F. R. VORDERMARK.

WEATHER STRIP.

APPLICATION FILED MAR. 13, 1908.

906,756. Patented Dec. 15, 1908

Fig. 1.

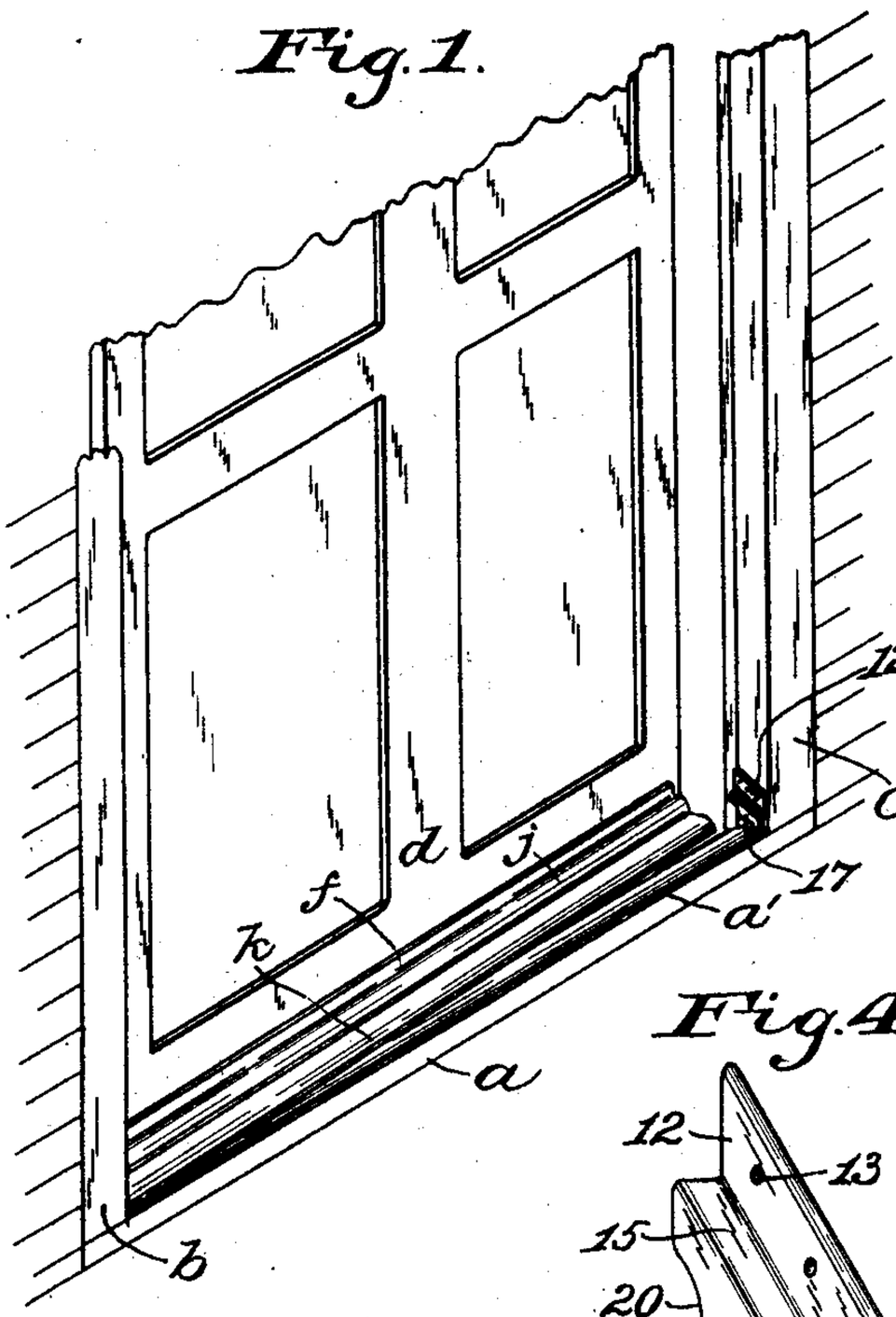


Fig. 2.

