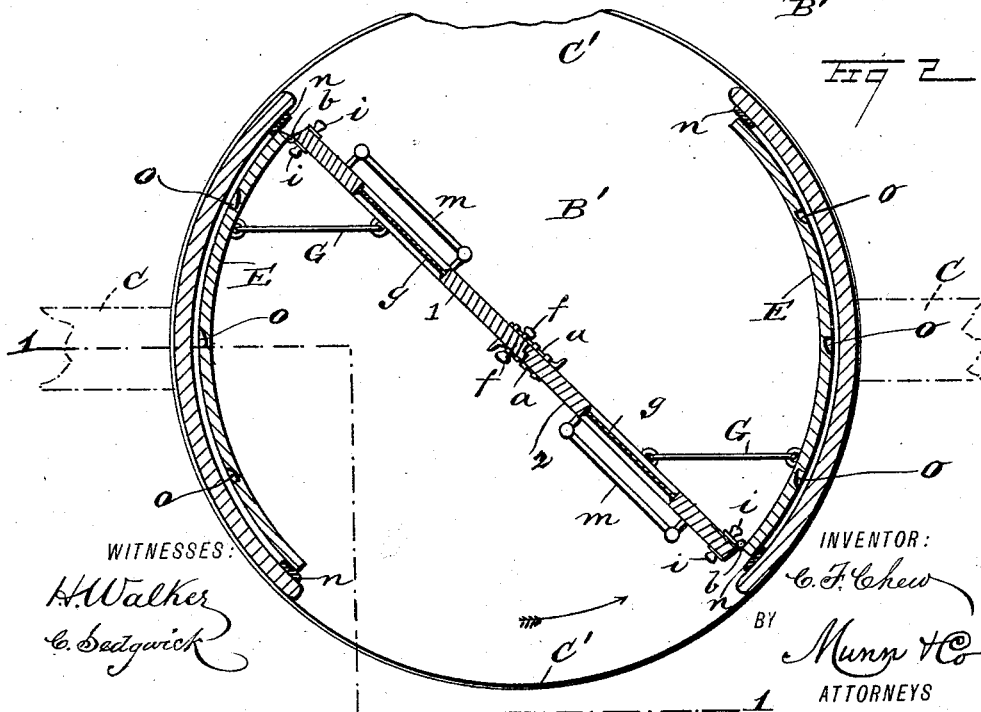
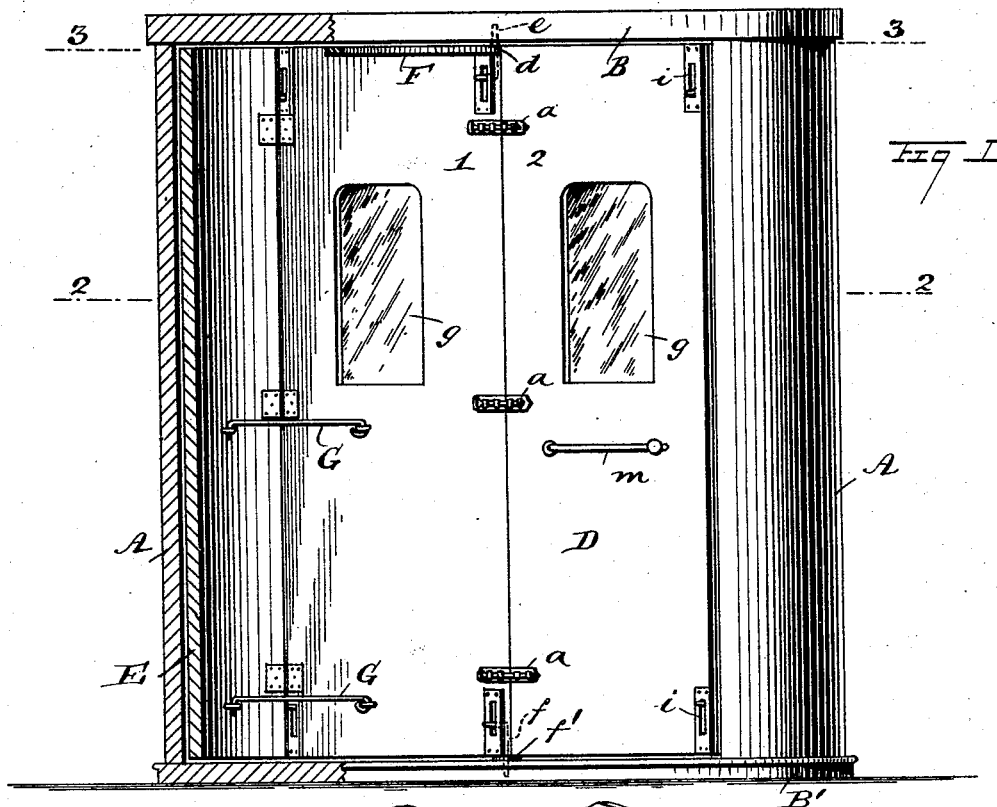


C. F. CHEW.  
REVOLVING DOOR.

No. 455,656.

