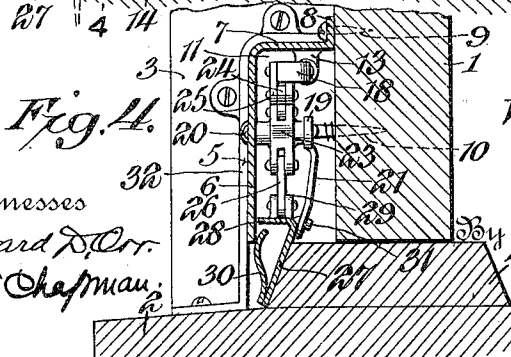
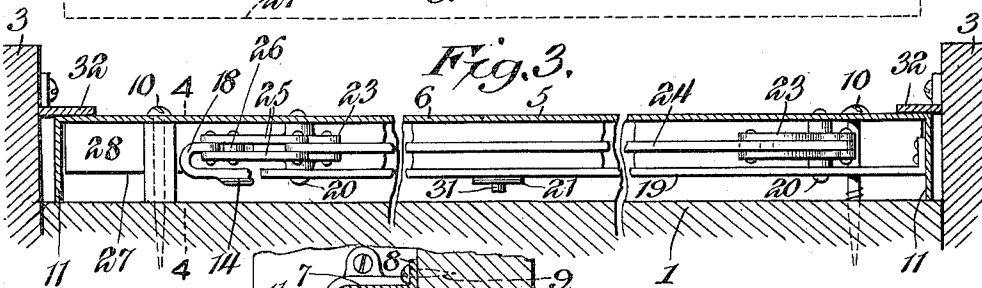
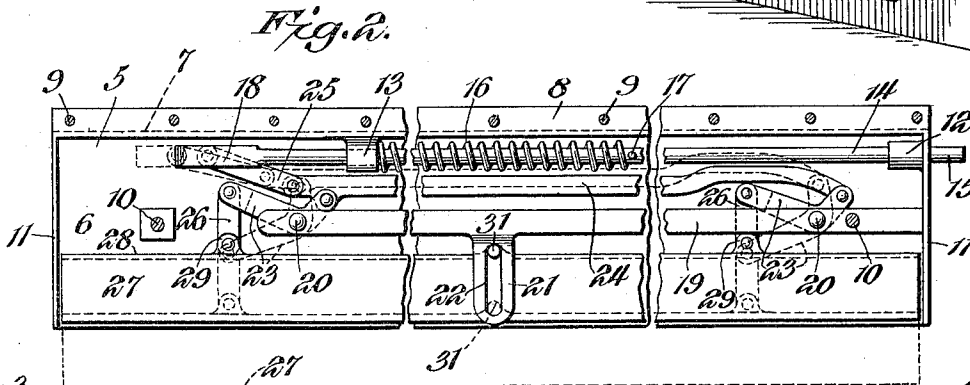
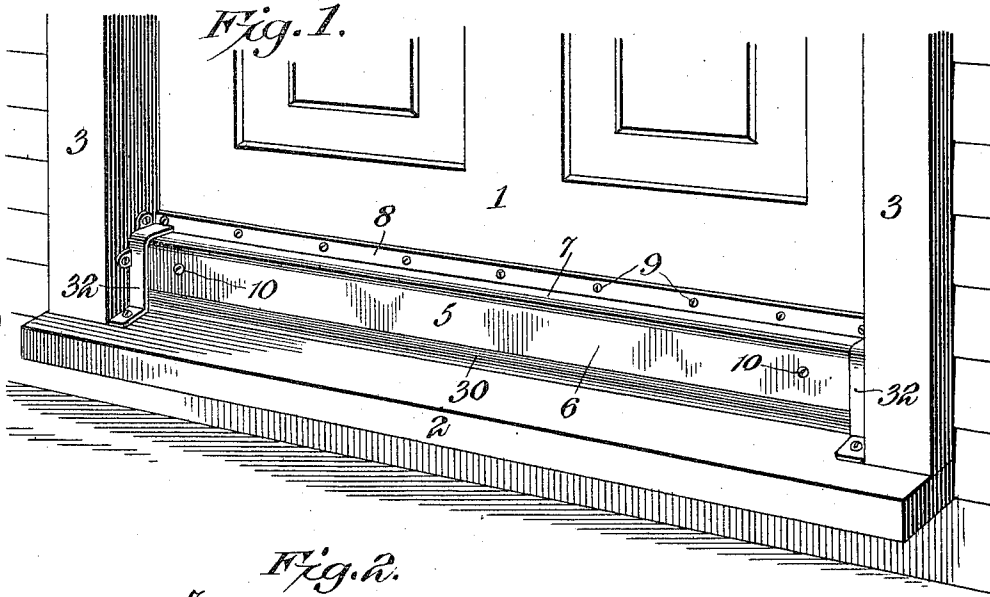


