

Oct. 4, 1938.

J. S. REID

2,132,272

CLOSURE CUSHIONING AND SEALING MEANS

Filed Jan. 16, 1936

2 Sheets-Sheet 1

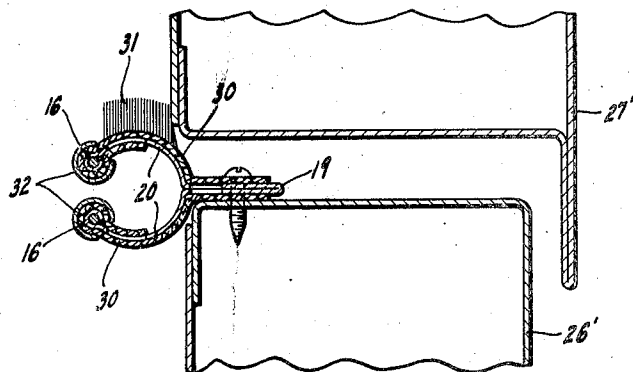


FIG-7

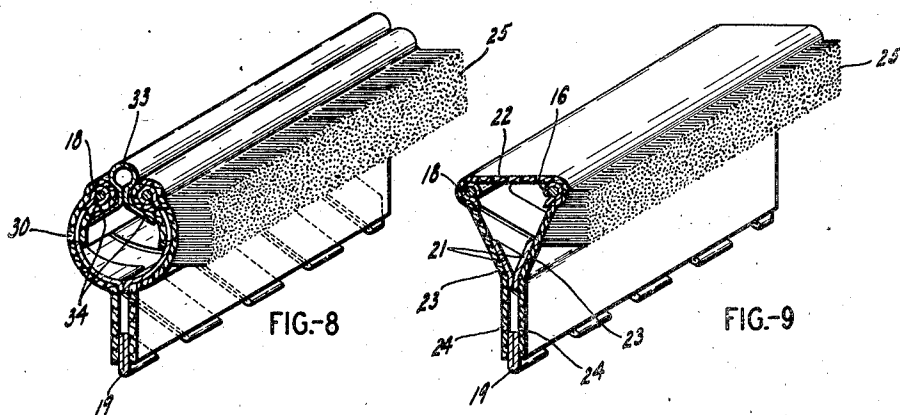


FIG-8

FIG-9

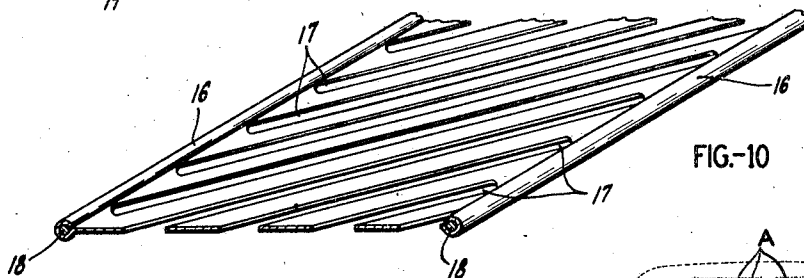


FIG-10

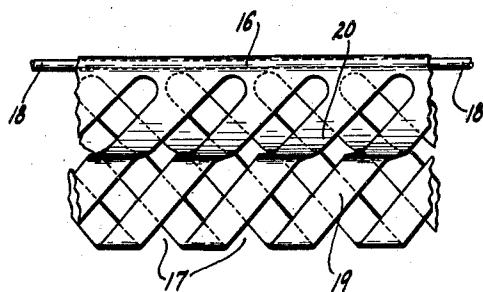


FIG-11

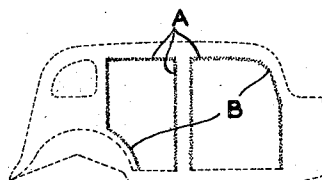


FIG-1

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2 Sheets-Sheet 2

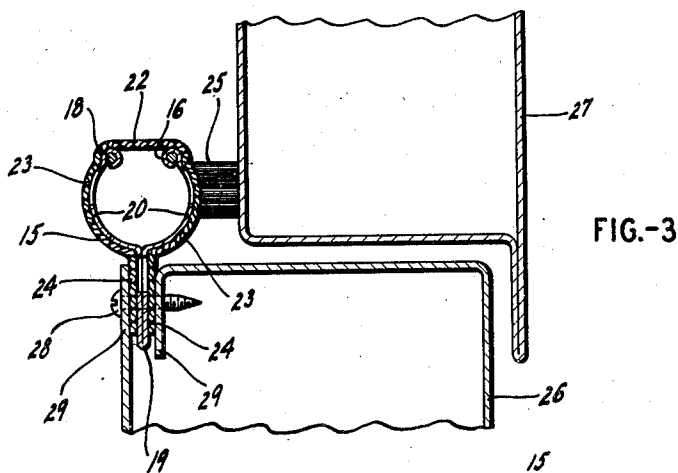


FIG-3

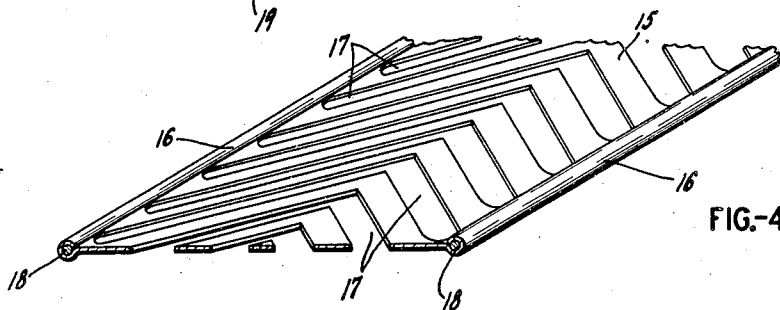


FIG-4

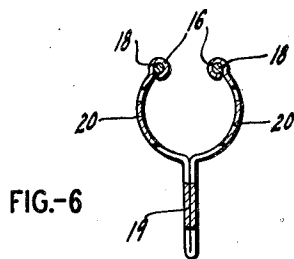


FIG-6

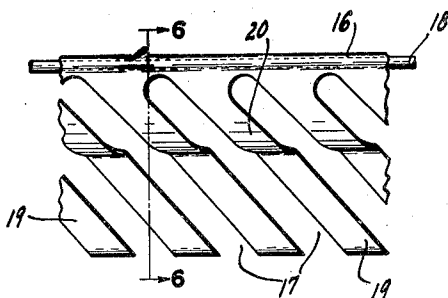


FIG-5

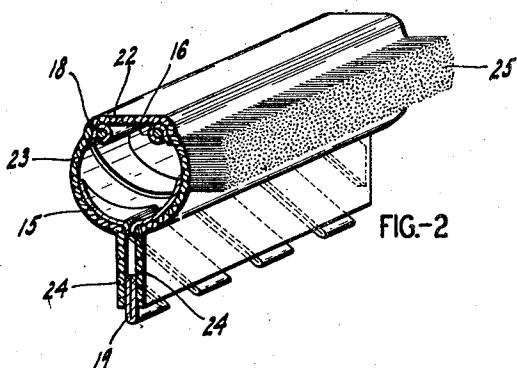


FIG-2

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UNITED STATES PATENT OFFICE

2,132,272

CLOSURE CUSHIONING AND SEALING
MEANS

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mesne assignments, to The Standard Products
Company, Cleveland, Ohio, a corporation of
Ohio

Application January 16, 1936, Serial No. 59,366

16 Claims. (Cl. 20—69)

This invention relates to cushioning and sealing means and more particularly, to an improved strip for use about an opening for an enclosed space for cushioning and sealing a closure for said opening.

My improved cushioning and sealing means is adapted for cooperation with a closure, such as a door or window, and a frame structure about the opening to be closed by such closure for cushioning such closure and for sealing such opening. Such cushioning and sealing means may be utilized in connection with a sliding closure member or with a hinged closure member and for purposes of illustration, I have shown the same as applied to the door of a closed automobile body.

One object of my invention is to provide improved cushioning and sealing means between a closure and the frame structure about the opening to be closed.

Another object of my invention is to provide an improved cushioning and sealing strip for yieldingly engaging and effectively cushioning a closure member when it is in position to close an opening.

Another object of my invention is to provide an improved cushioning and sealing strip of flexible character adapted to be bent around the edges of an opening so as to form a continuous member thereabout.