Patented July 7, 1891.



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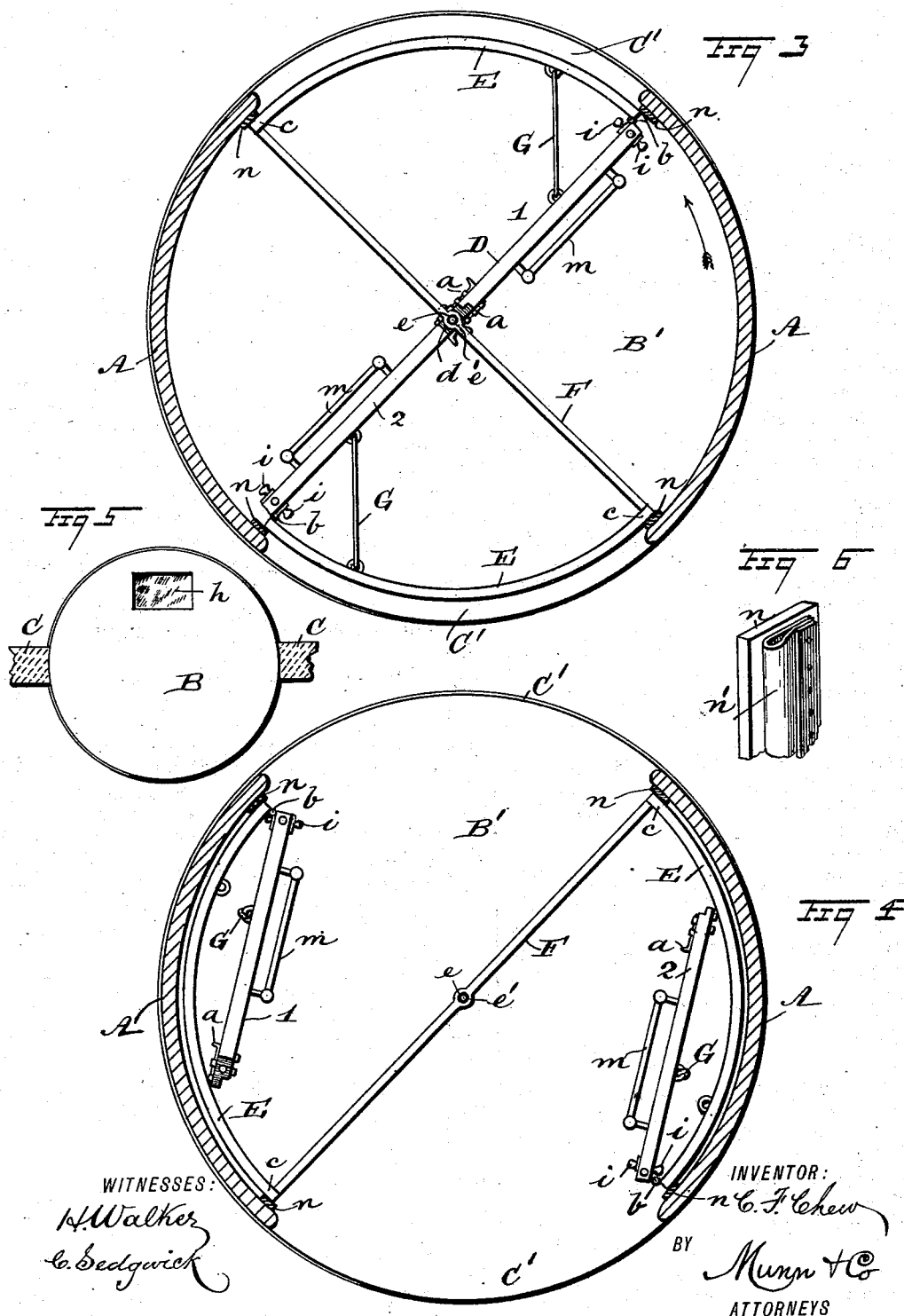
(No Model.)

2 Sheets—Sheet 2.

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# UNITED STATES PATENT OFFICE.

