

(No Model.)

2 Sheets—Sheet 1.

J. H. GRAHAM.
SELF OPERATING WEATHER STRIP.

No. 501,503.

Patented July 18, 1893.

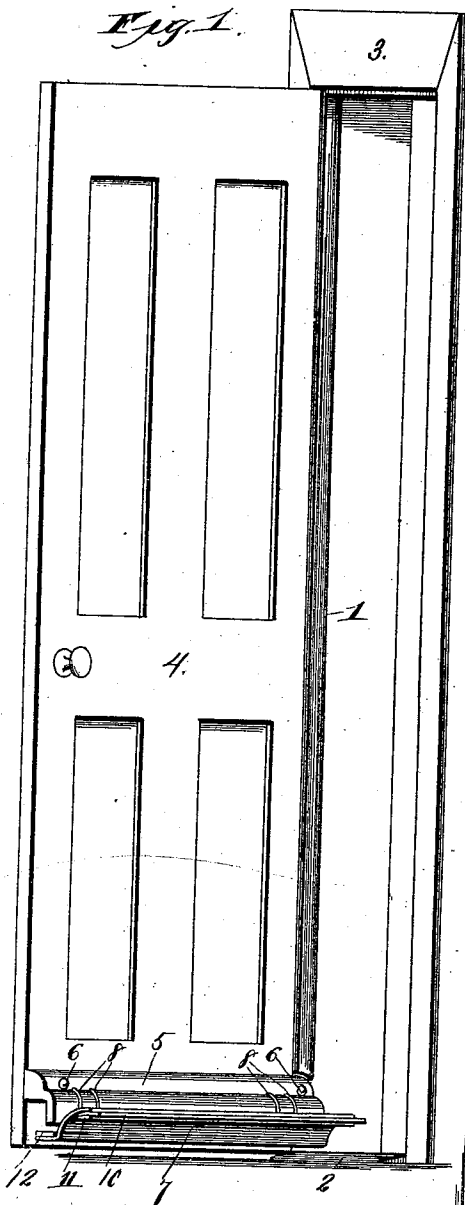


Fig. 2.

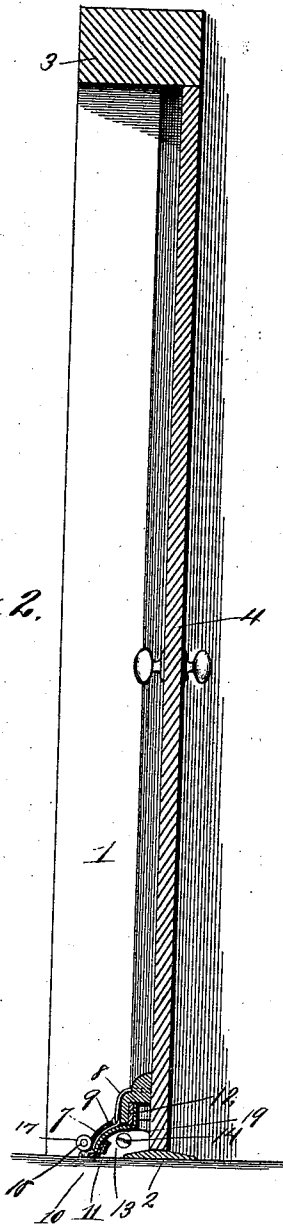
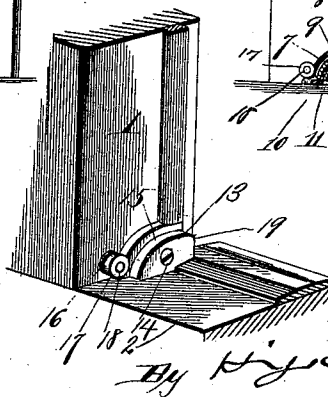


Fig. 3.



