

(No Model.)

C. D. HARTZELL.
WEATHER STRIP.

No. 459,109.

Patented Sept. 8, 1891.

Fig. 1.

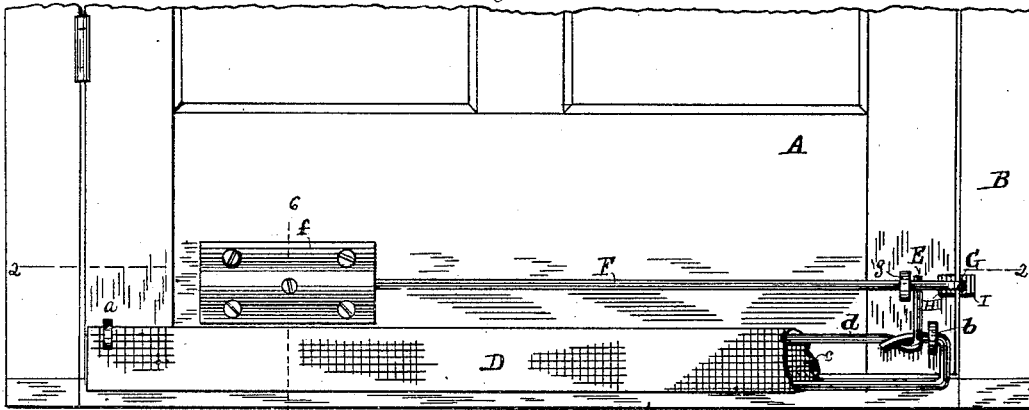


Fig. 2.

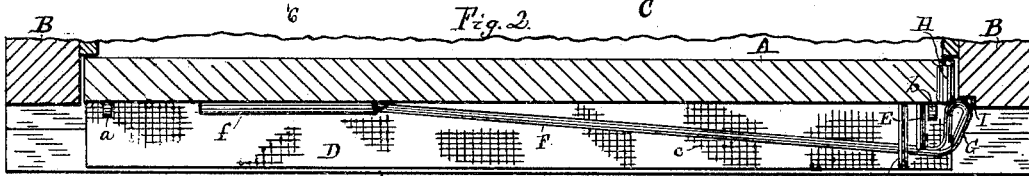


Fig. 3.

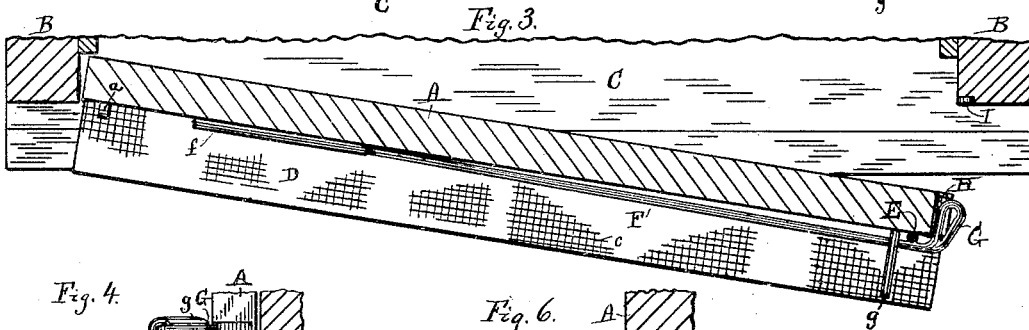


Fig. 4.

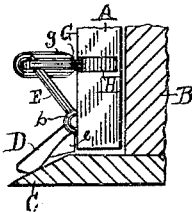


Fig. 5.

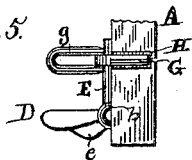


Fig. 6.

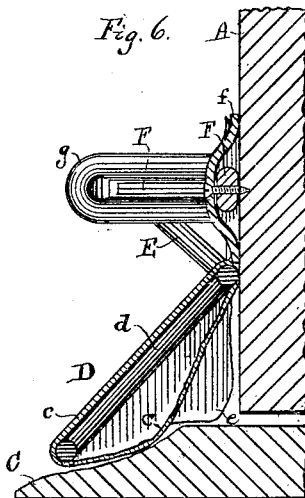
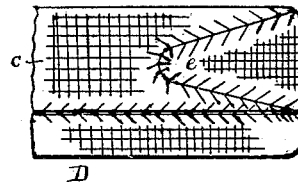


Fig. 7.