CHARLES F. CHEW, OF PHILADELPHIA, PENNSYLVANIA.

## REVOLVING DOOR.

SPECIFICATION forming part of Letters Patent No. 455,656, dated July 7, 1891.

Application filed September 5, 1890. Serial No. 364,033. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES F. CHEW, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Revolving Doors, of which the following is a full, clear, and exact description.

This invention relates to an improved storm-door structure of the revolving type; and has for its object to provide a device which will permit the free ingress and egress of one or more persons at a time through the door and seal an outer aperture simultaneously with the opening of an inner aperture, whereby the device serves as a vestibule for the protection of an exposed entrance to a building not otherwise protected from the elements.

A further object is to construct a revolving storm-door structure so that a wide unobstructed passage may be quickly provided for the free egress of a number of people at the same time.

To these ends my invention consists in certain features of construction and combination of parts, which are hereinafter described, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a partly sectional side elevation of the structure, taken on the line 1 1 in Fig. 2. Fig. 2 is a broken horizontal section taken on the line 2 2 in Fig. 1. Fig. 3 is a similar view taken on the line 3 3 in Fig. 1. Fig. 4 is a sectional plan view showing the device adjusted to afford an unobstructed wide passage through the structure. Fig. 5 is a plan view, on a reduced scale, of the structure in position between the vertical jambs of a door-opening in a house-wall; and Fig. 6 is an enlarged detail view of a portion of the sealing appliance used to render the door-joints tight.

The walls A, which represent the casement-jambs of an ordinary door, are of similar dimensions and form, and are curved in cross-section, a circular cap-plate B and sill or floor B' of similar form being secured to the top and bottom ends of the casement-walls A, thus retaining these curved vertical walls separated a distance equal to the diameter of a circle, of which they are equal segments.

The curved casement-walls A are oppositely located, and when the entire structure is in position said walls are closely engaged by the sides of a rectangular aperture made in the vertical wall of a building for their introduction, the points of engagement for the casement-walls A with the building-wall C being such as will project equal portions of the casement-walls within and outside of the building-wall, as represented in Figs. 2 and 5.

Each of the curved casement-walls A should be of a width slightly exceeding one-fourth of the circumference of the circular cap-plate B, so that equal and ample opposite openings C' are afforded for passage-ways, as shown in Figs. 2, 3, and 4, and for another reason, which will be explained in its order.

Within the structure formed by the casement-walls A, cap-plate B, and floor B' a main door D, preferably comprised of two half-doors 1 2, is located, the main door being of such proportionate width and height as will permit it to nearly fill the space between these walls and the cap-plate and floor when inserted across the diameter of the latter-named parts. The meeting rabbeted edges of the half-doors 1 2 are connected by slide-bolts, as at *a*, any suitable number of which are employed to hold the joined edges of the doors from lateral displacement, or equivalent means for the purpose may be substituted for said bolts *a*. The edges of the joined half-doors—that is to say, the main door D, which are adjacent to the casement-walls A—are hinged at or near *b* to the near edges of vertical wings E, which latter are of equal height with the main door and are curved in cross-section to adapt them to lie closely to the inner surface of the casement-walls A, which they nearly equal in width.

The wing-walls E are connected at the top by a transverse bar F, which is firmly joined to said walls near their free vertical edges *c*, the width of the wing-walls being such with regard to the openings C' that they will seal said passage-ways when moved across them.

The upper edges of the joined half-doors 1 2 are notched at the point of junction, as at *d* in Figs. 1 and 3, for the loose engagement of the cross-bar F, and on the half-door 1 a vertical slide-bolt *e*, having a rounded body,

is adapted to be projected through an orifice *e'* in the longitudinal center of the cross-bar, so as to afford a revoluble support for the upper end of the main door D, said bolt end also projecting into an aligning socket-hole in the cap-plate B, as shown by dotted lines in Fig. 1.

At the lower edge of the main door D a slide-bolt *f*, similar to the bolt *e*, is secured in alignment with the latter, said bolt *f*, when downwardly extended, having a loose engagement with a socket-hole in the floor B', a washer-plate *f'*, that is located between the lower edge of the door D and floor, affording proper clearance for the door and adapting the door and attached wing-walls E for rotation on these bolt ends as journals, and it will be evident that a half-revolution of the main door D will afford exit or egress through the passage-ways C for one or more persons.

Preferably the half-doors 1 2 of the main door D are each provided with a window *g*, which may be made of any suitable dimensions, and in the cap-plate B a transparent piece *h* may be introduced as a skylight in the portion of said cap-plate which projects exterior of the building-walls C, so as to admit light into the device when the outer passage-way is sealed.

