

Feb. 20, 1934.

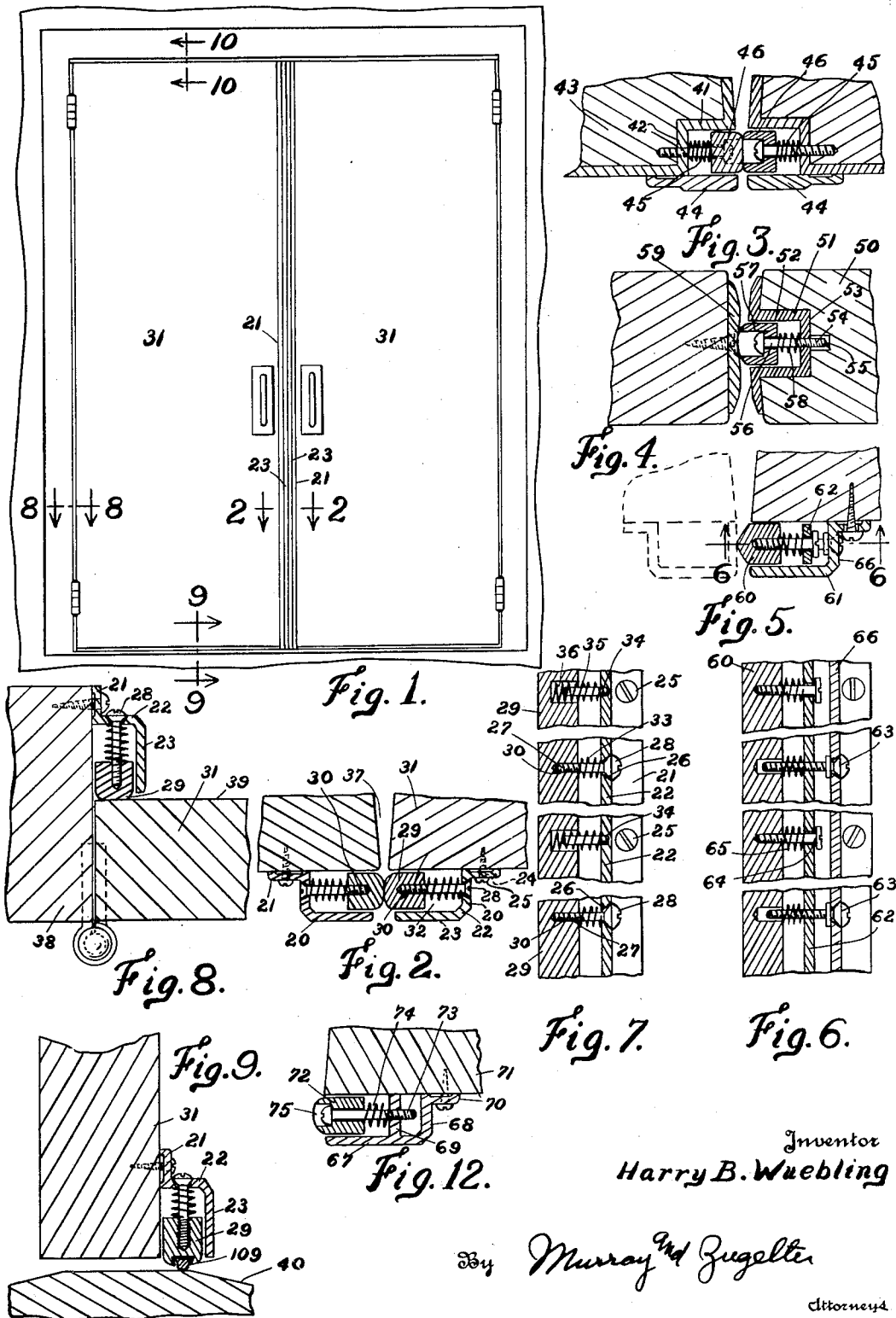
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1,948,017

ADJUSTABLE ASTRAGAL OR THE LIKE

Filed Sept. 21, 1931

2 Sheets-Sheet 1



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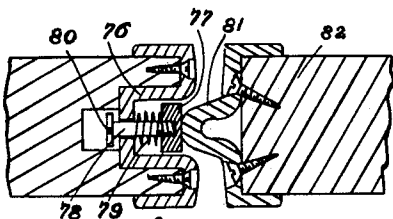


Fig. 11.

