

[72] Inventor **Charles B. Patchett**
 6 Kenewen Court, Toronto 16, Ontario,
 Canada

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Primary Examiner—J. Franklin Foss
Attorney—Roger, Bereskin & Parr

[54] **CLIP FOR DECORATIVE LIGHTS AND THE LIKE**
 12 Claims, 5 Drawing Figs.

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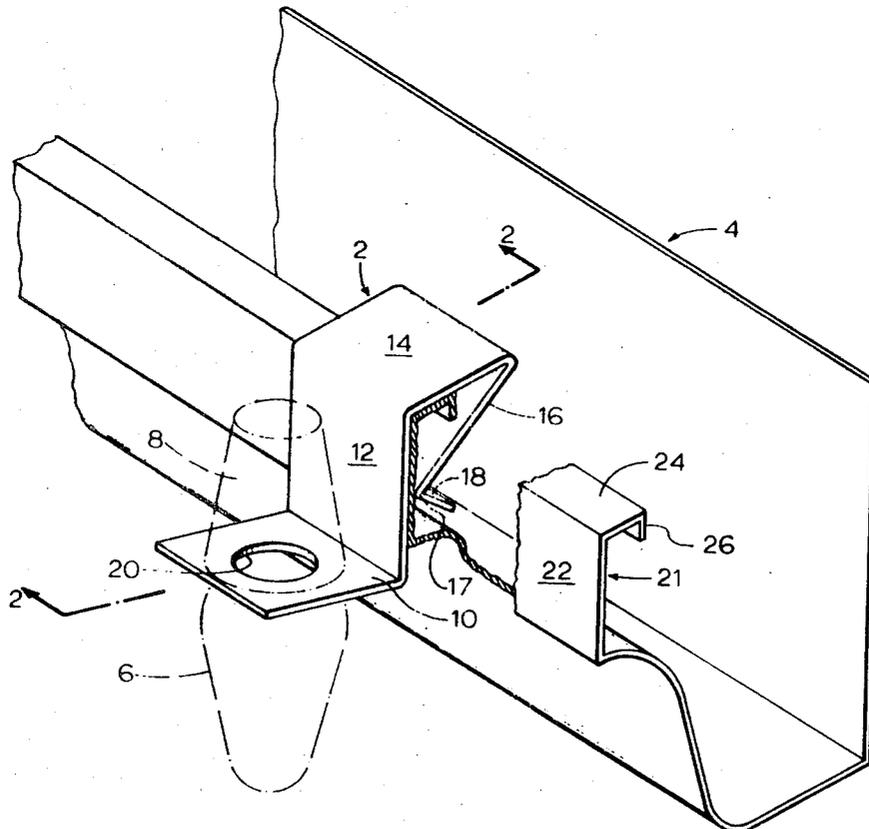
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 215; 240/10 P, 10 S, 10 T; 24/259 FC, 259 R

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ABSTRACT: A thin flexible plastic clip for attaching Christmas lights to eavestroughs, having a first slightly upwardly slanted section with a hole therein. A light bulb is inserted from one side of the hole into a bulb socket on the other side of the hole, and the two are secured together to clamp them to the first section. The clip also includes a second section extending upwardly from the rear edge of the first section; a third section extending rearwardly from the upper edge of the second section; a fourth section slanting downwardly and forwardly from the rear edge of the third section, and a short fifth section extending downwardly and rearwardly from the forward edge of the fourth section. The clip is placed on an eavestrough with the rim of the eavestrough gripped between the second and fourth sections.



