

Sept. 27, 1932.

H. LAMPING

1,879,340

WEATHER STRIPPING FOR METAL SASHES

Filed March 23, 1929

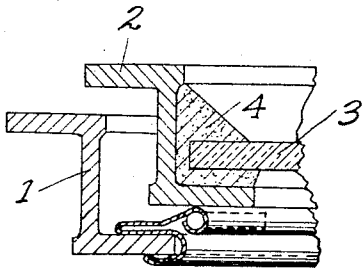


*Fig. 2*

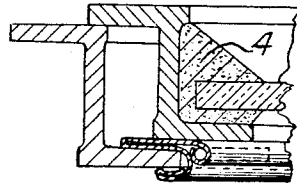


*Fig. 3*

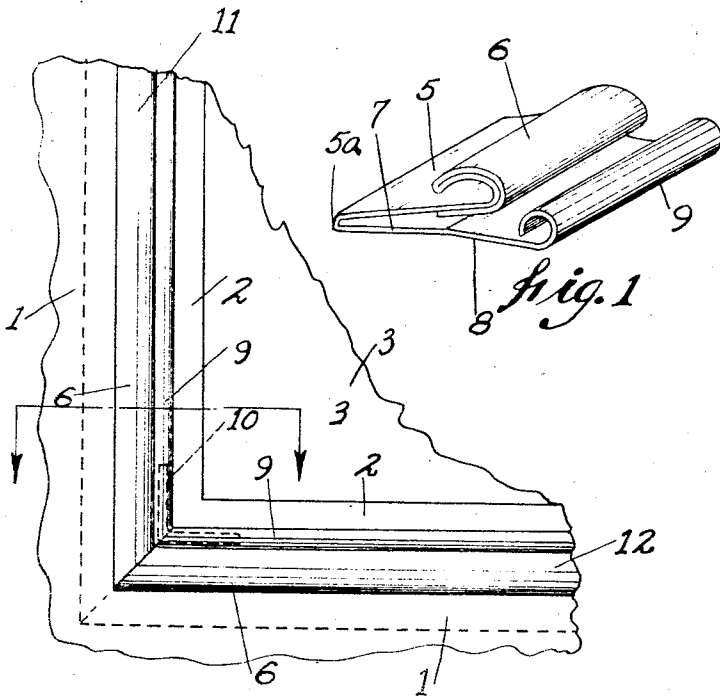


*Fig. 4*

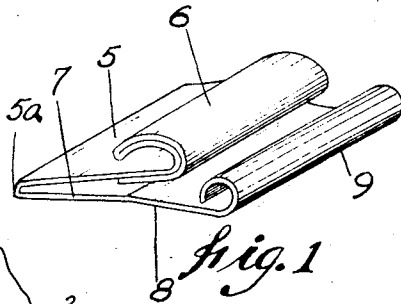


*Fig. 1*

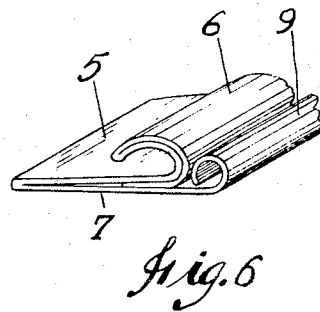


*Fig. 6*



*Fig. 5*

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## UNITED STATES PATENT OFFICE

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## WEATHER STRIPPING FOR METAL SASHES

Application filed March 23, 1929. Serial No. 349,493.

This is a continuation in part of my application Ser. No. 290,203 filed July 3, 1928.

My invention is addressed to the provision of a metal weather stripping primarily for metal sash which will be easily installed and which will be adjustable to take care of variations in the accuracy of fit in the various parts of metal sash.

My invention contemplates the provision of a preformed weather stripping of spring metal which is installed by placing it over the edge of the metal sash where it is clamped by its own resilience. Hitherto, weather stripping for use in metal sash has comprised spring metal sections which are introduced within the interior hollow between the sash proper and the window frame and which are held in this hollow by a clamping device or by screw members entering threaded holes in the sash.

My object is to provide a weather stripping which can be installed by merely slipping it over the edge of the frame or sash and which therefore requires no labor on the part of the installing workman in drilling and tapping the window frame or in installing clamps with special devices.

Another object is to provide means whereby weather stripping of this type which can be cut and installed by the workman on the job, may be held together into a semi-integral structure and may be caused to ride out of the way during the opening and closing of a swinging sash by means of an interconnection as will hereinafter be explained.

