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F. MALACHOWSKI ETAL

3,137,901

SASH CLIP

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FIG. 1.

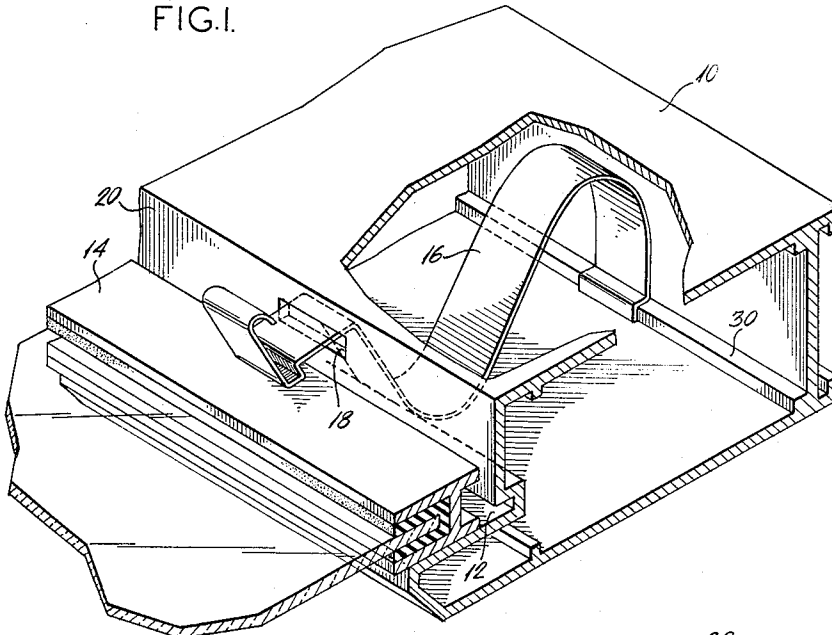


FIG. 2.

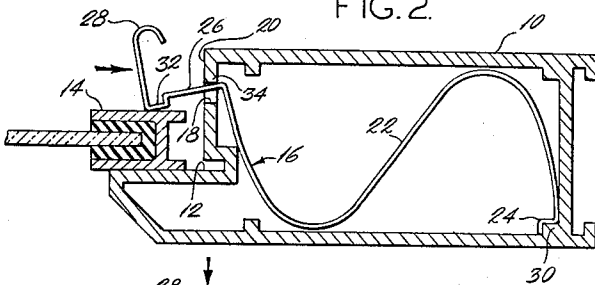


FIG. 3.

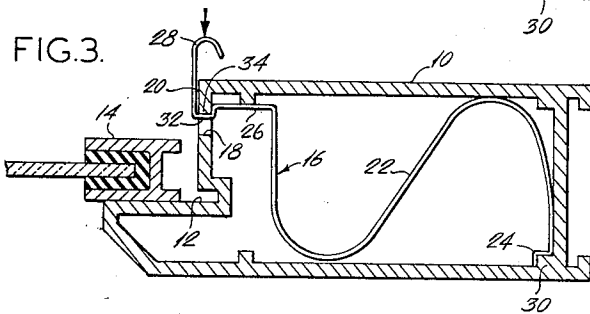


FIG. 4.

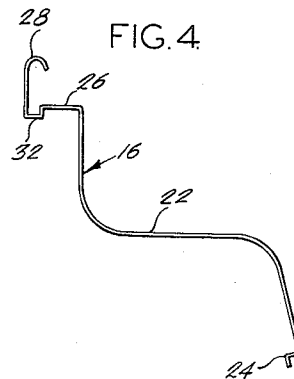
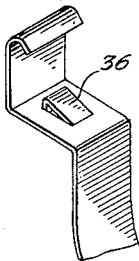


FIG. 5.



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SASH CLIP

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2 Claims. (Cl. 20—40)

The present invention relates generally to devices for detachably mounting panels or sashes, such as window and screen panels or sashes, in a frame and more particularly to a spring type device for securing such panels within frames constructed of hollow framing elements.

