

No. 641,844.

Patented Jan. 23, 1900.

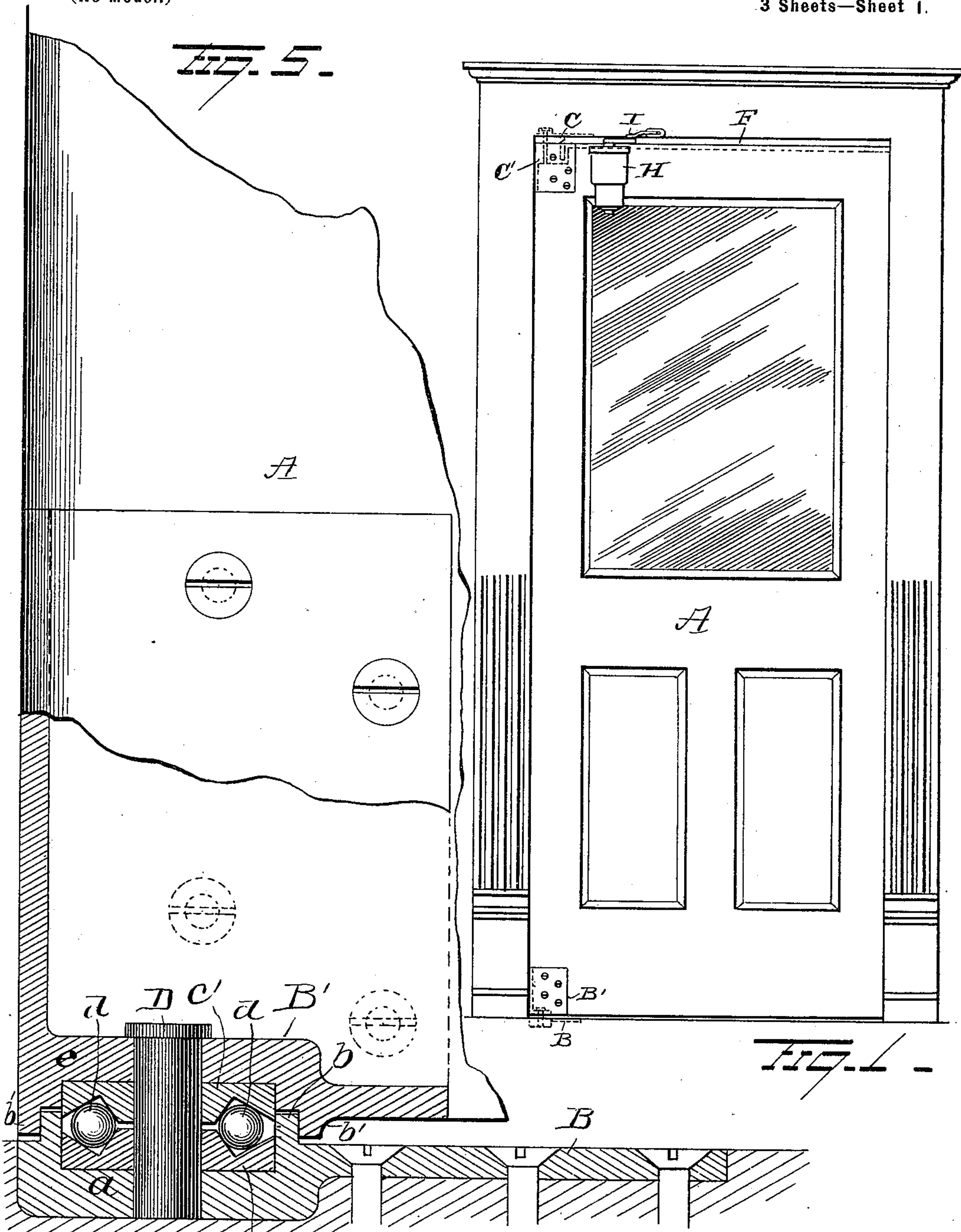
W. R. CORBIN & W. K. HENRY.