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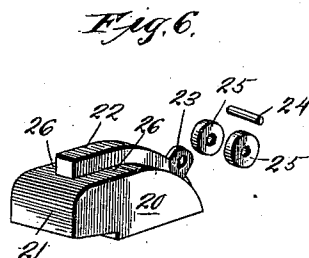
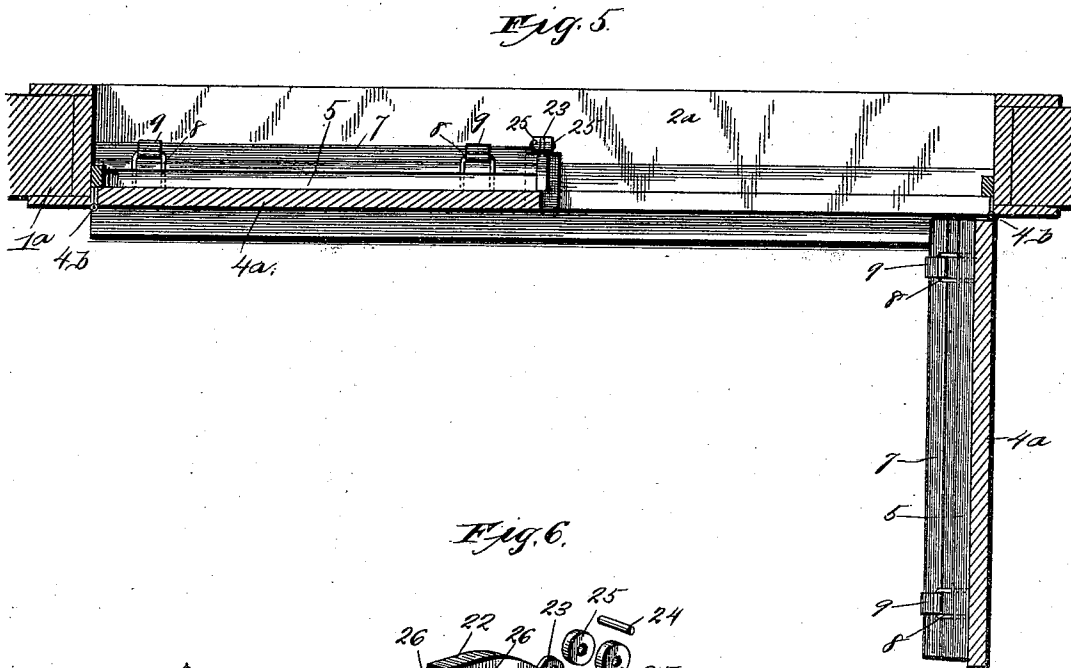
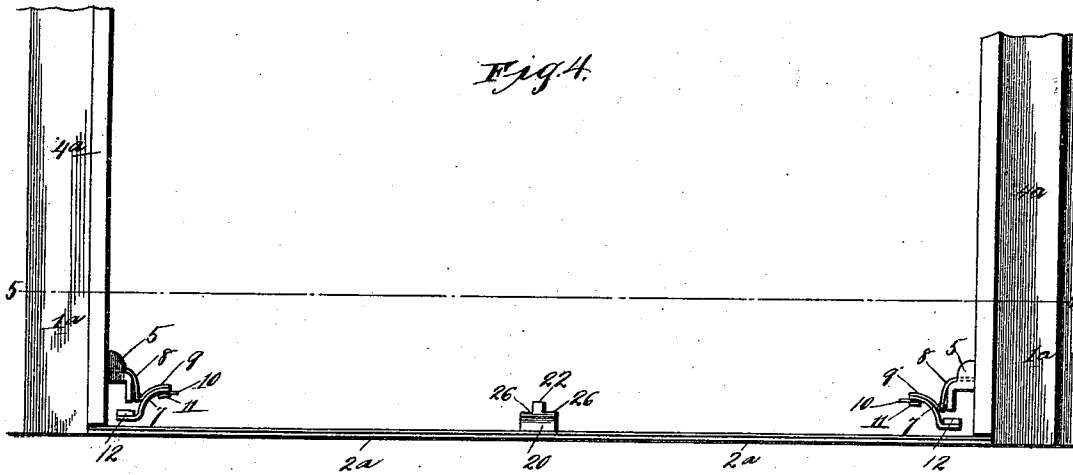
(No Model.)

2 Sheets—Sheet 2.

J. H. GRAHAM.
SELF OPERATING WEATHER STRIP.

No. 501,503.

