

(No Model.)

O. C. MUELLER.
STORM AND SCREEN DOOR.

No. 550,995.

Patented Dec. 10, 1895.

Fig. 1.

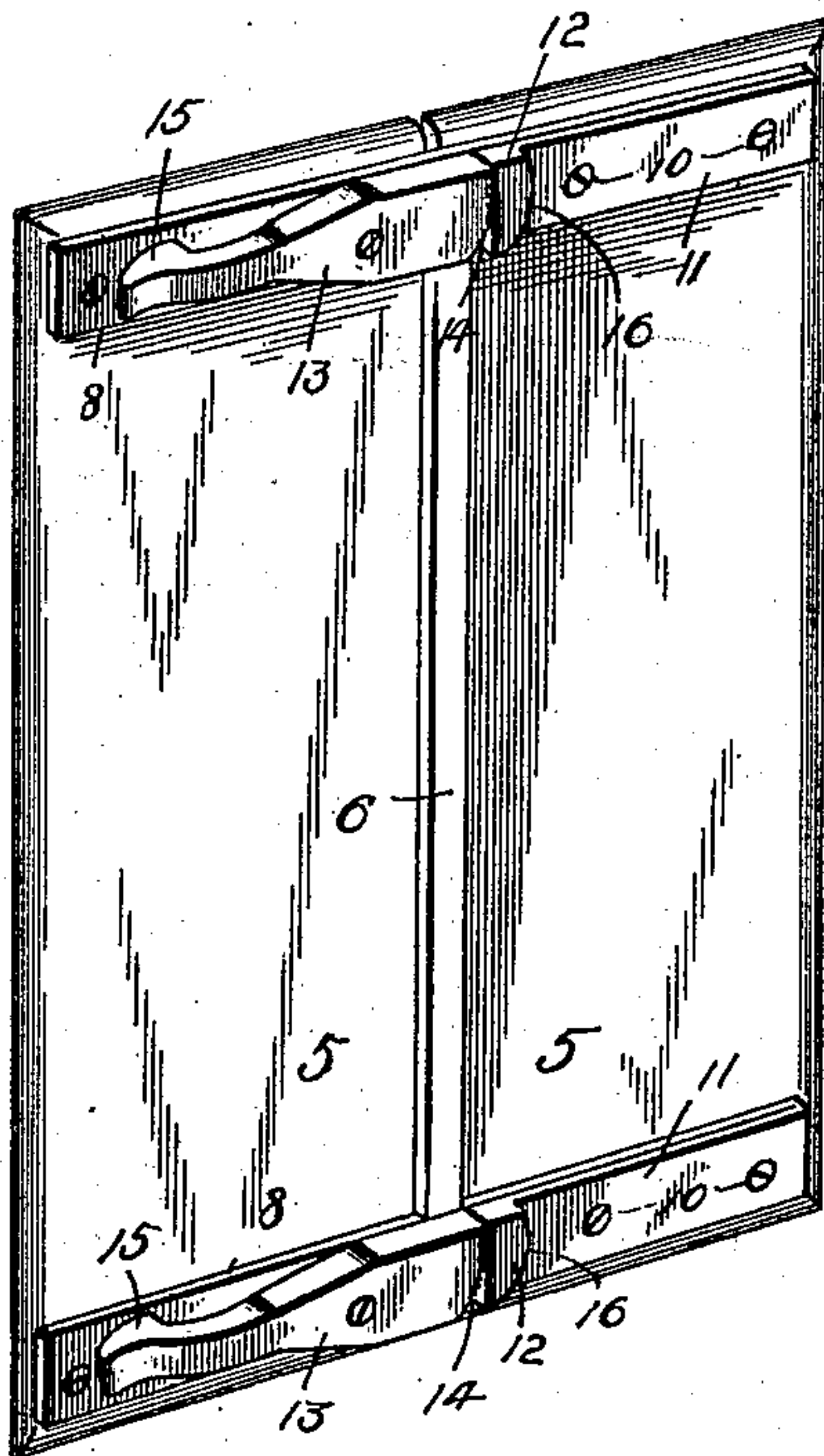
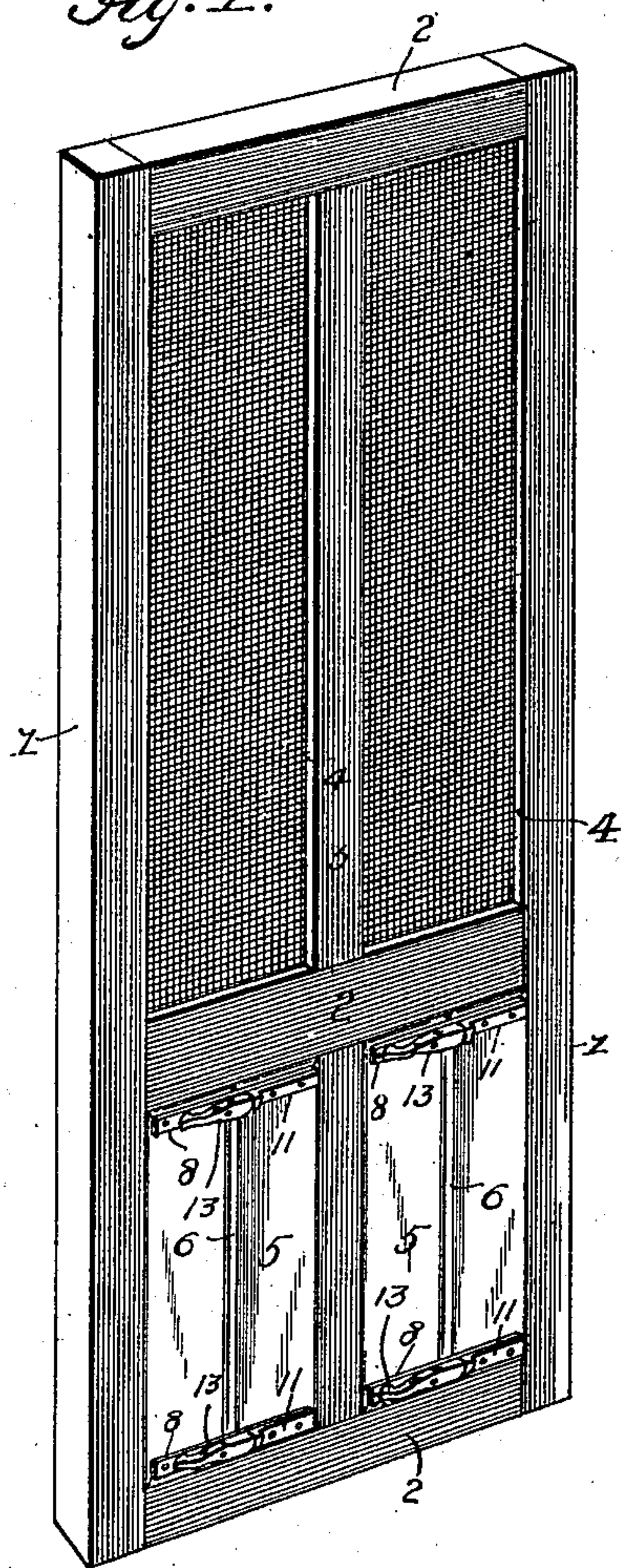