Other novel features of my invention include the provision of cushioning and sealing means having an improved base strip provided with suitable cushioning and sealing material, and improved means for finishing off and rendering the cushioning and sealing means more attractive, and other special features of construction which will be more fully described in the accompanying specification and the essential features of which will be set forth in the claims.

In the drawings, Fig. 1 is a representation of an automobile sedan body illustrating one possible use of my improved cushioning and sealing means; Fig. 2 is a perspective view of one form of cushioning and sealing strip; Fig. 3 is a partial sectional view of a portion of an automobile body illustrating one manner of using the strip of Fig. 2; Figs. 4, 5 and 6 are views of the base member used in forming the strip shown in Figs. 2 and 3, Fig. 6 being a section taken along the line 6—6 of Fig. 5; Fig. 7 shows a modified form of cushioning and sealing means and mounted in a slightly different manner than the strip of Fig. 3; Fig. 8 is a perspective view of a cushioning and sealing strip modified over the showing of Fig. 7 as to the manner of finishing the same; Fig. 9 is

another modification of the cushioning and sealing strip; and Figs. 10 and 11 illustrate another form of base member for a cushioning and sealing strip.

Many useful applications of the improved cushioning and sealing means shown herein will occur to those skilled in the art to which it relates but for purposes of illustration, I have shown the same as utilized in cushioning and sealing the doors of an automobile sedan body. For this purpose, the cushioning and sealing means will extend about the openings in the door frame, this general location being indicated by the heavy lines A in Fig. 1. For fitting the cushioning and sealing means in a continuous manner about such openings, I provide a flexible strip which may be formed in continuous lengths and bent and fitted about the door openings. This permits the fitting of the cushioning and sealing strip about the corners of the door openings and about such curved portions of the openings as may occur at the points B, Fig. 1.

One manner of forming a flexible strip suitable for the present purpose is illustrated in Figs. 4, 5 and 6 where a flat strip member 15 is provided having continuous side edge portions 16, there being transverse slots 17 extending across the strip between the side edge portions. In the form shown, the strip has side edge portions which are formed as beads through which run reinforcing wires 18 and although this is a preferred form of construction, other forms are suitable. Also, although the transverse slots 17 shown in Figs. 4, 5 and 6 are of herringbone formation arranged in a continuous series along the strip, other forms of transverse slots are suitable. For instance, the slots might extend directly across the strip, normally to the edge portions 16 thereof or the slots might extend diagonally across the strip from side to side, as shown in Figs. 10 and 11. The desired end is achieved if the strip when formed in any of the manners herein disclosed is sufficiently flexible to enable it to be bent around the edges of the door openings to be provided with the cushioning and sealing means.

The strip member 15 is folded upon itself along a longitudinally extending line, as for instance along its center line, as shown in Figs. 4, 5 and 6, giving a portion of double thickness 19 which constitutes the strip securing means. Beyond this portion of double thickness are outwardly flaring portions 20 which, in the form shown in Figs. 2, 3, 5, 6, 7 and 8, are bent first outwardly and then curve about to the free edges where they are bent inwardly toward each other thus form-

ing an open sided channel section. However, the flaring portions obviously may be formed in other shapes, as for instance, that shown in Fig. 9 where the outwardly flaring portions 21 form a substantially Y-form section.

The strip member 15 when bent to suitable form as above described forms a base member for carrying the cushioning and sealing material. It will be obvious that various types of cushioning and sealing material may be secured to the base member but the preferred form here illustrated comprises a heavy woven textile fabric which at a certain place has a relatively soft cushion surface, such as a long pile surface which acts as a cushion and seal, preventing rattling and at the same time excluding inclement weather and cold air. As shown in the various views, I prefer to mount the woven fabric upon the base member so as to provide the cushioning and sealing pile surface only at that point along the woven fabric which constitutes the line of contact between the body frame and the closure member when the closure member is moved into closing position.

In the forms shown in Figs. 2, 3 and 9, the woven fabric extends across the space between the free edges of the flaring portions of the bent strip member, as at the point 22, then along the outwardly facing surfaces of the flaring portions of the strip member, as shown at 23, and may also extend along the outer faces of the portion of double thickness, as at the points 24. This fabric is provided with a pile surface 25 which extends along one of the outwardly flaring portions of the strip in a manner to engage a closure member, as will be more fully described later. The woven fabric is secured to the strip member 15 in any suitable manner, one arrangement being the cementing of the fabric to the base member.

