

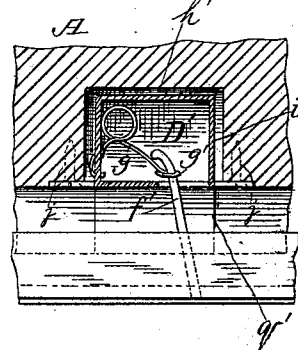
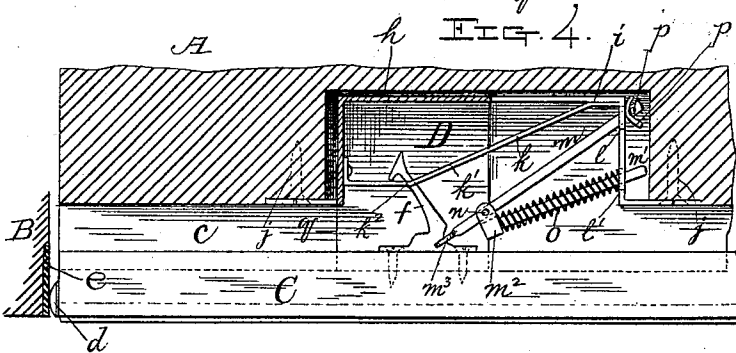
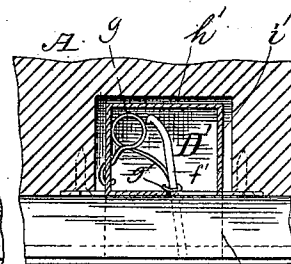
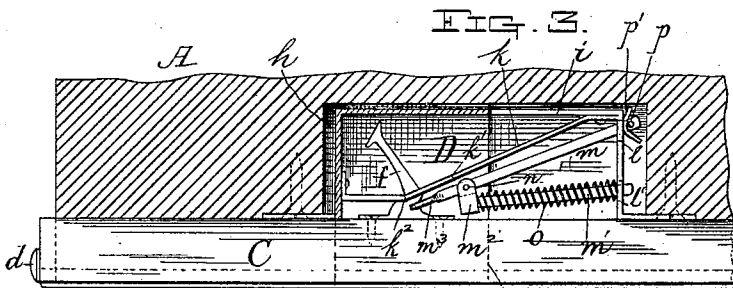
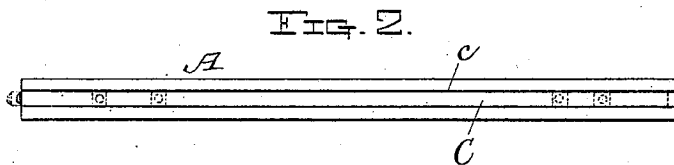
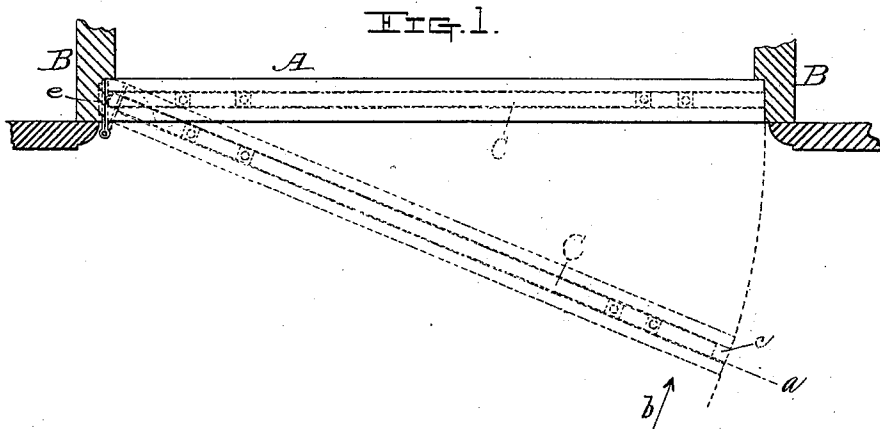
(No Model.)

C. M. HAVEN.

DEVICE TO BE SUBSTITUTED FOR THRESHOLDS.

No. 342,829.

Patented June 1, 1886.



Witnesses;

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# UNITED STATES PATENT OFFICE.

CHARLES M. HAVEN, OF WORCESTER, MASSACHUSETTS.

## DEVICE TO BE SUBSTITUTED FOR THRESHOLDS.

SPECIFICATION forming part of Letters Patent No. 342,829, dated June 1, 1886.

Application filed November 9, 1885. Serial No. 182,202. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES M. HAVEN, of Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Devices to be Substituted for Thresholds; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a horizontal section of a portion of a door-frame and its casings, showing also a plan view of a door with my improved device applied thereto, said door being shown closed by full lines and partly open by dotted lines. Fig. 2 represents a bottom view of the door shown in Fig. 1. Fig. 3 represents a vertical section through the lower part of the door, taken at the point indicated by line *a* in Fig. 1, looking in the direction indicated by the arrow, same figure, showing a side view of my aforesaid improved device, with the various parts of said device in the positions that they occupy when the door is open or ajar, as indicated by dotted lines in Fig. 1; and Fig. 4 represents a similar view to that shown in Fig. 3, showing the various parts of the device in the positions that they occupy when the door is closed, as indicated by full lines in Fig. 1.

The object of my invention is to provide a substitute for ordinary thresholds; and it consists in mechanism for automatically raising and lowering a weather-strip fitted in the bottom edge of a door by the operation of opening and closing said door, as hereinafter more fully set forth.

In order that others may fully understand my invention to make and use the same, I will now proceed to describe it more in detail.

