March 26, 1957 T. W. RAPIN 2,786,244

WATER DRIP AND WEATHER STRIP

Filed Oct. 19, 1954

Fig. 1.

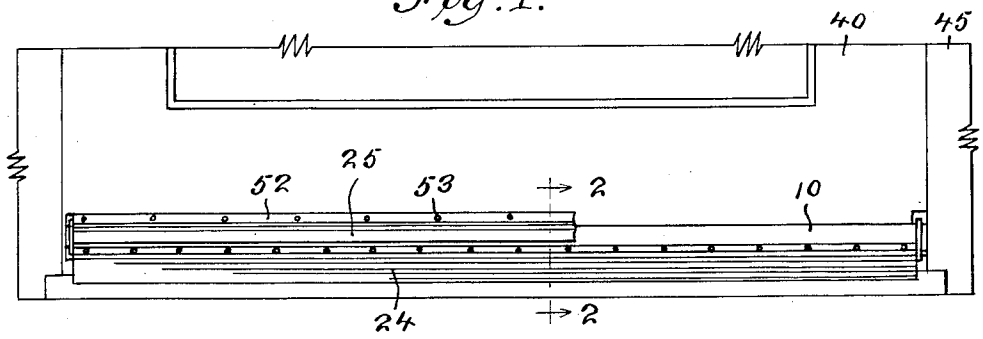


Fig. 2.

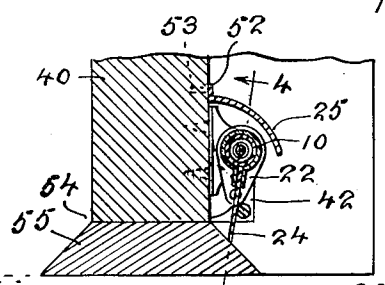


Fig. 3.

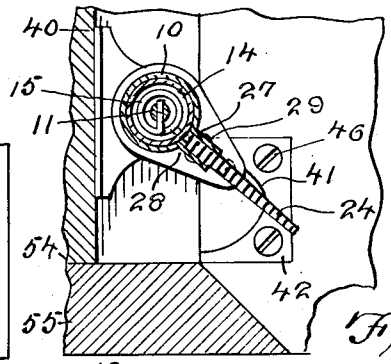


Fig. 4.

Fig. 5.

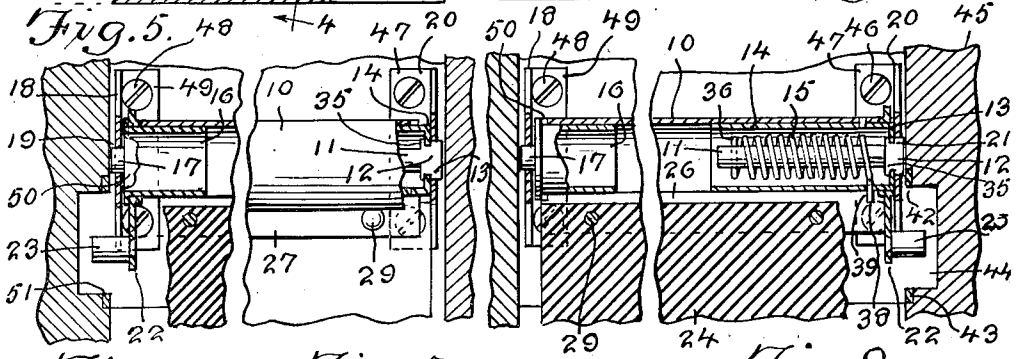


Fig. 6.

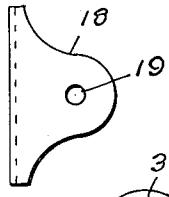


Fig. 7.

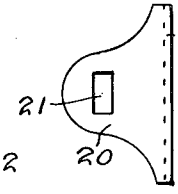


Fig. 9.

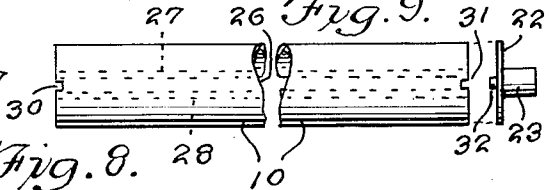


Fig. 8.

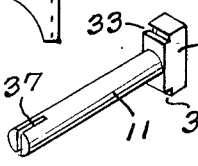
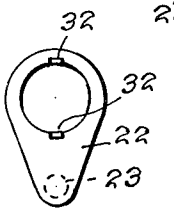


Fig. 10.