Fig. 3.

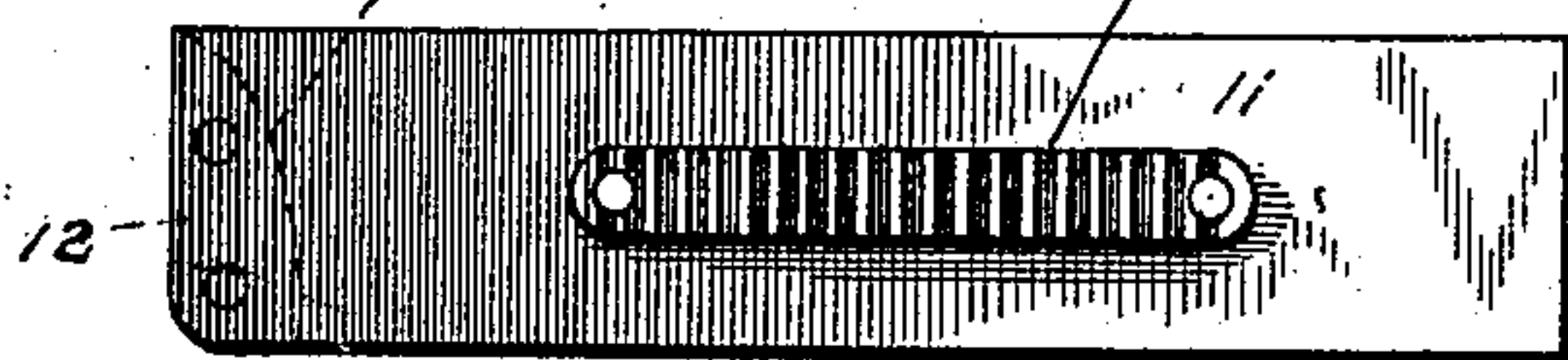


Fig. 5.

Fig. 2.

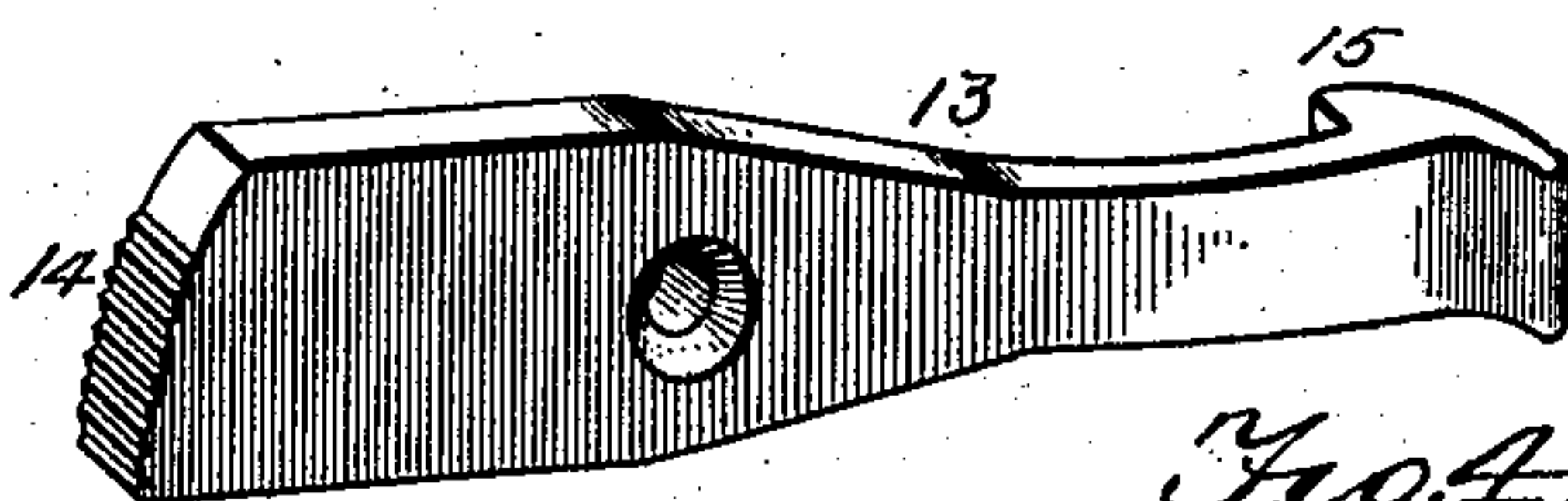


Fig. 4.

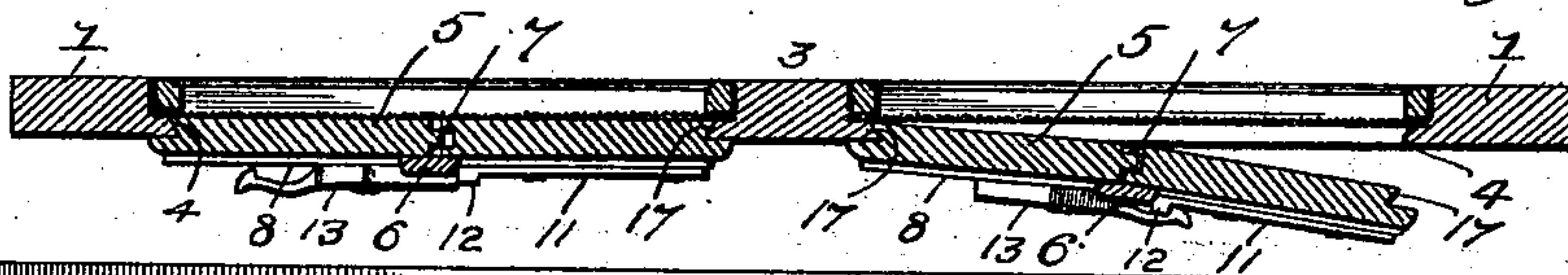


Fig. 6.

