

W. D. KNOX.
Weather-Strips.

No. 155,094.

Patented Sept. 15, 1874.

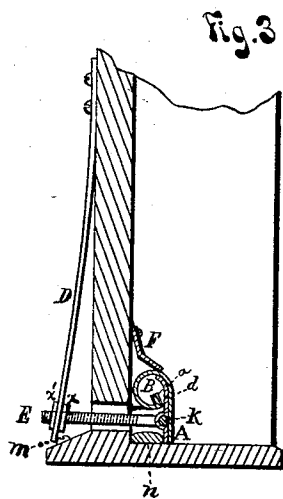
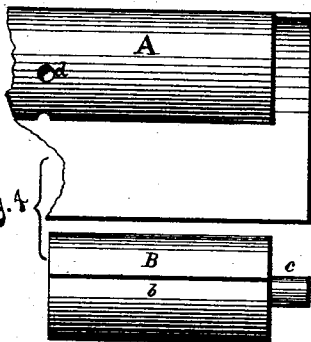
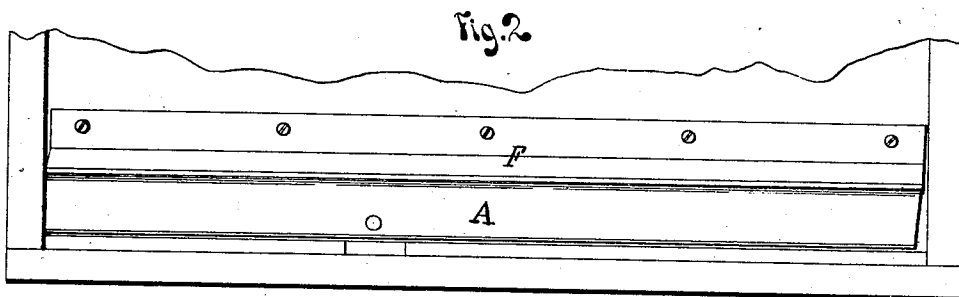
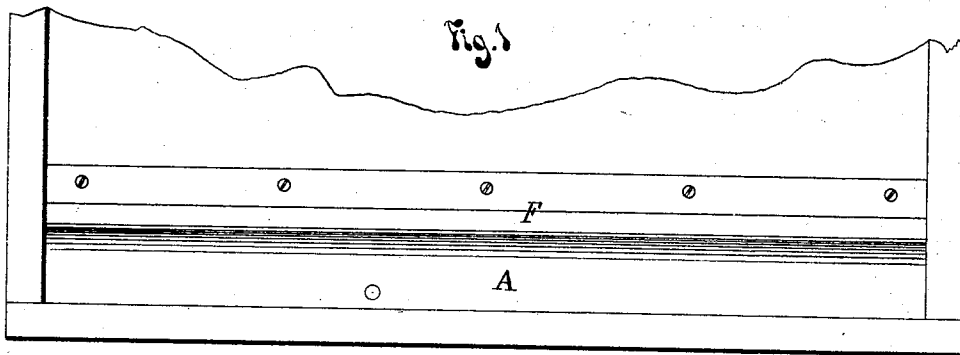


Fig. 5

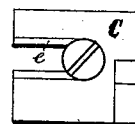


Fig. 7

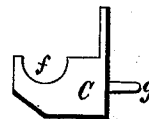


Fig. 6

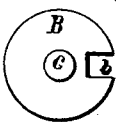
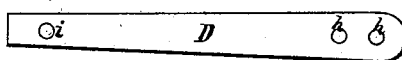


Fig. 8



Witnesses.

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WALTER D. KNOX, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN WEATHER-STRIPS.

Specification forming part of Letters Patent No. **155,094**, dated September 15, 1874; application filed May 23, 1874.

To all whom it may concern.