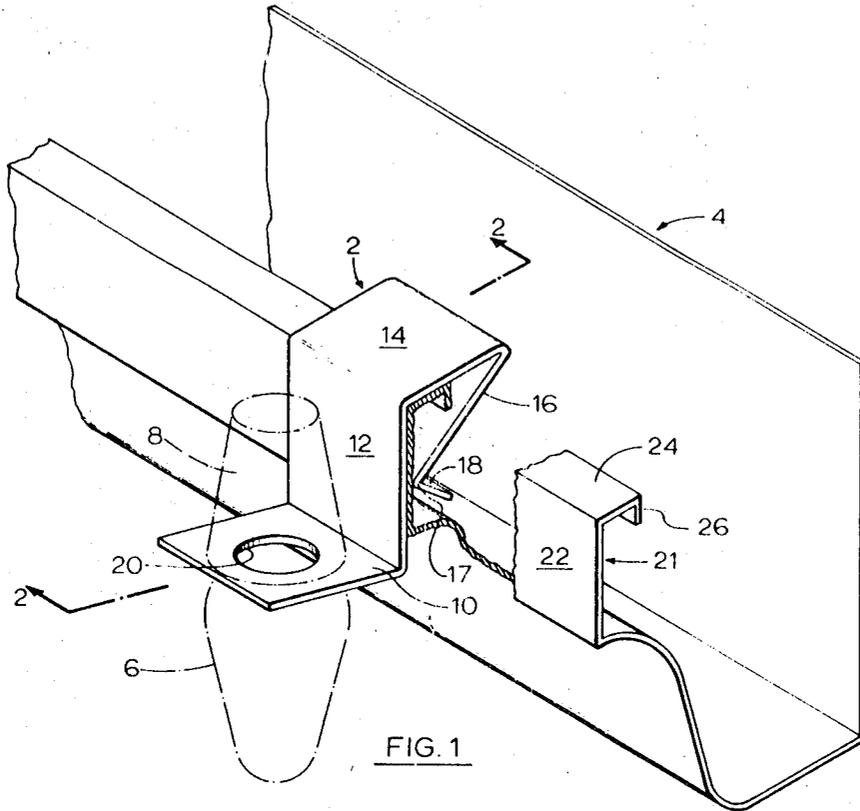


FIG. 1

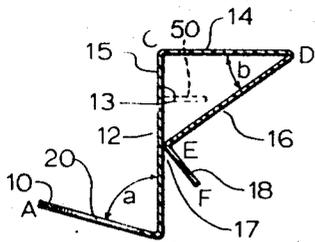


FIG. 2

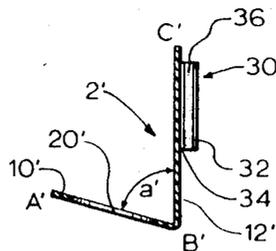


FIG. 3



FIG. 4

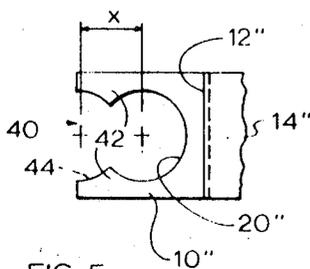


FIG. 5

INVENTOR.
 CHARLES B. PATCHETT
 BY *Charles B. Patchett*

CLIP FOR DECORATIVE LIGHTS AND THE LIKE

This invention relates to an improved clip for attaching decorative lights and the like to supports such as eavestroughs, railings, and trees.

A variety of devices are available for attaching decorative lights to buildings. However, many of these devices suffer from the disadvantages that they are unstable in winds and discolor or corrode when exposed to the weather.

An object of the present invention is to provide an improved clip having a positive gripping action for attaching a decorative light or the like to a variety of structures such as eavestroughs, railings, trees, etc.

In its preferred embodiment, the invention provides a flexible, resilient clip for attaching an article to a support comprising: five thin, generally planar, rectangular sections integrally attached to each other in seriatim with a first of said sections lying in a first plane and having a forward edge and a rear edge, the second of said sections extending upwardly from said rear edge of said first section in a plane such that the included angle between said first and second sections is between 60° and 90°, the third of said sections extending rearwardly from said second section substantially at right angles to said second section and having a rear edge, the fourth of said sections extending downwardly and forwardly from said rear edge of said third section and having a forward edge, the fifth of said sections extending downwardly and rearwardly from the forward edge of said fourth section, the location of the forward edge of said fourth section relative to said second section being such that when said clip is placed on said support with said support between said second and fourth sections, said support will be gripped between said second and fourth sections; said clip further including means associated with said first section for receiving said article.