The wing-walls E should be made of comparatively light material, and to remove the strain of the hinged connection of the half-doors 1 2 from the wing-walls when they are separated and swung on said hinges there are slide-bolts *i*, secured to the sides of the half-doors near the hinges *b*, which bolts may be projected into sockets in the cap-plate B and floor B' in vertical alignment with each other, and thus serve as fulcrums for the support of the half-doors when they are swung in opposite directions to open a clear passage, as shown in Fig. 4.

The main door D is secured to the wing-walls E by the hook-bars G, or other equivalent means, which will stiffen the wing-walls and adapt them to conform to the curvature of the casement-walls A. The bars G, acting as stay-braces for said purpose, are preferably constructed as hooks, so that by their movable connection with the half-doors 1 2 and adjacent wing-walls E the half-doors may be quickly disconnected from the latter and be swung open independently. If the opposite passage-ways C' are to be used for the exit and ingress of persons when it is desirable to protect the house-entrance from the elements, the main door D is utilized, the simple act of pushing the door from either side in the direction of the curved arrows shown in Figs. 2 and 3, by the handle-bars *m*, or an equivalent device, causing said door to revolve and afford a free passage into or out of the house, the half-revolution of the door carrying the wing-walls across the openings C', so as to alternately close either of said openings while the door is being moved, which will prevent the influx of wind, rain, or cold into the building. As there must necessarily be a

slight crevice between the casement-walls A and the wing-walls E they are sealed by the weather-strips *n*, which are secured either on the faces of the wing-walls or the casement-walls near their vertical edges, which strips are furnished with pliable flaps *n'* (see Fig. 6) that will have a yielding contact with the walls named and seal the crevices between them. If the wing-walls E are adjusted to seal the openings C', as shown in Fig. 3, the main door D and attached wing-walls may be revolved to obtain access to the main door by utilizing the indented finger-catches *o*. (Shown in Fig. 2.)

Should there be any occasion which would require the use of the unobstructed passage-way through the openings C', this may be readily secured by the disconnection of the two half-doors 1 2 from each other and the simultaneous removal of the bars G and withdrawal of the slide-bolts *e f* and the depression of the slide-bolts *i* into their sockets, when the half-doors 1 2 may be swung on their hinges and opened, as shown in Fig. 4.

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

1. The combination, with two oppositely curved casement-walls, a peripherally-rounded cap-plate, and a circular floor, of a main door pivoted at its transverse center in the cap-plate and floor, and curved wing-walls attached to the vertical edges of the door, substantially as set forth.

2. The combination, with two oppositely curved casement-walls, a circular cap-plate, and a circular floor peripherally engaged by the ends of the casement-walls, of a main door composed of two half-doors pivotally engaged near its center of width with the cap-plate and floor, and curved wing-walls hinged and braced to the main door, substantially as set forth.

3. The combination, with two inwardly curved casement-walls of equal dimensions, a circular cap-plate having a skylight therein, and a circular floor equal in diameter with the cap-plate, of two half-doors rabbeted at their meeting edges, slide-bolts connecting said half-doors and forming a main door, slide-bolts on the main door adapted to engage the cap-plate and floor near the center of width of the main door, curved wing-walls hinge-jointed to the adjacent edges of the main door, and a centrally-perforated cross-bar connected by its ends to the free edges of the wing-walls, substantially as set forth.

4. The combination, with an apertured house-wall, of a storm-door structure composed of two curved casement-walls, a circular cap-plate, a circular floor or sill, a door revoluble between the cap-plate and sill, and curved wing-walls secured to the vertical edges of the door, substantially as set forth.

5. The combination, with an apertured house-wall, of a storm-door structure composed of two vertical curved casement-walls

of equal width, a circular cap-plate, a circular floor or sill, a pivoted main door between the cap-plate and sill, curved wing-walls attached on the edges of the main door, and a  
5 transverse bar engaging the top edges of the wing-walls near their free side edges, substantially as set forth.

6. The combination, with, a storm-door frame composed of two curved vertical casement-walls, a circular cap-plate, and a circular floor or sill, of two half-doors joined in the  
10 same plane to form a main door, vertical slide-bolts affording center-pivots for said half-

doors, curved wing-walls hinged to the side edges of the half-doors, slide-bolts secured on  
15 the half-doors at their top and bottom near their hinges and forming fulcrums for the half-doors, diagonal stay-bars between the half-doors and the wing-walls, and weather-strips adapted to seal the crevices between  
20 the wing-walls and the casement-walls, substantially as set forth.

CHAS. F. CHEW.

Witnesses:

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