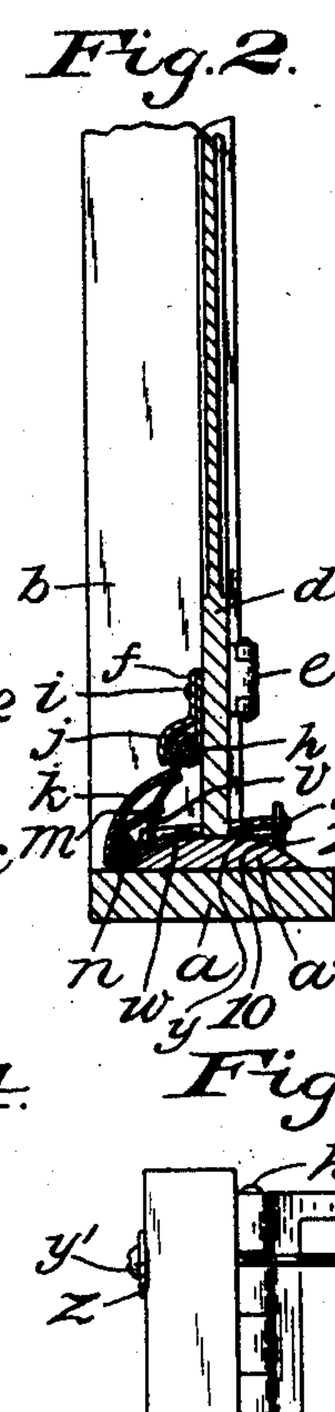


Fig. 3.

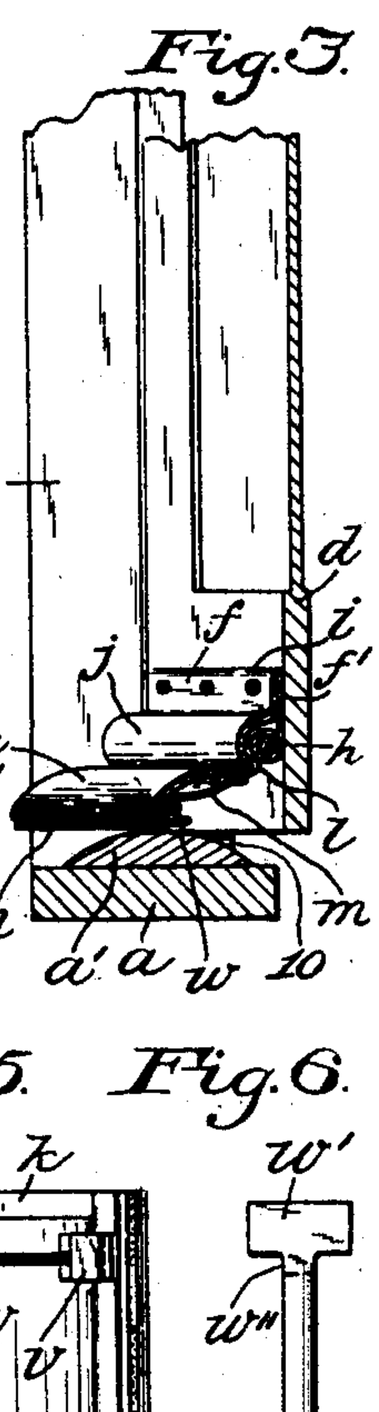


Fig. 4.

Fig. 5.

Fig. 6.

