June 14, 1938. A. E. DEAN 2,120,395

EAVES TROUGH

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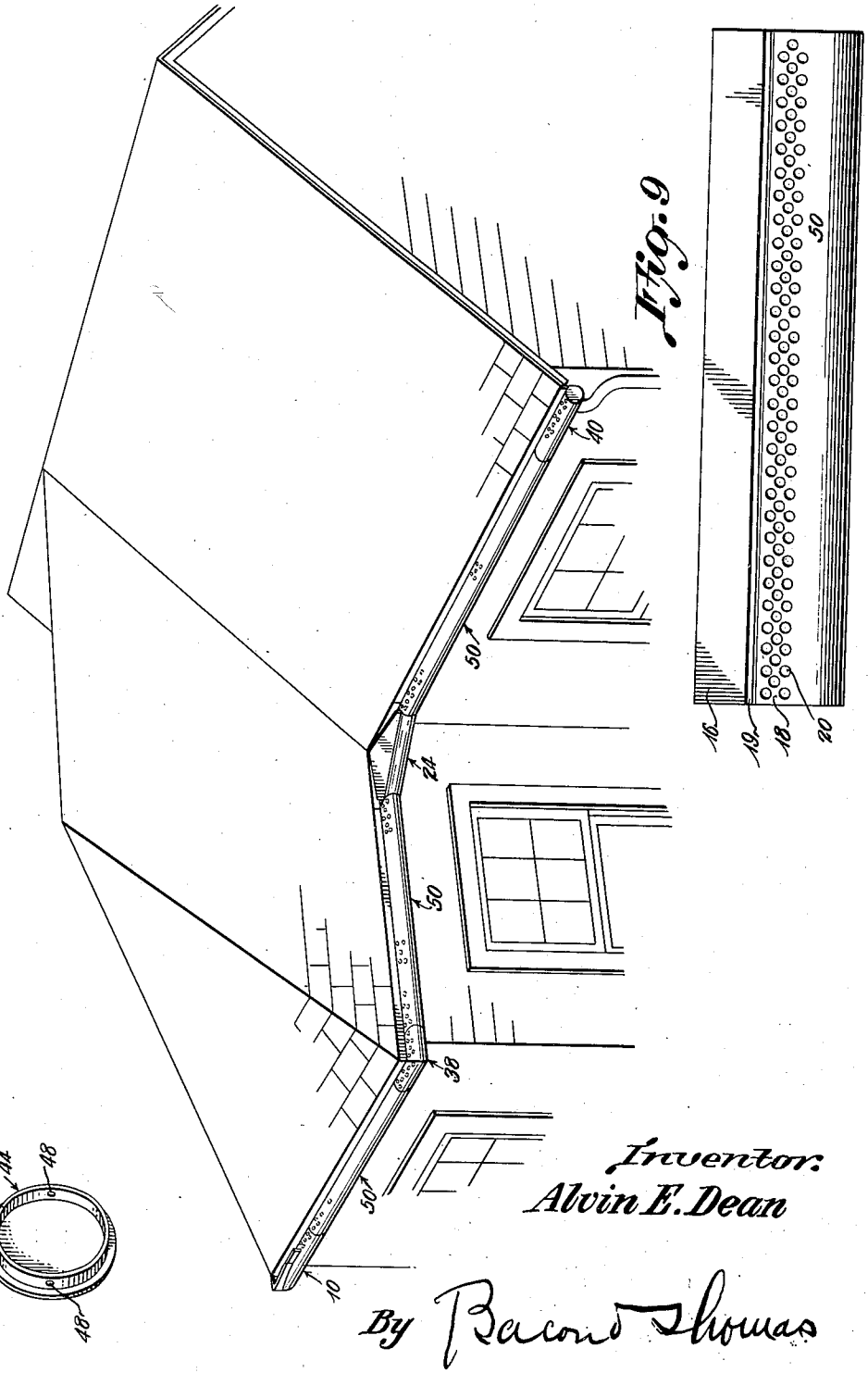