Be it known that I, WALTER D. KNOX, of Worcester, in the county of Worcester and State of Massachusetts, 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 device with door shut. Fig. 2 is a front view of same with door partly open. Fig. 3 is a transverse vertical section of same with door and door-frame. Fig. 4 is a front view of a journaled plug, and a rear view of one of the ends of the barrel-roller. Fig. 5 is a front view of a slotted elbow or bracket. Fig. 6 is an end view of a journaled plug. Fig. 7 is an end view of a slotted elbow or bracket. Fig. 8 is front view of the flat spring.

My invention is a weather-strip; and consists in an improved construction, the novel arrangement and adjustment of the same to the outside of doors, for the purpose of preventing the ingress of wind, dust, rain, or any other disagreeable element, between the edges of the door and its frame, into halls or rooms of houses or railroad-cars, besides keeping clear the interior and working parts of the device from anything which might destroy its usefulness.

My device embraces the following peculiar features: A barrel-roller, with an overlapping longitudinal edge or lip, and with a slotted and journaled plug at each end; elbows or brackets, each slotted in one arm to attach it to the outside of the door, and having a bearing in the other, in which one of the journaled ends of said roller moves; a flat steel spring, fastened at one end to the inside of the door, and attached at the other to the aforesaid roller; a half-round bar, screwed down upon the door-sill, over the outside edge of which the lip of the aforesaid roller closes down; and a hood, covering the upper and outside surface of said roller, all metallic, and hereinafter more fully described, and illustrated by the accompanying drawings, in which the same

letters designate identical parts of the device in the different figures, respectively.

The letter A represents a tube or hollow roller, formed by means of a metallic strip rolled into a barrel shape, with one longitudinal edge overlapping the other, making a projecting front or lip extending longitudinally the whole width of the door, for a purpose hereinafter stated; the other corresponding edge is bent inwardly and backward into a narrow flange, *a*, for a purpose also hereinafter stated. The rear portion of each end of said roller A is cut away, as shown by Fig. 4, commencing at a point a little behind the uppermost part of its curved end, (when its lip is in a vertical position,) and extending longitudinally inward the length of the journal of a plug in the end of said roller, for purposes also hereinafter stated. In each end of the roller A is placed a short cylindrical metallic plug, B, as shown by Figs. 4 and 6, round the perimeter of which the said roll is curved. Each of said plugs has a deep and narrow slit, *b*, cut its whole length, into which the aforesaid flange *a* is inserted, and by which the whole roller A is held to said plugs. Each plug has also formed upon its outer end a journal, *c*, upon which the plug (consequently the roller held by it) revolves. These plugs are inserted one into each end of said roller, journal outward, so that the outer end of said journal *c* shall be flush with the outer end or edge of the lip of the roller, as shown by Fig. 4. By this arrangement each journal and its bearing, hereinafter described, occupy the space (cut out as aforesaid) directly behind the lip of the roller, which lip thus becomes their cover and protection. Any desired number of depressions, *d*, as shown by Fig. 4, are made in the surface of the rear portion of the roller at the inner ends of the plugs, which causes consequent projections on the concave surface within the roller, to prevent said plugs from slipping farther in than necessary. At each end of the roller is a metallic elbow or bracket, C, as shown by Figs. 5 and 7, one arm of which is a thin plate, with a beveled slot, *e*, cut through it about two-thirds of its length, as shown by Fig. 5, so that the prongs of this fork-shaped plate may be slipped under the head of a screw, which is afterward screwed

tightly down, in order to fasten said bracket to the outside of the door. The other arm is an oblong block-like piece, projecting perpendicularly from the slotted plate, as shown by Fig. 7, into the upper edge of which a semi-circular bearing, *f*, is formed. In these bearings the journals *c* move, and thus become the supports (one at each end) of the roller A.