DOOR.

(Application filed July 29, 1899.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES  
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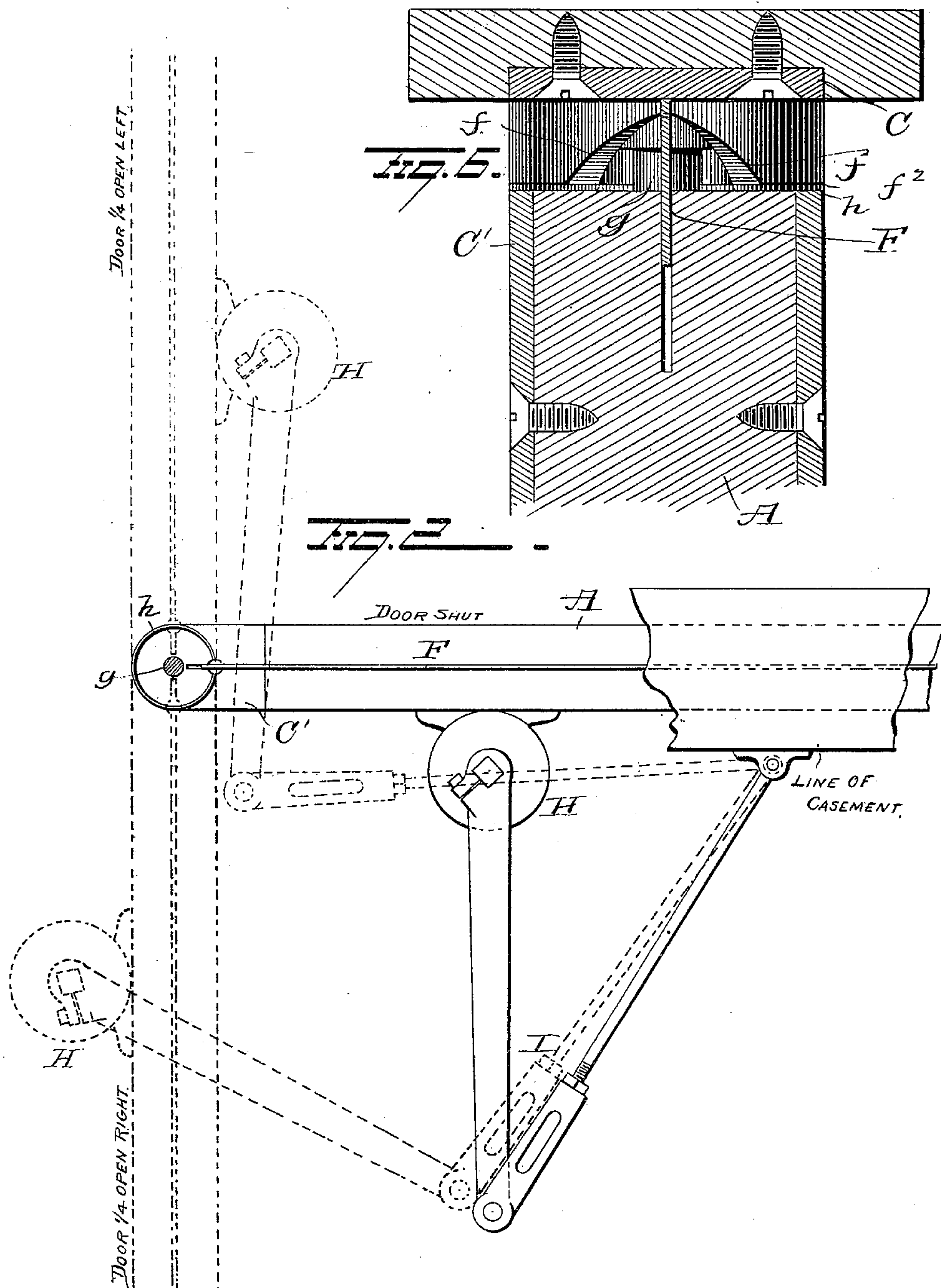
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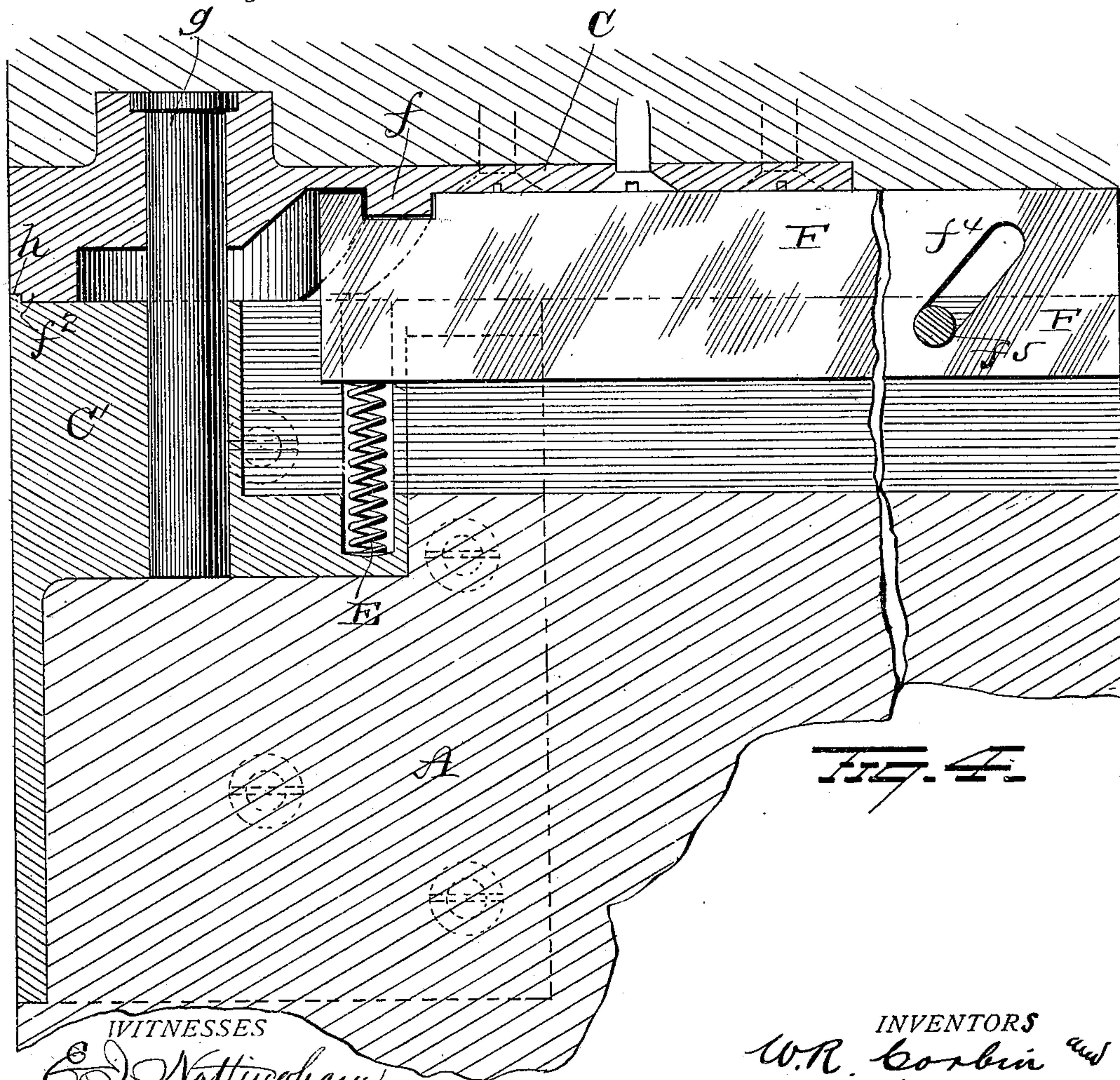
