No. 622,488. Patented Apr. 4, 1899.

F. B. KAMM.

WEATHER STRIP FOR DOORS.

(Application filed Jan. 23, 1899.)

(No Model.)

Fig. 1.

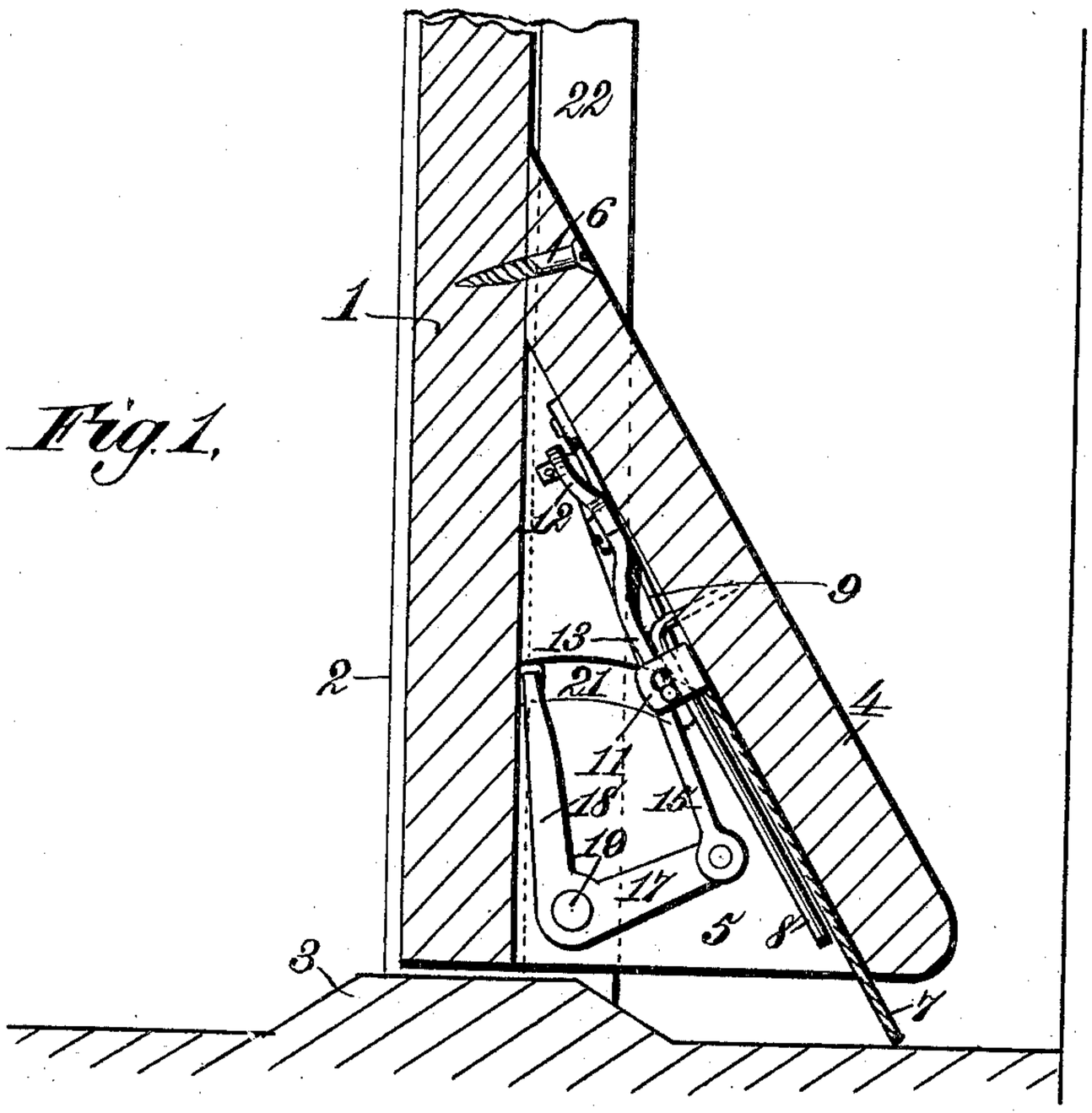
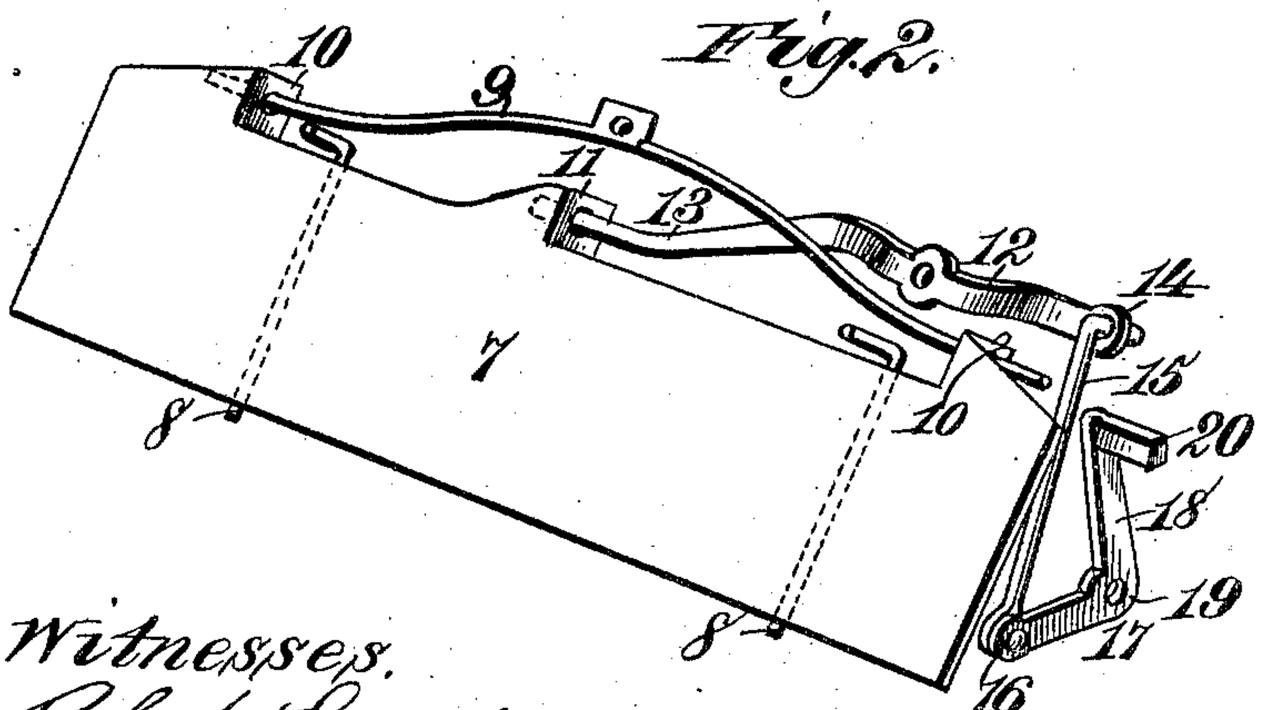