Patented July 18, 1893.



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UNITED STATES PATENT OFFICE.

JOHN H. GRAHAM, OF KANSAS CITY, MISSOURI.

SELF-OPERATING WEATHER-STRIP.

SPECIFICATION forming part of Letters Patent No. 501,503, dated July 18, 1893.

Application filed July 11, 1892. Serial No. 439,589. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. GRAHAM, of Kansas City, Jackson county, Missouri, have invented certain new and useful Improvements in Self-Operating Weather-Strips, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to that class of appliances which are designed to be attached to doors, window-shutters, transoms, and other similar parts of buildings, and which serve to exclude drafts of air, and also prevent the entrance of rain or moisture of other kinds into the apartments of the buildings.

The objects of my invention are to produce a weather-strip which shall be simple, strong, durable, and inexpensive in construction, entirely automatic and perfectly effective in its action, and which shall be capable of application to a great variety of doors, window-shutters, transoms, and the like.

To the above purposes, my invention consists in certain peculiar and novel features of construction and arrangement, as hereinafter described and claimed.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a perspective view of a single door and its frame or casing with my weather-strip applied thereto; the door being shown partly open. Fig. 2 is a transverse vertical section of the same; the door being shown in closed position. Fig. 3 is a detached perspective view of one of the lower corner portions of the door casing or frame, with certain of the parts of the weather-strip applied thereto. Fig. 4 is a front elevation of the lower part of a pair of double doors and of the frame or casing of the same, with a modified form of the weather-strip applied thereto; both of the doors being shown in open position. Fig. 5 is a horizontal section of the same, on the line 5—5 of Fig. 4; one of the doors being shown open. Fig. 6 comprises detached perspective views of certain of the attachments employed in the arrangement in Figs. 4 and 5.

Referring first to the construction shown in Figs. 1, 2, and 3, 1 designates the two vertical side-pieces or jambs, 2 the sill, and 3 the top bar of a door or casing; these parts being of the usual or any preferred type of construction.

4 designates a single door which is also of the usual or any preferred type of hinged door connected in customary manner to one of the uprights or jambs 1 of the casing by any suitable or preferred number of hinges. To the lower part of the door, at the outer side thereof, is secured, by screws 6, or in any other suitable or preferred manner, a horizontal molding 5 which extends horizontally of the door, near the lower edge thereof, and which is preferably of approximately inverted L-shape in cross-section; the said molding being of such length as to extend entirely across the door from one side to the other of the same. To the lower margin of this molding is secured the weather-strip proper 7, which occupies a horizontal position, and which corresponds in length with the length of the molding 5. This weather-strip 7 is preferably formed of metal and is of a length equal to the length of the molding 5. At its front portion, this strip is of segmental form, its convex side being presented upward and outward, and its outer edge or margin is presented downward. This strip is so connected to the molding as to tilt vertically, and I have shown it as so connected by means of two U-shaped hangers 8 the upper ends of which are driven into the molding 5, near the ends thereof, and the bends or lower parts of which are passed loosely through two metal straps 9 which are riveted or otherwise secured to the upper side of the strip 7, near the ends thereof. I desire it to be particularly understood, however, that this strip may be connected to the molding 5 by hinges, or in any other suitable or preferred manner such as will permit the strip to tilt vertically, as hereinafter explained. Upon the under side of the strip 7, at the outer margin thereof, is secured a strip 10 of felt, rubber, or other suitable packing material, said strip extending longitudinally of the weather-strip 7, and be-

ing of equal length with the latter. This strip is shown as interposed between the inner side of the weather-strip and a backing-piece 11 which is either of wood or of metal and also of equal length with the weather-strip, and which extends longitudinally of the same, near the outer margin thereof; the said backing-piece being secured to the weather-strip by rivets, or in any other suitable or preferred manner, adapted to retain the parts securely in their described position.