Fig. 1

Fig. 9

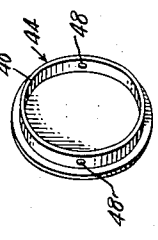

Fig. 10

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EAVES TROUGH

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Fig. 2

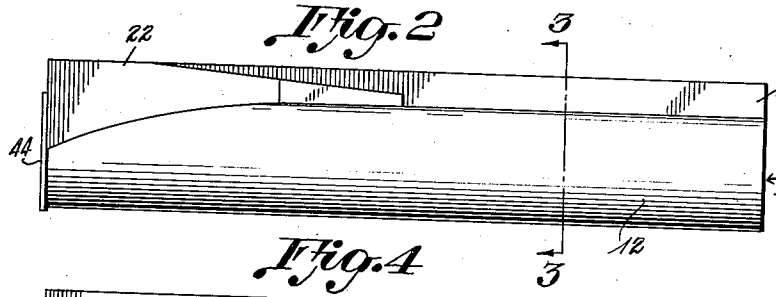


Fig. 3

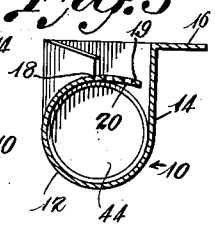


Fig. 4

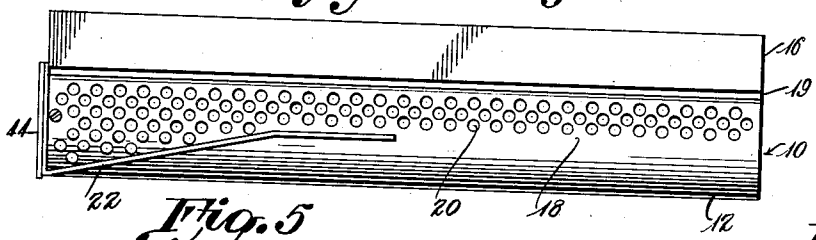


Fig. 5

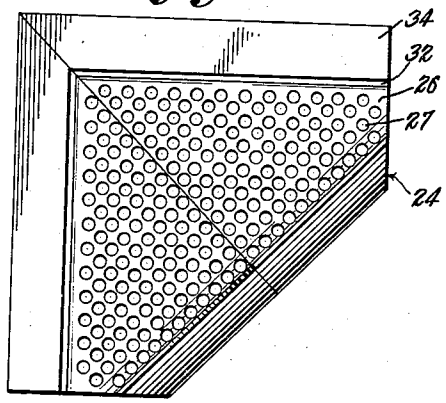


Fig. 6

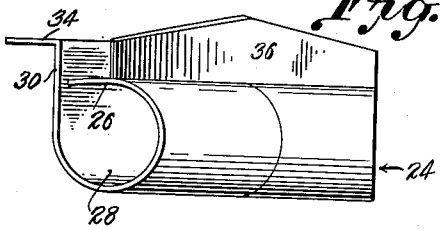


Fig. 8

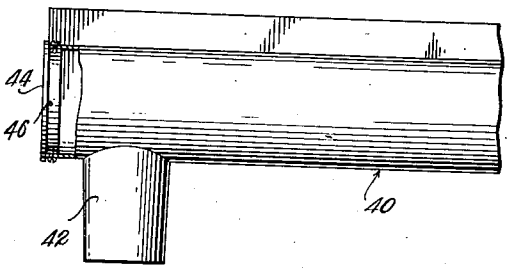
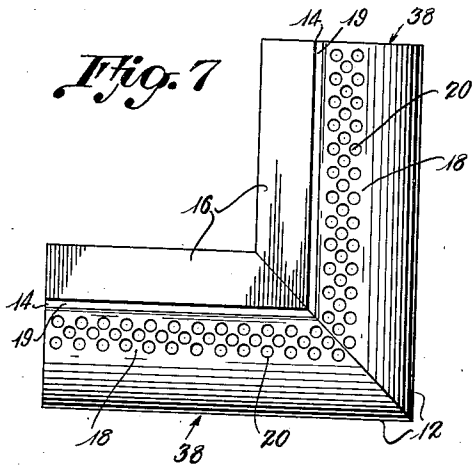


Fig. 7



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EAVES TROUGH

Alvin E. Dean, Glenwood, Iowa

Application December 23, 1937, Serial No. 181,425

4 Claims. (Cl. 108—28)

This invention relates to improvements in eaves troughs and is more particularly concerned with eaves troughs of the kind wherein provision is made for preventing leaves and like material which may be washed from the roof from entering and clogging the trough while at the same time permitting water to freely enter and drain therefrom.

It is a principal object of this invention to provide an eaves trough, the novel construction of which will very effectively prevent clogging by such materials as leaves, sticks and the like which might be washed from the roof, and which will freely receive water and permit the same to readily flow to and drain through the conductor spout.

It is another object of the invention to provide an eaves trough wherein material other than water, such as leaves or the like, will pass over the trough and onto the ground, and wherein such materials as may adhere to the trough may be readily blown therefrom by the air.

