June 24, 1958 T. W. ANDERSON 2,839,797

WEATHER STRIP FOR HINGED DOORS

Filed Feb. 8, 1957

Fig. 1.

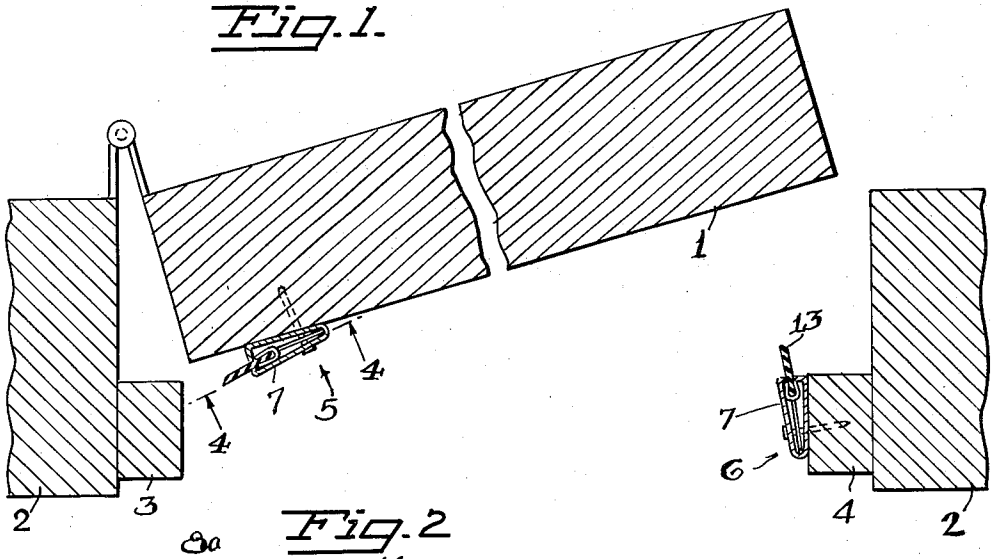


Fig. 2

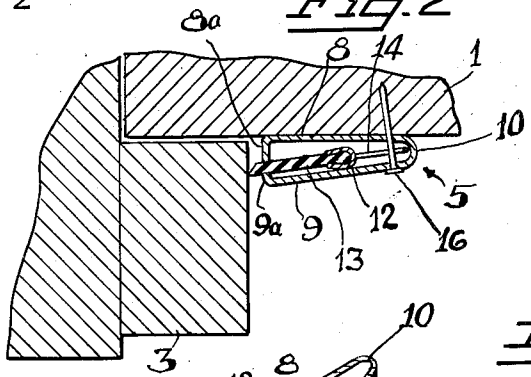


Fig. 3.

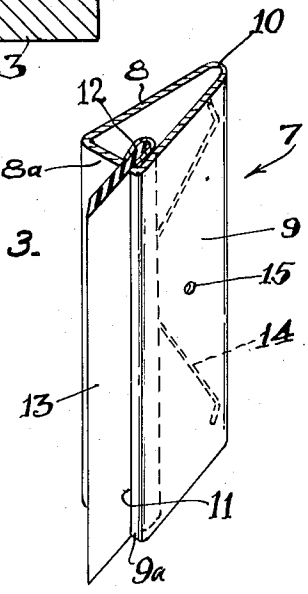
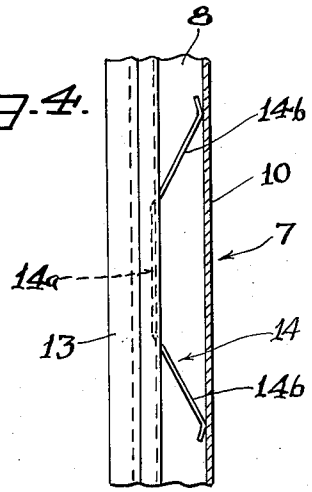


Fig. 4.



INVENTOR.
THOMAS W. ANDERSON
BY
J. E. Fralecco
ATTORNEY.

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WEATHER STRIP FOR HINGED DOORS

Thomas W. Anderson, Red Bluff, Calif.