W. BUTLER.
WEATHER STRIP.
APPLICATION FILED AUG. 25, 1911.

1,032,273.

Patented July 9, 1912.



Wallace Butler
Inventor,

Witnesses
Howard D. Carr.
F. J. Chapman.

E. J. Siggers
Attorney

UNITED STATES PATENT OFFICE.

WALLACE BUTLER, OF AVARD, OKLAHOMA.

WEATHER-STRIP.

1,032,273.

Specification of Letters Patent.

Patented July 9, 1912.

Application filed August 25, 1911. Serial No. 646,039.

To all whom it may concern:

Be it known that I, WALLACE BUTLER, a citizen of the United States, residing at Avard, in the county of Woods and State of Oklahoma, have invented a new and useful Weather-Strip, of which the following is a specification.

This invention has reference to improvements in weather strips and is designed more particularly for use in connection with doors, whereby air is prevented from entering between the door and the carpet strip, the improved weather strip engaging the door sill exterior to the carpet strip.

In accordance with the present invention there is provided a movable member of a width substantially equal to the distance between the door jambs and having a range of movement sufficient to travel from a point above the lower edge of the door to the door sill for engaging the latter after the manner of a weather strip. The movable member of the weather strip travels in a direction substantially longitudinal to the door and there is provided an actuating member having a direction of travel substantially at right angles to the travel of the first named member and designed to engage the door jamb at the hinge side of the door to force the first named member into engagement with the door sill when the door is closed, while the structure has a normal constraint, as by means of a spring, to cause the first named member to rise and the second named member to be projected whenever the door is opened.

To protect the parts from mechanical injury or the effects of weather, a suitable casing is provided, and in order that the first named movable member may always engage the casing when in the active position this member is provided with a spring portion so shaped as to draw tightly against the lower end of the casing with sufficient force to insure a weather tight connection.

In order to cause a free and easy movement of the parts, the actuating member is made to travel in a straight line in suitable bearings, while the movable weather strip member is connected to the actuating member by motion multiplying devices compensating for the differences in movements of the parts, whereby no parts are put under bending strain interfering with their free movements.

The invention will be best understood

from a consideration of the following detailed description, taken in connection with the accompanying drawings forming a part of this specification, with the understanding, however, that while the showing of the drawings is of a practical embodiment of the invention it is susceptible of other practical embodiments, wherefore the invention is not confined to any strict conformity with the showing of the drawings but may be changed and modified in various ways without departure from the salient features of the invention.

In the drawings:—Figure 1 is a perspective view of a small portion of a door and door sill and frame with the invention applied. Fig. 2 is an elevation of the device from the door side with fastening means for attaching the device to the door shown in cross section. Fig. 3 is a plan view with the casing and the door and door jamb in section with some parts broken away. Fig. 4 is a section on the line 4—4 of Fig. 3.