Inventor

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Witnesses

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UNITED STATES PATENT OFFICE.

OTTO C. MUELLER, OF HENDERSON, MINNESOTA.

STORM AND SCREEN DOOR.

SPECIFICATION forming part of Letters Patent No. 550,995, dated December 10, 1895.

Application filed May 8, 1895. Serial No. 548,595. (No model.)

To all whom it may concern:

Be it known that I, OTTO C. MUELLER, a citizen of the United States, residing at Henderson, in the county of Sibley and State of Minnesota, have invented a new and useful Storm and Screen Door, of which the following is a specification.

This invention relates to an improvement in combined screen and storm doors.

10 The object of the present invention is to provide a screen-door with removable panels of novel construction, whereby said door is adapted to be used either as a screen-door or as a storm-door.

15 A further object of this invention is to form the removable panels in such manner that they may be applied to and removed from the door without the aid of tools.

20 Other objects and advantages of this invention will appear in the course of the subjoined description.

25 In order to accomplish the objects above enumerated, the invention consists in certain novel features and details of construction and arrangement of parts, as hereinafter fully described, illustrated in the drawings, and finally embodied in the claims.

30 In the accompanying drawings, Figure 1 is a perspective view of a screen-door with a pair of my improved panels applied to the lower portion thereof. Fig. 2 is an enlarged horizontal section through the mullion and stiles of an ordinary screen-door, showing the manner in which the improved panels are applied thereto. Fig. 3 is a front perspective view of one of said panels. Fig. 4 is a detail view of the operating pry or lever. Fig. 5 is a similar view of the cam-plate. Fig. 6 is a detail view of the spring.

40 Similar numerals of reference designate corresponding parts in the several figures of the drawings.

Referring to the drawings, the screen-door represented therein comprises the usual stiles 45 1, rails 2, and mullion 3, and may be of any preferred form or size and ornamented in any manner desired.

50 In order to carry out this invention and to provide for the attachment of the removable panels, the opposite side edges of the mullion and the inner edges of the stiles are beveled or inclined inwardly or dovetailed, as indicated at 4, this being the only alteration and change necessary from a screen-door as ordi-

narily constructed; and such alteration or change not being noticeable to the casual observer.

The improved panel contemplated in this invention comprises two equal and similar sections or members 5, meeting at their contiguous vertical edges, one of said sections having secured thereto a cleat or strip 6, which is adapted to overlap the corresponding edge of the other section in order to form a tight junction and prevent the admission of air, rain, &c. In order to still further guard against the admission of air, rain, &c., between the panel-sections, the adjacent edges thereof are tongued and grooved, as indicated at 7, adapting said sections to have a slight movement toward and away from each other without throwing their edges out of engagement.

Secured to one of the panel-sections and in close proximity to the upper and lower edges thereof are a pair of flat or leaf springs 8, said springs being extended to pass across or partially across the front face of the other panel-section, where said springs are slotted, as indicated at 9, to admit of the passage of securing-screws 10, which hold and retain a cam-plate 11, one for each spring-plate, in place. The plates 11 are arranged outside of the springs, the latter being confined between said cam-plates and the outer surface of the panel-section. At its inner end the plate 11 is provided with a cam-shaped lug or projection 12, the purpose of which will appear. Said plate 11 is further provided on its rear face with a longitudinally-elongated and serrated boss 11^a, adapted to rest within the slot 9 in the spring 8 and bear against the panel for affording a firm support for the plate 11. The slot 9 of the spring is made sufficiently longer than the boss 11^a of the plate 11 to allow of a slight relative movement between said boss and spring and a corresponding lateral movement of the panel-sections toward and away from each other.

