

D. DOAN.
WEATHER-STRIP.

No. 170,534.

Patented Nov. 30. 1875.

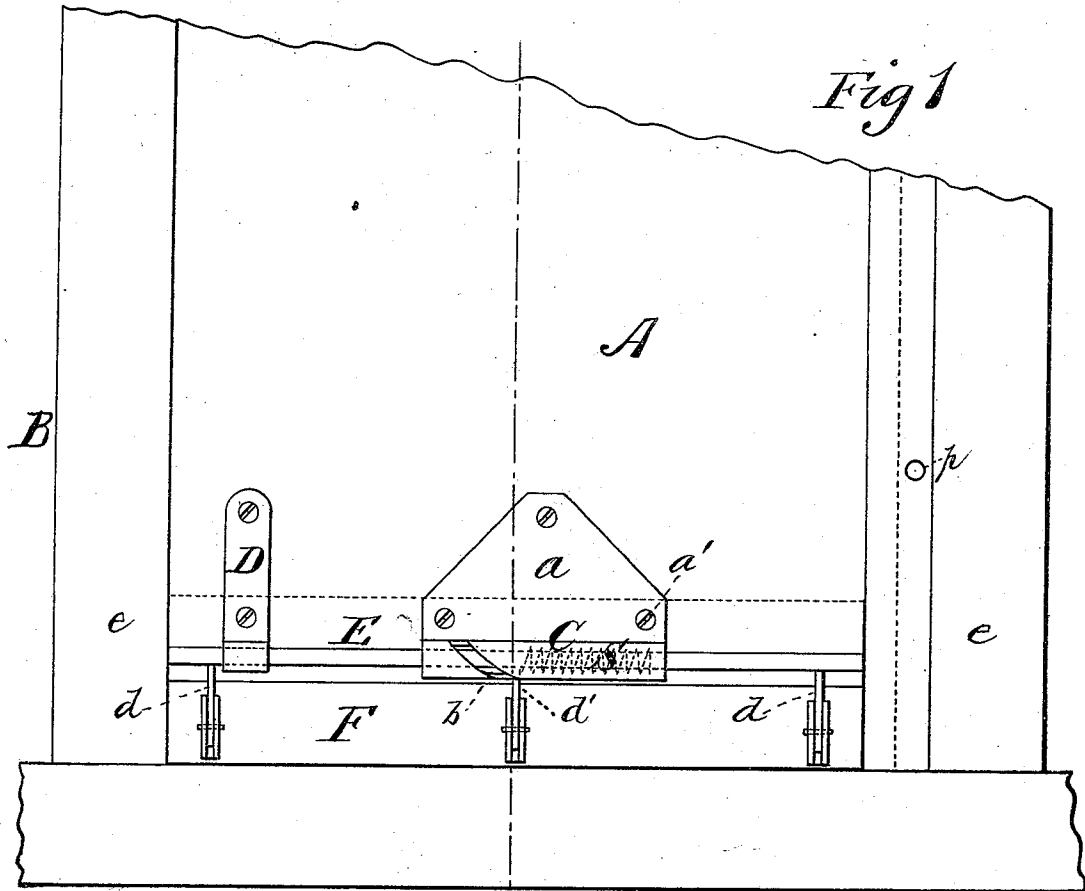


Fig 2

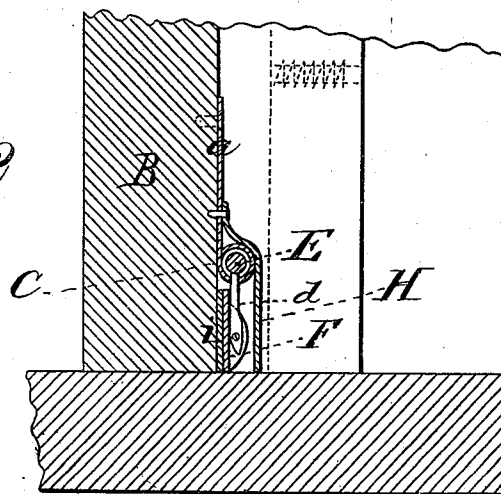


Fig 3

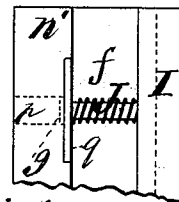
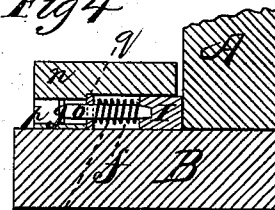


Fig 4



WITNESSES

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UNITED STATES PATENT OFFICE.

DANIEL DOAN, OF SPRINGVILLE, IOWA.

IMPROVEMENT IN WEATHER-STRIPS.

Specification forming part of Letters Patent No. **170,534**, dated November 30, 1875; application filed October 30, 1875.