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2,786,244

WATER DRIP AND WEATHER STRIP

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4 Claims. (Cl. 20—67)

This invention relates to sealing strips adapted to be positioned on the lower edge of a door to prevent rain and the like being driven through the opening between a door and a door sill, and in particular, a continuous weather strip pivotally mounted on the lower edge of a door and adapted to be actuated to an upwardly extended position with a spring as the door is opened and also adapted to be moved downwardly to a sealing position by cam surfaces of strike plates as the door is closed.

The purpose of this invention is to provide a sealing strip for the lower edge of a door that operates automatically to close the opening as the door is closed and that moves automatically to an upwardly extended position to facilitate opening the door as the opening movement of the door is started.

Numerous attempts have been made to provide sealing strips to prevent wind and the like driving rain under a door, however, because such devices must slide over the surface of a floor as the door is opened, it is substantially impossible to extend the sealing means below the edge of the door with the result that it is substantially impossible to prevent water being driven below the door. With this thought in mind, this invention contemplates a sealing strip that drops downwardly to definitely cover the opening at the lower edge of a door as the door closes and that instantly moves upwardly to an out of the way position as the door opens.

The object of this invention is, therefore, to provide means for actuating a sealing strip at the lower edge of a door so that the sealing strip actuates automatically with opening and closing movements of the door.

Another object of the invention is to provide an automatically operating sealing strip for the lower edge of a door in which the device is adapted to be applied to doors now in use.

A further object of the invention is to provide operating means for a sealing strip adapted to be positioned on the lower edge of a door wherein the sealing strip is elevated with an opening movement of the door and moved downwardly to a closed position with the closing movement of the door in which the device is of a simple and economical construction.

With these and other objects and advantages in view, the invention embodies a tubular casing adapted to be positioned on the lower edge of a door, a sealing strip carried by and extended from the casing, brackets for rotatably mounting the casing on a door, a spring for urging the sealing strip upwardly with the opening movement of the door, a strike plate for moving the sealing strip downwardly with the closing movement of the door and a shield adapted to be attached to the surface of the door and positioned to extend over the tubular casing.

Other features and advantages of the invention will appear from the following description, taken in connection with the drawing, wherein:

Figure 1 is an elevational view showing the lower edge of a door with the sealing strip mounted thereon, showing the sealing strip in the closed position, and with part of the shield broken away exposing one end of the casing.

Figure 2 is a cross section through the lower edge of the door showing the sealing strip mounted thereon, said section being taken on line 2—2 of Figure 1 and the parts being shown on an enlarged scale.

Figure 3 is a section similar to that shown in Figure 2 with the parts shown on a still further enlarged scale and illustrating the position of the parts with the sealing strip in the extended position.

Figure 4 is a vertical longitudinally disposed section taken on line 4—4 of Figure 2 with parts broken away and showing a pin adapted to engage the cam surface of a strike plate for actuating the sealing strip.

Figure 5 is a view similar to that shown in Figure 4 showing the pin for actuating the sealing strip positioned at the opposite side of the door.

Figure 6 is a view showing a side elevational view of a bracket for attaching one end of the device to a door and showing, in particular, the bracket at the end of the casing from which a pin extends.

Figure 7 is a view showing a side elevational view of a bracket also adapted to mount the cylindrical casing on a door, the bracket shown in Figure 7 being adapted to support the end of the casing in which the spring is positioned.

Figure 8 is a view showing a shaft adapted to be mounted in the end of the casing and on which the spring for actuating the sealing strip is adapted to be positioned.

Figure 9 is a view showing the tubular casing with parts broken away and showing a cam engaging pin spaced from the end of the casing.

Figure 10 is a view showing an arm upon which the cam engaging pin is mounted.

Referring now to the drawing, wherein like reference characters denote corresponding parts, the improved water drip and weather strip of this invention includes a cylindrical casing 10, a shaft 11 having a head 12 on one end positioned in an end 13 of a sleeve 14 extended into one end of the casing, a spring 15 mounted on the shaft 11, a plug 16 having a pin 17 extended from the end thereof positioned in the opposite end of the casing, a bracket 18 adapted to be mounted on the surface of a door and having an opening 19 therein for receiving the pin 17, a bracket 20 also adapted to be positioned on the door and having a slot 21 therein adapted to receive the head 12 of the shaft 11, an arm 22 for mounting a pin 23 on the end of the casing, a sealing strip 24 mounted on the casing and a shield, as indicated by the numeral 25, adapted to be attached to the surface of the door and positioned to extend over the casing.

