

April 14, 1925.

1,533,490

E. J. WIRFS

WEATHER STRIP

Filed July 3, 1924

FIG. I

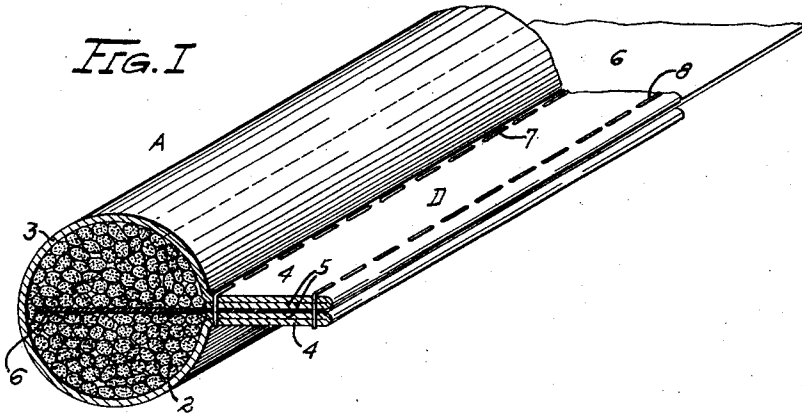


FIG. II

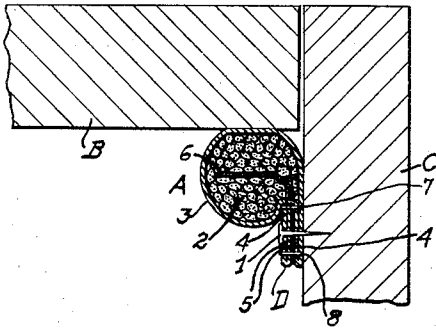


FIG. III

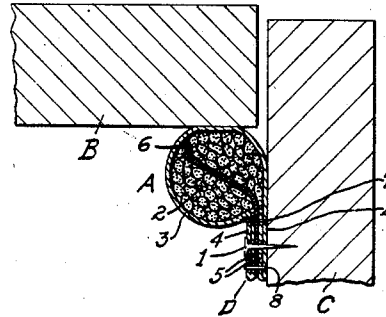
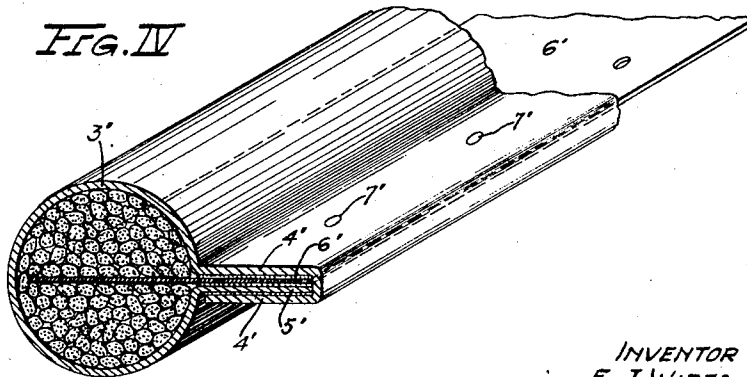


FIG. IV



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# UNITED STATES PATENT OFFICE.

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WEATHER STRIP.

Application filed July 3, 1924. Serial No. 723,901.

*To all whom it may concern:*

Be it known that I, EDWARD J. WIRFS, a citizen of the United States of America, a resident of the city of St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Weather Strips, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming a part of this specification.

This invention relates to improvements in weatherstrips, and the main object of the invention is to produce a strong, simple and inexpensive flexible weatherstrip having a neat appearance and provided with an enclosed resilient member which will force said weatherstrip into firm contact with the elements with which it is associated.

With the foregoing and other objects in view, the invention comprises the novel construction, combination and arrangement of parts hereinafter more specifically described and illustrated in the accompanying drawings, wherein is shown the preferred embodiment of the invention. However, it is to be understood that the invention comprehends changes, variations and modifications which come within the scope of the claims hereunto appended.

Fig. I is an enlarged perspective of a fragment of my improved weatherstrip.

Fig. II is an enlarged horizontal section showing my improved weatherstrip applied to a door.

Fig. III is a view similar to Fig. II, but showing the door and weatherstrip as they will appear when the door is in a warped condition.

Fig. IV is a fragmentary perspective showing a modified form of my invention.