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2 Claims. (Cl. 20—68)

This invention relates to weather stripping, and more particularly to improved weather strips adapted for use to seal openings between a door and its upright stops to prevent outside air from passing into a room interior.

The primary object of my invention is to provide a novel weather strip adapted for use in effectively sealing a vertical opening between a hinged door and its stop when such door is closed.

Another object of my invention is to provide an improved and reliable weather strip for hinged doors, such weather strip having a simplified, self-adjusting construction which is capable of effectively sealing a vertical opening between a door and vertical stop even though the door might be warped or the stop somewhat displaced.

Other and further objects of my invention will be pointed out hereinafter or will be indicated in the appended claims or will be obvious to one skilled in the art upon an understanding of the present disclosure. For the purpose of this application, I have elected to show herein certain forms and details of a weather strip attachment for doors which is representative of my invention; it is to be understood, however, that the embodiment of my invention herein shown and described is for illustration purposes only and that therefore it is not to be regarded as exhaustive of the variations of the invention in the art.

In the accompanying drawing:

Fig. 1 is a horizontal sectional view taken through a partially open door and its frame, showing my improved weather strip attachments mounted in positions for sealing the openings between the door and the elongated vertical abutments which are secured to the door frame to provide stops for the door;

Fig. 2 is an enlarged horizontal sectional view showing the weather strip attachment secured to a door and in a sealing position with respect to the door stop;

Fig. 3 is a perspective view of a fragmentary part of the weather strip; and

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 1.

Referring to the drawing, the numeral 1 designates a hinged door mounted on a door frame 2 having substantially vertical opposed jambs or stops 3 and 4 with which the door is adapted to abut when closed.

In the embodiment of my invention illustrated on the drawing, two (2) separate weather strip assemblies or attachments 5 and 6 are mounted respectively on the door 1 and on the stop 4, the weather strip assembly 5 carried by the door being engageable with the stop 3 and the weather strip assembly 6 mounted on the stop 4 being adapted to engage with the door. Since the weather strip assemblies 5 and 6 are identical in construction, a description of one will suffice for both.

My improved weather strip comprises an elongated rectilinear channel member of somewhat triangular cross-sectional shape having opposed longitudinal inner and outer sides 8 and 9 which are joined by a longitudinally disposed curved portion 10. The opposed sides 8 and 9

are arranged in converging relationship, and formed on the widely separated edges thereof are inwardly extending longitudinal flanges 8*a* and 9*a* of unequal widths, respectively, the inner opposed edges of such flanges being spaced sufficiently from each other to provide a narrow longitudinal slot 11 extending the full length of the channel member 7, such slot being positioned substantially closer to the outer side 9 than the inner side 8.

Adjustably mounted in the channel member 7 is an elongated strip carrier 12 of substantially U-shape in cross-section, and secured thereto is a flexible sealing strip 13 made preferably of synthetic rubber, such sealing strip extending through the slot 11. The width of the slot 11 throughout its length is such that the flexible strip 13 may slide inwardly and outwardly, but the slot is sufficiently narrow to prevent the carrier 11 from passing therethrough. The flexible strip 13 and its carrier 12 extend the full length of the channel member 7.

Secured to the strip carrier 12 and positioned in spaced relationship with respect to one another are a number of spring members 14 made preferably of steel wire and which are arranged and distributed along the length of such carrier. The spring members 14 are each securely fastened to the strip carrier 12 as by having the central portion 14*a* of such spring member disposed against the inner side of the carrier and the resilient diverging legs 14*b* thereof extending through slots or openings in the carrier (see Fig. 4). The end portions of the legs 14*b* of the spring members 14 yieldably engage with the curved closed edge portion 10 of the channel member 7, and since such legs are under tension, they normally urge the strip carrier 12 and the flexible strip 13 outwardly so such strip will firmly engage with the door or the stop, depending upon which of these elements it happens to be mounted.

The novel arrangement of the strip carrier 12 with the spring members 14 secured thereto, makes it possible for these elements to be easily assembled in operative positions inside the channel member 7 by inserting them and the strip 13 into either end of the channel member. Since the tension of the spring members 14 is such that the strip carrier 12 is normally urged against the flanges 8*a* and 9*a* of the channel member 7, the said carrier and the attached strip 13 are held in place inside the channel member.