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CALVIN DENTON HARTZELL, OF NEWVILLE, PENNSYLVANIA.

WEATHER-STRIP.

SPECIFICATION forming part of Letters Patent No. 459,109, dated September 8, 1891.

Application filed January 23, 1891. Serial No. 378,858. (No model.)

To all whom it may concern:

Be it known that I, CALVIN DENTON HARTZELL, of Newville, in the county of Cumberland and State of Pennsylvania, have invented certain new and useful Improvements in Weather-Strips for Doors, of which the following is a specification.

The present invention relates to weather-strips which are pivoted at the bottom of a door and which when the door is shut automatically assume a position to close the space between the door and its sill. Various styles of weather-strips of this general character have been hitherto devised, the majority of which have been arranged to be placed on the outside of a door—that is, on the side next to the door-jamb—since difficulty has been found in successfully arranging a weather-strip of the automatic character described on the inside of a door. These weather-strips hitherto made have been more or less defective and unsatisfactory, one serious objection being that when the door-sill is worn and made irregular by use the weather-strip ceases to accurately close the space beneath the door. Moreover, it is for many purposes preferable to have the weather-strip located on the inside of the door, since it is then not in the way of a person passing through the door; neither is it exposed to rain or snow if used on an outside door.

Now it is the object of the present invention to overcome the objectionable features of prior weather-strips and to provide a weather-strip which will be simple, inexpensive, and efficient, and which can be successfully used on the inside of a door; and the invention consists in a weather-strip of improved construction adapted and arranged to carry out the objects specified.

The invention is fully illustrated in the accompanying drawings, in which—

Figure 1 is a front view showing the lower portion of a closed door with the improved weather-strip applied thereto, a portion of the weather-strip being broken away to show its construction. Fig. 2 is a horizontal section on the line 2 2 in Fig. 1. Fig. 3 is a sectional view similar to Fig. 2, showing the door ajar. Fig. 4 is an edge view of the weather-strip applied to the closed door, the door-frame being shown in section. Fig. 5 is an edge view

showing the position occupied by the weather-strip when the door is open. Fig. 6 is a vertical section, on an enlarged scale, in the plane indicated by the line 6 6 in Fig. 1. Fig. 7 is a fragmentary view showing the under side of one end of the weather-strip.

In the drawings, A is the door, B is the jamb, and C is the sill.

Near the lower edge of the door is pivoted the weather-strip D. The peculiar construction of the strip D is indicated in Figs. 1 and 6 of the drawings. A rectangular frame *d*, extending the whole width of the door, supports and is covered by a cloth *c*, of felt or other suitable material, the cloth *c* being stretched over the frame and its edges stitched together underneath. The frame *d* may conveniently be formed of a single piece of wire bent into the proper form, the pivoting of the frame being effected by means of any suitable fastenings *a b*, which pass around the upper wire of the frame and are secured to the door. By instrumentalities which will be hereinafter described the pivoted weather-strip D is caused to occupy an elevated position (see Fig. 5) when the door is open and to fall against the door-sill (see Fig. 4) when the door is closed. The cloth *c* of the weather-strip is stretched loosely upon its frame, and consequently when the door is closed and the weather-strip rests against the door-sill the cloth *c* will adapt itself to any irregularities which may exist in the surface of the sill, and thus accurately close the space between the door and the sill. To still more effectively close the space, a loose pocket *e* (see Figs. 4, 5, and 7) is provided at each end of the cloth *c* on the under side, thus preventing the possible entrance of cold air at the ends of the strip.

