstream portion as shown in Figs. 1 and 3, so that the upstream portion will have a more gradual slope along which the leaves can easily be pushed by the flowing water until they fall.

If desired, the eaves trough can be a separate element, into which the diverter discharges water. Such a trough is shown at 12 in Fig. 4. It is suspended by brackets 13 from the underside of the overhanging roof 14. The diverter itself is made the same shape as before, with a curved nose 15 from which inclined upper and lower portions 16 and 17 diverge. The lower edge of the sheet metal strip extends into the trough. Inclined lower portion 17 may be provided with the same kind of projections 9 shown in the preceding figures, or with projections of some other suitable shape. Those shown in Figs. 4 and 5 are long narrow projections 18 disposed in parallel relation. Water flowing down the diverter passes between them, but leaves and other objects that otherwise would be carried along with the water are lifted from the inclined surface by the projections and fall away from the diverter before reaching the trough.

According to the provisions of the patent statutes, I have explained the principle of my invention and have illustrated and described what we now consider to represent its best embodiment. However, I desire to have it understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically illustrated and described.

I claim:

1. In an eaves structure, wherein a sheet metal strip which is adapted to extend along the lower edge of a roof above a trough with one edge of the strip attached to the roof is bent lengthwise to form upper and lower inclined portions diverging from a connecting curved portion beyond the roof so that water from the roof can flow around the outside of said curved portion and down the lower surface of said lower inclined portion to the trough, a plurality of laterally spaced projections on the lower surface of said inclined lower portion of the strip for stripping flexible leaves and the like from said surface so that they will drop away from it before reaching the trough.

2. In an eaves structure, wherein a sheet metal strip which is adapted to extend along the lower edge of a roof above a trough with one edge of the strip attached to the roof is bent lengthwise to form upper and lower inclined portions diverging from a connecting curved portion beyond the roof so that water from the roof can flow around the outside of said curved portion and down the lower surface of said lower inclined portion to the trough, a plurality of laterally spaced projections on the lower surface of said inclined lower portion of the strip for stripping flexible leaves and the like from said surface so that they will drop away from it before reaching the trough, said projections being elongated in the direction of flow of the water over said lower surface.

3. In an eaves structure, wherein a sheet metal strip which is adapted to extend along the lower edge of a roof above a trough with one edge of the strip attached to the roof is bent lengthwise to form upper and lower inclined portions diverging from a connecting curved portion beyond the roof so that water from the roof can flow around the outside of said curved portion and down the lower surface of said lower inclined portion to the trough, a plurality of laterally spaced projections on the lower surface of said inclined lower portion of the strip for stripping flexible leaves and the like from said surface so that they will drop away from it before reaching the trough, said projections extending between about one-quarter and one-half inch from said lower surface.

4. In an eaves structure, wherein a sheet metal strip which is adapted to extend along the lower edge of a roof above a trough with one edge of the strip attached to the roof is bent lengthwise to form upper and lower inclined portions diverging from a connecting curved portion beyond the roof so that water from the roof can flow around the outside of said curved portion and down the lower surface of said lower inclined portion to the trough, a plurality of laterally spaced projections on the lower surface of said inclined lower portion of the strip for stripping flexible leaves and the like from said surface so that they will drop away from it before reaching the trough, said projections being approximately one inch apart.

5. In an eaves structure, wherein a sheet metal strip which is adapted to extend along the lower edge of a roof above a trough with one edge of the strip attached to the roof is bent lengthwise to form upper and lower inclined portions diverging from a connecting curved portion beyond the roof so that water from the roof can flow around the outside of said curved portion and down the lower surface of said lower inclined portion to the trough, a plurality of laterally spaced projections on the lower surface of said inclined lower portion of the strip for stripping flexible leaves and the like from said surface so that they will drop away from it before reaching the trough, said projections being elongated in the direction of flow of the water over said lower surface and tapering toward their upstream ends.

6. In an eaves structure, wherein a sheet metal strip which is adapted to extend along the lower edge of a roof above a trough with one edge of the strip attached to the roof is bent lengthwise to form upper and lower inclined portions diverging from a connecting curved portion beyond the roof so that water from the roof can flow around the outside of said curved portion and down the lower surface of said lower inclined portion to the trough, a plurality of laterally spaced projections on the lower surface of said inclined lower portion of the strip for stripping flexible leaves and the like from said surface so that they will drop away from it before reaching the trough, said projections being of general pyramidal shape.

7. In an eaves structure, wherein a sheet metal strip which is adapted to extend along the lower edge of a roof above a trough with one edge of the strip attached to the roof is bent lengthwise to form upper and lower inclined portions diverging from a connecting curved portion beyond the roof so that water from the roof can flow around the outside of said curved portion and

down the lower surface of said lower inclined portion to the trough, a plurality of laterally spaced projections on the lower surface of said inclined lower portion of the strip for stripping flexible leaves and the like from said surface so that they will drop away from it before reaching the trough, said projections being elongated in the direction of flow of the water over said lower surface and being V-shaped in cross section with a gradual increase in height from their upstream ends to a point near their opposite ends.

GEORGE A. BARTHOLOMEW.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
603,611	Nye	May 3, 1898
2,583,422	Haddon	Jan. 22, 1952