It is to be noted that the elongated slot 11 of the channel member 7 is positioned closer to the side 9 than the side 8, thereby causing the flexible strip 13 to lie in a plane substantially parallel to the outer side 9, but such strip is disposed at an acute angle with respect to the other side 8. The inner side 8 of the channel member 7 is normally positioned against either the door or the stop, depending upon which of these elements the weather strip assembly is mounted, and when so positioned the outer side 9 of the channel member as well as the flexible strip 13 are disposed obliquely so as to cause the firm end engagement of the strip with the stop 3 as the door is closed, without distorting such strip and possibly causing openings to be formed for the admittance of air into the room enclosure.

The converging sides 8 and 9 of the channel members 7 are provided with suitable holes 15 for receiving nails 16 which are driven into the door 1 and the stop 4 to mount the weather strip assemblies thereon.

When the door 1 is in an open position, the flexible strip 13 of each weather strip assembly will be urged to its fully extended position permitted by the engagement of the strip carrier 11, with the flanges 8*a* and 9*a* of the channel member, as shown in Figs. 1, 3, and 4. When the door is closed, as shown in Fig. 2, the spring members 14 will yield to the pressure exerted upon them as the flexible strips 13 are automatically retracted upon their engagement with the door and the stop 3 as such door is closed.

In the event the surfaces of the door and the stop 3 which engage with the flexible strips are straight and uniform, all of the spring members 14 will yield and become expanded to the same extent, but if such engaging surfaces are uneven or warped, some of the spring members will yield to a lesser extent than others, thereby causing the flexible strips 13 to automatically adjust and uniformly engage with the door and the stop throughout their lengths, and thus effectively sealing the vertical openings between the side edges of the door and its frame. The legs 13*b* of the spring members 13 are each independently yieldable, thereby making it possible for the flexible strip 13 and the carrier 12 to adjust readily to compensate for any irregularities in the door or the engaged stop. As the door is again opened, the spring members 14 again extend the flexible strips 13 preparatory to the next sealing operation when the door is again closed.

My improved weather strip may embody various lengths to satisfy different requirements, depending upon the height of the particular door, window or other closure with which it is used.

What I claim is:

1. A weather strip for doors comprising an elongated channel member of substantially triangular shape in cross-section and having longitudinal, opposed, converging inner and outer sides joined by a longitudinal, curved portion, the inner converging side being secured to and extending alongside a hinged door and the outer converging side extending obliquely with respect to the inner side and the side of the door, the converging sides having inwardly protruding flanges of unequal widths, the inner edges of the flanges being spaced longitudinally to provide a longitudinal slot in the channel member, such slot being positioned closer to the outer side than the inner side, an elongated strip carrier mounted in the channel member, a flexible, elongated strip secured to the strip carrier, the strip extending through the slot in the channel member being arranged for outward and inward sliding movement, the strip being positioned in a plane extending substantially parallel to the outer side, and a plurality of yieldable spring members secured to the strip carrier and arranged to urge the carrier toward the slot, the spring members each having a central portion secured to the strip carrier and diverging spring legs engaging with the curved portion of the channel member and a plurality of openings in the opposed converging sides for the projection of securing means.

2. A weather strip for doors comprising an elongated channel member of substantially triangular shape in cross-section and having longitudinal, opposed, converging inner and outer sides joined by a longitudinal, curved portion, the converging sides having inwardly protruding flanges of unequal widths, the inner edges of the flanges being spaced to provide a longitudinal slot in the channel member, the said slot being positioned closer to the outer converging side than the inner converging side, an elongated strip carrier of substantially U-shape in cross-section mounted in the channel member, the width of the carrier being larger than the width of the slot, a flexible, elongated strip secured to the strip carrier and slidably extending through the slot, the strip being positioned in a plane lying substantially parallel to the outer converging side, a plurality of spaced steel wire tension springs interposed between the strip carrier and the curved portion of the channel member, the springs each having a central portion lying against the inner curved side of the carrier and having also diverging spring legs extending through the said carrier and positioned under tension against the curved portion of the channel member and a plurality of openings in the opposed converging sides for the projection therethrough of securing elements.

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