I accomplish these objects and others which will be apparent upon reading these specifications by that construction and arrangement of parts of which I shall now describe a preferred embodiment, in connection with metal windows of the casement type, it being understood that modifications of my invention within the scope thereof and within the ability of the man skilled in the art to construct, may be made in adapting my weather stripping to metal framed windows of other types. Reference is made to the drawing forming a part of these specifications.

In the drawing:

Figure 1 shows a form of my weather strip-

ping suitable for use upon the three unhinged sides of a metal frame casement window.

Figure 2 is a section through the front or long side of a metal casement showing the weather stripping of Figure 1 installed thereon, the window being slightly open.

Figure 3 shows a casement type window with my weather stripping installed thereon, the sash being fully closed.

Figure 4 is a view showing two portions of my weather stripping installed in the corner of a casement type window with my joining device in place.

Figure 5 shows my joining device.

Figure 6 shows the form of metal weather stripping which may be used upon the hinged side of a casement type window.

In Figure 2, 1 indicates a portion of a metal window frame and 2 a portion of a sash in which a glass 3 is held by means of putty 4. I have shown in this figure, attached to the sash, a piece of my metal weather stripping which I shall next more fully describe. It should be pointed out however that my metal weather stripping is adapted to be attached either to the free edge of the frame of a metal window or to the free edge of the sash thereof, and will ordinarily be attached to the one or the other according to whether the sash opens inwardly or outwardly. Nor is my weather stripping restricted in its use to metal windows of the casement type. It is equally adaptable to inwardly or outwardly swinging windows of any type whether pivoted above or below or centrally.

The type of weather stripping which I provide is illustrated in Figure 1 and is formed preferably from a single piece of thin springy sheet metal such as brass or copper bent upon itself in the form illustrated. There will be a portion 5, flat in character and adapted to lie along and contact the under side of the free edge of a frame or sash and a portion 6, reversely bent against the portion 5 so as to come around the said free edge and grip it from the other side. The portion 6 will preferably be made of a somewhat arcuate shape as shown and in order to give strength to the gripping portions, the metal may be bent back upon itself

and made double in the portion 6 and in the adjacent part of the portion 5. The metal may be brazed or otherwise fastened together where doubled; but I have not ordinarily found this necessary or advisable. A portion 5 terminates in a portion 7 reversely bent back so as to lie in the same general direction as 5 although at a slight angle to it, a portion 8 may be bent at a slight angle to 7 so as further to increase the distance between the outer end of the weather stripping and the portion which grips the free edge of the sash or frame; and the portion 8 may terminate in a rolled bead 9. It will be understood that the portions 5 and 6 are designed to grip the free edge of a sash or frame and the portions 7, 8 and 9 are designed to form a weather closing element resiliently attached to the gripping element. In order to increase the spring action of the weather closing portion, the point of attachment between 7 and 5, indicated in Figure 1 at 5a, may be formed in the shape of an arcuate bead, not shown. Figure 6 shows essentially the same type of weather stripping excepting that the portions 7 and 8 are in the same plane and lie closely adjacent to the portion 5. In other words, in this type of strip, there is substantially no spring action in the weather closing portion; and it is this type of stripping which I use upon the hinge side of casement type windows or the pivoted side of other type of windows where in opening and closing the sash moves somewhat more in line with the plane of the frame than at right angles to it.

As previously indicated, my weather strip may be installed either upon the free edge of the frame or upon the free edge of the sash and I have shown it in Figure 4 attached to the free edge of the frame 1. In this figure I have illustrated two portions of weather stripping installed at an angle, and the manner of installation will be clear. The pieces are cut to the proper length by the workmen on the job, the cut being formed at an angle of 45° so that when installed the portions 6 will have a beveled fit. In the corner, and lying partly within the two beads 9, I provide a device for fastening the weather closing portions of my strips together. This device is the angular piece of wire 10 of Figure 5 and is placed in position by having its legs inserted in the beads as shown. In Figure 4, the weather strip which I have indicated generally by the numeral 11 may be imagined as lying upon the hinge side and it will be of the type shown in Figure 6 in which the bead 9 will lie very closely adjacent to the portion 6. The weather strip indicated at 12 will be of a type shown in Figure 1 in which the weather closing portion is urged by the resilience of the metal outwardly away from the portions 5 and 6. It will be understood that as the sash swings into closing

