Oct. 7, 1952 H. W. SIDDEN 2,612,664

WEATHERSTRIPPING FOR STORM DOORS

Filed Aug. 16, 1950

Fig. 1.

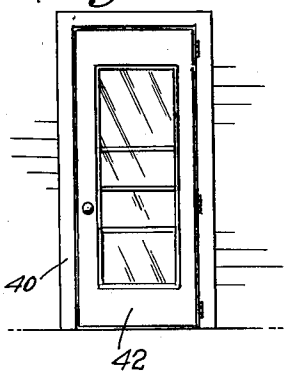


Fig. 2.

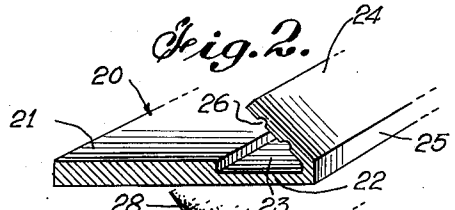


Fig. 3.

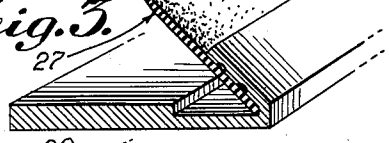


Fig. 4.

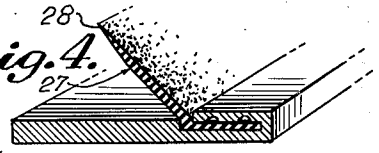


Fig. 7.

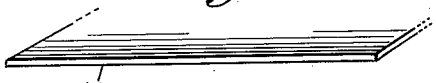


Fig. 8.

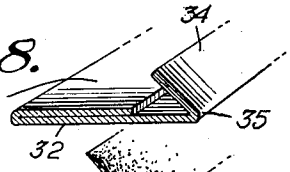


Fig. 9.

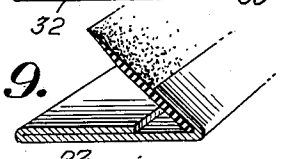


Fig. 10.

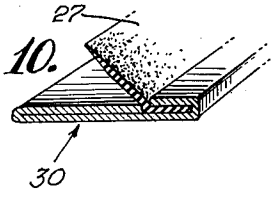


Fig. 5.

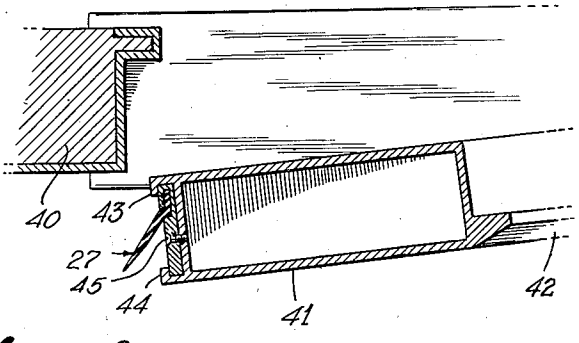
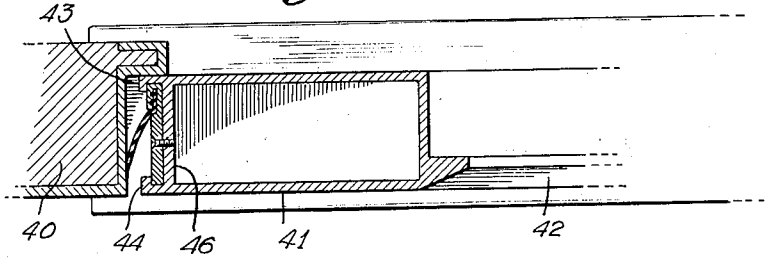


Fig. 6.



INVENTOR
HENRY W. SIDDEN

BY Samuel J. Stocc
ATTORNEY

Patented Oct. 7, 1952 2,612,664

UNITED STATES PATENT OFFICE

2,612,664

WEATHER STRIPPING FOR STORM DOORS

Henry W. Sidden, Richmond Hill, N. Y.