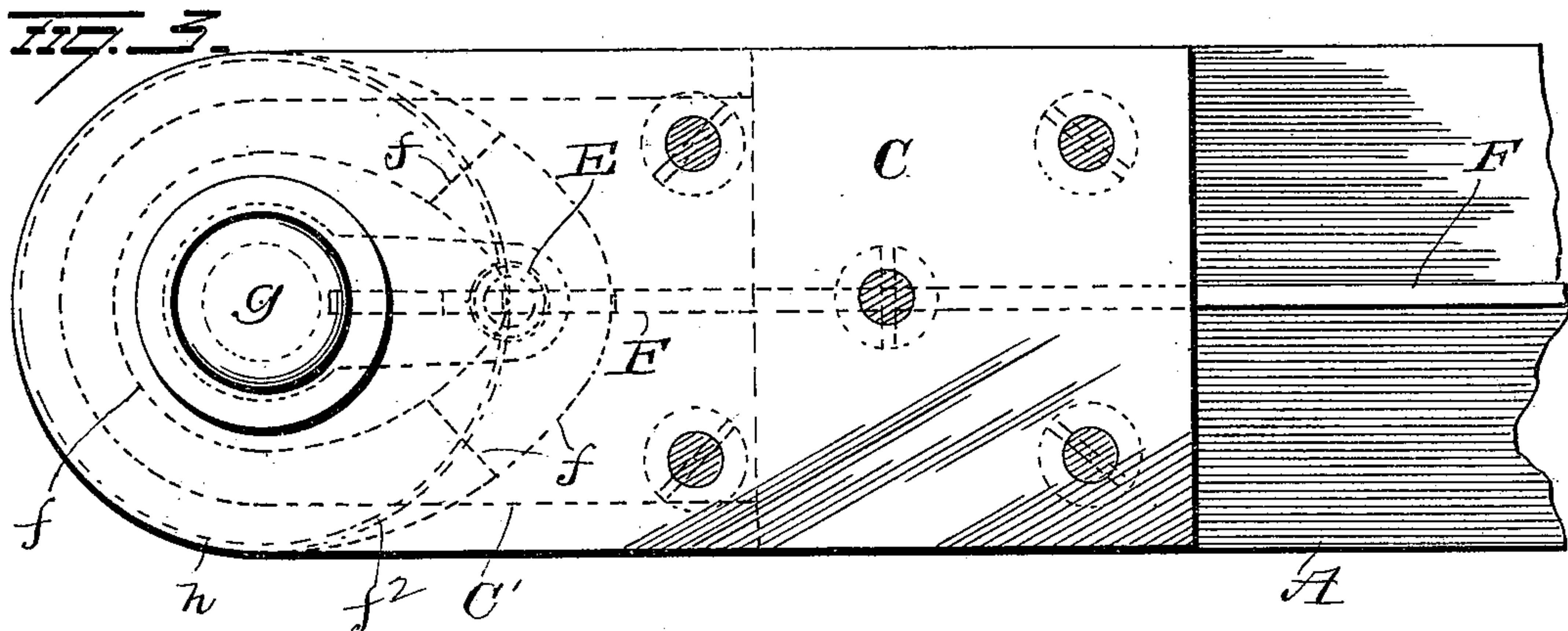
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# UNITED STATES PATENT OFFICE.