Referring to the drawings, there is shown a door 1, a door sill 2, door jambs 3 and a carpet strip 4, the latter being visible in Fig. 4. Attached to the lower end of the door on the outer face thereof is an elongated casing 5 usually of metal and suitably protected against weather conditions as by plating, japanning, painting or otherwise. The casing 5 is usually made of sheet metal and has a face 6 which may be substantially plane throughout, and along one edge of the portion 6 the casing has a side member 7 of equal length with the face member 6 and at substantially right angles thereto, the member 7 constituting the top portion of the casing when the device is installed on a door. The edge of the top member 7 remote from the face member 6 is formed with a marginal flange 8 of a length substantially the same as the width of the door, and this flange is provided with a suitable number of holes for the passage of screws 9 or other suitable fastening devices, whereby the casing is secured to the door 1 in such relation to the bottom thereof that the lower edge of the face member 6 will clear the carpet strip 4 when the door is moved from the closed toward the open position or from the open toward the closed position. Furthermore, the casing may be secured to the door at intermediate points by screws 10 passed through the face member 6 and entering the outer face of the

door. The ends of the casing are closed in by end members 11, so that when the door is opened the interior of the casing is not exposed through the ends thereof.

5 At one end of the casing near the top member 7 there is provided a bearing sleeve 12 and at another point near the other end of the casing there is provided another bearing 13, and in cases where the door is unusually wide other bearings may be provided as
10 conditions may warrant. The bearings 12 and 13 support a slidable rod 14, the rod being capable of longitudinal movement in the bearings, and this rod is of such length
15 and so disposed that one end 15 projects through the end 11 carrying the bearing 12, so that when the door is closed this projecting end 15 will engage the corresponding door jamb within the rabbet provided for
20 the reception of the door, and as the door moves to the closed position the rod is forced longitudinally to a greater extent into the casing. The longitudinal movement of the rod 14 into the casing is brought about
25 against the action of a spring 16 surrounding the rod within the casing, one end of the spring abutting against the bearing 13 and the other against a pin 17 traversing the rod, the tendency of the spring being to
30 move the rod to the position where the end 15 is projected.

The end of the rod 14 remote from the end 15 is flattened and returned on itself, as shown at 18, although such particular arrangement is not mandatory. Extending
35 through the greater portion of the casing about midway between the lower edge of the casing and the top 7 is a bar 19 held to the front wall or face of the casing in spaced
40 relation thereto by pins or rivets 20 and at an intermediate point the bar 19 has formed on or secured thereto a laterally extending arm 21, this arm being in a substantially pendent position when the device is installed
45 and is formed with a longitudinal slot 22. The arm 21 is made elastic for a purpose which will presently appear.

The pins or rivets 20 each carry a bell crank lever 23 shown as having one arm
50 longer than the other, this being a preferable construction for bringing about amplified motion. The shorter arms of the two bell crank levers 23 are connected together by a link 24, but it will be understood that
55 while but two bell crank levers are shown, a greater number may be employed where conditions warrant, as, for instance, in doors of unusual width. One end of the link 24 is connected by another link 25 to the return
60 end 18 of the rod 14, so that link 24 will participate in the longitudinal movements of the rod 14 because of the connecting link 25 and whenever the rod 14 and link 25 are moved, the bell crank levers 23 are rocked
65 on their pivot supports 20. The link 24 is

supported wholly by the shorter ends of the bell crank levers and by the connecting link 25, wherefore the link 24 may be termed a floating link compensating for differences
70 in direction of movement of the longitudinally movable rod 14 and the arc movements of the bell crank levers. The longer arm of each bell crank lever 23 carries a link 26 in substantially pendent relation thereto and
75 the end of each link 26 remote from that connected to a respective bell crank lever is in turn connected to a movable weather strip member 27, which in the particular
80 structure shown is in the form of a sheet metal plate having one edge 28 in the form of an angle flange provided with ears 29 for the pivotal connection thereto of the corresponding ends of the links 27. The flange 28 and the main body of the weather strip
85 member 27 are at such an angle one to the other that when the member 27 is hung pendently from the links 26 the main body of the strip 27 is at an angle to both the face portion 6 of the casing 5 and the front
90 of the door, the face member 6 of the casing and front of the door being substantially parallel one to the other. The angle of the weather strip 27 to the face of the door is substantially that of the outer edge of the carpet strip 4. Fast on what constitutes the front portion of the weather strip
95 member 27 is another strip 30 of about the same length as the weather strip member 27 and compoundly curved, one edge of this strip being secured to the lower edge of the weather strip 27, or, if desired, made in one
100 piece therewith, while the other or upper edge of this curved member 30 is free and the parts are so related that the member 30, which because it is fast at one edge only, is more or less elastic, will always engage the
105 lower edge of the face member 6, being held against this face member by the elasticity of the arm 21 which bears against that face of the weather strip member 27 remote from the face carrying the strip 30. The weather
110 strip member 27 also has thereon a pin 31 entering the slot 22 and serving as a guide to constrain the weather strip member 27 to move in a predetermined path, while the end members 11 of the casing 5 also confine the strip 27 to a determined path.