In the drawings, A represents so much of a door as is necessary to illustrate my improvements thereon; B, part of the frame in which it is hung; C, a weather-strip fitted in slot or groove *c* in the bottom edge of said door, and D D' the mechanism for operating said strip C up and down by the operation of opening and closing the door, as hereinafter described. The end of strip C, upon the side that the door is hung, is provided with a button or striker, *d*, which, when said door is closed,

strikes against a plate, *e*, fastened opposite to the same in the frame B.

To the top or upper edge of the weather-strip C are fastened two hooks, *f f'*, of peculiar shape. The hook *f* is connected with the mechanism D, and the hook *f'* with the spring *g* of the part D' of said mechanism. The mechanism D D' is fitted in recesses or chambers *h h'*, formed in the door, the same being a continuation of the slot or groove *c* from the sides thereof for a sufficient distance up and to either side to receive said parts aforesaid. Said mechanism is supported and held in place by the skeleton frames *i i'*, fastened in position by means of the screws *j*. To the inside of the frame *i* is secured an angular part or plate, *k*, having a central slot in the same from the point *k'* to the point *k''*, and of sufficient width to receive the fork *f* and admit of its easy operation up and down in the same. The inner end of frame *i* is provided with two openings, *l l'*, (shown by dotted lines,) in which are held the outer ends of two rods, *m m'*. The inner end of the rod *m'* is provided with a slotted head, *m''*, which straddles the rod *m*, and by means of which said rods are hinged together at that point by passing a pin, *n*, through said slotted part and the rod *m*. Over the rod *m'*, between the frame *i* and slotted head *m''*, is fitted a spiral spring, *o*, for producing a forward and upward pressure on the rod *m*, and said rod *m* is provided with a forked inner end, *m''*, which straddles the base end of the hook *f*, and with a pin, *p*, at its outer end, outside of frame *i*, for holding it against the forward pressure of spiral spring *o*. In this instance I also use a small angular plate, *p'*, between said pin and the frame *i*, having an opening through the same for the rod *m*; but it may be dispensed with, if preferred.

The various parts D, which operate in connection with the hook *f*, constitute the main operating mechanism of my device, the parts D' simply acting as an auxiliary thereto in depressing the weather-strip, as hereinafter described. The latter consists simply of the peculiarly-shaped spiral spring *g*, which is fastened at one end to the outer end of frame *i'*, near the bottom thereof, and its other end provided with a loop, *g'*, which fits over the hook *f'*, as shown in the drawings.

When the door is open, as shown by dotted

lines, Fig. 1, the aforesaid parts D D' of my device occupy the positions shown in Fig. 3, and the weather-strip C projects a short distance beyond the side of the door next to the 5 striker-plate *e*. Therefore, when the door is closed, as shown by full lines, Fig. 1, the striker *d* comes in contact with said plate *e* and forces the strip C forward so that its ends are flush with the side edges of said door. Said operation 10 also carrying the inclined strip-holding hooks *f f'* forward allows the strip to be forced down by the resisting or counter-pressure of the springs *o g* into the position shown in Fig. 4. In said operation of forcing down the strip C 15 it will be seen that the rod *m* acts as a fulcrum-lever for said strip and the spring *o* its depressing power, while the hook *f* acts simply as a guide for the strip and bearing for the inner end of the rod or lever *m* aforesaid. As soon 20 as the pressure is released upon the end of the strip C by opening the door, the spring *o* forces up the inner end of lever *m*, and consequently the strip and its hooks *f f'*, and at the same time carries them forward, owing to 25 the leverage of said lever *m*, into their normal positions. (Shown in Fig. 3.)

I find in practice that the device D is sufficient for raising the strip in an ordinary inside door, but not sufficient to properly force 30 it down, and therefore employ the spring *g* and hook *f'* to assist in said latter operation. Said hook being arranged upon an incline toward said spring *g*, when the strip is forced forward the counter strain of the spring causes 35 its looped end to slide on the hook, which, in connection with its downward pressure, produces the above result.

Upon large doors requiring long weather-strips I dispense with the parts D', and in 40 lieu thereof employ another device, D, while upon quite narrow doors I use only one of said devices D without the device D', arranging said device D in the latter instance near the center thereof.

45 Although the strip is held in a secure man-

ner from falling out, it may be readily removed, if desired, by simply forcing back the hook *f*, so as to be withdrawn from its slot in the part *k* of frame *i*.

As will be observed by Figs. 3 and 4, I employ 50 guide-plates *q q'* upon each side of the frames *i i'*, to hold the strip C in its proper vertical position as it is worked up and down independent of the sides of the slot or groove *c*. They may be dispensed with, however, if 55 preferred.

I am aware it is not new to use a weather-strip in the bottom edge of a door operated up and down in opening and closing the door by means of mechanism contained within said 60 door, and therefore limit my invention to the special means hereinbefore described for producing the above result.

Having fully described my said invention, what I claim therein as new, and desire to se- 65 cure by Letters Patent, is—

1. The combination, with the bottom of a door grooved and recessed, as described, its frame B, and weather-strip C, provided with the hook *f* and button or striker *d*, of the 70 device D, consisting of the frame *i*, lever *m*, having a forked inner end, and the holding-pin *p*, the rod *m'*, hinged at its inner end to the lever *m*, and having the spiral spring *o*, fitted over the same, substantially as and for the 75 purpose set forth.

2. The combination, with the bottom of a door grooved and recessed, as described, its frame B, and weather-strip C, provided with the hooks *f f'* and button or striker *d*, of the 80 devices D D', consisting of the frames *i i'*, lever *m*, pin *p*, rod *m'*, hinged at its inner end to lever *m*, spiral spring *o*, and spring *g*, all constructed and arranged to operate substantially as shown and described, for the purpose 85 stated.

CHARLES M. HAVEN.

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