WILBUR R. CORBIN AND WILLIAM K. HENRY, OF NEW BRITAIN, CONNECTICUT, ASSIGNORS TO THE P. & F. CORBIN, OF SAME PLACE.

## DOOR.

SPECIFICATION forming part of Letters Patent No. 641,844, dated January 23, 1900.

Application filed July 29, 1899. Serial No. 725,505. (No model.)

*To all whom it may concern:*

Be it known that we, WILBUR R. CORBIN and WILLIAM K. HENRY, of New Britain, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Doors; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to an improvement in doors, and particularly to doors provided with a spring-closer and liquid check.

In double-acting doors actuated by door-closers when the door is opened in one direction the closer-arm must pass over the top of the door and when opened in the opposite direction must pass under the door frame or casement. Hence it will be seen that a space must be left between the casement and top of the door for the accommodation of the closer-arm.

The object of our invention is therefore to provide a door of this character with a movable weather-strip adapted to be automatically depressed when the door is opened to permit the check-arm to pass over the door or under the casement and to automatically rise as the door assumes its closed position.

With these ends in view our invention consists in the parts and combinations of parts, as will be more fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in elevation of a door embodying our invention. Fig. 2 is a view in plan showing in full lines the door in its closed position and in dotted lines the position of the door, the door-closer, and arms connecting the latter and the casement when the door is open to the right and left. Fig. 3 is a plan view of the upper edge of the door and hinge, showing the weather-strip and the cam in dotted lines for actuating same. Fig. 4 is a view in section of same. Fig. 5 is a view in elevation, partly in section, of the lower hinge; and Fig. 6 is a view showing the cam.

A represents the door, adapted to swing in either direction and preferably with a con-

vex rear edge, as shown in Fig. 3. This door is supported at its top and bottom by the hinges, the lower of which is composed of two sections B and B'. The section B of the lower hinge comprises a plate having screw-holes therein for its attachment to the sill at one end of the latter and is provided at its outer end with an enlarged circular section *a*, the downwardly-projecting portion of which rests within a recess formed in the sill. The upper face of this circular portion of section B of the hinge is recessed, the latter being encircled by the circular rib *b*. Located within the recess is the steel block *c*, having a groove in which the steel balls *d* rest and move. The upper section B' is U shape in horizontal cross-section, so as to embrace the lower edge of the door, and is closed at its bottom, so as to form a seat for the inner lower edge of the door, and thus sustain a portion of the strain which would otherwise fall on the screws employed for securing section B' to the door. This section B' of the lower hinge is provided near its rear end with a thickened circular portion *e*, having a recess adapted to receive the steel block *c'*, the latter being grooved and, together with the groove in block *c*, forming a raceway for the balls *d*. The upper section or pivotal butt B' is also provided on its lower face with the depending circular rib *b'*, which latter overlaps the rib *b* and assists in preventing lateral displacement of the two sections B and B' of the lower hinge. The two sections are further connected by the pivot-pin D, which latter passes through openings in sections B' and B and through openings in the intermediate blocks *c* and *c'*. The side of the upper section B' is provided with screw-holes for securing the section in place.

The upper hinge is composed of two sections, one of which comprises a flat plate C, provided at its rear end with a depending cam-flange *f*, the latter being of an oval shape in plan and having a V-shaped cut-away portion, the apex of the V-shaped cut-away portion being on a line with the longitudinal center of the door when the latter is closed. Depending from the plate C and eccentric to the flange *f* is the pivot-pin *g*, which latter



enters an opening formed in the top plate C' of the upper hinge. The lower edge of the flange  $f$  is provided with a slight flange  $f^2$ , the outer edge of which is concentric with the axis of the pin, as shown in dotted lines, Fig. 3, and rests within a short circular rib  $h$ , formed on the top plate of the section C' of the top hinge. The section C' of the hinge is also U shape in cross-section and closed at its top and is provided on its sides with screw-holes for its attachment to the rear top edge of the door. That portion of the section C' of the upper hinge immediately below the flange  $f$  is made solid to form an extended bearing for the pivot-pin  $g$  and also a seat for the spiral spring E, the upper end of which bears against the inner end of the weather-strip F. This weather-strip is preferably made of thin sheet metal and is seated in a slot or kerf extending from the outer edge of the top of the door back to a point near the pivot-bolt  $g$ , the slot or kerf being deep enough to receive and conceal the weather-strip.

