(No Model.) 4 Sheets—Sheet 1.

S. J. HORCHELER.

DOOR OR WINDOW SASH.

No. 588,527. Patented Aug. 17, 1897.

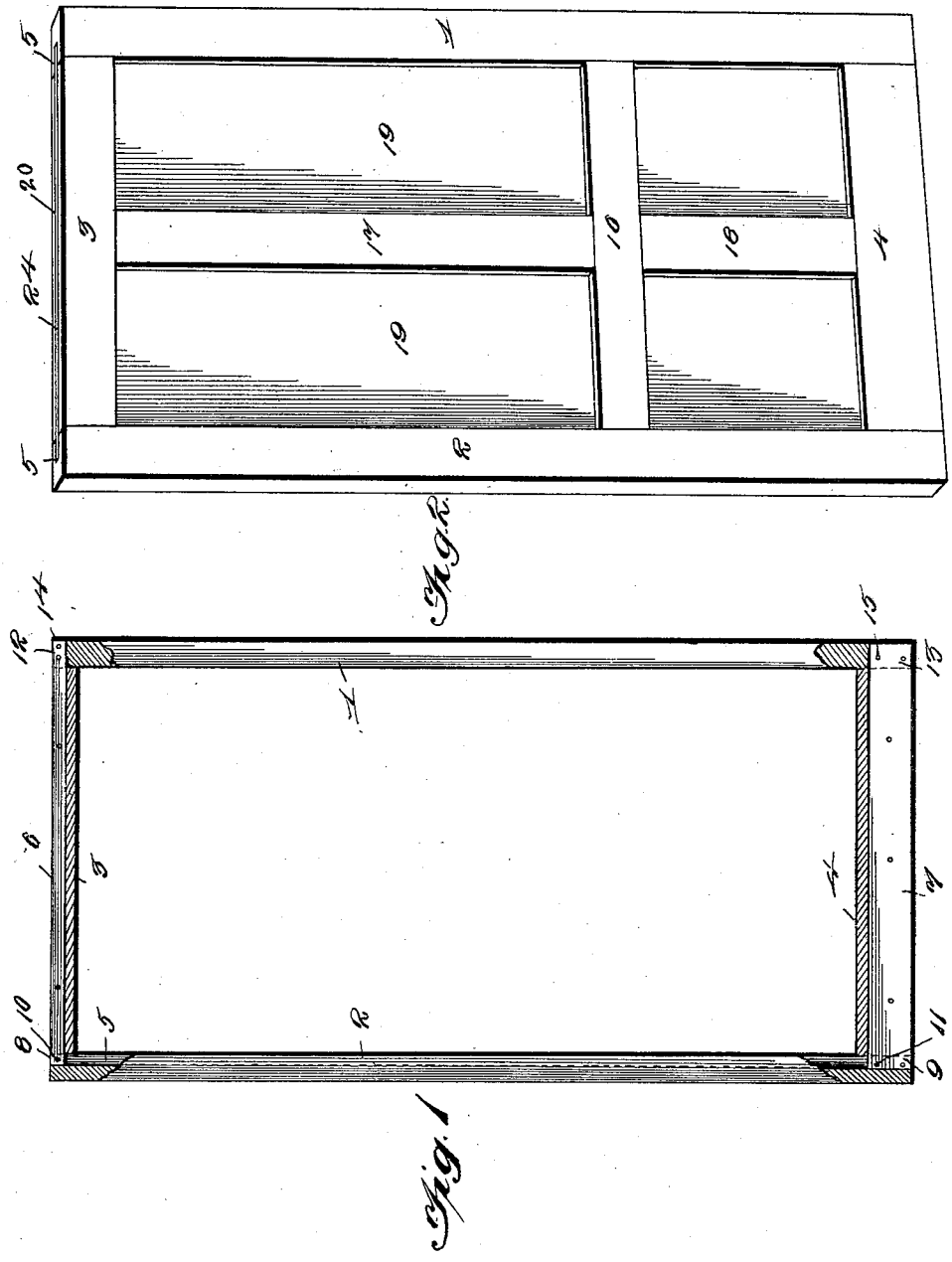


Fig. 1

WITNESSES

S. J. Koerth.

Henry A. Byrne.

INVENTOR

Solomon J. Horcheler,

by John Wedderburn

Attorney

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(No Model.) 4 Sheets—Sheet 2.

