Feb. 18, 1964 H. C. BUGBIRD 3,121,684

GUTTER AND DOWNSPOUT STRAINER

Filed Jan. 4, 1961

FIG. 1.

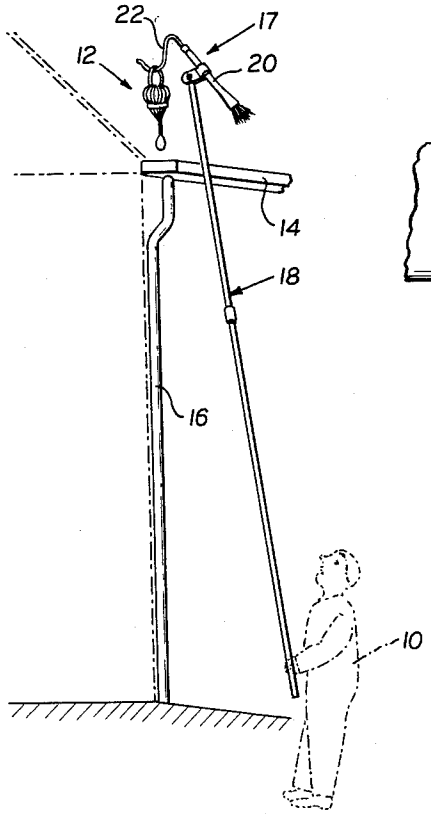


FIG. 2.

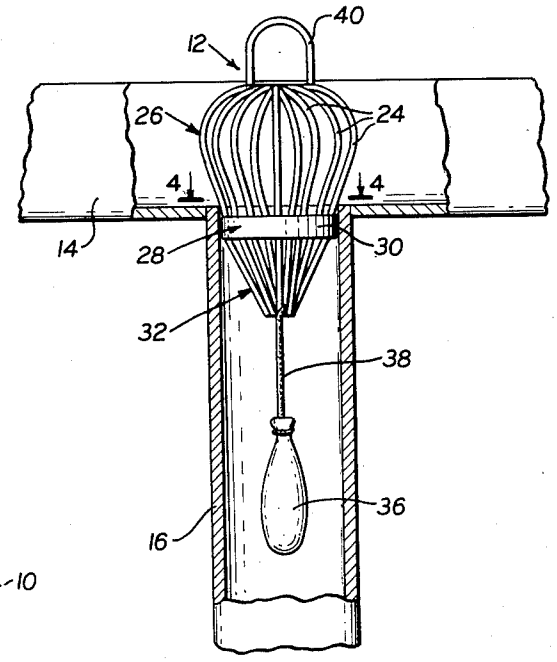


FIG. 3.

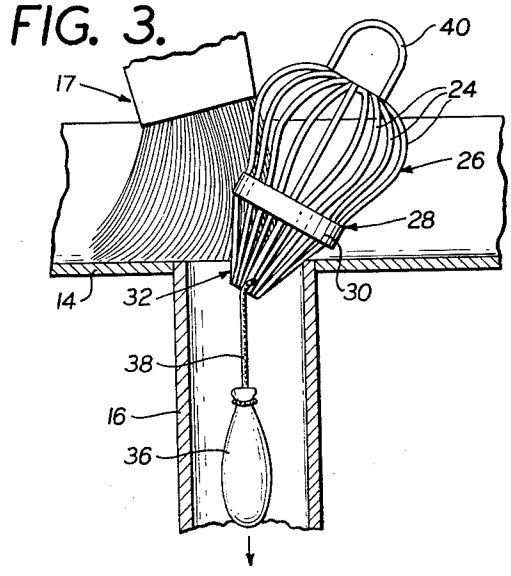
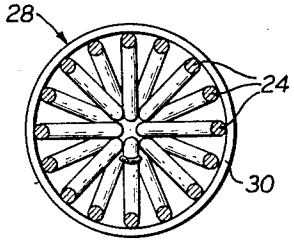


FIG. 4.



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GUTTER AND DOWNSPOUT STRAINER

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2 Claims. (Cl. 210—237)

This invention relates to downspout strainers for use in the gutters of buildings, and more particularly to a strainer of novel character which is adapted to be picked up and set squarely into a proper and effective operating position through the medium of a long, hook carrying pole, manipulated from the ground, and to be maintained in such position without further attention, under all the disturbing forces to which it may be subjected in its operating environment.

The primary importance of a strainer of the kind referred to lies in the fact that a gutter sweeper has been devised by me which is adapted to be used from the ground, in the form of an extensible pole having an angularly adjustable, downwardly directed arm on which a brush is carried. (See U.S. Patents 2,817,867 and 2,896,239.) When this sweeper is used it obviates the need for cleaning the gutter with the hands in the usual tedious and dangerous fashion through repeated ladder setting and ladder climbing.

The use of the ground operated brush means, however, that the sweeping of the gutter in the vicinity of the downspout is apt to be interfered with by the strainer and, since the sweeping out of the gutter is a somewhat blind operaion, the strainer can become dislodged. The user of the gutter brush may leave the strainer in a dislodged condition without the operator knowing that he has dislodged it. In any event, a conventional strainer cannot be reset by a blind operation from the ground because the numerous resilient prongs at its lower end are set to form a broken ring which fits snugly into the downspout, or even to require temporary contraction toward one another for effecting entry of the strainer into the downspout.

It is the primary object of the present invention to obviate these disadvantages by proving a strainer which can be lifted out, inspected, cleaned, and repaired if necessary, and then be accurately and dependably put back into its proper operative position from the ground.