Hollow extruded aluminum frame members are receiving widespread use in combination storm and screen doors and windows. It was primarily for use with such combination windows and doors that the present device was developed. However, it may suitably be employed in any application, in which a panel is to be detachably secured to a hollow frame member.

Thin-walled extrusions are not readily adaptable to conventional fastenings such as lugs. Although lugs and similar fittings have previously been used for this purpose, the cost of installation is high, the appearance does not conform with the trim lines of the frame and panel members, and a firm fastening pressure cannot always be uniformly maintained on the panel.

It is accordingly an object of the present invention to provide a sash clip characterized by simplicity in construction, appearance, installation and operation.

An additional object of the invention is to provide a durable, easily actuated, non-sticking sash clip which will exert a continual spring pressure on the retained sash or panel member, and which will not loosen or weaken even under conditions of rough usage.

A further object of the invention is to provide a sash clip of a spring type which includes means for maintaining the clip in an open position, allowing convenient removal or installation of a sash or panel.

The present invention in realizing these and other objects includes a spring clip with an S-shaped body which body is adapted for insertion in a slot in the inner edge of a hollow frame member, a nose portion of the spring clip extending outside the slot. The spring clip is of such a shape and size as to be continually in compression and thus the nose portion provides a spring biased fastening element which is adapted to engage a sash or panel in sealing relation against a flange of the frame member. The spring clip is shaped to be forced through a slot in the frame and provide a spring stop adjacent the spring nose which engages the edge of the slot, an inward movement of the spring nose engaging a notch in the spring stop and the edge of the slot such that the spring clip will remain in the inwardly compressed position after the external pressure on the spring nose has been removed. The spring clip is thus locked in the open position so that a sash may be inserted or removed.

Additional objects and advantages of the invention will be more readily apparent from the following detailed description of embodiments thereof when taken together with the accompanying drawings in which:

FIG. 1 is a fragmentary perspective view, partly cut away, showing an embodiment of the invention installed in a frame member engaging a window sash to secure the sash to the frame;

FIG. 2 is a sectional view of the assembly of FIG. 1, showing the configuration of the spring clip in the closed position;

FIG. 3 is a view as in FIG. 2 showing the configuration of the spring clip in the open position;

FIG. 4 is a edge view of a spring clip in its free uncompressed state; and

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FIG. 5 is a partial perspective view of an alternate embodiment of the invention which includes a modified spring stop.

Referring to the drawings, FIG. 1 shows an extruded frame member 10 of a usual commercial shape having a flange portion 12 adapted to coact with a window sash 14 to provide a dust and weather seal. The sash 14 could, of course, contain a screen or even a solid panel as desired.

To effect a constant sealing contact of the sash and frame flange, a spring clip 16 is inserted into the hollow frame member 10 through a slot 18 which is cut in the wall 20 which joins the inner edge of the frame. The slot 18 is of a size permitting ample clearance for the spring clip including the spring stop to be described hereinafter. The slot is parallel with the flange 12 and is spaced a sufficient height above the flange to permit the proper action of the spring clip 16 on the sash 14.

The spring clip 16 as shown in FIG. 4 in an unmounted condition includes an S-shaped body portion 22 which is enclosed within the frame, an offset tail portion 24, a spring stop portion 26, and a spring nose 28 at the end of the nose portion. The offset tail 24 is of a shape which will permit a firm seating of the spring against an interior corner 30 of the frame member 10.

The body portion 22 of the spring clip is of a shape and length so as to substantially fill the hollow frame member section in an S-shaped configuration as shown in FIGS. 2 and 3.

The spring stop portion 26 is substantially perpendicular to the adjacent body portion 22. The spring stop portion includes an offset or notch 32 which presents a stop bearing surface for engagement with the inner surface of the frame edge 20 as described below.