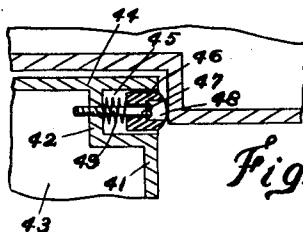


Fig. 10.

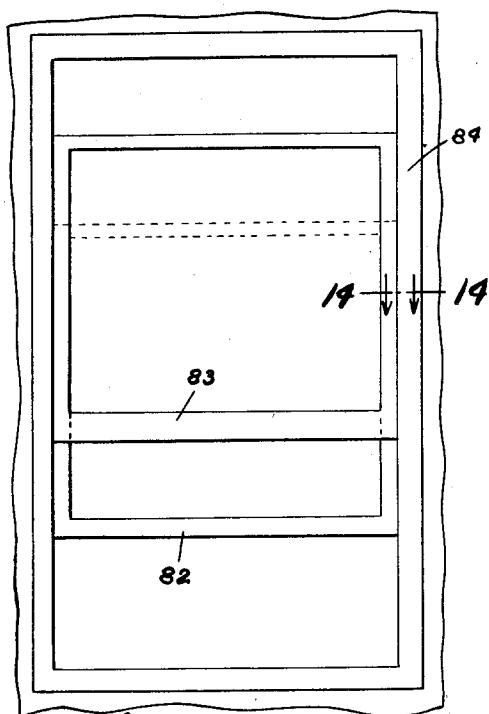


Fig. 13.

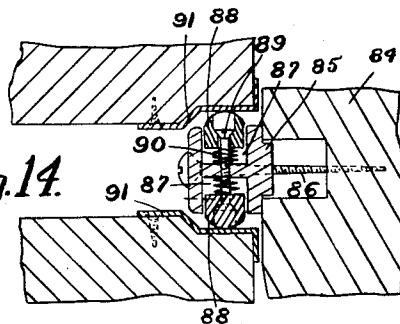


Fig. 14.

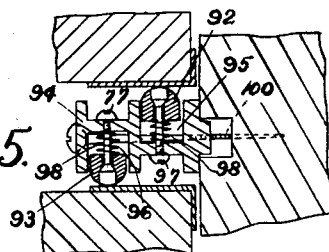


Fig. 15.

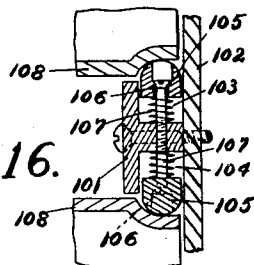


Fig. 16.

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UNITED STATES PATENT OFFICE

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ADJUSTABLE ASTRAGAL OR THE LIKE

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Application September 21, 1931

Serial No. 563,989

10 Claims. (Cl. 20-68)

This invention relates to an improved sealing strip for use at the parting edges of doors, windows and the like and has for its principal object the provision of a strip of this kind that is adjustable within ample practical limits to all expansion and contraction of the building structure and parts either as a complete section or as to any necessary fraction of a given strip.

Another object is to provide a strip or astragal of this type which is especially adaptable to use on metal doors and windows although equally suited to wooden structures.

These and other objects are attained by the means described herein and disclosed in the accompanying drawings, in which:

Fig. 1 is an elevational view of a pair of swinging doors having the astragal and weather seal of the invention mounted thereon.

Fig. 2 is a view taken on line 2-2 of Fig. 1.

Fig. 3 is a view similar to Fig. 2 showing a form of astragal applied to hollow metal doors.

Fig. 4 is a fragmental cross sectional view showing the application of a form of the astragal to the edge of a wooden door.

Fig. 5 shows a cross section of another form of astragal of the invention.

Fig. 6 is a view taken on line 6-6 of Fig. 5.

Fig. 7 is a longitudinal sectional view on one of the strips shown in Fig. 2.

Fig. 8 is a view taken on line 8-8 of Fig. 1.

Fig. 9 is a view taken on line 9-9 of Fig. 1.

Fig. 10 is a view taken on line 10-10 of Fig. 1.