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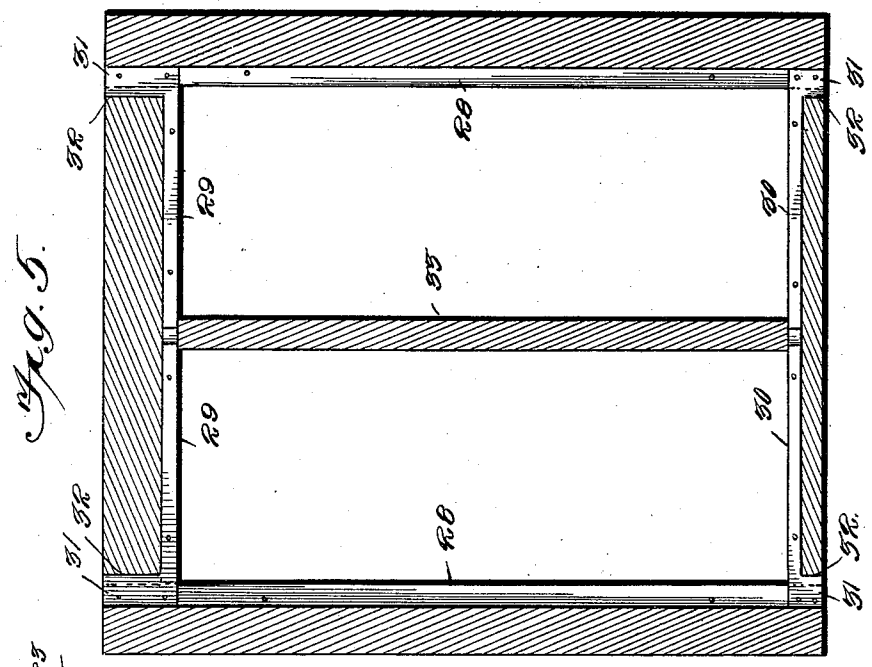


Fig. 5.

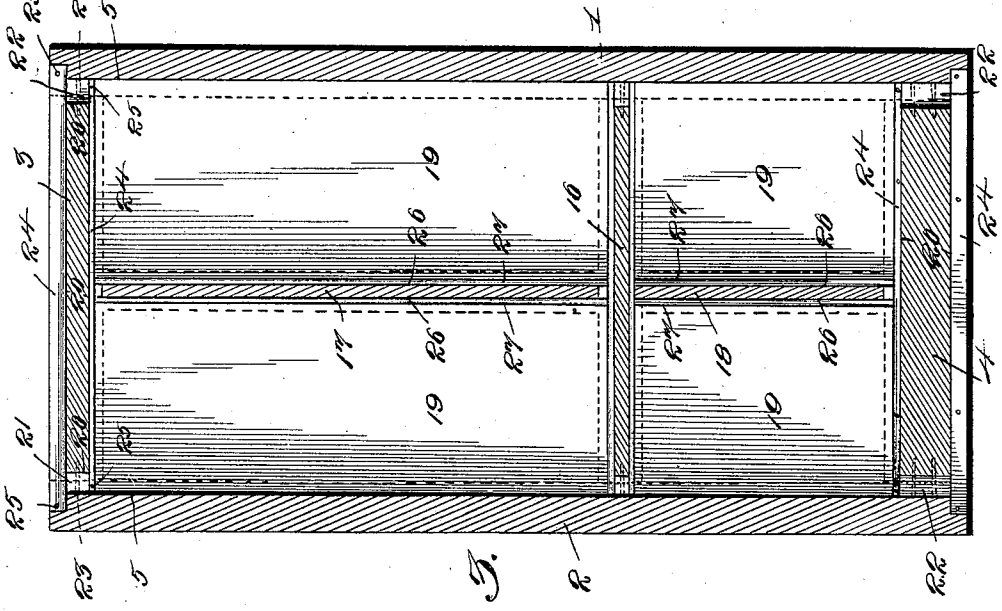


Fig. 7.

WITNESSES

E. J. Koerth.

Henry A. Byrne.

INVENTOR,

Solomon J. Horcheler,

by John Wedderburn

Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.)