Application August 16, 1950, Serial No. 179,690

4 Claims. (Cl. 20—69)

1

This invention relates to weatherstripping for storm doors, screen doors and the like. It is applicable to storm doors of virtually every description, including domestic, commercial and industrial installations. Similarly, it is applicable to door constructions on ships and small pleasure boats, such as motor driven cruisers. In addition to being applicable to storm doors both on land and at sea, it may also be applied to screen doors, combination storm or screen doors and window constructions and the like. For purposes of illustration, however, this invention will here be shown and described solely in terms of its relation to combination storm and screen doors which are made of extruded aluminum.

The principal object of this invention is the provision of weatherstripping for storm doors, screen doors, windows and the like, which is exceedingly simple in construction, which may very readily be installed and equally as readily removed and replaced, and which, when installed, affords a tight seal against the elements, including rain, snow, wind and the like. It is also proof against the entrance of mosquitoes, flies and other insects.

The weatherstripping herein described and claimed comprises but two component parts: a rubber strip and a metal holder for said strip. The metal holder is made, preferably, of a single strip of extruded or bent aluminum. It is provided with what may be described as a pocket for the rubber strip and said rubber strip may be inserted into the pocket preparatory to joining said strip to said holder. The pocket may then be closed upon the rubber strip by simply bending the metal holder upon it in order to lock the strip in place in said holder.

Installation of the weatherstripping herein described and claimed is an exceedingly simple procedure. If the door happens to be made of wood, the metal holder of the weatherstripping is simply screwed to the edges of the door. If desired, the metal holder of the weatherstripping may be secured to the door jamb instead of to the door proper, although this is not customarily done. If the door is made of extruded aluminum, it will probably have a suitable channel along its several edges into which the metal holder of the weatherstripping may be inserted. This may be done by inserting the metal holder into the end of each channel and then moving it lengthwise of itself and of said channel. A screw or similar fastening device may be inserted through the metal holder and into the door frame to prevent longitudinal displacement or dislodgment of said

2

weatherstripping relative to the door. The weatherstripping may be detached from the door by simply removing the screws and slipping the weatherstripping lengthwise out of the door frame channels. Replacement weatherstripping may be installed in the manner above described.

It will hereinafter more fully appear that when the rubber is secured to its metal holder, an air-tight and water-tight seal is provided between said rubber and said metal. The rubber strip normally projects at an angle of approximately 45° with respect to the metal holder. When the door is closed, however, the rubber strip bears resiliently against the door jamb. It is thereby bowed inwardly under tension and the angle of 45° is also considerably reduced. Consequently an air-tight and water-tight seal is also provided between the rubber strip and the door jamb. It will further be seen that the method and means of affixing the metal holder of the weatherstripping to the door provide an excellent seal between the weatherstripping and the door. Hence a most adequate and effective weather seal is provided between the door and the door jamb.

An important feature of this invention is the shape of the rubber strip. The angle which it bears relative to the door jamb is also important. The free edge of the rubber strip is tapered or feathered to a knife edge and it projects at an angle of approximately 45° relative to the side of the door jamb. When the door is closed, the knife edge of the rubber strip abuts the door jamb under tension and the rubber strip is bowed to provide a channel between it and the rubber strip holder, which occupies less than 45°. The wind and rain are accordingly deflected by the knife edge of the rubber strip away from the door jamb and into the channel last mentioned.

Preferred forms of the present invention are shown by way of illustration, and not by way of limitation, in the accompanying drawing in which:

Fig. 1 is a front view of a typical door whose frame is made of extruded aluminum and on which the weatherstripping herein described and claimed is installed.

Fig. 2 is a sectional view in perspective of one of the component parts of one preferred form of weatherstripping herein described and claimed, more particularly the metal holder thereof.