Fig. 11 shows a section through a pair of doors equipped with another modification of the device of the invention, as for sliding doors.

Fig. 12 is a cross sectional view of another modification of the device of the invention.

Fig. 13 shows a pair of sliding window sashes equipped with a special adaptation of the device of the invention.

Figs. 14, 15 and 16 show three forms of the device as adapted to windows, the views all being taken on line 14-14 of Fig. 13.

The astragal of the present invention is intended not only for the meeting edges of swinging doors (either double or single doors) but they may also be employed with the same efficacy around all sides of swinging doors and all sides of swinging, folding and swinging and sliding closures including windows, and elevator doors.

The astragal or sealing strip of the invention is preferably formed of extruded metal and is thus capable of preparation in a plurality of natural metal finishes making it especially desirable for use on metal doors and windows of the

highly ornamental type. It will be understood however that the application of the sealing strip of the invention is not limited to metal doors and windows, but may also be applied to kalamein doors or windows and also to wooden doors of various types. The extruded material comprising the strip may readily be finished and decorated in simulation of wood as well as of metal other than the true composition of the strip.

It is the essential feature of the strip of the present invention that the sealing edge strip is adjustable bodily in various ways. Thus a door which has sagged on a distinct diagonal may have the closure effectively sealed by projecting the sealing strip further out at the top or bottom as the case may demand. Likewise in warping of either the jamb or door, the strip may have imparted thereto the necessary curve at any place throughout its length to effect a smooth snug meeting edge. The sealing strip is so mounted that it can be made to yield inwardly away from the companion meeting edge, but the adjustment is such that in the normal opening and closing of the door or window the yielding members of the strip are not actually placed under compression. The resilient feature however will permit a door or the like which has undergone considerable seasonal change to nevertheless operate effectively and use considerable freedom since swelling of the companion member will be accommodated by the yielding of the opposite member.

Referring now to the drawings it will be noted that the sealing or astragal of the invention may be applied to the meeting edges of double doors and to the top, bottom and sides as well.

In its simplest embodiment, as will be noted in Fig. 2 a mounting strip 20 has an attaching flange 21, a substantially perpendicular wall 22 and a third flange 23 extending at right angles to wall 22 and in the opposite direction from the attaching flange 21. This is an extruded strip, the flange 21 of which is provided at intervals with perforations 24 to receive attaching screws 25. Intermediate the attaching screwholes 24 a wall 22 has countersunk perforations 26 through which pass the adjusting screws 27 which have the heads thereof 28 accessible from the outer face of the mounting strip. An extruded sealing strip 29 has threaded perforations 30 therein to receive screws 27 so that upon turning of the heads 28 the sealing strip 29 is drawn toward wall 22 and in through the way 32 formed between the flange 23 and the door 31 to which the mounting strip is attached.

Means are provided to resiliently push the seal-

ing strip 29 out of the way 32 to the limit permitted by the adjusting screws 27. In the simplest embodiment these yielding members may be springs 33 encircling screws 27 and interposed between wall 22 and the sealing strip 29. Alternatively pins 34 may be screw threaded into wall 22 to position a spring as at 35 which may seat in an aperture 36 in the sealing strip. As shown at the bottom of Fig. 7 the adjusting screw 27 may be free of springs and the springs carried only by pins 34. Any combination of and type of springs and adjusting means may be employed.

Fig. 2 shows the meeting edges of double swinging doors. Normally these doors are hung and a clearing space 37 is left between them. With the astragal of the present invention these doors after being hung would have the sealing strips 29 initially adjusted to a position intermediate their outward and inward limits of movement so that adjustment in either direction can be made. The astragal would then be mounted one strip on each door so that the sealing strips would meet and lightly contact one another as nearly as possible from top to bottom. If the doors are perfectly plumb and perfectly straight, this adjustment will find each of the sealing strips 29 correct as initially positioned. If it be found, however, that there is a bulge or bow in either door, the sealing strips 29 may nevertheless be caused to properly meet by tightening one or more of the screws 27 at the point of bulge and loosening corresponding screws on the opposite strip. By this kind of accommodation it is not necessary to impart the entire curvature to one strip.