In Fig. 3 I have illustrated one manner of applying the cushioning and sealing means in the problem presented by the automobile sedan body door as set forth above. The drawings show a fixed portion of the body 26 and a portion of a door 27 with the strip placed in proper position to cushion and seal the closure member in the position shown. While the cushioning and sealing strip might be applied to the movable closure member so as to engage against the body portion surrounding the opening to be closed, I prefer to mount the strip upon the body portion as shown in Fig. 3 and this is readily accomplished by a fastening member 28 passing through the portion of double thickness 19, there being suitable securing strips 29 engaging on opposite sides of the portion 19 of the strip and where the woven fabric extends along the faces of the portion 19, as shown at 24, these fabric portions are also secured with the portion 19 by the same securing means. In this position, the pile surface 25 is held so that it is engaged by the door 27 moving to closed position and cushions and seals the contact of the door with the fixed body portion in a very efficient manner.

The strip member 15 is preferably formed of metal having spring characteristics and it will be obvious that a strip formed as heretofore described and positioned as shown in Fig. 3 will give a resiliency between the parts when in abutting relation with the door closed as illustrated in Fig. 3. That is to say, the outwardly flaring portions 20 of the cushioning and sealing strip resiliently hold the pile surface 25 of the woven fabric in position against the door so that there

is provided not only the cushioning and sealing effect of the pile surface but also the resilient effect of the spring metal.

In the modification shown in Fig. 7, the woven fabric is in two pieces 30, each piece extending along the outer faces of the portions 19 and 20 of the metal strip member and being folded over the beaded edge 16 thereof. Here again the woven fabric is provided with a pile surface 31 at the point where it engages the door. In this form, the cushioning and sealing strip is secured to the automobile body portion 26' in a position turned 90° from that shown in Fig. 3. This brings the pile surface 31 into contact with the inner edge of the door 27' in a slightly different manner from that shown in Fig. 3 and illustrates another manner in which the present improved cushioning and sealing means may be used.

Where it is desired to provide an additional finishing effect to the cushioning and sealing means, finishing beads 32 may be utilized as shown in Fig. 7, such finishing beads being preferably strips of metal as for instance, stainless steel or chromium plated material or the like, which may be formed as hollow beads snapped in position over the beads 16 and also covering that portion of the woven fabric which is folded over said beads. These finishing beads, in addition to improving the appearance of the cushioning and sealing strip, also form additional securing means for the woven fabric.

Another form of finishing bead is shown in Fig. 8 wherein a bead member 33 of ornamental appearance is placed between the free edges of the cushioning and sealing strip, said bead member having portions 34 adapted to engage within and behind the beaded edges of the cushioning and sealing strip in a manner to secure the finishing bead member 33 in position.

Although it is not illustrated, it is obvious that the present improved cushioning and sealing strip in any one of the forms shown might be utilized to engage a sliding closure member as the strip is easily secured to a fixed frame portion so that the resiliency of the outwardly flaring portions of the strip and the cushioning effect of the pile fabric thereof may be applied against a closure member in sliding contact with the pile fabric. Other modifications will also suggest themselves to those skilled in this particular art.

What I claim is:

1. A cushioning and sealing strip, comprising a transversely slotted strip member longitudinally folded upon itself intermediate its side edges to form an anchoring part of double thickness, the side edge portions of said strip member flaring outwardly from said anchoring part, and yieldable means carried by at least one of said outwardly flaring portions for cushioning and sealing purposes.

2. A cushioning and sealing strip as in claim 1 and including a finishing bead extending along the free side edge of at least one of said outwardly flaring portions.

3. A cushioning and sealing strip as in claim 1 and including a finishing bead held between the free side edges of said outwardly flaring portions.

4. A cushioning and sealing strip, comprising a transversely slotted resilient metal strip member longitudinally folded upon itself intermediate its side edges to form an anchoring part of double thickness, the side edge portions of said strip member extending from such anchoring

part in diverging and then converging relationship.