A further object of the invention is to provide an eaves trough which is capable of handling an abnormally large amount of water, such as may occur during severe rainstorms, and effectively capture and permit free flow of the same to the conductor spout.

A still further object of the invention is to provide an eaves trough having the foregoing, in addition to such other advantages as will hereinafter be apparent, which is simple in construction, durable in operation and inexpensive in manufacture.

Referring to the accompanying drawings wherein a preferred embodiment of the principles of the present invention has been selected for exemplification;

Figure 1 is a perspective view of a dwelling roof having my novel eaves trough associated therewith,

Figure 2 is a side elevational view of the high end section of the trough, which is disposed remote from the conductor spout,

Figure 3 is a vertical sectional view taken on the line 3—3 of Figure 2 and looking in the direction of the arrows,

Figure 4 is a plan view of Figure 2,

Figure 5 is a plan view of an inside corner section of the eaves trough,

Figure 6 is a side elevational view of Figure 5,

Figure 7 is a plan view of an outside corner section,

Figure 8 is a side elevational view of the low end section of the caves trough connected with the conductor spout,

Figure 9 is a plan view of an intermediate section of the trough; and

Figure 10 is a perspective view of the cap member which encloses each end of the trough.

Referring more particularly to the drawings wherein like numerals designate like parts, Figure 1 illustrates in its entirety an eaves trough formed of various sections contemplated by the invention as applied to the roof or eaves of a dwelling. As in the conventional arrangement, the end of the trough at the left-hand side of Figure 1 is disposed above the end of the trough at the right-hand side of Figure 1 whereby water may flow therethrough by gravity to the conductor spout.

The end section illustrated in Figures 2 to 4, inclusive, which is designated generally by 10 is formed preferably of a single sheet of metal and comprises a substantially cylindrical body portion 12 which forms a trough, a substantially vertical rear or inner wall 14 and a lip or flange 16 which extends laterally of the inner wall 14 by means of which the trough section may be readily attached to a roof, eaves or the like, with nails or in any other desired manner. The body portion 12 merges into an integral, substantially flat and horizontal upper wall 18 which extends toward and terminates only a slight distance short of the rear wall 14 thereby to form a relatively narrow longitudinal slot which runs the length of the section 10 and permits ready access of water into the trough 12 but at the same time being of insufficient width to permit any material ingress of leaves or such other material as may be washed from the roof. The upper wall 18 is perforated, as at 20, throughout its length, and the perforations are preferably restricted so that they may function similarly to the longitudinal slot 19 relative to permitting passage of water, but preventing passage of solid materials.

Section 10 is preferably provided at its free end with an upstanding baffle 22 which extends across the free end, as well as a portion of the length of the section, whereby such water as would be washed over the free end of the section may be captured and directed into the openings into the trough.

The inside corner connection illustrated in Figures 5 and 6, and indicated generally at 24, is constructed somewhat in the manner of the remaining sections except that the upper wall 26 of the trough 28 is of greater width and preferably of substantially triangular configuration,

having a corner thereof disposed in alignment with the valley formed by the intersecting roof sections. The trough **28** is in horizontal section of a configuration similar to the upper wall **26**. The upper wall **26**, which is substantially horizontally disposed, is substantially flat and terminates a short distance from the rear wall **30** to provide a relatively narrow slot **32** which is continuous along the entire section **24**. Further openings into the trough are provided by perforations **27** in the wall **26**. Integral with the rear wall **30** a lip or flange **34** may be provided to facilitate fastening of the trough to the roof.

Inasmuch as the flow of water in roof valleys and directed into inside corner sections of the eaves trough is ordinarily greater than into the straight sections or outside corners of the eaves trough, it is desirable to extend the width of the trough **28** and its upper wall **26** in the manner illustrated. To further provide for this increased flow of water a baffle **36** may be provided along the outer end of the upper wall **26** where it merges into the cylindrical body portion forming the trough **28** for the purpose of directing such water as might flow past the trough and onto the ground in the direction of the trough openings and into the trough whereby it may be properly drained to the conductor spout. In the preferred construction the upper edge of baffle **36** is shaped somewhat reversely of the roof sections forming the valley whereby the highest portions of the baffle are disposed opposite to the lowest portions of the roof valley for the purpose of more effectively capturing the flow of water from the roof valley onto the eaves trough.

