No. 813,271. PATENTED FEB. 20, 1906.

J. ABRIM.

COMBINED STORM AND SCREEN DOOR.

APPLICATION FILED MAY 14, 1904.

Fig. 1.

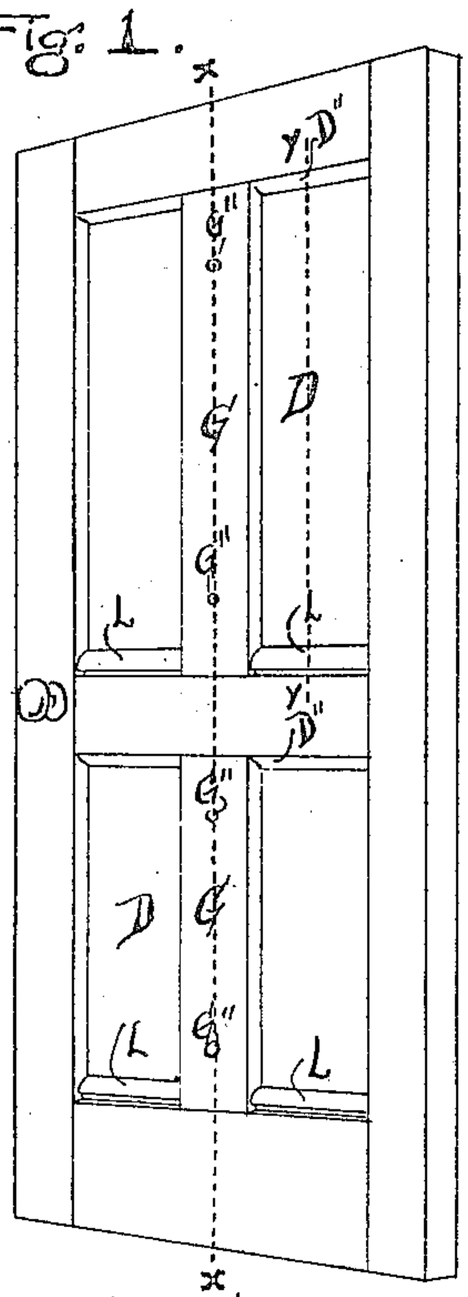


Fig. 2.

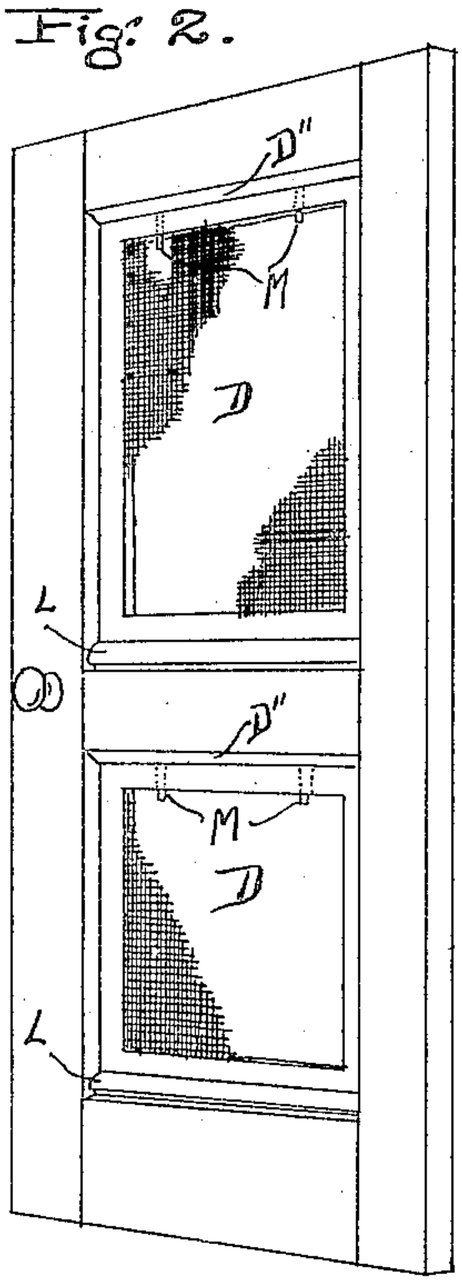
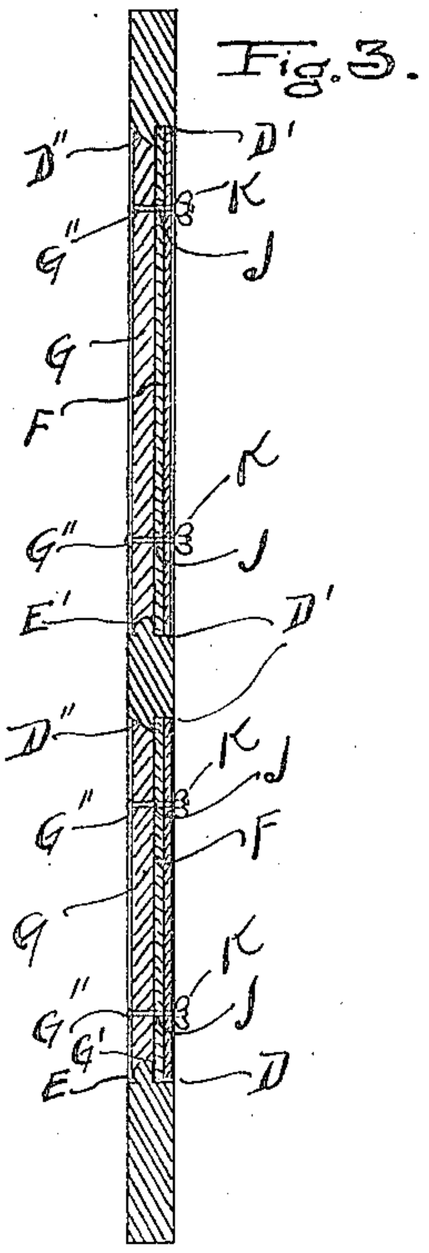