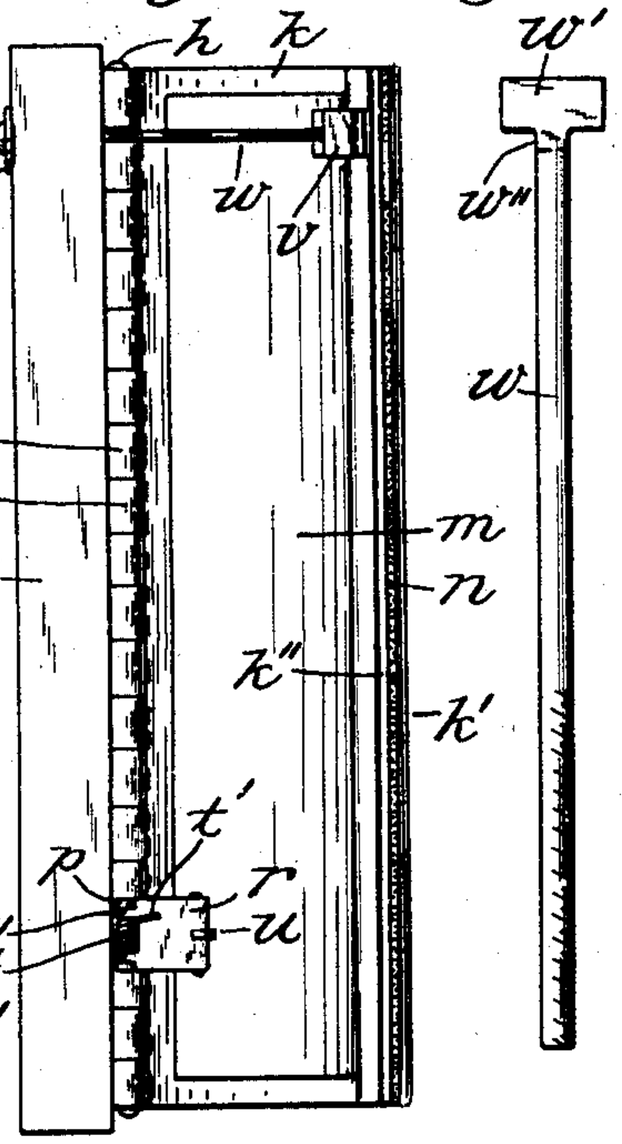


Fig. 7.

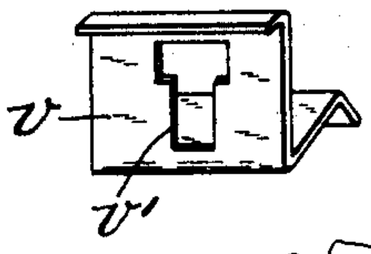
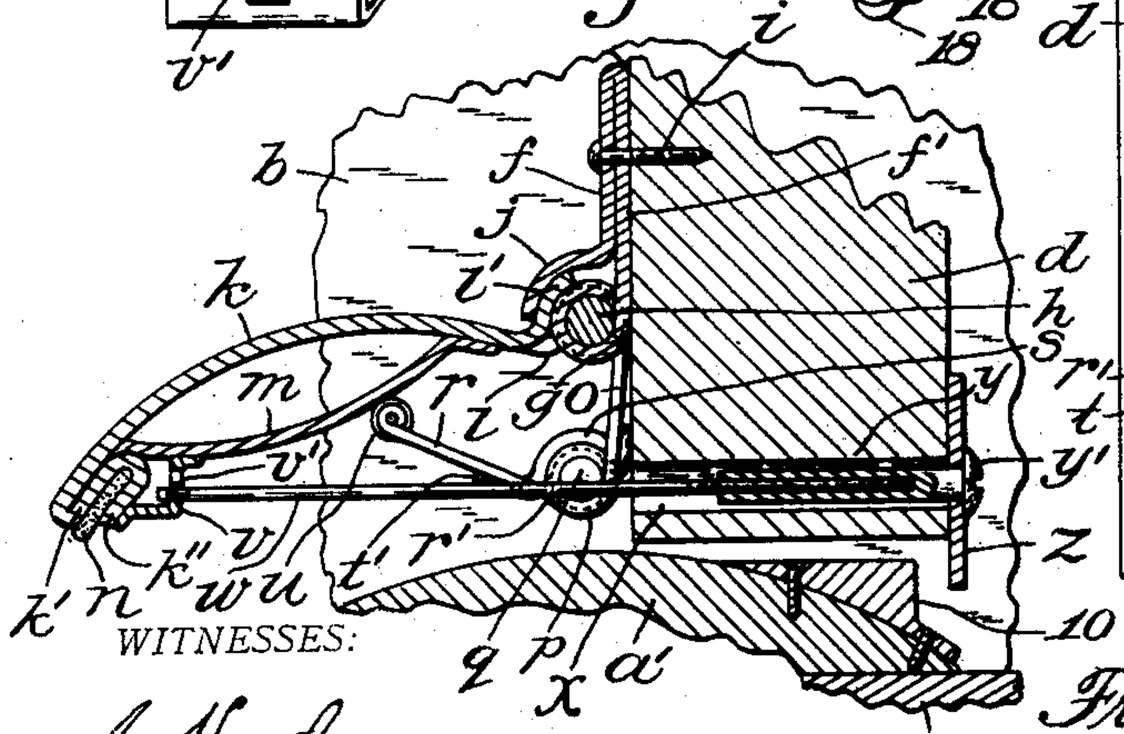


Fig. 8.



WITNESSES:

J. H. Gardner.

M. D. Beaty.

INVENTOR:

Fred. R. Vordermark.