Fast to the door sill 2 and the door jambs 3 are bent strips 32 of a suitable size and curvature to cover the end portions of the casing 5 when the door is shut.
120

The tendency of the spring 16 is to move the rod 14 with its end 15 projected, the direction being toward the right as viewed in Fig. 2. Considering the rod 14 as free to
125 move under the action of the spring 16, such movement is participated in by the link 24 and this causes a rocking movement of the bell crank levers 23 in a direction to raise the weather strip member 27, the up-
130

ward movement of this weather strip member being limited by the engagement of the pin 31 with the upper end of the slot 22 in the arm 21 and as the arm 21 is fast to the fixed member 19, the upward movement of the weather strip member 27 is thereby arrested, but the parts are so proportioned that the lower edge of the weather strip member 27 is then within the space defined by the lower edge of the casing 5 and consequently the lower edge of the member 27 will clear the carpet strip 4 when the door is opened or closed. Assuming that the door is in the open position and is being moved from the closed position, just before this last position is reached the end 15 of the rod 14 engages the corresponding door jamb and as the door continues its movement to the closed position the rod 14 is moved longitudinally against the action of the spring 16, compressing the latter and the link 24 participates in such movement rocking the bell crank levers in a direction to cause a lowering movement of the weather strip member 27, which because of the angle position of the main portion of this strip will clear the front edge of the carpet strip 4 and will be lowered until in engagement with the sill 2, the parts being properly proportioned for such movement. At the same time, however, the curved strip 30 is compressed against the lower edge of the face member 6, yielding as necessary and tending to force the main portion of the strip 27 against the corresponding edge of the carpet strip 4, whereby so great a bearing surface is provided that air and moisture can find no access through the passage closed by the door. During this movement the arm 21 has also yielded to superior pressure and tends to hold the upper edge of the weather strip member 27 in engagement with the inner wall of the front of the casing, whereby access of moisture or air to the interior of the casing is prevented by the engagement of the strip 30 with the lower edge of the member 6 of the casing.

What is claimed is:—

1. A weather strip structure comprising a casing adapted for application to the lower portion of a door on the weather face thereof, a rod mounted in said casing for movement in the direction of the longitudi-

nal axis of the rod, a weather strip member movable into and out of the casing through the lower edge thereof in a direction substantially perpendicular to the movement of the rod, bell crank levers mounted at spaced points in the casing, a link connection between one end of each bell crank lever and the weather strip, a floating link arranged substantially horizontally and connecting the other ends of the bell crank levers, and a link connection between one end of the floating link and the corresponding end of the rod, the other end of the rod extending through the corresponding end of the casing and being movable into projecting relation to said end of the casing.

2. A weather strip structure comprising a casing adapted to be secured to the lower end of the door on the weather face thereof, a weather strip member movable into and out of that portion of the casing constituting the lower edge thereof when applied to a door, a curved elastic strip carried by the weather strip between the same and the lower edge of the casing remote from the door and in position to engage the said lower edge of the casing when the weather strip is projected, and means for actuating the weather strip.

3. In a weather strip structure, a casing adapted to be secured to the lower portion of a door on the weather face thereof with the outer lower edge of the casing when secured to the door spaced from the lower edge of the door, a weather strip member movable into and out of the casing through the space between the lower edge thereof and the door and provided with an elastic member for engaging the lower edge of the casing when the weather strip is in the projected position, another elastic member engaging the weather strip on the side thereof remote from the casing to hold the first named elastic member in engagement with the lower edge of the casing, and means for causing the actuation of the weather strip.

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

WALLACE BUTLER.

Witnesses:

CHARLES BEADLES,
J. E. MONTGOMERY.