The cylindrical casing 10 is provided with a continuous slot 26 having flanges 27 and 28 extended from edges thereof and the blade 24, which is preferably made of rubber, a suitable plastic, or the like is secured between the flanges with rivets 29, as shown in Figure 3. The ends of the casing are provided with notches 30 and 31 and, as illustrated in Figure 9, the notches are positioned to receive lugs 32 on the inner surface of the arm 22 with the parts assembled and, as illustrated in Figures 4 and 5, the arm 22 may be positioned on either the right- or left-hand end of the casing.

With the parts assembled as illustrated in Figure 4, the arm 22 is positioned on the sleeve 14 with the pin 23 extended outwardly and the sleeve 14 is positioned in the end of the casing 10 with the lugs 32 in the notches 31. The sleeve 14 is provided with a head, as indicated by the numeral 13, and the head is provided with an elongated rectangular shaped slot in which the inner portion of the head 12 of the shaft 11 is positioned, the head 12 being provided with recesses 33 and 34 that are positioned to receive the material of the head 13 at the ends of the

slot. With the head 12 in position in the head 13, the material of the head 12 is peened over, as shown at point 35, to retain the shaft 11 in position in the sleeve 14.

The spring 15 is positioned on the shaft 11 with one end, as indicated by the numeral 36, extended through a slot 37 in the end of the shaft and with the opposite end 38 extended through an opening 39 in the portion of the sleeve 14 that is positioned in registering relation with the slot 26 of the casing. With the spring mounted in this manner, the end 38 urges the blade 24 upwardly to the position illustrated in Figure 3 and, upon closing a door 40 upon which the device is mounted, the pin 23 engages a cam surface 41 of a strike plate 42 whereby the pin rides downwardly carrying the arm 22 and blade 24 from the position shown in Figure 3 to that shown in Figure 2. The strike plate 42 is positioned in recesses 43 in the edges of an opening 44 of a door frame, as indicated by the numeral 45, and the plate is retained in position with screws, as indicated by the numeral 46.

The end of the casing in which the spring 15 and sleeve 14 are positioned, in the design shown in Figure 4, is supported in the bracket 20 with the head 12 extended through the slot 21 and the bracket 20 is secured to the door 40 with screws 46 that extend through a flange 47 of the bracket.

The opposite end of the casing 10 is supported in the bracket 18 with pins 17 of the plug 16 positioned in the opening 19 and with the bracket secured to the face of a door with screws 48 which extend through a flange 49 thereof. The cylindrical plug or sleeve 16 is provided with a head 50 providing a peripheral flange that is positioned against the end of the tubular casing 10.

In the arrangement illustrated in Figure 5, the parts are duplicates and the arm 22 is positioned on the sleeve or plug 16 instead of on the sleeve 14 whereby the pin 23 extends into a strike plate 51, similar to the plate 42.

The shield 25 is provided with a mounting flange 52 that is positioned against the base of the door 40 and the shield is retained in position with screws 53 that extend through the flange and into the door, as shown in Figure 2.

With the blade 24 mounted in this manner, an opening, such as may exist at the point 54, between the door 40 and a sill 55, is covered with the blade with the door in the closed position, and as the opening movement of the door starts, the pin 23 is released from the strike plate and the spring 15 instantly elevates the blade from the position shown in Figure 2 to that shown in Figure 3 wherein the door is adapted to be opened and closed without carrying the blade across the surface of the floor.

It will be understood that modifications, within the scope of the appended claims, may be made in the design and arrangement of the parts without departing from the spirit of the invention.

What is claimed is:

1. A door sealing weather strip comprising a cylindrical casing, a blade of resilient material extended from said casing, a sleeve extended into one end of the casing, a shaft positioned in the sleeve and having a head at one end mounted in an end of the sleeve, a spring on the shaft and positioned with one end mounted in the shaft and the other mounted in the sleeve, an arm having a pin on the extended end position on the end of the sleeve, a strike plate having a cam surface adapted to be mounted on a door frame, a plug having a pin extended therefrom positioned in the end of the casing opposite to that in which the sleeve is positioned, brackets adapted to be attached to a side surface of a door for mounting the casing on the lower edge of a door with the blade adapted to extend over the lower edge of the door, said pin of the arm being positioned to engage the cam surface of the strike plate for rotating the casing to lower the blade as the door closes, and resilient means for rotating the casing to elevate the blade as the door opens.