To these ends, it is a salient feature of the invention that the prongs or other elements at the lower end of the strainer are caused to converge markedly to provide a lower pilot end of inverted conical shape, and that a weight in the nature of a plumb bob is joined to the lower end of the strainer through a flexible connector or cord. It is a further feature, though not an essential one, that the strainer is provided with an upstanding bail or loop at its upper end for engagement by a pole carried hook.

With the strainer hanging on the hook, the pole may be manipulated to drag the weight along the gutter and the operator will be informed both by sound and by a tug upon the pole when the weight drops into the downspout. The weight will automatically draw the pilot end of the strainer into the downspout, will locate the strainer in the desired upright attitude, and will maintain the strainer in that attitude under all operating conditions.

Other objects and advantages will hereinafter appear.

In the drawing forming part of this specification:

FIG. 1 is a small scale view showing the strainer lifted out of the gutter or about to be replaced in the gutter, from the ground;

FIG. 2 is a fragmentary sectional view showing the strainer in place;

FIG. 3 is a fragmentary sectional view showing the strainer partially dislodged by the brush; and

FIG. 4 is a sectional view taken on the line 4—4 of FIG. 2 looking in the direction of the arrows.

In FIG. 1 disclosure is made of an operator 10 in the act of lifting an illustrative strainer 12 from the junction of a gutter 14 and a downspout 16, or of setting it back into place. The operator is using a long handled brush 17 for this purpose. The long handled brush or sweeper 17 consists of a telescopically adjustable handle 18, an angularly adjustable downwardly extending brush carrying arm 20, and a hook 22 which extends from the upper end or tail portion of the arm 20.

The illustrative strainer 12 is composed chiefly of wires 24 which are bent to form a bulbous upper portion 26, an intermediate waist portion 28 of cylindrical form which is surrounded by a metallic collar 30, and a conically tapered pilot portion 32. The wires 24 are desirably joined to one another, as by soldering, where they cross at the top of the upper portion, are soldered to the surrounding collar 30 in the waist portion, and may be connected in any suitable manner, as by soldering, at their lower ends. The attachment of the wires to one another as described, serves to keep them evenly spaced from one another, so that the upper and lower portions are evenly divided to provide numerous small openings, which openings in the aggregate provide large flow areas.

The pilot portion 32 has an erecting and stabilizing weight 36 connected to it through a flexible connector 38, the connector being illustratively shown as consisting of a single length of non-rustable metallic cable. The connector 38 may have its opposite ends soldered to the lower end of the strainer 12 and to the weight 36, or it may be secured to them in any other suitable manner.

The upper end of the strainer is provided with a bail or loop 40 of substantial size into which the hook 22 may be readily threaded, even as a blind operation. The bail 40 extends symmetrically across the top of the strainer, being desirably secured at its ends by soldering, and is desirably rounded at its upper end. When supported freely by the hook 22, the strainer hangs substantially vertically downward with the hook engaging within the top central portion of the bail, the connector 38 hanging vertically downward from the pilot portion 32 of the strainer, and the weight 36 hanging vertically downward from the connector, all substantially as shown in FIG. 1.

By lowering the hook 22 from the position of FIG. 1 until the weight 36 rests in the gutter with some slack in the connector 38, the weight may be dragged along the gutter until the weight falls into the downspout 16. The hook is then lowered until the weight of the strainer is taken completely by the gutter, whereupon the hook is moved slightly from side to side to test the stability of the strainer and to adjust it into a condition of stability, if such adjustment is found necessary. It has been found that the strainer can be dependably adjusted into the condition in which it is illustrated in FIG. 2 with the collar 32 loosely fitting in the downspout, without substantial difficulty.

It is not essential that the wires be brought together at a point at the lower end of the pilot portion 32. The pilot portion 32 may be truncated with the lower ends of the wires left free, or connected in common to a ring. The lower end of the pilot portion should be small enough, however, to enter the downspout freely. The angle of convergence of the wires in the pilot portion is desirably slight, but not so slight that objectionable elongation of the strainer is required. The apex angle, real or imaginary, should desirably exceed 30° but should not exceed 90°.

If the pilot portion is truncated, the flexible connector may be made to consist of two or more equal lengths of non-rustable cable or cord, having their upper ends

connected at equally spaced points to the lower end of the pilot portion of the strainer, but having their lower ends brought together for connection to the top of the weight.

The strainer is not required to be composed of wires, since it may consist of perforated sheet metal stampings, suitably shaped and assembled to provide an upper bulbous portion, a lower tapering pilot portion and preferably an intervening cylindrical waist portion. A weight would be provided in whatever form the strainer might take.

While a certain preferred embodiment of the invention has been illustrated and described in detail, it is to be understood that changes may be made therein and the invention embodied in other structures. It is not, therefore, the intention to limit the patent to the specific construction illustrated, but to cover the invention broadly in whatever form its principle may be utilized.

I claim:

1. A gutter and downspout strainer in the form of a hollow cage, said strainer comprising, in combination, an upper bulbous portion, a lower tapering pilot portion,

each of said portions being sufficiently open to provide a large total flow area, a flexible cord affixed to the lower end of the tapering pilot portion remote from the upper bulbous portion and depending therefrom, a weight affixed to the depending end of said cord, and means on the bulbous portion for facilitating attachment thereto of any suitable manipulative means, whereby the strainer may be caused to slide along a gutter and over a downspout opening therein enabling the weight to fall in the downspout opening to facilitate the positioning of the strainer in the opening.

2. A gutter and downspout strainer as set forth in claim 1, wherein said means on the bulbous portion is a bail providing an eye on said bulbous portion.

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