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GUTTER GUARD HAVING REMOVABLE HINGES

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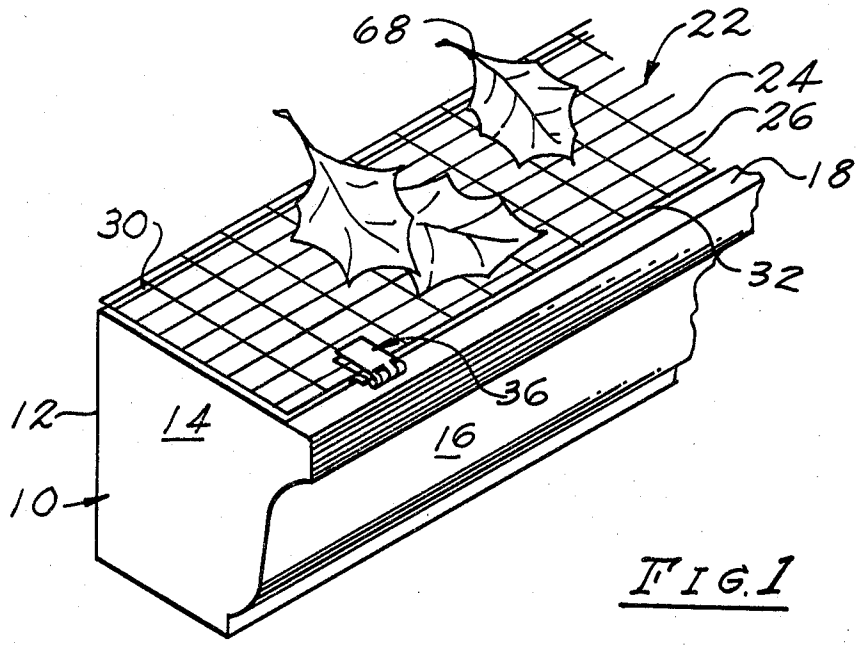


FIG. 1

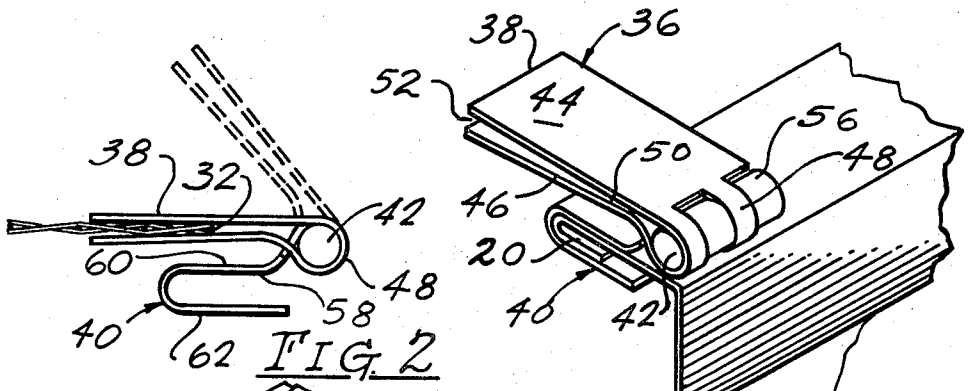


FIG. 2

FIG. 3

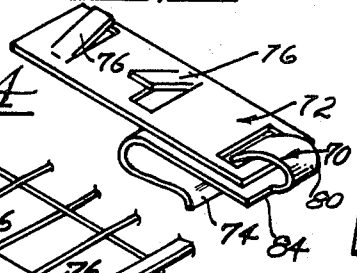


FIG. 4

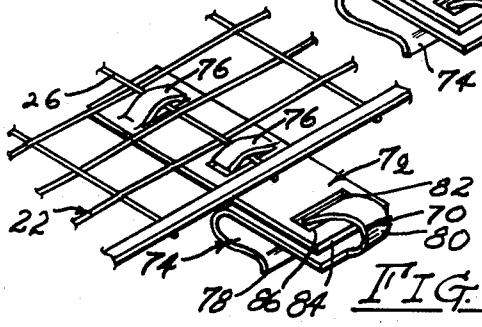


FIG. 5

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ABSTRACT OF THE DISCLOSURE

A gutter guard having hinges attachable to the gutter comprising a gutter screen construction of aluminum wire or other material which is removably attached or detached from the outer lip or edge of a gutter device by means of hinged attachment members and an open gutter attachment member along the length thereof to protect the inside of the gutter from falling leaves, pine straw and other debris and to be opened to clean out the gutter. Each device comprised a gutter attachment member hinged to the guard attachment member both of which are initially open for quick attachment.