As shown in Fig. 8 a strip of the invention may also be mounted on the jamb on the hinge side of a door so that the sealing strip 29 will snugly contact the outer face 39 of the door 31 and thus effect a perfect weather seal. In this environment the adjustment is made with the same facility since the screw heads 28 are readily accessible. In Fig. 9 the sealing strip is mounted on the outside bottom face of the door and is mounted so that the sealing strip 29 contacts the proper portion of the door seal 40 throughout its length. If the door swings outwardly, the sealing strip or astragal would be mounted on the outside. If the door opens inwardly the bottom sealing strip or astragal would be mounted on the inside. This allows the door to swing freely and have ample clearance over the sill and yet be perfectly sealed against the weather.

The astragal may be mounted along the top of the door frame in substantially the same fashion as at the sides (see Fig. 8) or the astragal may be mounted, in the case of hollow doors as shown in Fig. 10 upon the door itself. In the embodiment shown in Figs. 3 and 10 the walls 41 and 42 are integral parts of the structure of a hollow or kalamein door 43, a finish strip 44 serving to complete the way 45 within which the sealing strip 46 is mounted. In these embodiments the adjusting screw 47 has the head thereof disposed in a countersink 48 in the abutting edge of sealing strip 46 with the screw 47 passing entirely through it and threadedly engaged in a wall 42. The spring 49 is interposed in the manner heretofore explained and performs the function of retaining the sealing strip upwardly as far as the adjustment of screws 47 would permit.

As shown in Fig. 4 a wooden door 50 may be rabbeted out as at 51 and provided with a U-shaped mounting strip 52 which is secured through the wall 53 thereof by screws 54. The door is also provided with recesses 55 into which adjusting

screws 56 may move through the sealing strip 57. Springs 58, which may be mounted on screws 56 complete the mounting of this form of astragal. If desired a pair of these astragal strips may be employed on meeting edges of double acting swinging doors, or, as shown in Fig. 4 a companion strip 59 may be used on one of the doors.

In Figs. 5 and 6 the sealing strip 60 is housed within a mounting strip 61 which is quite similar to that shown in Fig. 2. A bar 62 is adjustable by screws 63 and this bar 62 has a strip 60 floatingly mounted thereon by means of non-adjustable screws 64 and springs 65. To effect adjustment of this form of astragal, manipulation of screws 63 moves bar 62 toward or away from the wall 66 of the mounting strip while the floating mounting of the sealing strip remains unchanged.

As shown in Fig. 12 the mounting strip comprises a cover flange 67 with walls 68 and 69 extending therefrom in spaced relation. An attaching flange 70 on the wall 68 is screwed to door 71. Sealing strip 72 is mounted by screw 73 and spring 74, the screws being adjustable from the face of the sealing strip with the heads thereof counter-sunk in recesses 75.

As shown in Fig. 11 sliding doors may be provided with a U-shaped mounting strip 76 with a sealing strip 77 adjustable therein by means of screw 78 and spring 79. The adjustment of the sealing strip 77 may be made inaccessible except upon removal of the mounting strip 76 if desired. In this embodiment the adjustment may be concealed as at 80. A companion strip 81 on an opposite door 82 is all that is necessary to complete weather and draft-proofing doors. It should be appreciated also that the embodiment shown in Fig. 4 may be employed for the same purpose if desired.

As shown in Fig. 13 a pair of sliding sashes 82 and 83 in a window frame 84 may be weather-proofed by means of a sealing strip 85 suitably secured to the window frame 84 by any suitable means such as screws 86. A U-shaped way 87 opens from each longitudinal side of the strip 85 and houses an exteriorly adjustable sealing strip 88 retained and adjusted by means of screws 89 and springs 90. A companion strip 91 is preferably provided on the adjacent faces of the sashes. Fig. 15 shows a modification of the structure disclosed in Fig. 14 and consists in the provision of sealing strips 92 and 93 mounted in relatively side by side relation upon a sort of H-shaped extruded mounting strip 94 which provides the ways 95 and 96 for the strips 92 and 93 respectively. Screws 97 and springs 98 effect adjustment of the strips 92 and 93 to the sliding windows. Mounting screws 100 hold the strip 94 in position.