Fig. 3.



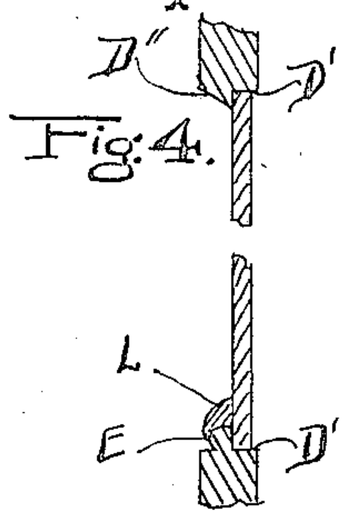
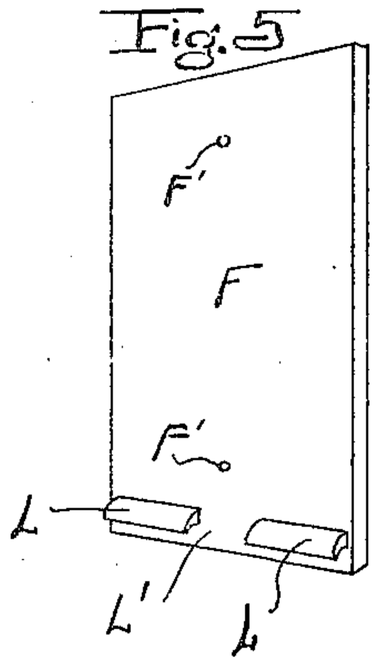


Fig. 4.

Fig. 5



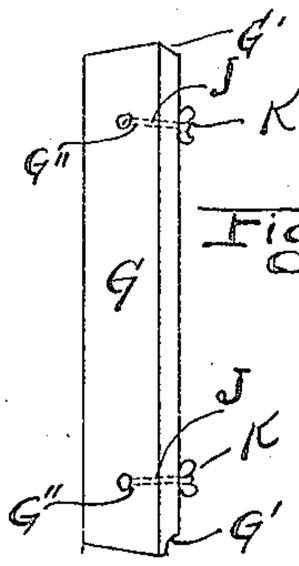


Fig. 6.

WITNESSES:

H. B. Smith.

John H. Longo.

INVENTOR

John Abrim.

BY

John H. Gourley.

his ATTORNEY

UNITED STATES PATENT OFFICE.

JOHN ABRIM, OF JOLIET, ILLINOIS.

COMBINED STORM AND SCREEN DOOR.

No. 813,271. Specification of Letters Patent. Patented Feb. 20, 1906.

Application filed May 14, 1904. Serial No. 207,995.

To all whom it may concern:

Be it known that I, JOHN ABRIM, a citizen of the United States, residing at Joliet, Will county, Illinois, have invented a new and useful Improvement in a Combined Storm and Screen Door, of which the following is a specification.

My invention relates to combined storm and screen doors of that class having a door-frame with the panels removable and interchangeable, said panels being solid or of glass for storm purposes and consisting of frames covered with netting for screen purposes.

I am aware that patents for combined storm and screen doors have been heretofore issued; but I am not aware that any of the doors described in such patents are in use, nor am I aware of any patents for combined storm and screen doors wherein the mullions used for securing the panels in place are entirely removable from the frame or wherein any means similar to that in my invention is used to secure a weatherproof joint at the most vulnerable place in the panels or door—namely, at the lower edges of the panels. I do not claim the removable panels as such.

The objects of my invention are to provide a door of the class described, the interchangeable panels of which may be easily and readily changed by an unskilled person; also, to provide a door of the class described wherein the act of affixing the panels renders them weather-tight and wherein they may be preserved in that condition without change of the structure regardless of atmospheric conditions; also, to provide such a door which when used as a screen-door will leave the entire screen-aperture free and unobstructed with any unsightly rods or braces, affording a free passage for light and air; also, to provide a combined storm and screen door wherein the means for securing the panels in place also braces the door-frame and wherein the securing means shall be inconspicuous and shall not detract from the general appearance of the door when used in either capacity; also, to provide a joint at the lower edge of each panel that will effectually exclude the air and moisture from the seat wherein the panel rests. I attain these objects by the construction which will be shown in the drawings hereto attached and made a part of this specification, and in which—

Figure 1 is a perspective view of the door adapted for storm protection. Fig. 2 is a perspective view of the door with screen-panels indicated in place. Fig. 3 is a section of the door on the line $x\ x$. Fig. 4 is a section of a part of a panel on the line $y\ y$. Fig. 5 is a view of a panel, and Fig. 6 is a view of the detached mullion.