The problem of house gutters or eave troughs filling with debris such as leaves, trash, pine straw and roofing pieces is well known and is especially troublesome in certain times of the year such as spring and fall when there is a lot of such debris in the air. Since some gutters are located quite high from the ground it is very often a difficult problem to get there and clean out the debris to free the gutter so that the water travels properly and especially so that the debris does not cause moisture which will rust and rot the bottom of the gutters. Various attempts have been made in the prior art to provide covers for the gutters and such devices per se are not new. However, cost of such devices has been a significant factor and also the simplicity of installation or removal is a very important consideration which is not particularly been satisfied by the prior art. In addition, packaging for sales and sales promotion is important because the expense of transportation and display and packaging cannot exceed the value of the item as far as the job that it does. The present invention is directed towards a better solution of all of these problems.

Generally described, the present invention includes a screen-like gutter cover which may be an open mesh panel sufficiently rigid or self supporting as not to sag or collapse from its own weight and preferably constructed from aluminum wire strip in an open weave construction and with flatter and thinner wires or members at the inner and outer edges. This open mesh strip is suitable to be sold in lengths of ten feet or so which are convenient to handle and carry and each one of these would constitute a unit that together with other similar units would cover the entire length of the gutter across the width. Along with the mesh cover a plurality of attachment hinges which are positioned on the outer edge or the inside lip of the gutter at selected intervals sufficient to support and attach the mesh panels in place. In one form a hinge comprises an attachment consisting of two substantially opposed plates spaced from each other with the space tapering from front to rear to provide a tapered insertion opening into which the edge of the mesh or screen panel is inserted. Preferably the two plates are constructed from one piece of metal such as aluminum bent upon itself and having a certain amount of spring tension or resiliency so that it will be forced apart upon insertion of the screen and will clamp back in place on the screen to hold it in position. The other portion of the hinge is a curved bracket which extends from a common pivot with the upper portion and

extends and curves around in a substantial U-shape and being bent from a piece of metal such as aluminum in order to provide a certain amount of resiliency so that it can be clamped in place over the edge of the gutter. In another form, the hinge has no pin and instead has a metal loop in a slot holding the gutter attachment member to the mesh cover attachment member which is a plate with tabs thereon bendable over the mesh. According to these arrangements the installation is quick, efficient and permanent but readily removable simply by unclipping the hinge from the gutter. Installation is quite simple involving the positioning of hinges at selected locations and them simply attaching the edge of the screen wire panel to the hinge.

A primary object of this invention is to provide a screen wire protector for the open top of a gutter which includes a plurality of hinged brackets that are quickly attached in place and which have a quick attachment means for holding a screen wire protector.

Another object of this invention resides in the particular economical construction of the hinge bracket whereby the top portion is made from aluminum or similar material and the bottom portion is bent to form a clamp attachable on the gutter.

Still another object of this invention resides in the particular arrangement of the edge of the screen and the open portion of the screen support part of the hinge member whereby the screen is easily inserted in place.

Other and further objects and advantages of my invention will become apparent upon reading the following specification taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a perspective view of a typical gutter having the present gutter guard screen held in place by one of the hinge brackets of the present invention.

FIG. 2 is an end elevation view looking into one end of the gutter of FIG. 1 and showing the hinge bracket in dotted lines pivoted out of normal protective position as for cleaning out the gutter.

FIG. 3 is a perspective view of just the hinge bracket of the present invention as shown in FIG. 1 without the screen panel.

FIG. 4 is a perspective view of a modified hinge bracket presenting a different form of attaching the screen to the hinge bracket.

FIG. 5 is a perspective view of the modified hinge attached to a typical screen panel.