The inner edge of the weather-strip, as before stated, rests on the spring and is provided near its outer end with an inclined slot  $f^4$ , through which a pin  $f^5$ , secured to the door, passes. Thus it will be seen that when the weather-strip is moved longitudinally the outer end rises or falls. The upper end of the weather-strip is provided near its inner end with a notch adapted to receive the cam-flange  $f$ . The apex of the V-shaped cut-away portion of the cam-flange is, as before stated, in line with the weather-strip or center of the door. Hence it will be seen that when the door is in its closed position the weather-strip is projected by the spring E and flange F to its highest position, and thus effectually closes the space between the top of the door and the lower face of the casement.

When the door is pushed open, the inclines of the flange  $f$  operate to depress the inner end of the weather-strip, while the oval shape of the flange  $f$  moves the weather-strip longitudinally, and thus lowers the outer end of the weather-strip. This movement takes place when the door is opened in either direction, and the weather-strip rises as the door comes to its normal position.

The door check and closer II is secured to the door, and the jointed arm I, leading from the spindle or shaft of the check or closer, is secured to the casement. Hence it will be seen that when opening the door in one direction—say to the right, as shown in dotted lines, Fig. 2—the arm I passes over the top of the door, and when opened to the left the said arm passes under the casement. Hence it will be seen that a space must be left between the door and casement for the arm I. By providing the door with the weather-strip such as we have described, the weather-strip is automatically moved out of the way of the

arm as the door is opened and automatically closes the space between the top of the door and casement when the door is closed, thus securing all the advantages of a closely-fitting door.

It will of course be understood that the weather-strip could be seated in the casement instead of in the door and be actuated by a cam on the upper end of the section C' of the upper hinge, or, in other words, by locating cam  $f$  on the section C' of the upper hinge and seating the weather-strip in a slot in the casement precisely the same result will be accomplished.

We make no claim in this application to the construction of hinges herein shown and described, as they form the subject-matter of application, Serial No. 734,765, filed by us October 25, 1899.

It is evident that numerous slight changes might be resorted to in the relative arrangement of parts herein shown and described without departing from the spirit and scope of our invention. Hence we would have it understood that we do not wish to confine ourselves to the exact construction shown and described; but,

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination with a double-acting door, and a movable weather-strip, of means engaging the weather-strip for housing the latter while the door is open and for forcing the strip outwardly when the door is closed.
2. The combination with a double-acting door, and a movable weather-strip seated in a kerf in the upper end of the door, of means engaging the weather-strip for forcing it into the kerf as the door is opened and for moving it upwardly as the door is closed.
3. The combination with a double-acting door and a movable weather-strip for closing the space between the top of the door and the casement, of a cam engaging said weather-strip for moving it longitudinally and also vertically as the door is opened and closed, substantially as set forth.
4. The combination with a double-acting door a movable weather-strip seated in a kerf in the top of the door, and a spring supporting one end of said weather-strip, of a stationary cam engaging the weather-strip for moving it longitudinally and also against the pressure of the spring.
5. The combination with a double-acting door, a weather-strip seated in a kerf in the door and provided near one end with an inclined slot a pin secured to the door and passing through said slot and a spring supporting said strip near its opposite end, of a stationary cam engaging said weather-strip for moving it longitudinally and vertically.
6. The combination with a double-acting door, a weather-strip for closing the space be-

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tween the top of the door and the casement  
and means engaging the weather-strip for  
housing the latter while the door is open and  
for forcing the strip outwardly when the door  
5 is closed, of door-closing mechanism connect-  
ing the door and casement.

In testimony whereof we have signed this

specification in the presence of two subscrib-  
ing witnesses.

WILBUR R. CORBIN.  
WILLIAM K. HENRY.

Witnesses:

ALBERT N. ABBE,  
LAUREN M. BANCROFT.