In the drawings like letters indicate like parts.

I construct the frame of my door in the ordinary manner with stiles, rails, and base, except that I provide no mullions, leaving the entire space D, wherein the panels are usually secured permanently, open. The corners and other joints of the frame I make as usual in doors, except that I take especial precautions to have as firm joints as possible. Around the outer edge of each panel-opening on the inside of the door I plow out a groove D′ (shown in Figs. 3 and 4) of sufficient depth to admit the panel F. The tops of the openings D on the outside of the door are preferably beveled D″; but they may be provided with concave or convex quarter-round surfaces. The top of the middle rail and the top of the base being the bottoms of the panel-openings are provided with a convex molding E E′, the curvature being outward and preferably ceasing a short distance from the face of the rail or base.

The panels F are preferably constructed of a solid even-surfaced piece of wood or other material or of a frame having glass set therein adapted to exactly fit the openings and to rest in the grooves D′. It may be practicable to make the panels in sections; but I prefer to have the piece between each horizontal portion of the door solid. Mullions may be constructed as a part of the panel on the inner side, if desired, though such construction is not at all essential to the operation of my invention. I provide one or more half-mullions G, as the door is to be two, three, four, or more panels in design, detached from the panels and from the frame and of a design to correspond with that of the door. The ends of the mullions G′ are adapted to fit the moldings at the tops and bottoms of the openings D″ E E′. Through each mullion I provide apertures G″, corresponding with similar apertures F′ in the panels F. I provide bolts J, which pass through the apertures G″ and F′ and are secured on the inner side of the door by any suitable means, such as the wing-nuts K.

On the lower portion of the panels, either the solid ones or the screen-panels, the latter

not being shown in the drawings except in place in Fig. 2, I provide a molding L in cross-section either in the shape of a half-crescent with a concave under surface and a convex upper surface, the point of the crescent projecting downward, or in the shape of a scalene triangle with its smaller angle downwardly projecting. I prefer the crescent shape as fitting more closely. This molding L is affixed to the screen or panel with its inner edge at a height from the bottom thereof equal to the depth from top to bottom of the groove D′, so that the lower surface of the molding will rest snugly on the top of the rail or base E E′. On the screen-frames this molding L preferably extends entirely across the bottom, as I prefer not to use the mullions with the screens, while on the panels I leave a space L′ either exactly the width of each mullion to be used in the design or slightly narrower, in which case I may construct a shallow mortise on either side of the mullion to admit the molding L.

The frame being hung and fitted in the usual manner on the door-casing, the panels F or the screen-frames are fitted in place from the inside of the door in the grooves D′, the moldings L being placed over the edges E E′ of the rails or base. The mullions G are then placed in position on the outside of the door, as shown in Fig. 1, the bolts J inserted through the apertures G″ in the mullions and F′ in the panels F, and the nuts K screwed down firmly in place. The outside mullion is thus brought into close contact with the edges of the frame at the upper, D″, and lower, E E′, surfaces, and the panel F is drawn tightly into the groove D′, the molding L providing a shed-like protection from weather and the pressure of the nuts creating a great rigidity of the panel and its fastenings, which may be increased or lessened from time to time as the atmospheric conditions change.

The screen-frames are similarly fitted in place and may be made with a similar mullion-fastening; but I have found that the same rigidity is not necessary in the case of the latter, and so I provide some simple means of fastening the screen-frames at the top, such as the spring-bolts M, (shown in Fig. 2,) though the simpler expedients of a couple of screws driven through the screen-frame into the frame of the door will answer equally well.

As modifications of my invention may suggest themselves to one skilled in the art, I do not confine myself to the specific construction herein set forth.

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

1. In a combined storm and screen door, in combination, a frame having openings with moldings at top and bottom thereof, interchangeable panels adapted to fit said openings, and mullions detached from frame and panels adapted to fit the moldings at the top and bottom of said openings and to secure said panels in said openings, substantially as described.

2. In a combined storm and screen door, in combination, a frame having panel-openings, interchangeable panels adapted to fill said openings, a molding L^2 on said panels and moldings E, E′ on said frame providing a weather-tight joint between the bottom of said panels and said frame, and means J whereby said panels are secured in said openings, substantially as described.

3. In a combination storm and screen door, a frame composed of stiles, rails and base only, having openings D, in combination with panels F, detached mullions G, and bolts J passing through said mullions and said panels and adapted to secure both mullions and panels in said frame, substantially as described.

4. In a combination storm and screen door, in combination, a frame, interchangeable panels, a molding E, E′, on the top of each rail of said frame, a molding L on the bottom of each of said panels adapted to closely engage said moldings E, E′, substantially as described.

In witness whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN ABRIM.

Witnesses:
JOHN H. GARNSEY,
JOHN H. SAVAGE.