13 designates a pry or lever, one of which is used in connection with each spring at the top and bottom of the panel. Said lever is pivoted intermediate its ends and bears against the outer face of the spring 8. One end of said lever is provided with a rounded face 14, which is adapted to engage the outer vertical face of the cam lug or projection 12 as said lever is vibrated, the effect of which is to

force the panel-sections apart at their adjacent edges. The operative faces of the lever and the lug or projection 12 are preferably serrated or roughened, as indicated, so that
 5 said lever may be retained in its operative position while the panel is in place upon the door. The opposite end of the lever is provided with an inwardly-extending catch-lip
 10 15, which when the lever is reversed is adapted to engage the rounded face 16 of the cam lug or projection 12 on the plate 11, for the purpose of drawing the panel-sections together.

The opposite side edges of the panel-sections are rabbeted, as shown, the angle of the rabbets being acute and thereby forming tapering or inclined side edges 17, which correspond approximately to the inclined or tapering side edges of the mullion and stiles of the
 20 door.

In operation the improved panel comprising the two sections referred to is applied to the door in such manner that it will be engaged with either the mullion or one of the stiles
 25 first. The opposite end of the panel is then pressed against or toward the door, overcoming the tension of the springs 8, which normally bow inward, as indicated in Figs. 2 and 3. By now vibrating the operating-levers
 30 at the top and bottom of the panel the sections of said panel may be spread apart until the tapering side edges 17 engage and bind against the mullion and one of the stiles of the door. The springs 8 by their tension
 35 serve to bind the panels more firmly in place and at the same time prevent the panel-sections from warping when not in use. In order to remove a panel, the operating-levers are reversed until the catch-lips thereof engage the cam lugs or projections 12, whereupon the panel-sections will be drawn toward each other, and the panel as a whole may be removed from the door.

The panels as above constructed serve to
 45 materially strengthen a screen-door and keep the same in proper shape. It may be desirable at times to omit the upper panels of the door and to insert only the lower panels. This, while adding to the strength of the
 50 screen-door, protects the lower screens against injury, owing to the rough play of small children, the clawing of dogs, &c.

The panel constructed as above described will always retain its original shape and present a neat and attractive appearance. The improved panel, while especially designed for storm-doors, may of course be applied to doors of any description.

Various changes in the form, proportion,
 60 and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having thus described the invention, what
 65 is claimed as new, and desired to be secured by Letters Patent, is—

1. A removable panel for doors, the same comprising two separate sections having a sliding connection with each other and provided with inclined or beveled side edges, in
 70 combination with a metal plate or strip extending across the faces of said sections and secured thereto in a manner which will admit of said sections being moved toward and away
 75 from each other, an operating lever pivoted to one of the sections, and a plate secured to the other section and provided with a lug or projection adapted to be engaged by said lever, for the purpose and substantially as described.

2. A removable panel for screen doors, the same comprising two substantially similar sections connected with each other so as to be capable of a sliding movement whereby the panel as a whole may be expanded in width
 85 to fill the space between the mullion and stiles of a door, in combination with an expanding and contracting lever pivoted intermediate its ends to one of the panel sections and provided at one end with a rounded face or edge and
 90 adjacent to its opposite end with a lip, and a cam projection or lug secured to the opposing panel section and adapted to be operated upon by said lever either for expanding or contracting the panel, substantially as specified.

3. A removable panel for doors, comprising separate sections, a spring metal plate extending across the faces of said sections and connecting the same so as to render said sections
 100 capable of being moved toward or away from each other, said plate being longitudinally slotted, in combination with a plate arranged outside of said spring plate and provided with an inwardly disposed elongated boss extending through the groove in the spring plate
 105 and bearing against the face of one of the panel sections, an outwardly extending lug or projection upon said outer plate, and an expanding and contracting lever pivotally mounted on the opposing panel section, all
 110 arranged substantially as and for the purpose specified.

4. A removable panel for doors, the same comprising separate sections, a slotted spring metal plate connecting said sections so as to
 115 render the same capable of moving toward or away from each other, a plate secured to one of said sections by means of screws passing through the slots in said spring, an outwardly extending lug on said plate, and a lever connected with the other section and adapted to operate in connection with said lug for the purpose of moving said sections toward and away from each other, substantially as described.

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

OTTO C. MUELLER.

Witnesses:

ALBERT T. MUELLER,
 IRA V. WHITEMAN.