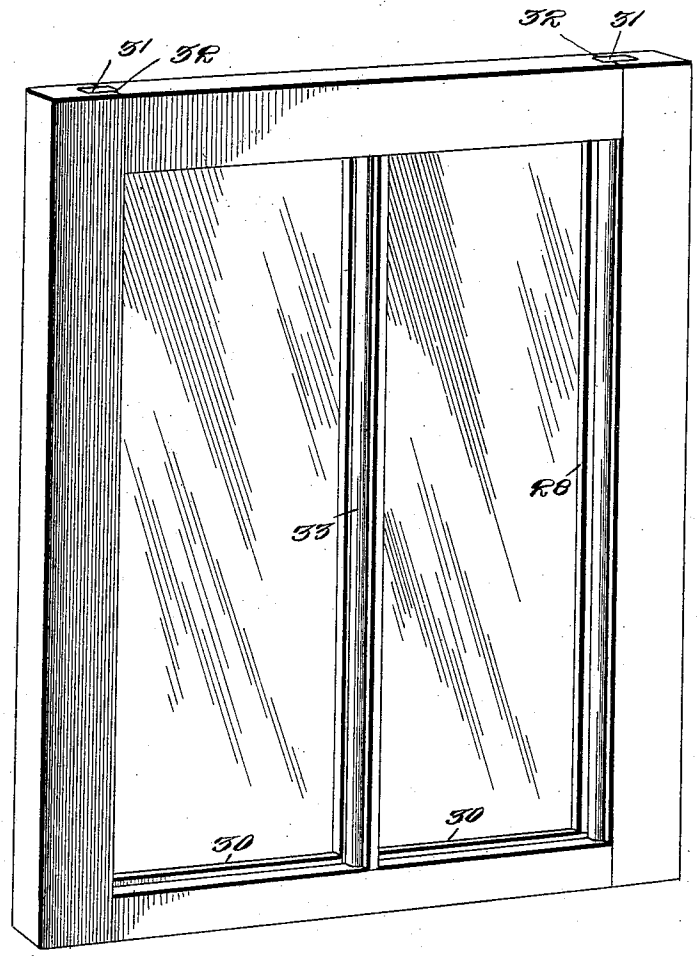
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S. J. HORCHELER.

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Fig. 4.



WITNESSES

S. J. Koerth.

Henry A. Byrnes.

INVENTOR,

Solomon J. Horcheler,

by John Wedderburn

Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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Fig. 6.

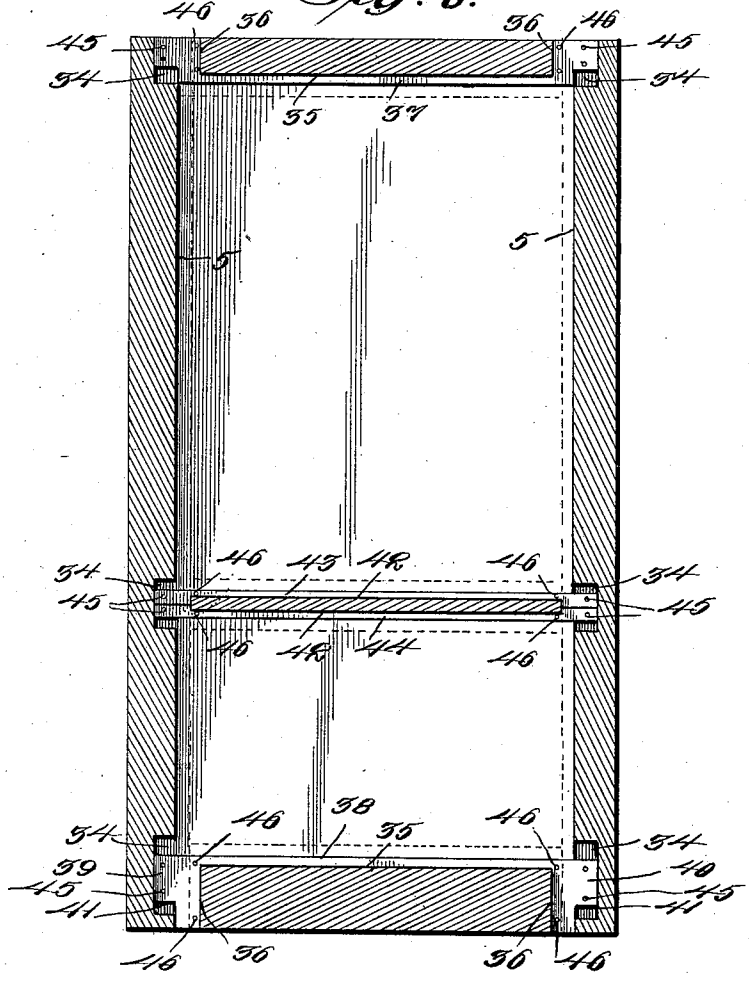
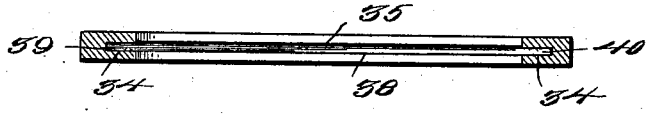


Fig. 7.



WITNESSES

S. J. Koerth.

Henry A. Byrne.

INVENTOR

Solomon J. Horcheler,

by John Wedderburn

Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

SOLOMON J. HORCHELER, OF ROCHESTER, NEW YORK.