To all whom it may concern:

Be it known that I, DANIEL DOAN, of Springville, in the county of Linn and State of Iowa, have invented a new and valuable Improvement in Weather-Strips; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a front view of my weather-strip, and Fig. 2 is a sectional view of the same.

This invention has relation to improvements in weather-strips, which are applied to the lower edge of a door for the purpose of preventing wind or rain and snow from penetrating into a building through the crack between the door and the sill.

The nature of the invention consists in combining, with an obliquely-slotted sheath rigidly secured to the door at or near its lower edge, an axially-rotating and endwise-movable rock-shaft, sustaining the weather-strip and rotating in the said sheath, which shaft projects out beyond the hinged edge of the door, and strikes against the jamb when the said door is closed, whereby a means is provided for automatically thrusting the edge of the strip against the sill with the desired effect. It also consists in combining, with the slotted sheath and the endwise-movable and rotating shaft supporting the weather-strip, a spring, arranged upon the said shaft within the sheath, and compressed by the endwise movement of the former occurring when the door is closed, which spring will react when the door is again opened, and will thrust the end of the said shaft out beyond the hinged edge of the door in proper position for operating the weather-strip, as will be hereinafter more fully explained.

In the annexed drawings, the letter A designates a door hinged in the customary manner in a door casing or frame, B. C designates a tubular sheath, made of any suitable metal, which is secured by means of a tang, *a*, and screws *a'*, near the lower edge of the door, and which is provided with an oblique transverse slot, *b*, the object of which will be hereinafter set forth.

The door may also be provided with one or more plates D, having a tubular lower end, through which and through the sheath is passed a cylindrical shaft, E. This shaft is endwise movable in relation to its bearings C E, and it is provided with metallic arms *d d'*, to the outer ends of which are hinged a weather-strip, F, the construction of which will be hereinafter explained. Arm *d'* projects outward through slot *b* in the stationary sheath; consequently, the said slot being oblique and transverse, when the said shaft is moved endwise it will also rotate axially, and bring the lower edge of the weather-strip in forcible contact with the sill of the door-frame. As shown in Fig. 1, both the shaft and strip fit snugly between the door-jambs *e* when the door is closed, but when it is opened a coiled helical spring, S, arranged in the sheath, which had been compressed by the endwise movement of shaft E, will, in reacting, force the end of the shaft out beyond the hinged edge of the door, at the same time imparting to it a degree of rotation sufficient to raise the lower edge of the strip from the floor. The effect of the projection of shaft E, above described, is that in closing the door it will strike the jamb, and then receive endwise movement and axial rotation, the latter causing the strip to vibrate vertically with its edge in close contact with the door-sill. The strip is, preferably, of metal, though it may be made of wood, and it is provided upon its under side with a leather, rubber, or other suitable flexible covering, *i*, which, when brought into contact with the sill, will render the joint of the strip therewith absolutely water and air tight.

In practice also I propose to use an inclined apron, H, of any suitable material, which, being secured to the door above shaft E and its attachments, will effectually protect them from being clogged by sleet or snow.

The advantage gained by raising the strip when the door begins to open will be readily appreciated when it is considered that the pressure of the strip against the sill is of considerable force, and that the friction which would ensue, were it not raised, would speedily wear away the contacting-surfaces of the strip and door-sill, rendering their joint leaky, and would add considerably to the effort required

to open the door. In order to make the door equally weather-proof upon its top and lateral edges, as well as at its bottom, I have devised the following: The stop-rails *n n'* at the top and sides of the door-frame, against which the door abuts when closed, are rabbeted upon their faces next the frame, and upon the edges against which the door rests, forming a recess, *f*, between the said rails and the door-frame, within which is placed a wooden strip, *I*, provided upon one edge, with two or more metallic pins, *o*. These pins extend through perforations *p* made in the stop-rails, and are held to their engagement therewith by being passed through a metallic plate, *q*, secured over perforations *p*, and an enlarged head, *g*, formed on the free ends of the said pins, which prevents their being drawn through the said plate. Strips *I* are forced out of the recesses by means of helical springs *J*, arranged on the said pins, and when the door is open will hold the said strips in this position; but when the door is closed springs *J* will yield, allow the strips to enter into the recesses, and will hold them firmly against the door, thus shut-

ting out currents of air, and preventing snow from drifting or rain from beating into a hall or apartment.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a weather-strip, the combination, with a tubular obliquely-slotted sheath, *C*, of the rotating and endwise-movable shaft *E* supporting the weather-strip, substantially as specified.

2. In combination with an endwise-movable and axially-rotating rod, *E*, and the obliquely-slotted sheath *C*, the spring *S*, arranged in the said sheath, substantially as specified.

3. The combination, with the rotating and endwise-movable shaft *C*, having arm *d'*, of the sheath *C*, having oblique transverse slot *b*, substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

DANIEL DOAN.

Witnesses:

N. L. F. PECK,
V. CRAIGHEAD.