2. A door sealing weather strip comprising a cylindrical casing, a blade of resilient material extended from said casing, a sleeve extended into one end of the casing, a shaft positioned in the sleeve and having a head at one end mounted in an end of the sleeve, a spring on the shaft and positioned with one end mounted in the shaft and the other attached to the sleeve, an arm having a pin on the extended end positioned on the end of the sleeve, a strike plate having a cam surface in an opening therein adapted to be mounted on a door frame, a plug having a pin extended therefrom positioned in the end of the casing opposite to that in which the sleeve is positioned, brackets adapted to be attached to a side surface of a door for mounting the casing on the lower edge of a door with the blade adapted to extend over the lower edge of the door, said pin of the arm being positioned to engage the cam surface of the strike plate for rotating the casing to lower the blade as the door closes, and resilient means for rotating the casing to elevate the blade as the door opens, said means for rotating the casing to lower the blade being adapted to be positioned on either end of the casing.

3. In a door seal, the combination which comprises a cylindrical casing having a continuous slot therein, a blade of resilient material positioned in said slot and mounted in the casing, a sleeve having a head on the extended end positioned in one end of the casing, a shaft mounted in the head of the sleeve and extended into the sleeve, a spring mounted on the shaft and positioned with one end secured to the shaft and the opposite end extended through an opening in the sleeve, a bracket having a slot therein in which the end of the shaft positioned in the head of the sleeve is adapted to be mounted, said bracket being adapted to be mounted on the surface of a door, a cylindrical plug having a pin on the extended end adapted to be positioned in the opposite end of the casing, a bracket having an opening therein positioned to receive the pin of the plug for rotatably mounting the casing, said bracket having an opening for receiving the pin of the plug being adapted to be mounted on the surface of a door and aligned with the bracket at the opposite end of the casing whereby the cylindrical casing is mounted with the blade extended to cover the lower edge of the door, a strike plate having a cam shaped inner edge adapted to be positioned in the inner portion of a door frame, and an arm having a pin extended therefrom adapted to be mounted, selectively, on the sleeve at one end of the casing or on the plug at the opposite end of the casing whereby the pin is adapted to engage the cam surface of a strike plate positioned at either side of a frame in which the door upon which the cylindrical casing is mounted is positioned.

4. In a door seal, the combination which comprises a cylindrical casing having a continuous slot therein, a blade of resilient material positioned in said slot and mounted in the casing, a sleeve having a head on the extended end positioned in one end of the casing, a shaft mounted in the head of the sleeve and extended into the sleeve, a spring mounted on the shaft and positioned with one end secured to the shaft and the opposite end extended through an opening in the sleeve, a bracket having a slot therein in which the end of the shaft positioned in the head of the sleeve is adapted to be mounted, said bracket being adapted to be mounted on the surface of a door, a cylindrical plug having a pin on the extended end adapted to be positioned in the opposite end of the casing, a bracket having an opening therein positioned to receive the pin of the plug for rotatably mounting the casing, said bracket having an opening for receiving the pin of the plug being adapted to be mounted on the surface of a door and aligned with the bracket at the opposite end of the casing whereby the cylindrical casing is mounted with the blade extended to cover the

lower edge of the door, a strike plate having a cam shaped inner edge adapted to be positioned in the inner portion of a door frame, an arm having a pin extended therefrom adapted to be mounted, selectively, on the sleeve at one end of the casing or on the plug at the opposite end of the casing whereby the pin is adapted to engage the cam surface of a strike plate positioned at either side of a frame in which the door upon which the cylindrical casing is mounted is positioned, and a shield adapted to be mounted on the surface of the door upon which the cylindrical casing is mounted, said shield being

positioned to extend over the cylindrical casing to protect the casing from the elements.

References Cited in the file of this patent

UNITED STATES PATENTS

335,874	Amon	Feb. 9, 1886
1,145,196	Higgin	July 6, 1915
2,016,160	Wierk	Oct. 1, 1935
2,032,698	Grady	Mar. 3, 1936
2,206,183	Goodfellow	July 2, 1940
2,602,973	Watson	July 15, 1952