5. A cushioning and sealing strip, comprising a transversely slotted resilient metal strip member longitudinally folded upon itself intermediate its side edges to form an anchoring part of double thickness, the side edge portions of said strip member flaring outwardly from such anchoring part, yieldable means extending along the outer surface of one of said flaring portions and being bent around the free side edge thereof, and a finishing bead extending along and over such free edge of said last mentioned flaring portion.

6. A cushioning and sealing strip, comprising a transversely slotted strip member longitudinally folded upon itself intermediate its side edges to form an anchoring part of double thickness, the side edge portions of said strip member extending from said anchoring part in diverging and then converging relationship, yieldable means extending along the outer surface of one of such side edge portions, and a finishing member arranged between the free side edges of said diverging and converging side edge portions.

7. A cushioning and sealing strip, comprising a resilient metal strip member having a portion intermediate its side edges transversely slotted and such portion being longitudinally folded upon itself to form a transversely slotted anchoring part of double thickness, the side edge portions of said strip member flaring outwardly from said anchoring part, and yieldable means carried by one of said outwardly flaring portions for cushioning and sealing purposes.

8. A cushioning and sealing strip, comprising a resilient metal strip member having a portion intermediate its side edges transversely slotted and such portion being longitudinally folded upon itself to form a transversely slotted anchoring part of double thickness, the side edge portions of said strip member extending from such anchoring part in diverging and then converging relationship.

9. A cushioning and sealing strip, comprising a resilient metal strip member having a portion intermediate its side edges transversely slotted and such portion being longitudinally folded upon itself to form a transversely slotted anchoring part of double thickness, the side edge portions of said strip member extending from said anchoring part in diverging and then converging relationship, and a metal finishing bead clamped between the free side edges of such side edge portions.

10. A cushioning and sealing strip, comprising a resilient metal strip member having a portion intermediate its side edges transversely slotted and such portion being longitudinally folded upon itself to form a transversely slotted anchoring part of double thickness, said strip member having one of its side edge portions extending angularly from said anchoring part, and yieldable means carried by such angularly extending side edge portion for cushioning and sealing purposes.

11. A cushioning and sealing strip, comprising a resilient strip member longitudinally folded

upon itself intermediate its side edges to form an anchoring part of double thickness, the side edge portions of said strip member extending outwardly from said anchoring part and the free side edges of such side edge portions being in spaced relationship, flexible means associated with said side edge portions and extending across the space between the free side edges thereof, and a pile surface along the outer surface of one of such side edge portions for cushioning and sealing purposes.

12. A cushioning and sealing strip, comprising a resilient strip member longitudinally folded upon itself intermediate its side edges to form an anchoring part of double thickness, the side edge portions of said strip member extending outwardly from said anchoring part and the free side edges of such side edge portions being in spaced relationship, fabric means associated with said side edge portions and extending across the space between the free side edges thereof, and a pile surface for cushioning and sealing purposes on that portion of said fabric means which is disposed along the outer surface of one of such side edge portions.

13. A cushioning and sealing strip, comprising a strip member longitudinally folded upon itself intermediate its side edges to form an anchoring part of double thickness, the side edge portions of said strip member extending from said anchoring part in diverging and then converging relationship, yieldable means along the outer surface of one of such side edge portions, and a finishing member arranged between the free side edges of said side edge portions.

14. A cushioning and sealing strip, comprising a resilient metal strip member having a portion intermediate its side edges diagonally slotted and such portion being longitudinally folded upon itself to form a slotted anchoring part of double thickness, the side edge portions of such strip member flaring outwardly from such anchoring portion, and yieldable means carried by one of such flaring side edge portions for cushioning and sealing purposes.

15. A cushioning and sealing strip, comprising a resilient metal strip member having intermediate its side edges a portion provided with slots of herringbone form and such portion being longitudinally folded upon itself to form a slotted anchoring part of double thickness, the side edge portions of such strip member flaring outwardly from such anchoring portion, and yieldable means carried by one of such flaring side edge portions for cushioning and sealing purposes.

16. A cushioning and sealing strip, comprising a resilient metal strip member longitudinally folded upon itself intermediate its side edges to form a generally flat anchoring part of double thickness, the side edge portions of said strip member extending in spaced relationship from said anchoring part, the free side edges of such side edge portions being of beaded form, and yieldable means on the outer surface of one of said side edge portions for cushioning and sealing purposes.

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