Fig. 3 is a simillar view showing both component parts of said weatherstripping, to wit the metal holder and the rubber strip, said rubber strip being shown mounted in the metal holder prior to the operation of bending the metal holder

upon the rubber strip to secure said rubber strip and said metal holder together.

Fig. 4 is a view similar to that of Fig. 3 showing how the rubber strip is secured to the metal holder following the bending operation.

Fig. 5 is a horizontal section through one of the stiles and through the door and door jamb shown in Fig. 1, showing the weatherstripping of Fig. 4 installed in said stile. The door is shown ajar.

Fig. 6 is a view similar to that of Fig. 5 showing the door in closed position and showing the rubber strip of the weatherstripping pressed against the door jamb.

Fig. 7 is a perspective view of a strip of aluminum or other suitable metal which may be bent to form the metal holder of the weatherstripping made in accordance with the second form of this invention.

Fig. 8 is a sectional view in perspective of the metal holder which was bent and formed from said metal strip.

Fig. 9 is a view similar to that of Fig. 8 showing the rubber strip mounted in said metal holder prior to the bending operation which secures said rubber strip to said metal holder.

Fig. 10 is a view similar to that of Fig. 9 showing the rubber strip secured to the metal holder following the last mentioned bending operation.

The metal holder **20** shown in Figs. 2, 3 and 4 is an extruded strip of aluminum. It should be understood, however, that although extrued aluminum is the preferred metal for this construction, other metals, equally suitable for weatherstripping purposes, may also be used for the purposes of this invention. Zinc and copper are illustrative of the other metals which may be employed. Regarding the preferred shape of the extrusion, it will be noted that several well defined portions or sections are provided: a bar portion **21** which is approximately half an inch wide and approximately .085 of an inch thick, a second bar portion **22** which is integral with the first bar portion **21** along one of its side edges, said second bar portion being approximately a quarter of an inch wide and approximately .040 of an inch thick, the bottom surfaces of the two bar portions being flush with each other, and a flap portion **24** which is somewhat less than a quarter of an inch wide and .040 of an inch thick. A narrow neck portion **25** is integral with bar portion **22** and flap portion **24** along one of their respective side edges and said narrow neck portion is approximately .010 of an inch high. A pocket or channel **23** is accordingly formed atop bar **22**, between the upwardly jutting shoulder of bar **21** and narrow neck portion **25**. It will also be noted that small grooves **26** are formed along the under side of flap **24**.

Rubber strip **28** is approximately five eighths of an inch wide and approximately one thirty second of an inch thick. It is tapered or feathered along one of its edges to form what may be described as a knife edge **28**. This rubber strip may be made of natural rubber or synthetic rubber or any other suitable resilient and weather resistant material.

Fig. 3 clearly shows how rubber strip **27** is inserted into metal holder **20** preparatory to the flap bending operation which secures said strip to said holder. More specifically, the untapered edge of the rubber strip is placed in channel **23** immediately adjacent neck portion **25** of the holder. The flap **24** is then bent downwardly from an angle of approximately 45° to a substantially parallel position with respect to bar portion **22**. A portion of rubber strip **27** is thereby pressed into channel **23**, between downwardly bent flap portion **24** and bar portion **22**. Some of the rubber swells into grooves **26** of the flap and some of the rubber is caught between the free edge of the flap and the shoulder of bar **21** which lies opposite neck portion **25**. The rubber strip is thereby very tightly secured to the metal holder and its free portion is caused to project at an angle of approximately 45° above bar portion **21**.

Metal holder **30** has substantially the same features as metal holder **20** but its construction is somewhat different. It is made of a strip **31** of aluminum or other suitable material such as copper or zinc. This strip is approximately one and seven sixteenths of an inch wide and one thirty second of an inch thick. About fifteen thirty seconds of an inch of this strip is bent over upon itself along one side edge thereof and approximately one quarter of an inch of said strip is bent over to the extent of about 135° along the other side edge thereof. A bar portion **32** is accordingly formed between the two bends and the first mentioned bent portion constitutes a bar **33** which lies superimposed upon said bar portion **32**. The second mentioned bent portion constitutes a flap **34** which is connected to bar portion **32** by means of a bight **35**. Flap **34** is separated from bar portion **32** by an angle of approximately 45°.

