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W. STEGER.

WEATHER STRIP.

(Application filed Feb. 13, 1902.)

(No Model.)

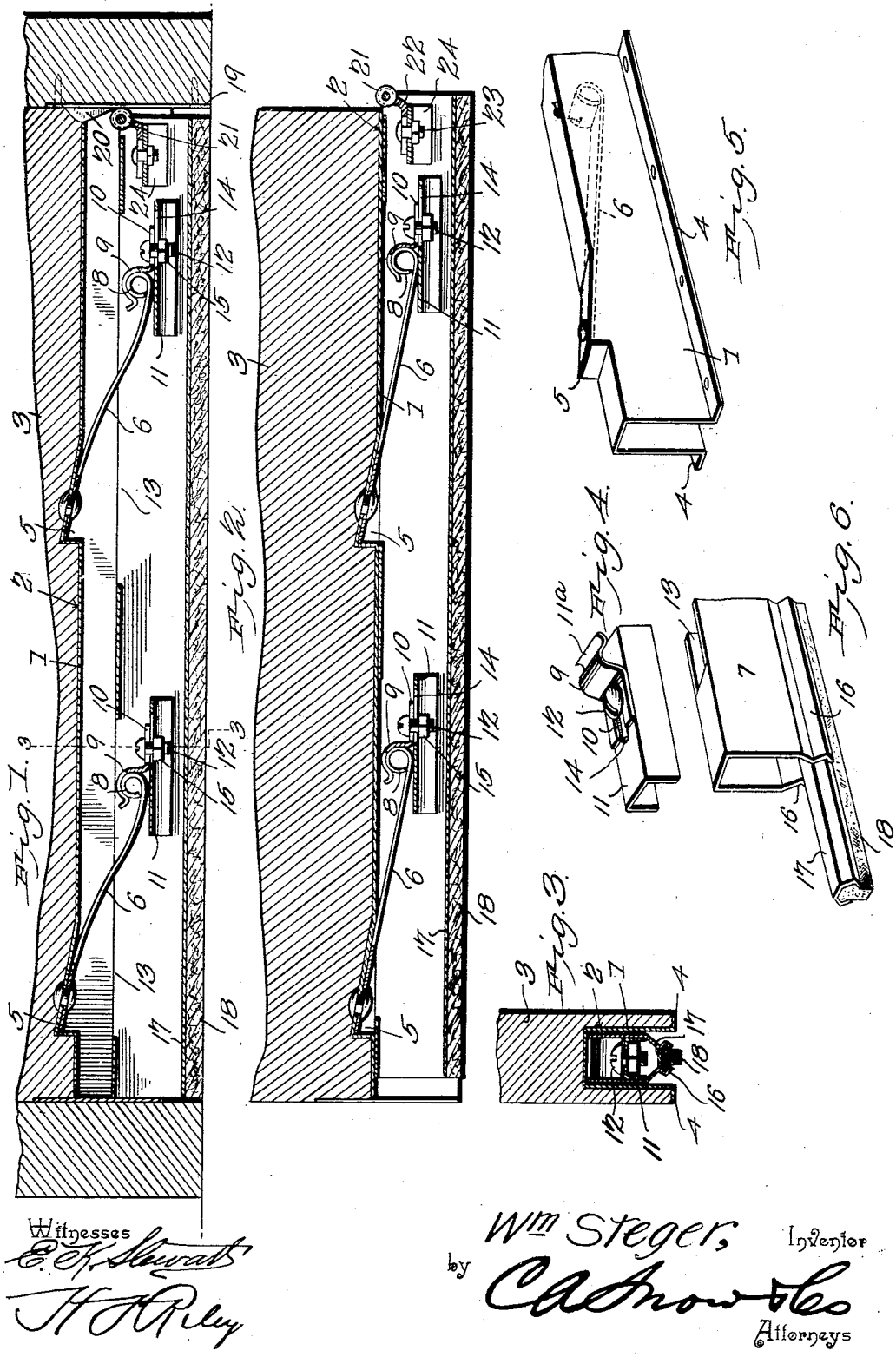


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 5.

Fig. 4.