The spring nose 28 is of any convenient size and shape to permit the spring clip to be easily actuated in the manner to be hereinafter described. For this reason the tip of the nose is preferably bent toward the frame and the portion of the clip between this tip and the offset 32 preferably fits snug against the outer wall of the frame.

For installation, the slot 18 is first cut through the wall 20. The tail portion 24 of the spring clip 16 is then inserted in the slot and the S-shaped body is pushed into the frame member so that only the nose and spring stop portions remain in view. The two simple steps, cutting the slot 18 and inserting the spring clip, are all that are required to complete installation of the device.

For operation, the spring clip is pressed into the open position indicated in FIG. 3, which position is automatically maintained by engagement of the offset 32 with the upper slot edge 34. The spring clip is thus locked in the open position. Due to the S-shape of the body portion 22 of the spring clip, the clip will, when compressed into the open position, be urged by spring pressure into the locked position of FIG. 3. This position will be maintained by the spring pressure until the spring nose 28 is downwardly actuated.

With the spring clip locked in the open position, the sash 14 is placed against the frame flange 12. The spring nose is then pressed in the direction of the arrow of FIG. 3 to disengage the offset 32 and the slot edge 34, and the compressed spring clip will then extend outwardly with the offset 32 exerting a clamping spring pressure on the sash 14 to seal it against the flange 12 of the frame.

The spring clip is released easily by a force in the direction of the arrow of FIG. 2 which returns the clip to the locked open position of FIG. 3.

An alternate embodiment of the spring clip is shown in FIG. 5 in which the spring stop is modified and consists of a raised portion 36 which may be formed by a punching or stamping operation. A wide variety of raised forms may be utilized as stop means, the only require-

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ment being a raised portion to engage the upper slot edge 34 of the slot 18.

The spring clip may be formed of any suitable spring material. However, for exterior use it is preferable that a non-corrosive material such as aluminum or stainless steel be used.

In the unlikely event that the spring clip should need replacing, the old clip can be easily removed through the slot and a new clip quickly inserted.

The spacing of the clips along a frame edge is of course, a matter of choice. It is expected that 6 or 8 spaced clips should be adequate to secure an average sized window or screen sash.

It can be seen that the invention as shown and described provides an effective sash fastening element combining simplicity in appearance, installation and operation with substantial savings in manufacturing costs over other types of fasteners.

Manifestly minor changes in details of construction can be effected by those skilled in the art without departing from the spirit and the scope of the invention as defined in, and limited solely by the appended claims.

We claim:

1. A sash clip of springy sheet metal for insertion through a slot in a hollow frame member, which clip comprises an S-shaped body portion and a stop portion joined thereto and forming a right angle therewith; the stop portion forming with the body portion an elongated, right-angled, three-sided notch and including a relatively narrow, right-angled, three-sided notch adjacent to it, a short length of the sheet metal constituting a wall which is common to both notches.

2. The combination for mounting a sash or panel element which comprises the sash clip of claim 1 and a hol-

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low frame member which includes a flanged portion extending perpendicularly outwardly from a wall thereof adapted for positioning a sash or panel thereagainst, a slot in said wall with the edge thereof which is farthest from said flanged portion being parallel to said flanged portion, a first surface within the frame member adjacent the slot which is perpendicular to the slotted wall and is a part of the frame, a second surface within the frame which is also a part of the frame and which is opposite the slot and perpendicular to the first surface, the stop portion of said sash clip extending through the slot with the body portion of the clip within the hollow frame member, said relatively narrow notch being adapted to engage the edge of the slot nearest the first surface and thereby compress the body portion of the clip against said second surface; and also with the body of the clip compressed against said second surface said relatively narrow notch is adapted to be disengaged from said slot edge and when directed toward said flanged portion with said elongated notch pressed against said slot edge the outside right-angled edge of said relatively narrow notch is adapted to press a sash or panel against said flanged portion.

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