It will be seen that a channel similar to channel **23** is formed atop bar portion **32**, between the free edge of bar portion **33** and bight **35**. Rubber strip **27** may be inserted into said channel with its uptapered side edge in abutment with the inner curve of said bight **35**. Flap **34** may be bent downwardly upon the rubber strip and into parallel relation with respect to bar portion **32**. The rubber strip is thereby tightly secured to the metal holder and its tapered side edge projects above bar portion **33** to the extent of approximately 45°.

Door jamb **40** and door **42** are intended to illustrate a typical installation. The door frame is made of extruded aluminum and stile **41** is illustrative of the many extruded forms which are commonly used in door constructions. The stile is provided with a pair of offset flanges **43** and **44** respectively which provide a channel between them. Figs. 5 and 6 clearly show how the weatherstripping above described may be attached to the extruded stile. The weatherstripping is pre-cut to the length of the stile and it is then inserted lengthwise into the channel behind offset flanges **43** and **44**. These flanges engage the metal holder of the weatherstripping and prevent transverse dislodgment or displacement thereof. To prevent longitudinal dislodgment of the weatherstripping, screws **45** may be employed to secure the metal holder of the weatherstripping to the stile and more particularly to the cross bar or web **46** of said stile.

Fig. 5 shows the door in partly open position and Fig. 6 shows it in closed position. It will be noted that when the door is in open position, the rubber strip **27** of its weatherstripping projects outwardly at an angle of approximately 45°. When the door is in closed position, the rubber strip bears against the door jamb with its knife edge, and since there is insufficient space between the door and the door jamb for the rubber strip to project outwardly at an angle of approximately 45°, the consequence is that the rubber strip is caused to bow inwardly in the manner shown in Fig. 6. The knife edge of the rubber strip,

pressing against the door jamb, provides a tight seal which wind and rain cannot penetrate. The wind and rain are therefore deflected into the pocket formed between the concave side of the bowed rubber strip and the metal holder, and since there is an air-tight and water-tight seal between the rubber strip and the metal holder, the wind and rain cannot enter the house.

It will be understood that the foregoing is illustrative of the basic principles of the invention and that many modifications and changes may be had both in construction and in method and means of installation within the broad scope and spirit of the invention.

I claim:

1. Weatherstripping of the character described, comprising a substantially flat metal bar, a channel formed in said bar longitudinally thereof, a flap formed on said bar along one side edge of said channel and extending across said channel to the opposite side edge thereof, a shoulder formed on said bar along said opposite side edge of the channel, and a rubber strip having one side edge secured in said channel under said flap, and having its opposite side edge projecting outwardly from said channel, said rubber strip being pinched between the flap and the shoulder to hold its outwardly projecting side edge at an acute angle relative to the bar.

2. Weatherstripping in accordance with claim 1, wherein the bar, the flap formed along one side edge of the channel and the shoulder formed along the opposite side edge of the channel, are all integral with each other and constitute a single extrusion.

3. Weatherstripping in accordance with claim 1, wherein the bar, the flap formed along one side edge of the channel and the shoulder formed along the opposite side edge of the channel, are all integral with each other and formed from a single metal strip, one side edge of said metal strip being bent over into spaced, substantially parallel relation to the main body of said strip to form the flap, the opposite side edge of said metal strip being bent over flat upon the main body of said strip to form the shoulder.

4. Weatherstripping in accordance with claim 1, wherein the outwardly projecting portion of the rubber strip is tapered to a knife edge along its entire length.

HENRY W. SIDDEN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,106,322	Harnly	Jan. 25, 1938
2,166,993	Harnly	July 25, 1939
2,528,264	Coppock et al.	Oct. 31, 1950