The outside corner eaves trough sections, illustrated in Figure 7 and designated generally at **38**, are formed similarly to the sections **10** except that the adjacent end portions thereof are cut diagonally whereby the sections may be more readily joined. Like the end and intermediate sections, the outside corner sections **38** are provided with substantially cylindrical body portions forming troughs **12**, vertical rear walls **14**, laterally extending flanges or lips **16**, substantially flat upper walls **18**, which upper walls are provided with perforations **20** and terminate short of the rear wall **14** to provide relatively narrow slots **19**, which preferably extend continuously along the entire outer section.

The section illustrated in Figure 8, and designated generally at **40**, may be constructed similarly to sections **10** and **38** except that a conductor spout **42** is connected to the bottom of the trough adjacent the free end of the trough. The troughs of the end sections **10** and **40** are preferably sealed as by the cap illustrated in Figure 10 and indicated generally at **44**. The cap **44** may be connected to the trough in any suitable manner and in the construction illustrated is provided with a circumferential flange **46** which may be inserted within the trough and secured thereto by passing screws or the like through apertures **48**.

A straight intermediate section of the eaves trough illustrated in Figure 9, and indicated generally at **50**, is formed similarly to the sections **10**, **38** and **40** above described. Obviously as many of the intermediate sections **50** may be provided as found desirable.

The adjacent ends of the various sections herein illustrated and above described which are adapted to be joined together are preferably so arranged that they may be telescoped and, of course, further secured by soldering or the like if desired. The length of the various sections is not necessarily critical but I have discovered that best results are obtained for ordinary purposes if no section exceeds approximately 10 feet in length. The longitudinal slots **19** and **32** are, however, critical and it is important that these slots be not more than approximately ⅛th inch and preferably not more than $\frac{1}{16}$th inch in width as I have found that an opening of this width most effectively prevents entrance of normal debris, such as might cause clogging, into the trough and at the same time permits free flow of water into the trough. It is important too that the diameters of the apertures **20** and **27** do not materially exceed the width of the slots in order to effect most favorable results.

Another important feature of the present invention resides in the provision of a substantially flat and horizontal upper wall for the trough, as indicated at **18** and **26**. A concave upper wall would become readily filled up with leaves and the like and a convex upper wall would permit a flow of water thereover so rapid as to prevent material ingress of water to the trough through the apertures. A substantially flat wall, on the other hand, if it does become covered with leaves will, unlike a convex surface, support the leaves in such a manner that only a slight wind will readily blow them away. While a substantially flat surface will more readily retard a flow of water thereover than will an outwardly curved surface, an exceptionally heavy flow of water, as during severe rainstorms, may flow in an excess quantity even over the substantially flat wall of applicant's invention and for this purpose the baffle arrangement herein illustrated and described is preferably provided.

It is understood that the principles of the present invention are not limited to the specific embodiments herein illustrated and described, but are limited only by the scope of the following claims.

What I claim is:

1. An eaves trough comprising a body portion having a rear wall, an upper substantially flat and horizontal wall integral with said body portion, said upper wall extending toward but terminating slightly short of the rear wall to provide a relatively narrow slot extending longitudinally of the trough and opening into the trough, said upper wall being perforated to provide further openings into the trough, all of said openings being adapted to permit ingress of water while substantially preventing ingress of leaves and the like into the trough.

2. An eaves trough section adapted to be connected with other sections to form an eaves trough, said section comprising a body portion having a rear wall, an upper substantially flat and horizontal wall integral with said body portion, said upper wall extending toward but terminating slightly short of the rear wall to provide a relatively narrow slot extending longitudinally of the trough and opening into the trough, said upper wall being perforated to provide further openings into the trough, all of said openings being adapted to permit ingress of water while substantially preventing ingress of leaves and the like into the trough.

3. An eaves trough comprising a body portion having a rear wall, an upper substantially flat and horizontal wall integral with said body portion, said upper wall extending toward but terminating slightly short of the rear wall to provide a relatively narrow slot extending longitu-

dinally of the trough and opening into the trough, said upper wall being perforated to provide further openings into the trough, all of said openings being adapted to permit ingress of water while substantially preventing ingress of leaves and the like into the trough, and upstanding baffles carried by the trough whereby to direct water into the area of said slot and said perforations.

4. An inside corner section for an eaves trough, said corner section comprising a body portion forming a trough and having a rear wall, a substantially flat and horizontal upper wall integral with said body portion, said upper wall extending toward but terminating slightly short of the rear wall to provide a relatively narrow slot extending longitudinally of the trough and opening into the trough, said upper wall being substantially of triangular configuration and having perforations to provide further openings into the trough, and an upstanding baffle provided adjacent the front of the body portion of the trough, whereby to direct water into the area of said slot in said perforations.

ALVIN E. DEAN.