To illustrate the use of the new weatherstrip I have shown portions of a door and the associated door frame equipped with a weatherstrip A. A portion of a door is shown at B, and C designates a portion of the associated door frame, the weatherstrip being secured to the door frame, as shown in Figs. II and III, and being adapted to contact with the door as illustrated. Each gasket is provided with a longitudinal attaching flange D adapted to receive tacks 1 or other suitable attaching devices, which may be inserted through the flange and driven into the object to which the weatherstrip is applied.

The preferred form of the invention com-

prises an elongated body of yielding packing 2 which may be made of soft, fibrous cord, preferably asbestos. The body of packing is primarily circular in cross section, as shown in Fig. I, and it may be compressed so that it will form an effective seal. When the pressure which is causing the weatherstrip to be flattened is relieved, the body of yielding packing 2 is of such nature that it will tend to return to the substantially circular shape shown in Fig. I.

The weatherstrip includes a strip of flexible, pliable material, preferably waterproof fabric, having a tubular portion 3 surrounding the elongated body of packing, outer flange portions 4 extending from one side of the packing, and intermediate flange portions 5 folded backwardly and interposed between said outer flange portions 4. In the preferred form of the invention, the interposed flange portions are in contact with the inner faces of the outer flange portions 4, and there is a slight space between the oppositely disposed portions 5, the purpose of which will now be explained.

Arranged within the weatherstrip A is a strip of resilient material 6, a portion of said strip being interposed between the backwardly folded flange portions 5 and the remainder of said resilient strip extending from the flange D of the weatherstrip into the interior of the tubular portion 3 thereof. The resilient strip 6 extends from end to end of the weatherstrip, as suggested by Fig. I. I prefer to form the strip 6 associated with one of my weatherstrips of celluloid or similar material which possesses a certain amount of resiliency, but it is to be understood that I do not limit myself to any particular material but may use any material which is sufficiently light and resilient to function as desired. When I employ a resilient strip formed of celluloid or similar material which may be perforated by a sewing needle, I secure the various flange portions and the resilient element together by means of stitches, as shown in Fig. I. When stitches are used to secure together the elements mentioned, a row of stitches 7 is formed through the flange elements and resilient strip at the junction of the tubular portion 3 and the outer flange portions 4, so as to unite said elements and at the same time securely confine the packing in said tubular portion 3. I also form a second row of stitches 8

through said flange portions and said resilient strip in a line which is adjacent to the outer edge of the flange D.

When the device is manufactured the flange D is approximately radial to the body of packing 2 and the resilient strip 6 is in alinement with said flange, but owing to the flexibility of the strip of fabric a hinge-like connection is formed at the stitches 7 so that when the flange D is attached to a flat surface it may lie tangential to the body of the packing, as suggested by Fig. II. This will result in the resilient strip being deflected from its normal position to the positions in which it is shown in Figs. II and III, and because of the resilient nature of said strip it is apparent that it will be placed under a tension which is always tending to return said strip to its normal position. This will have the effect of forcing the tubular portion of the weatherstrip tightly against the element with which it is associated, which element is, in the arrangement shown in Figs. II and III of the drawing, the door B.

It is plain in view of the foregoing that a weatherstrip made in accordance with my invention will very effectually seal an opening such as is found between doors and windows and their associated frames, for the reason that the resilient strip in said weatherstrip will cause the flexible body thereof to adhere closely to the element with which the weatherstrip is associated, regardless of irregularities in the surface of said element due to the warping thereof.

Fig. IV illustrates a modified form of my invention in which the tubular portion 3' is provided with a single ply flange portion 5' which extends outwardly from said tubular portion 3'. 4' designates an outer flange portion which is folded backwardly in a manner to enclose said single ply flange portion 5', the edge of said outer flange portion 4' being located on the underside of the flange adjacent to the tubular portion 3'. Arranged within the weatherstrip illustrated in Fig. IV is a resilient strip 6' preferably of metal, such as thin steel or similar material, said strip of material being interposed between the single ply flange portion 5' and the upper portion of the folded flange portion 4'. It will be remembered that the resilient strip 6 in the preferred form of my invention is held in place by means of stitches, but in the modified form of my invention illustrated in Fig. IV the resilient strip is formed of metal and consequently it would be impossible to pass a sewing needle through said strip to perform the stitching operation. In the modified form of my invention, therefore, I secure the flange portions 4' and 5' and the resilient strip 6' together by means of cement, there being a layer of cement between the upper

section of the flange portion 4' and the top face of the strip 6', a second layer of cement between the lower face of the strip 6' and the top face of the flange portion 5', and a layer of cement between the lower face of the flange portion 5' and the top face of the lower section of the flange portion 4'. In view of this arrangement, it is apparent that the flange portions 4' and 5' and the resilient strip 6' are firmly secured together.

