(No Model.)

W. A. LIST.

EAVES TROUGH.

No. 357,839. Patented Feb. 15, 1887.

Fig. 1.

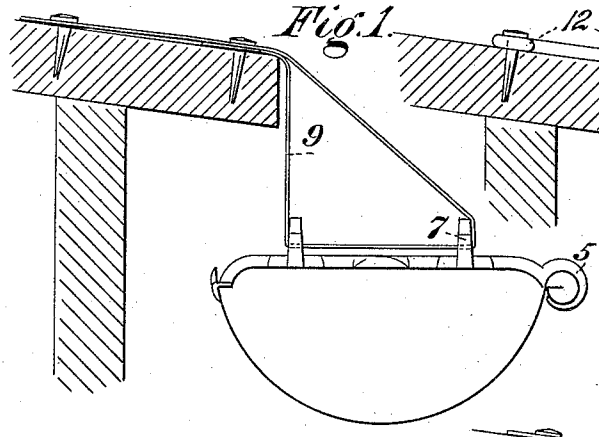


Fig. 2.

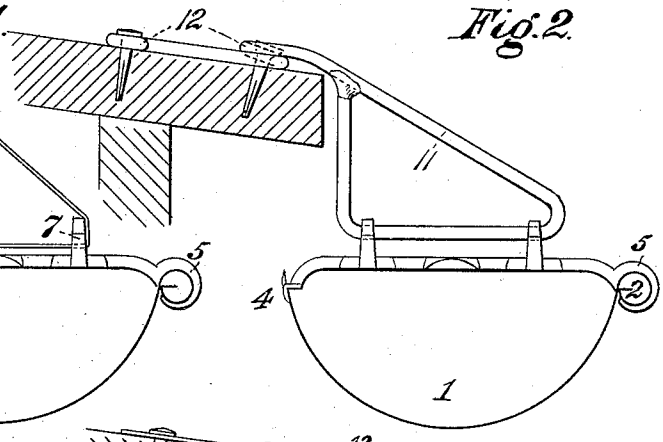


Fig. 3.

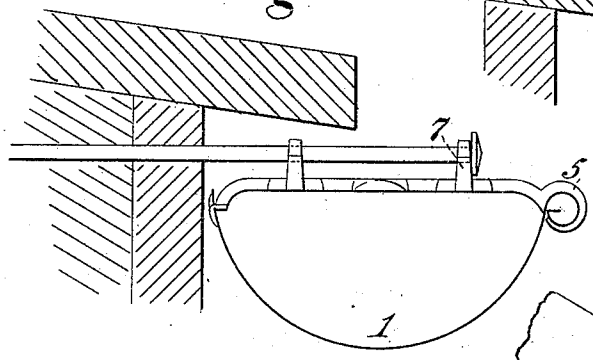


Fig. 4.

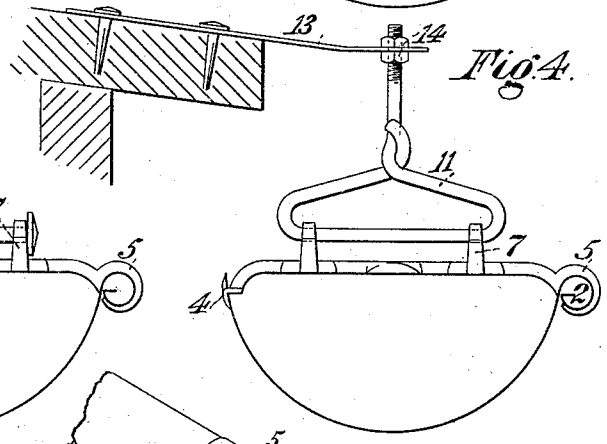


Fig. 5.

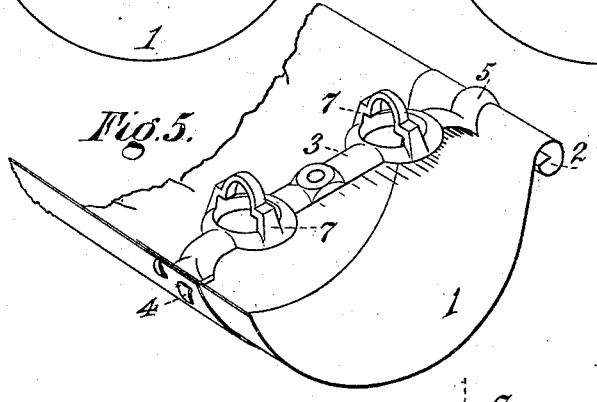


Fig. 6.

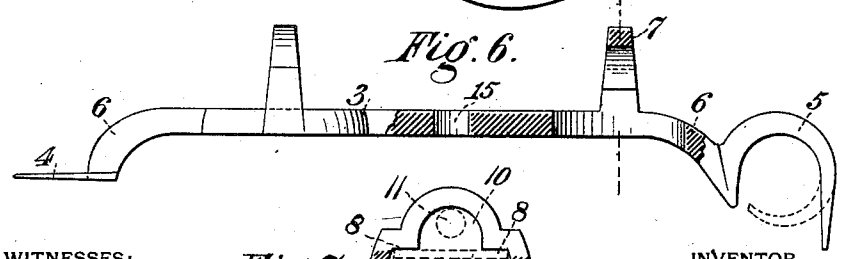


Fig. 7.