Fig. 6.

Witnesses
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UNITED STATES PATENT OFFICE.

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WEATHER-STRIP.

SPECIFICATION forming part of Letters Patent No. 710,926, dated October 7, 1902.

Application filed February 13, 1902. Serial No. 93,907. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM STEGER, a citizen of the United States, residing at Marietta, in the county of Washington and State of Ohio, have invented a new and useful Weather-Strip, of which the following is a specification.

The invention relates to improvements in weather-strips.

The object of the present invention is to improve the construction of that class of weather-strips having a slidable strip fitted in a recess of the bottom edge of a door and capable of upward and downward movement as the door opens and closes and to enable such parts to be entirely constructed of metal, whereby warping and twisting are effectually prevented.

A further object of the invention is to reduce to a minimum the pressure required to operate the weather-strip to prevent the lower hinge of a door from being subjected to any material strain.

Another object of the invention is to provide a simple and inexpensive weather-strip of great strength and durability adapted to be readily applied to a door and capable of ready adjustment to impart the desired movement to it for enabling it to fit firmly against the floor or sill.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended.

In the drawings, Figure 1 is a vertical longitudinal sectional view of a portion of a door and door-frame provided with a weather-strip constructed in accordance with this invention and illustrating the arrangement of the parts when the door is closed. Fig. 2 is a similar view illustrating the arrangement of the parts when the door is open. Fig. 3 is a transverse sectional view on the line 3 3 of Fig. 1. Fig. 4 is a detail perspective view of one of the supports and its adjustable bearings. Fig. 5 is a detail view of a portion of the metallic hood. Fig. 6 is a detail perspective view of a portion of the weather-strip, illustrating the manner of mounting the removable casing and the elastic contact-strip on the weather-strip.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a metal hood arranged within a longitudinal groove or channel 2 of a door 3 and forming a lining for the said groove, which is rectangular in cross-section. The metal hood, which is constructed of sheet metal, is composed of sides and a connecting top portion, and it is provided at the lower edges of its sides with longitudinal flanges 4, which are perforated for the reception of screws, tacks, or other suitable fastening devices for securing the hood to the door. The hood is provided at its top with interior recesses 5, formed by upsetting the metal by means of a suitable stamping-machine, and these upset portions are provided with inclined faces or supports, to which are riveted or otherwise secured the upper ends of inclined springs 6, which have their attached ends set at an angle in order that they may be readily flexed when a weather-strip 7 comes in contact with the casing of the door, whereby the weather-strip is adapted to be easily operated and depressed by a minimum pressure to relieve the lower hinge of strain. By arranging the entire spring at an inclination only a slight pressure will be required to flex or bend it, and there will be no liability of the springs offering any material resistance to the movement of the weather-strip, and the arrangement will also obviate any liability of loosening the lower hinge of a door.

The inclined springs, which are adapted to support the weather-strip and lift the same from the floor when the weather-strip is free to move, are provided at their lower ends with suitable journals 8, preferably formed by coiling or bending the lower ends of the springs upon themselves and arranged within bearings 9, which are adjustably secured to the weather-strip. Each bearing 9, which may be constructed of any suitable material, is preferably formed of a single piece of sheet metal, having a straight bifurcated lower portion 10 and an upwardly-extending curved portion having a lip or flange 11^a.

The straight slotted or bifurcated portion 10 is mounted upon a sheet-metal support 11 and is secured to the same by a screw 12. The curved portion, which extends upward from the support 11, is adapted to interlock with the journal of the spring, and the lip or flange 11^a is adapted to guide the bearing into engagement with the journal of the spring. By this construction the bearings are detachably interlocked with the springs, and the strip may be applied to and removed from the door without taking the latter off its hinges.