BY

E. T. Silvius,

ATTORNEY.

UNITED STATES PATENT OFFICE.

FREDRICK R. VORDERMARK, OF INDIANAPOLIS, INDIANA.

WEATHER-STRIP.

No. 906,756. Specification of Letters Patent. Patented Dec. 15, 1908.

Application filed March 13, 1908. Serial No. 420,928.

To all whom it may concern:

Be it known that I, FREDRICK R. VORDERMARK, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Weather-Strips; and I do declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to devices for preventing rain or snow or dust from being blown under doors or window sashes arranged to swing on hinges similarly to doors, the invention having reference particularly to weather strips of the above-mentioned character that may be automatically drawn down onto the door sill or window sill when the door or window is closed.

The object of the invention is to provide an improved weather strip of the above-mentioned character that will be adapted to be manufactured of metal so as to be strong and durable and economical without costing excessively for manufacturing the same, a further object being to provide improvements whereby the weather strip may be forced tightly throughout its length onto the door sill, even though the door sill be uneven or not entirely parallel with the weather strip when mounted on the door.

With the above-mentioned and other objects in view, the invention comprises certain features of construction in weather strips and in the parts and combinations and arrangements of parts thereof as hereinafter particularly described and defined in the appended claims.

Referring to the drawings Figure 1 is a fragmentary perspective view of a door and its frame provided with the improved weather strip and operating devices thereof, the door being partially open; Fig. 2, a vertical sectional view with the door closed; Fig. 3, a vertical sectional view with the door partially open; Fig. 4, a perspective view of the guide for the end of the weather strip that is at the swinging side of the door; Fig. 5, an inverted plan view of the improved weather strip mounted on the door; Fig. 6, a side view of the pull rod for the weather strip; Fig. 7, a perspective view of the anchor plate for the pull rod; and, Fig. 8, a fragmentary sectional view showing the door as when nearly closed with respect to the door sill.

Similar reference characters in the various figures of the drawings designate corresponding elements or features of construction.

In a practical embodiment of the invention, galvanized sheet iron is preferably made use of wherever found suitable, the devices comprising a base member for attachment to the door and having an apron hinged thereto and normally spring-pressed upward to clear the door sill, and other features, all of which will be hereinafter described in detail.

In the drawings *a* designates a door sill and *a'* the water shed thereon; *b*, the side of the door frame for supporting the door; *c*, the opposite side of the door frame; and *d*, the door connected by hinges *e* to the frame part *b*. The term door is intended to include variously constructed swinging doors such as those having glass panels and serving as windows.

The base member of the improved weather strip is formed of a strip of sheet metal doubled over upon itself and forming two plates *f* and *f'*, the lower portion of the plate *f'* having loops *g* turned over a hinge rod *h*, and the two plates are secured to the outer side of the door by screws *i* in the usual position suitable for the purpose. The lower portion of the plate *f* has a curved extension *j* extending above the hinging devices. An apron main part *k* is formed of sheet metal and shaped so as to be concavo-convex in section and is arranged with the convex surface uppermost, one edge of the apron having loops *l* turned over the rod *h* and also having curved lips *l'* extending under the extension *j* which is adapted to exclude the elements from the hinging devices and prevent dust from being blown through the relatively small openings made incidentally to the formation of the hinging loops. The apron comprises also a reinforcing strip *m* that is concavo-convex in cross-section, and is placed with its concave side opposite the concave under side of the apron proper or main part *k* thereof and suitably secured thereto. The free edge of the main part *k* is turned under so as to form a lap *k'* against the part *m* and further turned over to form a lap *k''* which secures a packing strip *n* of felt or other suitable material against the lap *k'*, the packing strip projecting beyond the free end of the apron so as to bear on the

door sill or water shed thereon when the apron is depressed. Any suitable type of spring may be provided for normally holding the weather strip upward when the door is open, but it is preferable to employ the improved devices comprising a plate *o* that is connected suitably to the hinge rod *h* and extends downward and has loops *p* turned over a hinge pin *q;* a plate *r* having loops *r'* turned over the hinge pin, and having also a curved extension *s* that normally bears against the plate *o* to serve as a stop, to limit the upward movement of the plate *r* which is normally forced upward by a spring *t* coiled on the hinge pin, and having an arm *t'* engaging the under side of the plate *r*, the free or swinging end of the plate *r* having a roller *u* mounted thereon that engages the under side of the part *m* of the apron.