Projecting from the back of the slotted arm of the aforesaid bracket, and directly behind the other arm, is a short spur, *g*, as shown by Fig. 7, which is pressed into the door, for the purpose of preventing the bracket from slipping out of place after having been screwed down. The letter D represents a flat steel spring, fastened either horizontally or vertically to the inside of the door, as shown by Fig. 3, by means of the screw-holes *h h*, pierced through one end of the said spring, as shown by Fig. 8. Near the other end of the same spring is pierced the hole *i*, through which is passed the threaded end of a screw and hooked bolt, E, as shown by Fig. 3. The other end of said bolt is bent in the form of a rectangular hook, which is introduced into a loop, *k*, consisting of a short strip of sheet metal made with said loop creased in it, and riveted to the inner surface of the lip of the roller A, as shown by Fig. 3, thus attaching said lip and the spring together. A slot, *v*, is cut into the lower edge of the door, of sufficient depth and width to pass the threaded end of the screw-bolt inside the door, after the hooked end has been attached as aforesaid, and also to allow it a free, vertical lever movement, as hereinafter described. Two nuts, *x x'*, acting as checks upon each other, are screwed on the said bolt, one on the inside and the other on the outside of the said spring D, for a purpose hereinafter stated. A round-headed screw, *m*, is driven down in the door-sill, inside the door, to act upon the spring, as hereinafter described. Outside the door, also screwed to the door-sill, closely behind the lip of the roller when closed down, and extending the width of the door, is a half-round metallic bar, *n*, for the purpose of a back piece to support the lower edge of said lip, and make it still more wind and water tight. Lastly, the letter F represents a metallic hood, fastened to the door by screws along its upper margin, and with its lower edge projecting over the center of the roller A, and its concave surface underneath bearing upon the upper convex surface of said roller, for the purpose of additional covering and protection, not only to the roller, but to its end attachments, heretofore described, occupying the space directly behind its aforesaid lip.

The adjustment of my device is as follows: The roller A, constructed and plugged as aforesaid, is fitted within the door-jambs to

the width of the door, and the slot *v* cut into the lower edge of the door where the threaded end of the bolt E is to pass through. The brackets C are then slipped into place under the screw-heads previously and properly situated, as heretofore shown, and the screws set tightly down. The door being then closed, the journals of the roller A (the bolt E being hooked into the loop K) are each placed in its bearing *f*, and the end of the said bolt passed through the slot *v*. When the lip of the roller is brought to a vertical position the place for the half-round bar *n* is marked. The lip aforesaid being again lifted, the said bar is screwed down, and the said lip brought down closely against it, with the end of the bolt, as heretofore described, projecting from the inner side of the door. The screw *m* is then driven down, as heretofore indicated, the spring D fastened in place by means of screws in the holes *h h*; the nut *x* is screwed on the bolt E so far as to cause the foot of the spring D, which has also been put on said bolt by means of the hole *i*, to press upon the head of the screw *m*, and thus draw the lip of the roller A at the same time closely down upon the door-sill, when the nut *x'* is also screwed on the bolt E tightly against the spring. The hood F is now fastened on, as heretofore shown, when the whole device is ready for use.

Its working, which is very simple, is as follows: The opening of the door releases the pressure of the spring upon the screw-head; the unbending of the spring pushes the hooked bolt outward, imparting a lever movement to it by means of the hinged attachment *k*, which, in turn, raises up the lip of the roller, thereby allowing the lower edge of it to freely pass over the bar *n* and the inner portion of the door-sill. By again closing the door a reversed motion is caused, pushing the foot of the spring against the screw-head *m*, which bends the spring, which, in turn, pulls on the hooked bolt, which again closes down the lip of the roller.

Therefore, having fully described and shown the construction, arrangement, adjustment, and working of my device, what I claim as my invention, and desire to secure by Letters Patent, is—

The roller weather-strip A and its plugs B, in combination with the spring D, the brackets C, the bolt E, and the screw-head *m*, substantially as and for the purposes specified.

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

WALTER D. KNOX.

Witnesses:

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