The weather-strip, which is constructed of sheet metal, is approximately rectangular in cross-section, being composed of similar sides and a connecting top portion, which is provided at intervals with suitable slots or openings 13 to receive the springs and the supports and their bearings. The supports 11, which are composed of parallel sides, and the connecting top portion may be riveted, soldered, or otherwise secured within the metallic weather-strip, and besides serving as a support for the bearings they are adapted to brace and strengthen the hollow weather-strip. The top of the support is provided with a longitudinal slot or bifurcation 14 to receive the screws or bolts 12, which engage nuts 15, arranged between the sides of the support and held against rotation by the same. The slots of the supports and the bifurcations of the bearings permit the latter to be adjusted longitudinally to vary the movement of the weather-strip and to arrange the bearings to correspond with the position of the springs. The lower portions of the sides of the metallic weather-strip are converged near the lower edges, and the lower portions or flanges 16 of the sides of the weather-strip are angularly bent and bowed outward to receive a dovetailed casing 17, having downwardly-converging sides, which are engaged with an elastic contact-strip 18, of felt, rubber, or other elastic material, which is adapted to engage the door or sill and which will conform to the configuration of the same and afford an air and weather tight joint or connection, thereby effectually excluding both air and moisture. The casing is removably arranged between the grooved flanges 16 of the sides of the weather-strip, and the construction will enable the elastic contact-strip to be readily renewed when worn without discarding the entire weather-strip.

The groove or recess at the free edge of the door is preferably covered or closed by a plate, which conceals the adjacent end of the weather-strip, and the other end of the weather-strip projects slightly beyond the inner hinged edge of the door when the latter is open and is adapted to engage a suitable bumper or plate 19, mounted on the door frame or casing and provided with a projecting or bulged portion 20, having an inclined face adapted to facilitate the downward movement of the weather-strip, which may be provided with an antifriction-roller 21. The antifriction-roller 21 is mounted in a bifurcation of an adjustable bearing-plate 22, which is secured by a bolt 23 to a support 24, constructed similar to the supports heretofore described and adapted to brace the weather-strip. When the weather-strip by the closing of the door comes in contact with the bumper-plate, it will be moved longitudinally, and the angularly-set springs will cause the weather-strip to move downward simultaneously into engagement with the floor or sill.

What I claim is—

1. A device of the class described comprising a metallic hood designed to be arranged within a recess of a door and provided at the top with interior recesses formed by upsetting the metal and having inclined faces, springs having their upper ends set at an angle and secured to the said inclined faces, whereby the springs are adapted to be flexed or bent transversely, and a slidable weather-strip connected with the springs, substantially as described.

2. A device of the class described comprising a metallic hood designed to be arranged within a recess of a door and composed of sides and a connecting top portion and adapted to form a lining for the said recess, said hood being provided with inclined supports, a slidable weather-strip arranged within the hood, and springs located within the hood and supporting the weather-strip, said springs having their attached ends secured to the inclined supports, whereby the springs are flexed or bent transversely adjacent to their points of attachment when the weather-strip is moved longitudinally, substantially as and for the purpose described.

3. A device of the class described comprising a hollow slidable weather-strip constructed of metal and composed of sides and a connecting top portion, a metallic support approximately U-shaped in cross-section arranged within the weather-strip and bracing the same, the sides of the support being secured to the sides of the weather-strip, a bearing carried by the support, and a spring adapted to support the weather-strip and provided with a journal portion arranged in the bearing, substantially as described.

4. A device of the class described comprising a hollow metallic weather-strip having an opening at the top, a support arranged within the weather-strip and forming a brace for the same and composed of sides, and a connecting top portion, a nut arranged between the sides and held against rotation by the same, a bearing, a screw securing the bearing to the support and engaging the nut, and a supporting-spring arranged in the bearing, substantially as described.

5. A device of the class described comprising a hollow metallic weather-strip provided at the top with openings, a hood receiving the weather-strip and designed to be secured in

a recess of a door, supports arranged within the hollow weather-strip and bracing the same and composed of sides and connecting portions, bearings adjustably mounted on the supports, and springs secured to the hood and arranged in the bearings, substantially as described.

6. A device of the class described comprising a weather-strip provided at opposite sides with grooved flanges, a sheet-metal casing having converging sides to fit the flanges of the weather-strip, and an elastic contact-strip arranged in the casing and clamped by the converging sides thereof, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

WILLIAM STEGER.

Witnesses:
CHAS. G. SLACK,
J. P. WARD.