The invention will be better understood with reference to the drawings, wherein:

FIG. 1 is a diagrammatic perspective view of a clip according to the invention in use on a section of eavestrough;

FIG. 2 is a sectional view on lines 2-2 of FIG. 1;

FIG. 3 is a sectional view similar to FIG. 2 of a second embodiment of the clip;

FIG. 4 is a front view of part of the clip; and

FIG. 5 is a plan view of part of a third embodiment of the clip.

Reference is first made to FIG. 1 which illustrates a clip 2 according to the invention mounted on a section of eavestrough 4. The clip 2 is typically used for mounting a bulb 6 and bulb socket 8, shown in chain dotted lines in FIG. 1.

As shown in FIG. 1 and also in FIG. 2, the clip 2 consists of five thin, generally planar sections integrally attached to each other in seriatim. A first generally horizontal section 10 extends forwardly of a front face 15 on a second vertical section 12, and a third generally horizontal section 14 extends rearwardly of a rear face 13 on the vertical section 12. A fourth section 16 extends downwardly from the third section 14 towards the rear face 13 of the second section 12 and terminates in a curved bend 17 linking the fourth section 16 to a fifth section 18. The fifth section extends downwardly from the bend 17 and away from the second section 12.

The eavestrough 4 includes an outer rim 21 having an upright section 22, a horizontal flange 24 and a vertical flange 26. The clip 2 is in contact with the outer faces of the upright section 22 and horizontal flange 24 and the bend 17 between the fourth section 16 and fifth section 18 of the clip 2 is in contact with the inner face of the upright section 22 of the eavestrough 4. The material of the clip 2 is slightly stressed when the bend 17 is moved from its natural position in contact with the back face of the second section 12 (as shown in FIG. 2) into the position in which the bend 17 is in contact with the upright section 22 of the eavestrough 4 (FIG. 1). The upright section 22 of the eavestrough 4 is then gripped between the second section 12 and the bend 17 of the clip 2.

The bulb 6 and socket 8 are held to the clip by unscrewing the bulb 6 from the socket 8, inserting the neck of the bulb through an aperture 20 in the first section 10 of the clip, and then screwing the bulb neck (with the clip thereon) into the socket 8. Assuming that the bulb tapers upwardly toward a uniform diameter neck, which is usually the case for decorative lights such as Christmas lights, the bulb and socket when screwed together will clamp the first section 10 of the clip tightly between them.

The angles at which the various sections of the clip are oriented relative to each other are best shown in FIG. 2. As there shown, the angle a between the first and second sections 10, 12 of the clip is preferably less than 90°. This allows the bulb 6 and socket 8 to deform the clip without bringing the bulb 6 into contact with the eavestrough 4. Thus vibration caused by wind, and deflection caused by the weight of the bulb 6, socket 8, associated wiring (not shown), and possible icing, will be less likely to break the bulb 6 against the eavestrough 4. Depending on the rigidity of the material from which the clip is made, the angle a may typically range between 90° and about 60°, with a preferred value being 75°.

Referring again to FIG. 2, typical dimensions of a clip 2 for use with an eavestrough 4 are: $AB=1\ 1/16$ inch; $BC=1\ 1/2$ inch; $CD=1\ 1/8$ inch; $DE=1\ 1/4$ inch; $EF=3/8$ inch; angle a = about 75°; angle b = about 35°; and the angle DEF between the fourth section 16 and fifth section 18 equals about 85°. The aperture 20 is about $11/16$ inch diameter but may vary depending upon the size of the bulb to be used with the clip.

The clip is preferably made from extruded rigid vinyl plastic such as that sold by the B.F. Goodrich Company under the trade mark GEON high impact 8700A. The plastic is extruded in a long strip of the desired cross section and is then allowed to cool. After cooling, a series of apertures 20 are punched in the first section 10 at regular intervals along the extrusion corresponding to the width of the clips (typically about 1 inch). The clips are then cut off the extrusion ready for packaging. In some applications it may be preferable to sever the clips from the extrusion in groups of a desired number (e.g. 15) and only to partially sever the clips of each group, so that the user can buy a group of clips and complete the separation as he requires the clips. Because the clip design is such that the clip can be extruded, the need for expensive molds is eliminated.