To the rear part of the weather-strip 7 is secured a counter-weight 12, which as shown is in the form of a longitudinally extending strip corresponding in length with the length of the weather-strip; the action of the said weight being to normally retain the outer or front portion of the strip in raised position, and its inner or rear portion in lowered position. It is to be understood that the counter-weight may, if preferred, be of other than strip form, and may in any event be either secured to the weather-strip 7 or formed thereon, as preferred. To that lower corner of the door frame or casing which is remote from the side to which the door is hinged, is secured a stop-piece 13, a screw 14, or other equivalent device serving as the means for securing said stop-piece in position. This stop-piece stands vertically against the lower end of the side or jamb of the frame, and may also rest upon the corresponding end of the door-sill 2, as shown. At its inner side, the stop-piece 13 is formed with a shoulder or offset 15 the upper margin of which is of segmental form, and corresponds in curvature with the transverse curvature of the outer part of the weather-strip 7. The inner end of this offset or shoulder is formed with a vertical shoulder 19, for a purpose to be presently explained, and the outer part of the body-portion of the stop-piece is formed with an outwardly extending bracket 16. From this bracket extends a screw or stud 18 which projects horizontally from the bracket, and which is loosely surrounded by a roller 17, as shown. Now, from this description it will be seen that when the door is open the weight 12 holds the outer part of the weather-strip 7 in raised position, so that said strip entirely clears the floor of the apartment, and does not in any wise interfere with the free passage in or out through the door-way. When the door is moved into closed position, the outer extremity of the inner end portion of the weather-strip 7 first strikes the shoulder 19, tilting the outer segmental portion of the strip 7 downward upon the segmental shoulder of the off-set 15, and causing the lower edge of said outer portion to engage, beneath the roller 17, and thus retaining the weather-strip in firmly closed position. As soon as the door is moved into open position, the weight 12 again instantly raises the outer part of the weather-strip 7, and permits

the door to be opened freely and without hinderance.

In Figs. 4, 5 and 6, I have shown certain modifications of construction which adapt the invention for application to double hinged doors. In this instance 1^a designates the up-rights or jambs of the frame or casing, and 2^a the sill of the same; 4^a designating the doors which are hinged, as at 4^b, to the two jambs 1^a. The weather-strips 7 are constructed as before, and are secured to their moldings 5, which are attached as before to the outer sides of the doors, at the lower edges thereof, and these parts are constructed in all respects as are the like parts in the preceding figures. In this instance, however, a vertical standard 20 is secured upon the sill 2^a, at a point midway of its length, the inner end of said standard being formed with a vertical shoulder 21 which corresponds in function with the shoulder 19 before described, and the upper margins 26 of the two oppositely disposed offsets of the standard being segmental in form and extending outward and downward in conformity to the curvature of the outer portions of the two strips 7. A segmental rib 22 divides these two shoulders 26 from each other, and upon the front portion of this rib is formed a bracket 23 through which extends a horizontal pin 24 upon which are mounted the two rollers 25; said rollers being at opposite sides of the rib. Thus when one or both of the doors 4^a are moved into closed position, the inner parts of the strips 7 will first strike the vertical shoulder 21, and the strips will be tilted downward upon the segmental shoulders 26 and beneath the rollers 25. When the doors are opened, the counterweights 12 will instantly raise the outer parts of the weather-strips 7, and will enable the doors to be opened freely and without hinderance.

From the above description it will be seen that I have produced a weather-strip which is simple, strong, durable, and inexpensive in construction, capable of application to a great variety of doors, window-shutters, transoms, &c., and which is entirely automatic and perfectly reliable in its action. It will be further seen that in cold stormy weather the strip will immediately free itself from accumulations of ice, snow, &c.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. The combination with a door having a molding 5 secured near its lower end provided with a recess in its lower edge, of a strip 7 concavo-convex in cross section and having a longitudinal marginal flange and a counterweight 12 secured thereto, hinges 8, connecting the strip 7 to the molding 5, so that the counter-weighted flange shall enter the recess when the door is closed, and the

stop-block 13, having a curved shoulder, and a roller carried by said stop-block, so that a space shall intervene between the shoulder 15 and the under side of the roller, substantially as set forth.

5 2. A weather-strip, comprising a pair of tilting counterweighted body-portions, a standard having a pair of oppositely disposed curved offsets and a pair of oppositely

disposed rollers for engaging the outer portion of the strip, substantially as set forth.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN H. GRAHAM.

Witnesses:

HARRIET E. PRICE,
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