position, if the portion 9 of Figure 4 lay at any considerable distance from the portion 6, the edge of the sash would strike it and would tend to crumple it. This is the reason why the type of weather stripping shown in Figure 6 is used upon the hinge side; and one function of the angle member 10 is to hold that portion of the bead 9 of weather strip 12 back against the portion 6 thereof adjacent the juncture of the strips 11 and 12 so as not to impede the movement of the sash past it. Additionally of course, the angle member 10 assists in forming a tight and attractive bevel joint between the two pieces of weather stripping, and for this reason I prefer to use the angle pieces 10 at all corners of the installation. If the strips 11 and 12 had been attached to the sash, the need for the angle piece 10 would be all the more apparent. In this instance the bead 9 of the strip 12 would tend to strike the edge of the frame during the closing of the sash. When it is held back in line with the bead 9 of the strip 12 at the closing point, it cannot strike the sash in this manner and the sash swings into closed position in the frame without interference.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A metal weather stripping comprising a clamping portion formed of a piece of spring metal adapted to underlie the free edge of a sash or frame, and a gripping portion reversely bent with reference to said piece and adapted to clamp said free edge therebetween, a reverse bend at the ends of said piece and a resilient weather closing member attached to said piece by said reverse bend and adapted to be depressed into substantially parallel relationship with said piece when said window is closed, said weather closing member terminating in its outer edge in a rolled bead, said rolled bead extending beyond and towards the clamping portion and adapted when the window is closed, to seat against an outer portion of the clamping member and form a weather-tight joint therewith.

2. In a metal weather strip installation, weather strip attached to the free edge of a frame or sash, said weather strip comprising a clamping portion and a weather closing portion attached thereto, said weather closing portion terminating in a bead offset from said clamping portion, and means for fastening together the beads of the several weather strip sections into an integrally operating unit.

3. In a weather strip installation, weather strip sections on the free edge of a frame or sash, said sections comprising a clamping portion to engage said edge and a weather closing portion attached to said clamping portion, said weather closing portion termi-

5 nating in a bead offset from said clamping portion, said sections meeting in beveled lines of cut, and means for fastening together the beads of the several sections, said means comprising a member having angularly disposed portions adapted to enter adjacent beads.

10 4. In a weather strip installation, weather strip sections on the free edge of a frame or sash, said sections comprising a clamping portion to engage said edge and a weather closing portion attached to said clamping portion, said weather closing portion terminating in a bead offset from said clamping portion, said sections meeting in beveled lines of cut, and means for fastening together the beads of the several sections, said means comprising a piece of wire bent intermediate its ends at right angles to form two legs, said legs being inserted in adjacent beads.

20 5. A weather strip, comprising a piece of sheet metal reversely bent upon itself to form a portion for clamping the free edge of a metal sash or frame and a weather closing portion attached thereto, said weather closing portion terminating in a rolled bead extending beyond and towards said clamping portion and adapted when the window is closed, to lap over said clamping portion and form a weather-tight joint therewith.

30 6. In a weather strip installation for metal windows, a section of weather strip on the hinge side comprising a clamping portion and a weather closing portion terminating in a bead offset from said weather closing portion, said weather closing portion adapted to lie closely adjacent to said clamping portion, and metal weather strip sections on the other sides of said window, said sections comprising a clamping portion and a weather closing portion resiliently attached thereto and spring urged outwardly, said weather closing portion terminating in a bead offset from said clamping portion, said weather strip sections installed upon the free edges of a sash or frame, and meeting in beveled lines of cut, and means for joining the beads of adjacent weather strip sections whereby the bead of a resilient section may be held closely adjacent the clamping portion thereof in that part of said resilient section which lies adjacent to said section on the hinge side of said window.

50 7. In a weather strip installation for metal windows, a section of weather strip on the hinge side comprising a clamping portion and a weather closing portion terminating in a bead offset from said weather closing portion, said weather closing portion adapted to lie closely adjacent to said clamping portion, and metal weather strip sections on the other sides of said window, said sections comprising a clamping portion and a weather closing portion resiliently attached thereto and spring urged outwardly, said weather closing portion terminating in a

bead offset from said clamping portion, said weather strip sections installed upon the free edges of a sash or frame, and meeting in beveled lines of cut, and means for joining the beads of adjacent weather strip sections whereby the bead of a resilient section may be held closely adjacent the clamping portion thereof in that part of said resilient section which lies adjacent to said section on the hinge side of said window, said means comprising an angularly bent piece of wire with the legs inserted in adjacent beads at the meeting lines thereof.

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