To provide means for permitting tacks to be passed through the flange D' of the weatherstrip illustrated in Fig. IV, I provide said flange D' with apertures 7'.

I claim:

1. A weatherstrip comprising an elongated body of yielding packing, a strip of flexible pliable material having a tubular enclosing portion surrounding said packing and attaching portions extending from one side of said packing to form an attaching flange, a resilient element arranged within said weatherstrip and means whereby said resilient element is secured in place and said attaching portions secured together.

2. A weatherstrip comprising an elongated body of yielding packing, a strip of flexible pliable material having a tubular enclosing portion surrounding said packing and attaching portions extending from one side of said packing to form an attaching flange, a resilient element arranged within said weatherstrip and means whereby said resilient element and said attaching portions are secured together.

3. A weatherstrip comprising an elongated body of yielding packing, a strip of flexible pliable material having a tubular enclosing portion surrounding said packing and attaching portions extending from one side of said packing to form an attaching flange, and a resilient element arranged within said weatherstrip, a portion of said resilient element being arranged adjacent to said attaching portions and being secured thereto and the remainder of said resilient element being extended into the interior of the tubular portion of the weatherstrip.

4. A weatherstrip comprising an elongated body of yielding packing, a strip of flexible pliable material having a tubular enclosing portion surrounding said packing and attaching portions extending from one side of said packing to form an attaching flange, a resilient element arranged within said weatherstrip, a portion of said resilient element being interposed between said attaching portions and the remainder of said resilient element being extended into the interior of the tubular portion of the weatherstrip, and means whereby said resilient element and said attaching portions are secured together.

5. A weatherstrip comprising an elongated body of yielding packing, a strip of flexible pliable material having a tubular enclosing portion surrounding said packing and attaching portions extending from one side of said packing to form an attaching flange, a resilient element arranged within said weatherstrip, a portion of said resilient element being interposed between said attaching portions and the remainder of said resilient element being extended into the interior of the tubular portion of the weatherstrip, and means whereby said resilient element and said attaching portions are secured together.

gated body of yielding packing, a strip of flexible, pliable material having a tubular enclosing portion surrounding said packing and attaching portions extending from one side of said packing to form an attaching flange, a resilient element arranged within said weatherstrip, a portion of said resilient element being interposed between said attaching portions and the remainder of said resilient element being extended into the interior of the tubular portion of the weatherstrip, and stitches whereby said resilient element and said attaching portions are secured together.

6. A weatherstrip comprising an elongated body of yielding packing, a strip of flexible pliable material having a tubular enclosing portion surrounding said packing and attaching portions extending from one side of said packing to form an attaching flange, a resilient element arranged within said weatherstrip, a portion of said resilient element being interposed between said attaching portions and the remainder of said resilient element being extended into the interior of the tubular portion of the weatherstrip, and a row of stitches whereby said attaching portions and said resilient element are united at the junction of the tubular portion and said attaching portions.

7. A weatherstrip comprising an elongated body of yielding packing, a strip of flexible pliable material having a tubular enclosing portion surrounding said packing and attaching portions extending from one side of said packing to form an attaching flange, a resilient element arranged within

said weatherstrip, a portion of said resilient element being interposed between said attaching portions and the remainder of said resilient element being extended into the interior of the tubular portion of the weatherstrip, a row of stitches whereby said attaching portions and said resilient element are united at the junction of the tubular portion and said attaching portions, and a second row of stitches adjacent to the outer edge of said attaching flange.

8. A weatherstrip comprising an elongated body of yielding packing, a strip of flexible pliable material having a tubular enclosing portion surrounding said packing and attaching portions extending from one side of said packing to form an attaching flange, a strip of resilient material arranged within said weatherstrip and extending from end to end thereof, a portion of said strip of resilient material being interposed between said attaching portions and the remainder of said strip of resilient material being extended into the interior of the tubular portion of the weatherstrip, stitches whereby said resilient element and said attaching portions are united at the junction of the tubular portion and said attaching portions, and a second row of stitches passing through said attaching portions and said strip of resilient material at a point adjacent to the outer edge of said attaching flange.

In testimony that I claim the foregoing I hereunto affix my signature.

EDWARD J. WIRFS.