The clip includes a comparatively large third section 14 so that the clip can be applied over various structures such as hand rails and other fixtures commonly found around buildings. Because of its flexibility, the clip can be opened to an extent such that the third section 14 is parallel with, or even slants away from, the second section 12, making the clip suitable for wide rails such as those found on apartment building balconies. The clip is also suitable for attaching bulbs to advertisements since the clip can be attached to the edges of the advertisement with the bulb projecting over the advertisement. Trees can be decorated using this clip. However, a branch with a suitable thickness must be chosen such that the clip can pass over the branch and grip it.

The fifth section 18 allows the user to push the clip 2 over the rib 21 on the eavestrough since the fifth section 18 engages the horizontal flange 24 of the rib and begins to open the clip.

FIG. 3 illustrates a second embodiment of the clip. Primed numerals refer to parts similar to parts used in FIGS. 1 and 2. The clip 2' comprises a generally horizontal first section 10' having an aperture 20', and a vertical second section 12' extending upwardly from the rear edge of the horizontal section 10'. An adhesive fastener 30 is located on the rear face of the second section 12'. The adhesive fastener 30 has a first adhesive side 32 and a second adhesive side 34 separated by a spongy filling material 36. The second adhesive side 34 is attached to the rear face of the vertical section 12' of the clip 2' and the first adhesive side 32 can be attached to a window, woodwork, or other structure on which a bulb is to be attached. The spongy material absorbs some of the shock cause by winds, etc. without breaking the seal between the clip and

the window. A person using the clips can make the clip 2' in FIG. 3 from the clip 2 in FIG. 2 by simply cutting the clip 2 with a pair of scissors (such cutting is feasible because of the thin plastic material) and adding the adhesive fastener 30. If required, the clip 2' (with or without the adhesive fastener 30) can be attached to a structure permanently by drilling a hole in the second section 12' and placing a screw through the hole and into a support. Alternatively, the clip 2' can be attached by passing a thumbtack or nail through the second section 12' and into the support.

The clip 2 (FIG. 2) can be improved by adding an adhesive fastener such as 30 (FIG. 3) to the clip 2 in a position similar to that shown in FIG. 3. The clip 2 is then fastened to an eavestrough by an adhesive fastener as well as by the gripping effect on the upright section 22.

Referring to FIG. 4, the surfaces of the clip 2 in contact with the eavestrough may include score lines or corrugations 38 to increase the friction between the clip 2 and the upright section 22. (FIG. 1). The score lines 38 may be conveniently incorporated in the clip 2 by providing for them in a die for the extrusion from which the clips are cut. The score lines 38 can be located simply in the inner surface of the fourth section 16, or they can also be located in the inner surfaces of the second and third sections 12, 14.

FIG. 5 illustrates a part of a third embodiment of the clip. Double-primed numerals refer to parts similar to parts used in FIGS. 1, 2 and 3. The third embodiment is the same as the preferred embodiment shown in FIG. 1 except for the first section 10'', which is modified to allow an assembled bulb and socket to be snapped into place.

In the FIG. 5 embodiment, a recess 40 is formed in the first section 10'' by punching out an aperture 20'' and then moving the punch a distance x as indicated in FIG. 5 and punching out an entrance 44 to give the recess 40. A throat 42 allows the bulb and socket to be forced into the recess 20'' where the throat 42 holds the bulb and socket in place.

FIG. 5 shows the recess formed at an edge of the first section 10'' remote from the second section 12''. However, the recess could be formed at any one of the free edges of the first section 10''.