The means for effecting the automatic elevation and depression of the weather-strip are as follows: At the upper outer corner of the weather-strip D is provided the upwardly-extending lever-arm E, which may conveniently be an extension of the wire frame *d*, (see Fig. 1,) and which preferably projects at right angles to the weather-strip. Normally (when the door is open) the lever-arm E is held in a perpendicular position by means of a spring, and consequently when the door is open the weather-strip D is elevated to a po-

sition at right angles to the door, as clearly shown in Fig. 5. The spring for holding the weather-strip in its elevated position may be of any suitable kind. As illustrated, it consists of a spring wire or rod F, which is secured at its inner end by means of a plate *f*, attached to the door. The end of the wire F passes beneath the plate *f* and is secured by means of a projecting stud on said wire F, which enters an aperture in the plate *f*. (See Fig. 6.) The spring-rod F is guided in its horizontal movements by a guide-loop *g*, which projects from the door close to the lever-arm E on the weather-strip. In its normal position the spring-rod F is nearly parallel with the surface of the door and holds the end of the lever-arm E in contact with the door, as shown in Fig. 3. The several parts occupy the positions shown in this figure as long as the door is open.

In order to permit the weather-strip to drop against the sill when the door is closed, there is provided an arm G, extending inwardly from the end of the spring-rod F and at right angles thereto, which when the door is shut comes in contact with the door-jamb, thereby causing the spring-rod F to bend outwardly and releasing the lever-arm E from the action of the spring. In the edge of the door a groove H is provided, in which the arm G plays. The arm G partially projects from the side of the groove H. (See Fig. 3.) At the same level as the groove H a shallow notch or recess I is formed in the door-jamb, and it is against the base of the recess I that the arm G presses when the door is shut. When the lever-arm E is released by the outward movement of the lever G and the consequent displacement of the spring-rod F, the weather-strip falls by gravity against the door-sill. One object of the groove H and recess I is to form a rest for the end of the arm G when the door is shut. It will be seen that when the door is shut the spring F and its arm G will be held quite firmly and kept from vertical displacement by reason of the groove and recess I in connection with the guide-loop *g*. The groove H also serves as a sheath for the arm G, so that there is no objectionable protrusion of the arm G when the door is open.

It will be seen from the foregoing description that while the improved weather-strip is exceedingly simple in its construction and operation it is arranged to very effectually and satisfactorily accomplish the purposes for which it is designed.

I claim as my invention—

1. A weather-strip for doors, composed of an open frame *d* and a cloth *c*, stretched upon said frame, substantially as set forth.

2. A weather-strip for doors, composed of a frame *d* and a cloth *c*, loosely stretched over

said frame, said cloth being provided with end pockets *e e* on its under side, substantially as set forth.

3. A weather-strip for doors, consisting of a rectangular open frame pivoted near the bottom of the door, and a cloth loosely stretched upon said frame and adapted to lie upon the door-sill when the door is closed, substantially as set forth.

4. In a weather-strip for doors, an open frame pivoted near the bottom of the door, and a cloth loosely stretched upon said frame, in combination with a spring which elevates said frame when the door is open, and means for rendering said spring inoperative when the door is closed, substantially as set forth, whereby when the door is closed said frame drops by gravity against the door-sill.

5. A door, a weather-strip pivoted at the bottom of said door on the side away from the door-jamb, and a spring which holds said weather-strip in an elevated position when the door is open, in combination with means co-operating with the door-jamb for rendering said spring inoperative when the door is closed, substantially as set forth.

6. The door A, the weather-strip D, pivoted to the bottom of said door on the side away from the door-jamb, and the lever-arm E, carried by said weather-strip, in combination with the spring F, carried by said door, which acts upon said lever-arm E to elevate the weather-strip when said door is open, and the arm G, connected with said spring and projecting toward the door-jamb, so as to strike the door-jamb when the door is closed, whereby when the door is closed said spring is caused to release said lever-arm E, substantially as set forth.

7. The door A, the weather-strip D, pivoted to the bottom of said door on the inside, the lever-arm E, carried by said weather-strip, and the spring-rod F, which acts upon said lever-arm E to elevate the weather-strip when the door is open, said spring-rod carrying an inwardly-projecting arm G, in combination with the guide-loop *g*, through which said spring-rod F passes, the groove H in the edge of the door, in which said arm G plays, and the recess I in the door-jamb, which receives the end of said arm G when the door is shut, the arm G operating to render the spring-rod F inactive when said arm comes in contact with the base of said recess I, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

CALVIN DENTON HARTZELL.

Witnesses:

I. B. DAVIDSON,

C. V. HEFFLEFINGER.