An anchor plate *v* is suitably attached to the under side of the apron at or near the free edge thereof and has a slot *v'* therein receiving a pull rod *w*, having a T-head *w'* and square portion *w''* adjacent to the head adapted to fit in the slot *v'* to prevent the rod from turning, the head engaging the inner side of the plate. The lower portion of the door has a hole *x* therein into which the pull rod extends, and a hollow screw *y* is screwed onto the pull rod in the hole and has a suitable head *y'* for turning the screw, and also for engaging a plate *z* that is placed on the hollow screw, the plate *z* extending below the bottom of the door and being adapted to engage a stop block 10 that is secured to the inner side of the water shed *a'* for drawing the apron down onto the water shed, the pull rod being adjustable longitudinally by urning the hollow screw *y* so that the proper amount of tension may be had to obtain the desired result. When the door is open, the plate *z* bears against the inner side of the door and limits the upward movement of the apron.

The apron may be provided with any desired number of springs, one being shown in Fig. 5 arranged near the swinging edge of the door, and a similar one being shown in Fig. 8 arranged near the opposite end of the door.

The pull rod *w* is arranged near the side of the door that is hinged, and obviously another one may be arranged at the opposite edge of the door if desired, but for controlling the apron at the swinging edge of the door, it is preferable to employ a device on the door frame which is composed of metal plate bent over and forming two plates 11 and 12 through which are holes 13 to receive devices whereby the plates are secured against the frame *c* slightly above the door sill, the plates having angle flanges 14 and 15 respectively which also have angle flanges 16 and 17 respectively, extending downward parallel with the plates 11 and 12, the flanges 16 and 17 being slightly separated and having a roller 18 arranged between them on an axle 19 to engage the main part *k* of the apron, the under edges of the flanges 16 and 17 having a curved portion 20 adapted to fit against the extension *j*, and a curved portion 21 adapted to fit approximately close to the main portion *k* of the apron, so as to exclude dust or snow from the interior of the bulding.

In practical use, the apron will normally rise when the door opens, and when the door is nearly closed so that the apron is over the water shed *a'*, the plate *z* will engage the stop block 10 and pull on the free edge of the apron while the door moves further and closes entirely. It is designed that when the door has closed entirely, the apron being in engagement with the roller *k* will be forced down at the free end of the door onto the water shed *a'*, and at the hinged edge of the door the hollow screw *y'* should be adjusted so that the pull rod will draw that end of the apron down closely onto the water shed.

Having thus described the invention, what is claimed as new is—

1. A weather strip comprising a base part, a hinge rod connected to the base part, an apron consisting of a concavo-convex main part connected to the hinge-rod and a concavo-convex reinforcing member secured to the main part with the concave side thereof opposite to the concave side of the main part, the free edge portion of the main part being turned under against the convex side of the reinforcing member; a spring-pressed plate provided with a roller that engages the convex side of the reinforcing member, and a pull rod connected with the reinforcing member.

2. A weather strip comprising a base part, an apron hinged to the base part and comprising a concavo-convex main part and a reinforcing member that is concavo-convex and arranged with its concave side opposite to the concave side of the main part, the free end portion of the main part being turned under against the reinforcing member and also turned back in the opposite direction to form a lap, a packing strip secured between the turned-under portion and the lap, an anchor-plate attached to the reinforcing member and also to said lap, a pull rod connected to the anchor-plate, and a spring-pressed plate provided with a roller that engages the convex side of the reinforcing member.

3. The combination of a door frame, a door hinged to the frame and having a hole in the bottom thereof, a door sill, a water-shed on the sill, a stop block mounted on the water-shed, a base secured to the door and having a curved extension, a hinge rod attached to the base, an apron pivoted to the hinge rod under the extension of the base, a packing strip attached to the apron, a spring plate connected to the hinge rod, a plate

hinged to the spring plate and having a roller mounted thereon that engages the under side of the apron, a spring for pressing the roller against the apron, a pull rod connected to the apron and extending into the hole of the door, a screw on the pull rod and having a head thereon, a plate on the screw in contact with the head and to engage the stop block, a guide on the door frame comprising two plates, and a roller journaled between the two plates to be engaged by the apron.

In testimony whereof, I affix my signature in presence of two witnesses.

FREDRICK R. VORDERMARK.

Witnesses:
ROSE ELLIOTT,
E. T. SILVIUS.