If desired, an additional or sixth section 60 can be added to the clip, as shown in dotted lines at 50 in FIG. 2. The section 50 extends across the full width of the clip and extends horizontally rearwardly from the rear face of the second section 14 towards the fourth section 16. The vertical distance between the sixth section 50 and the third section 14 is typically about three-eighths inch, and the length of the sixth section 50 is typically about five-sixteenths inch. The purpose of the sixth section 50 is to prevent slackness in a front to rear direction near the top of the clip which could otherwise occur in cases where the horizontal flange 24 on the eavestrough is very narrow. The section 50, by pressing against the upright section 22 of the eavestrough, takes up any slack and helps prevent strong winds from swinging the clips upwardly. If the clip is to be installed on a wide object, such as a balcony rail, the section 50 can be removed with scissors, or the clip can simply be pushed onto the rail (E) only to an extent such that the section 50 contacts the top of the rail. The clip with the section 50 can be made by extrusion exactly as in the case of the clip without the section 50.

Because of its material and construction, the clip can be made in a wide variety of colors and can be applied in a wide variety of locations without scratching, discoloring or rusting the article on which it is placed.

The material of the clip is a good electrical insulator. This makes the clip especially suitable for a variety of applications where it is to be in contact with metallic structures such as metal eavestroughs. A further safety feature is that the material of the clip is fire resistant.

Although it has been assumed that the clip is to be used for lights, it can also be used for other suitable articles if desired.

What I claim as my invention is:

1. A flexible, resilient clip for attaching an article to a support comprising: five thin, generally planar, rectangular sections integrally attached to each other in seriatim with a first of said sections lying in a first plane and having a forward edge and a rear edge, the second of said sections extending upwardly from said rear edge of said first section in a plane such that the included between said first and second sections is between 60 and 90°, the third of said sections extending rearwardly from said second section substantially at right angles to said second section and having a rear edge, the fourth of said sections extending downwardly and forwardly from said rear edge of said third section and having a forward edge, the fifth of said sections extending downwardly and rearwardly from the forward edge of said fourth section, the location of the forward edge of said fourth section relative to said second section being such that when said clip is placed on said support with said support between said second and fourth sections, said support will be gripped between said second and fourth sections; said clip further including means associated with said first section for receiving said article.

2. The clip as claimed in claim 1 wherein the first section includes an aperture adapted to receive a threaded portion of a light bulb with the light bulb holder on one side of the first section and the light bulb threaded into the holder and located on the other side of the first section so that the bulb and holder are attached to the first section.

3. The clip as claimed in claim 2 wherein said aperture is generally circular to receive a threaded portion of a light bulb so that a light bulb holder can be placed on one side of the first section and the light bulb threaded into the holder from the other side of the first section such that the bulb and holder are rigidly attached to the first section.

4. The clip as claimed in claim 2 wherein a free side of said first section includes an entrance extending to said aperture, and a throat between said entrance and said aperture, said throat being of width smaller than the diameter of said bulb adjacent its connection with said holder so that an assembly consisting of the bulb and the light bulb holder can be forced past said throat into said aperture with said bulb and said holder on opposite sides of said first section, said assembly thereby being releasably secured to said clip.

5. The clip as claimed in claim 2 wherein said fourth and fifth sections are joined by a smooth bend.

6. The clip as claimed in claim 5 wherein said included angle between the first section and the second section is about 75°, and the included angle between said third and fourth sections is about 35°.

7. The clip as claimed in claim 6 wherein the second section is longer than the first and third sections which are approximately equal in length, and said bend lies approximately midway of the vertical extent of the second section and closely adjacent said second section in the absence of said support.

8. The clip as claimed in claim 7 wherein the second section has a vertical height of approximately 1 1/2 inches and a horizontal width of approximately 1 inch.

9. The clip as claimed in claim 6 wherein said clip is made of a plastic material of a type capable of being cut with scissors, and wherein an adhesive means for adhesively connecting the clip to the support, is mounted on the second section on a surface facing the fourth section, whereby said third, fourth and fifth sections can be cut away at the join between said second and third sections and said clip can then be adhesively connected to said support.

10. The clip as claimed in claim 6 wherein the surface of said fourth section facing said second and third sections includes score lines to increase friction between said clip and said support.

11. The clip as claimed in claim 10 wherein the material of the clip is vinyl plastic.

12. The clip as claimed in claim 7 including a sixth section extending rearwardly from said second section towards said fourth section and terminating at a free end spaced from said fourth section.