In Fig. 16 there is shown a T-shaped mounting strip 101 provided, with a hollow metal window frame 102 a pair of ways 103 and 104 in which sealing strips 105 are slidably and adjustably mounted by screws 106 and springs 107. Companion strips 108 in this embodiment may be constituted by integral portions of extruded metal window sashes. This arrangement is very compact and inexpensive and facilitates the mounting of the windows, renders them weather-tight and prevents rattling which is common to windows of this kind if not expertly hung.

In any desired applications of the strip of the invention, as on sliding doors, elevator doors and the like, a dovetailed rubber or fabric or similar noiseless strip 109 may be seated in the face of the sealing strip 29 (see Fig. 9) so that any metallic sounds may be eliminated. This would prevent

any annoyance in the event the closure surfaces or edges should become misaligned.

What is claimed is:

1. In an astragal the combination of a formed strip comprising a wall, a mounting flange and a cover flange extending in opposite directions from opposite edges thereof, a formed sealing strip slidable on the cover flange, threaded means for adjusting the sealing strip toward said wall and resilient means tending to move the sealing strip in the opposite direction.

2. As a new article of manufacture an adjustable weather strip comprising a mounting strip, a pair of walls extending therefrom, an attaching flange on one of said walls adjusting screws threaded at intervals into the other of said walls, a sealing strip carried by said screws and resilient means tending to move said sealing strip away from said wall.

3. As a new article of manufacture a weather strip comprising a substantially Z-shaped metal mounting strip having a perforated flange for rigid attachment to doors and the like, adjusting screws reciprocable through said strip, a sealing strip of metal having a rounded edge, said strip threadedly engaged by the free ends of said screws whereby turning of selected screws will vary the distance between the corresponding part of the sealing strip and mounting strip and means resiliently opposing reciprocation of the sealing strip and adjusting screws relative to the mounting strip.

4. As a new article of manufacture a weather seal for sliding sashes comprising the formed parting strip having a pair of ways opening in opposite directions, a sealing strip disposed in each of said ways, means resiliently urging the sealing strips out of said ways and adjusting screws extending through the formed strip and into the sealing strips for limiting movement of the sealing strip out of the ways.

5. The combination of a metal window frame and a pair of sliding sashes therein, a T-shaped parting strip providing a pair of opposed ways adjacent each edge of the sashes the sealing strip in each way, each strip having a plurality of spaced countersunk perforations therein, adjusting screws extending through said perforations and threadedly engaging in the T-shaped strip for effecting adjustment of the sealing strips into the ways and resilient means opposing said adjustment and permitting yielding movement of the sealing strips.

6. As a new article of manufacture an assembled astragal strip for double acting doors and the like comprising a metallic mounting member providing a way at the edge of such doors, an extruded metal strip having an arcuate forwardly disposed edge and means comprising yieldable members and adjusting screws to adjustably mount the strip in the way in the mounting member to effect flush contact of the arcuate edge of the strip on a companion meeting edge.

7. In an astragal, an extruded metal bar strip having one edge thereof rounded, means attachable to doors and the like at the meeting edge thereof, spring and screw means cooperative with said strip and attachable means for effecting a bodily adjustable mounting for the strip relative to a companion meeting edge, said strip and screw means serving, upon selective adjustment of the screw to alter the linear contour of the rounded edge of the strip complementary to irregularities in such companion meeting edge.

8. In a structure of the class described the combination of a mounting strip providing a way at the edge of a door and the like, a rounded edged metal strip in said way and means adjustably mounting the metal strip in said way for effecting adjustment thereof both bodily and in the linear contour of the rounded edge to accommodate a companion meeting edge for forming perfect contact thereof.

9. In a device of the class described the combination of a mounting strip providing a substantially U-shaped channel for mounting within the body lines of doors and the like, means comprising an extruded sealing strip disposed in said way, adjusting screws countersunk into the sealing face of said strip and threaded into the mounting strip and resilient means of urging the strip outwardly of the way.

10. A sealing device of the class described comprising an extruded metal sealing strip having a rounded edge, means attachable selectively to moving closures and framing therefor, spring and screw means cooperative with said strip and attachable means for effecting bodily adjustable mounting of the strip, said spring and screw means further serving, upon selective adjustment of the screws to alter the linear contour of the rounded edge of the strip.

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