Fig. 2.



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WEATHER-STRIP FOR DOORS.

SPECIFICATION forming part of Letters Patent No. 622,488, dated April 4, 1899.

Application filed January 23, 1899. Serial No. 703,147. (No model.)

To all whom it may concern:

Be it known that I, FRIDOLIN B. KAMM, a citizen of the United States, residing at Pleasant Gap, in the county of Bates and State of Missouri, have invented new and useful Improvements in Weather-Strips for Doors, of which the following is a specification.

This invention relates to weather-strips for doors, and especially to that class of devices designed to close the space between the lower edge of the door and the sill and wherein the weather-strip is automatically raised and lowered in opening and closing the door.

It is the object of the invention to provide a weather-strip of the character described which shall be simple, durable, and inexpensive of construction and certain and efficient in operation and which may be applied to either right or left hand doors, single or double doors, and doors of varying width and thickness.

To these ends my invention consists in the features and in the construction, combination, and arrangement of parts hereinafter described, and particularly pointed out in the claims following the description, reference being had to the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is a vertical sectional view of a door and its frame, showing my improved device in place; and Fig. 2 is a perspective view of the parts, the casing being removed.

Referring to the drawings, the numeral 1 indicates a door, 2 the frame thereof, and 3 the sill, all constructed in the usual manner. Attached to the lower outer portion of the door is a casing comprising a front portion 4 and ends 5. As shown, the ends are of the shape of right-angle triangles, the vertical sides of the ends abutting the outer side of the door and their lower edges lying in approximately the same horizontal plane with the lower edge of the door. The front 4 of the casing is secured between the ends 5 by nails, screws, or other suitable fastenings and is inclined downward and outward, as shown, corresponding with the inclined front edges of the ends 5. The casing is secured to the front of the door by screws 6, screwed through the upper portion of the front 4.

Arranged against the inner side of the front 4 of the casing is the movable weather-strip 7, consisting of a flat metallic plate held in place and guided in its movements by guides 8, each consisting of a rod bent at a right angle at its upper end and driven in the front 4 of the casing. The strip 7 is normally held elevated out of contact with the sill by a bow-spring 9, attached at its center to the front 4 by a staple or other suitable fastening and connected at its ends to the strip. The weather-strip 7 is preferably formed of sheet metal, and may be conveniently connected to the spring by bending up ears 10 from the upper edge of the strip and forming perforations therein, through which the ends of the spring loosely pass. A similar ear 11 is struck up from the upper edge of the strip intermediate its ends for the purpose hereinafter made apparent. The tendency of the spring 9 is to straighten out, and thereby normally hold the strip up and out of contact with the sill. Pivoted intermediate its ends to the front 4 of the casing is a lever 12 13, the free end 13 of which passes loosely through the perforation in the ear 11. The lever is preferably pivoted nearer its outer than its inner end, thus making the arm 13 longer than the arm 12, whereby a slight movement of the end 12 of the lever will produce a relatively great movement of the longer end 13 and communicate a corresponding movement to the weather-strip. The extremity of the arm 12 of the lever is provided with an eye 14, which is engaged by the bent end of a link 15, and the other end of said link is also bent and loosely engages an eye 16, formed in one end of a bell-crank lever 17 18. The bell-crank lever is pivoted at its apex or angle, as at 19, to the outer end 5 of the casing, and the free end of the arm 18 thereof is bent outward at a right angle to form a tappet 20. A slot 21 is formed in the adjacent end 5 of the casing, and the tappet 20 projects through said slot approximately in line with the outer edge of the door.