Referring initially to FIG. 1, a typical gutter **10** comprises the usual back **12**, ends **14** and curved front **16** all connected together in a closed, watertight relationship and front **16** extends at the top into an inturned upper edge **18** with a bent interior lip **20**. The foregoing is typical conventional gutter construction and varies somewhat from one gutter to another but essentially may be used to illustrate the present invention. The present invention comprises the cover for the gutter which takes the form of an open mesh screen wire member **22** consisting of elongated, longitudinal wires **24** having transverse wires **26** thereon and all in a wide woven mesh. Such a wire screen panel **22** may be woven on a loom from suitable aluminum wire or may be constructed as flat panels in other desired method which per se forms no part of the present invention. Panels **22** preferably would be approximately the width of typical gutters **10** which are somewhat standard according to present day construction and probably would best be sold in lengths of ten or twelve feet for easy shipping and handling and so that the customer can readily take a package of stacked panels **22** home for installation. The edges **30**, **32** of the panel **22** are preferably made from wider and thin aluminum or other material to add rigidity and sup-

port and the entire panel **22** should be constructed from sufficient guage wire to give some rigidity to the structure so that it remains in substantially a flat position although lightness is a desired characteristic and can be achieved with well known material such as aluminum.

Panels **22** extend the full length of the gutter and are held in place detachably or attachably by means of the novel brackets **36**, representing the complete assembly, consisting of an upper bracket member **38** and a lower bracket member **40** hingedly or pivotally connected together by a common pivot pin **42**. The upper member **38** actually comprises two flat members **44**, **46** which in the present form are bent from one piece of flat aluminum strip formed with a curved hinged portion **48** therebetween and the bottom member **46** being bent approximately at **50** to provide a tapered opening **52** leading into the mouth between the plates **44**, **46** and the bend providing a resiliency which together with the curved portion **48** resist separation of the plates and conversely causes a clamping action when the plates are forced apart.

Similarly, the bottom member **40** in the present arrangement is constructed from a flat metal plate which has been bent into a curved hinge portion **56** which extends downwardly and then bends into a substantially U-shaped attachment portion **58** having oposed side plates **60**, **62** that are forced apart during installation on lip **20** and clamped in place thereon.

Installation of the present invention is simple and expedient since the clips or brackets **36** are readily attached in place simply by snapping the U-shaped portion **58** on the lip of the inside of the gutter **18** at lip **20** and locating these brackets **36** at selected intervals of several feet and once sufficient brackets are in place to accommodate one length of panel **22**, then the panel is simply inserted on one side at one edge **32** in between the clamp portion in the mouth **52** and back in the tapered mouth **52** in between the curved portion **50** in plate **44** firmly positioning the panel **22** in place. Thereafter, at any time, the panel may be lifted upwardly into the position shown in the dotted lines of FIG. 2 simply by grasping with the hand and pivoting the upper member **36** on its common pivot pin **42** with respect to the lower U-shaped portion **40**. Thus, not only will the protective panel **22** keep out items such as the leaves **68** shown in FIG. 1, but any small debris such as roofing granules and the like that do get through the mesh in panel **22** can be removed by lifting panel **22** temporarily out of position, cleaning the gutter and then returning the panel **22** to its normal position overlying the open top of the gutter **10**.

It is fairly obvious that the attachment brackets **36** must be manufactured in quantity at a very low price thereby making the cost of the installation very reasonable and available to any homeowner and much less expensive than the cost of replacing gutters periodically as a result of the moisture and corrosion that results from debris collecting in the gutters.

In the modified form of the invention shown in FIGS. 4 and 5, a different hinge designated generally at **70** comprises two primary parts—the attachment plate **72** which attaches to the gutter cover wire screen panel **22** and the gutter or trough attachment member **74**. As in the previous embodiment, the hinge **70** is attached to the gutter **10** and to the cover panel **22** thereby supporting the cover panel **22** movably on the gutter **10**. Plate **72** is a flat, metal plate preferably of aluminum, having attachment tabs **76** punched therein and extending oppositely from each other. The mode of attachment is apparent from FIG. 5 wherein tabs **76** have been bent over transverse wires **26** thereby securely fastening plate **72** in place. The gutter attachment part or member **74** of hinge **70** is also preferably made from a metal such as aluminum and is formed with one curved or arcurate portion **78** generally corresponding to the curvature of the gutter edge or lip **20** and being springy and resilient to be forced thereon under spring pressure. The other end of member **74** is formed with a tongue or tab **80** that has been bent and inserted through a slot **82** in plate **72**. Slot **82** is spaced from the edge **84** of plate **72** and the hinge action is not necessarily about a fixed pivot center line, as generally performed in the embodiment of FIG. 1, but rather involves the plate **72** traveling with the inner edge **86** of slot **82** against the curvature of hinge tongue **80**. This requires some manual manipulation and the cover tends to remain in place over the gutter **10** rather than moving as easily in response to wind which could cause an annoying rattle at night. In fact, tongue **80** can be so configured simply by bending as desired as to be spring tensioned on the part of plate **72** adjacent the slot **82** which, of course, can be easily overcome by manual manipulation but does reduce rattling from the wind.