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UNITED STATES PATENT OFFICE.

WILLIAM A. LIST, OF WHEELING, WEST VIRGINIA.

EAVES-TROUGH.

SPECIFICATION forming part of Letters Patent No. 357,839, dated February 15, 1887.

Application filed September 13, 1886. Serial No. 213,392. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. LIST, residing at Wheeling, in the county of Ohio and State of West Virginia, a citizen of the United States, have invented or discovered certain new and useful Improvements in Eaves-Troughs, of which improvements the following is a specification.

In the accompanying drawings, which make part of this specification, Figures 1, 2, 3, and 4 are sectional views of eaves-troughs having my improved cross-bar applied thereto, and showing modifications in the means for attaching the cross-bar to the eaves of houses. Fig. 5 is a perspective view of an eaves-trough having my improved cross-bar applied thereto. Fig. 6 is a view, partly in side elevation and partly in section, of my improved cross-bar. Fig. 7 is a transverse sectional view of the same on the line *x x*, Fig. 6.

The invention herein relates to certain improvements in cross-bars and the hangers whereby the troughs are suspended under the eaves of a roof; and the invention has for its object such a construction of the cross-bar as will not present any obstacle or obstruction to the free flow of water along the trough, even when filled to its greatest capacity, and will permit of the suspension and support of the trough by the various means generally employed for that purpose; and it is a further object of said invention to provide for the suspension or support of the trough in such a manner as will prevent the lateral swaying thereof, and will also permit of its vertical adjustment without in any way obstructing the flow of water along the trough.

To these ends the invention consists in the construction and combination of parts, substantially as hereinafter described and claimed.

The trough 1 is made, in the usual manner, of a series of curved sheets of tin soldered end to end, each sheet having one of its edges curled over, as shown, forming a continuous bead, 2, along the length of the trough. The opposite edges of the trough are connected and held in position by a series of malleable-iron cross-bars arranged at suitable intervals. Each of the bars 3 is provided at one end with two prongs, 4, which are thrust through the trough near the plain or unbeaded edge, the projecting ends being then bent against the side of the trough, as shown in the several figures. The opposite end of each bar is provided with a hook, 5, constructed to fit over the bead 2, its point being bent under the bead. As the prongs 4 are of necessity located some distance below the edge of the trough, and the inner end of the hook also projects down along the inner side of the bead, the portions of the cross-bar adjacent to the prongs and hook are curved upward, as shown at 6, for the purpose of raising the body portion of the cross-bar up to a level with or slightly above the edges of the trough, thereby permitting the utilization of the full capacity of the trough for the free flow of water.

On the cross-bar, adjacent to its ends, are formed loops 7, whereby the troughs may be attached under the eaves of a house. These loops 7 are formed with straight portions 8 at each side to form a firm bearing when tin strips 9 are used in suspending the trough in position, and with a circular notch, 10, for use when round suspending devices—*e. g.*, wire or round bolts—are employed. When tin strips 9 are used, (see Fig. 1), the strip is passed through the loops, the straight portions 8 thereof resting on the strip, and the ends are securely nailed to the roof, as shown. In suspending the trough by means of wire one end of the wire 11 is passed through the notches 10 and then attached to the body portion of the wire by soldering, as shown in Fig. 2, or by bending said end around the body portion, as shown in Fig. 4, the opposite end of the wire being bent to form eyes 12, through which are passed the nails securing the wire to the roof. In lieu of forming eyes 12 in the wire, as above stated, the end of the wire may be threaded, (see Fig. 4,) and be connected to the outer end of a strip, 13, by the nuts 14, said strip being nailed at its inner end to the roof. By the use of this form of connection the trough can be adjusted for inclination by means of the nuts 14.

I would state in this connection that I am aware that it is not broadly new to use a threaded or screw connection between the hanger and cross-bar; but in the forms now in use, as far as I am aware, the hanger screws into the cross-bar, and is therefore objection-

able, as the end of the hanger will project into the trough and obstruct the flow of water therein.

When nails or spikes are used for suspending the troughs, the notches 10 will form guides for the nails in driving, thus allowing the workman to use one hand to support the trough and the other to drive the nail.

By the use of two lugs 8 on the cross-bar lateral movement and any tendency to axial rotation of the trough are prevented. In applying the cross-bars to the troughs I prefer to locate them at the joints between adjacent sections, where there is a double thickness of metal, through which the prongs 4 can be thrust, and thereby not only diminish the liability of the prongs being torn out, but also more firmly uniting the adjacent sections of the trough.

I claim herein as my invention—

1. A cross-bar for eaves-troughs provided with loops, said loops being formed with a straight portion, 8, and with a notch, 10, substantially as set forth.

2. The combination of an eaves-trough, a cross-bar provided with loops, a wire hanger engaging said loops and adjustably connected to a strip attached to the roof of a house, substantially as set forth.

In testimony whereof I have hereunto set my hand.

WILLIAM A. LIST.

Witnesses:
DARWIN S. WOLCOTT,
JAMES HARMON.