The operation of my improved device is as follows: Let it be assumed that the door is open. Then the spring 9 will hold the strip 7 elevated and out of contact with the door.

If now the door be closed, just before it is entirely shut the projecting tappet 20 will abut the door-jamb 22, and as the door is pushed to its seat against the jamb the tappet will be forced back toward the door, swinging the arm 18 of the bell-crank lever backward or inward and raising the arm 17 thereof. As the arm 17 rises it lifts the link 15, thus raising the short arm of the lever 12 13 and depressing the long arm thereof, thereby forcing the weather-strip 7 down against the door-sill in opposition to the action of the spring 9. When in this position, the weather-strip will make close contact with the door-sill and effectually exclude rain, snow, and cold air. The weather-strip being guided against the inner face of the front 5 of the casing will not only prevent the entrance of cold air, water, and the like beneath the door, but will also exclude it from the casing containing the operative parts of the device, thereby preventing injury to the latter. The moment the door starts on its opening movement the spring 9 will instantly act to raise the strip out of contact with the sill, thus permitting the unobstructed movement of the door.

The device being placed on the outside of the door, the strip will always contact with the sill with accuracy, which is not the case with those strips which are placed on the inside, as in the latter case the carpet or other floor-covering is apt to wear at the center of the doorway, leaving a space that the strip cannot close. Furthermore, the strip may be placed on either single or double doors. When applied to double doors, a strip is applied to each door, one being "right" and the other "left" and the tappets 20 being actuated by the respective edges of the doors in an obvious manner. In such a case one of the strips should have a slightly-greater movement than the other, as the tappets must have sufficient space to pass one another. This is readily accomplished by shifting the pivot of the lever 12 13 nearer to or farther from the ear 11. The device may also be applied to doors of varying width, it only being necessary to cut the front 5 of the casing and the strip 7 to fit it to any door.

All the parts being carried by the casing, the device may be quickly applied and removed without the employment of skilled labor, it being only necessary to screw the casing to the door, and, moreover, all extraneous devices applied to the door-frame, the floor, and the like for actuating the strip are dispensed with.

Having described my invention, what I claim is—

1. The combination with a casing adapted to be attached to the front of a door, of a weather-strip arranged in said casing and movable vertically in guides therein, of a pivoted lever connected at one end to said strip, a bell-crank lever connected at one end with the other end of said lever, and provided at its opposite end with a tappet projecting without the casing in position to abut the door-jamb when the door is closed and lower the strip, and a spring for normally holding said strip raised, substantially as described.

2. The combination with a casing adapted to be attached to the front of a door, of a weather-strip arranged in said casing and movable vertically in guides therein, of a pivoted lever connected at one end to said strip, a bell-crank lever pivoted to one end of the casing, a link connecting the opposite end of said lever to one end of the bell-crank lever, a tappet on the free end of the bell-crank lever projecting through the end of the casing in position to abut the door-jamb when the door is closed and lower the strip, and a spring normally holding said strip raised, substantially as described.

3. The combination with a casing adapted to be attached to the front of a door, of a vertically-movable weather-strip arranged to move in bearings in said casing, a bow-spring attached to the casing intermediate its ends and loosely connected to the weather-strip at its ends and operating to normally hold the strip raised, a pivoted lever connected at one end to said strip, a bell-crank lever connected at one end to the other end of said lever and provided at its opposite end with a tappet projecting without the casing in position to abut the door-jamb when the door is closed and lower the strip, substantially as described.

4. The combination with a casing adapted to be attached to the front of a door, of a vertically-movable weather-strip arranged to move in bearings in said casing, said strip consisting of a flat metallic plate having three apertured ears struck up at right angles from its upper edge, a bow-spring attached intermediate its ends to the casing and loosely passed through the end ears on the strip and operating to normally hold the strip raised, a pivoted lever connected at one end to the central ear on said strip, a bell-crank-lever connected at one end to the other end of said lever and provided at its opposite end with a tappet projecting without the casing in position to abut the door-jamb when the door is closed and lower the strip, substantially as described.

5. The combination with a casing adapted to be attached to the front of a door and comprising an inclined front portion and triangular end portions, one of said end portions being slotted as shown, of guides fixed to the inner face of the front of the casing, a vertically-movable weather-strip arranged to move in said guides, a pivoted lever connected at one end to said strip, a bell-crank lever pivoted to the inner face of the slotted end of the casing, a link connecting the opposite end of said lever to one end of the bell-crank le-

ver, and bent at its other end to form a tappet projecting through said slot in position to abut the door-jamb when the door is closed and lower the strip, and a spring for normally holding said strip raised, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

FRIDOLIN B. KAMM.

Witnesses:
R. C. NAFUS,
MARION COLSON.