While I have shown and described a particular embodiment of my invention, mentioning at times selected and preferred materials, it is to be understood that these are not any sort of limitation on the construction or materials of construction in my invention, and in fact do not constitute any sort of limitation on the scope of my invention since there is alterations, changes, deviations, ramifications, eliminations, substitutions and revisions which may be made in the embodiment shown and described without departing from my invention as defined in the appended claims.

I claim:

1. In a protective cover arrangement for a typical gutter or eave trough and wherein said gutter has a normally closed gutter portion or trough with an open top and a lip on one edge along at least part of the length thereof,

(a) an elongated, cover screen panel positioned across the top of the gutter and extending longitudinally thereover and having longitudinal outer and inner edges thereon, said panel being of a width approximately covering the width of the gutter,

(b) an attachment device attaching said panel in place on the lip of said gutters at selected intervals thereon and there being a number of such attached devices located at intervals, said attachment device being a hinged bracket having an upper cover attachment member and a lower gutter attachment member which is attached on the lip of the gutter and there being relative motion between said members, said cover attachment member including initially open, opposed parts attachable in place on opposite sides of said cover screen panel, said lower gutter attachment member including opposed, initially open plates resiliently engaging said gutter, and

(c) hinge means connecting said cover attachment member to said gutter attachment member, said cover screen panel having one edge thereof retained in place by said attachment devices.

2. The arrangement in claim **1**, wherein:

(d) said attachment device comprising a pair of opposed plates on said cover attachment member connected on one end and together being of sufficient resiliency to form a spring clamp portion therebetween,

(e) said gutter attachment member having an arcuate attachment portion comprising spaced members opposed from each other and connected at one end and being resilent to form a clamping action therebetween and being clamped in place on the lip of the gutter,

3. The arrangement claimed in claim **2**, wherein: said spaced plates of said cover attachment member are formed by a continuous strip bent upon itself with the space between said spaced members diminishing from front to rear, portions of said bent part of said strip being removed to provide space for hinge formation, said gutter attachment member being bent from a single continuous

strip having portions removed and the remaining portions fitted between the removed portions of said cover attachment member at said hinge, and a hinge pin connecting said portions at said hinge.

4. The arrangement in claim 1, wherein said hinge includes a portion extending from said gutter attachment member through a portion of said cover attachment member and being movable therein.

5. The arrangement in claim 4, wherein said portion of said gutter attachment member is bent into an arcuate shape and there is a slot in said cover attachment member through which said arcuate portion fits.

6. The arrangement in claim 5, wherein said arcuate portion is smaller across one place thereon than the distance from the slot to the end of said cover attachment member which is confined in said arcuate portion, said arcuate portion being resilient so that manual manipulation will displace said cover attachment member but ordinary wind and vibration will not and the tendency to rattle and vibrate is reduced.

7. The arrangement in claim 1, wherein said attach ment device comprises:

(f) said lower gutter attachment member having an attachment portion comprising a pair of members opposed from each other and resiliently connected at one end to form a clamping action therebetween and being clamped in place on the lip of the gutter,

(g) and said hinge means including a hinge member mounted on said gutter attachment member through an opening therein attached to said cover panel attachment member.

8. The arrangement claimed in claim 1, wherein said hinge includes a movable connection between said gutter

attachment member and said cover attachment member, said connection including a resilient engagement between portions of said gutter attachment member and cover attachment member to prevent said cover screen panel from easily being displaced from over said gutter and to reduce noise such as rattling of said cover screen panel on said gutter, but said cover screen panel being easily displaced by manual manipulation to overcome the resilient engagement.

9. The arrangement in claim 1, wherein: said cover attachment member is a strip placed transversly against said cover screen panel, means for attaching said strip to said edge of said cover screen panel, and said gutter attachment member is a strip with an arcuate attachment portion which is resiliently inserted on said cover screen panel edge, and said cover attachment member has a portion thereof movably attached to said gutter attachment member to hinge same thereto.

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U.S. Cl. X.R.

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