DOOR OR WINDOW-SASH.

SPECIFICATION forming part of Letters Patent No. 588,527, dated August 17, 1897.

Application filed December 21, 1896. Serial No. 616,493. (No model.)

To all whom it may concern:

Be it known that I, SOLOMON J. HORCHELER, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Doors or Window-Sashes; and I 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.

My invention relates to doors and window-sashes.

My object is to simplify and cheapen the construction of doors, blinds, and sashes, and this is accomplished by the provision of certain improved tenons and fastening devices more fully described hereinafter and pointed out in the appended claims.

In the accompanying drawings, Figure 1 is an elevation, partly in section, of a screen-frame. Fig. 2 is a perspective view of a door embodying my improvements and shown in assembled arrangement. Fig. 3 is a longitudinal section showing the parts in their relative arrangement; Fig. 4, a view similar to Fig. 2, but disclosing a different construction; Fig. 5, a longitudinal section showing the device disclosed in Fig. 4; Fig. 6, a longitudinal section of a modification; and Fig. 7 a cross-section thereof, taken through the bottom rail.

Referring now to Fig. 1, the numerals 1 and 2 designate the stiles, and 3 and 4 the top and bottom rails, respectively. In this figure I have shown both a blind and a full tenon to disclose how either can be used on a screen. The stile 2 is provided with an inner longitudinally-extending groove 5, which extends only part way into the stile, but runs from end to end of the latter. The stile 1 is cut away or grooved only from its ends inwardly. The numerals 6 and 7 designate locking-strips, which are fitted in grooves made in the top and bottom rails, and at one side they are extended to form the blind-tenons 8 and 9, which are received in the grooves 5, and nails 10 and 11 pass through the blind-tenons and the stile 2. The other ends of the locking-strips are made into the whole tenons 12 and 13, which fit in the grooves at the ends of the stile 1, and nails 14 and 15 are employed to secure these tenons.

Referring now to Figs. 2 and 3, I have shown a door consisting of the stiles, the top and bottom rails, a middle or locking rail 16, the upper and lower muntins 17 and 18, and panels 19. The stiles are provided with the longitudinally-extending inner grooves 5, as in Fig. 1. The top and bottom rails are each provided with a groove 20, which extends completely around the same. In the end groove there are located tenons 21 and 22, which can be secured by nails 23, or they might be grooved, if desirable, and these tenons are received in the grooves 5. In the bottom groove 20 are fitted locking-strips 24, which may be fastened by nails or by clamping, and each has projecting ends that fit in the grooves 5 of the stiles. They serve to add additional strength to the connection between the rails and the stiles. Nails 25 pass through the tenons and the projecting ends of the locking-strips, whereby they are secured. The middle or locking rail is of substantially the same construction as the top and bottom rails, and it likewise has the locking-strips, lying in its upper and lower grooves, and the tenons. The muntins are longitudinally grooved, as at 26, and in said grooves there are fitted locking-strips 27, having projecting ends adapted for reception in the horizontal grooves of the rails.

Referring now to Figs. 4 and 5, I have shown a window-sash equipped with my improvements. Here the stiles are grooved, as usual, and in the grooves are set abutment-strips 28, against which the glass panes rest. The top and bottom rails are grooved longitudinally and receive locking-strips 29 in the instance of the top rail and 30 in that of the bottom rail. These locking-strips are made in the shape of a letter L, which has its base-piece projecting beyond the end of the rail and constituting a tenon 31. It is sometimes preferable to groove the end of the rail, as at 32, and to have the base of the L-shaped strip fitted in said groove. The strip can be fastened in position, as before described. The muntin or division-piece is shown at 33 and

it has its ends reduced and fitted in the grooves of the top and bottom rails between the inner ends of the locking-strips.

Reference being had to Figs. 6 and 7, it will be observed that another modified construction is disclosed therein. In addition to the longitudinally-extending grooves the stiles have pockets 34. The top and bottom rails are grooved along their upper edges, as at 35, and at their ends, as at 36. The numerals 37 and 38 designate locking pieces or strips, each made in a single piece having a portion which lies in the longitudinal grooves and other portions which extend at an angle thereto which lie in the end grooves. These end portions or tenons 39 and 40 are notched, as at 41, so that a tongue is provided which is received in the pocket in the stile and the remainder of the tenon fits in the groove of the latter. The middle or locking rail has a groove 42, which extends all the way thereabout. There are two locking-strips 43 and 44, which are the same general shape as the locking-strips just described, but the tenon ends are not cut away. These locking-strips lie in the grooves and have the projecting ends. The tenon ends project into the pockets directly. Nails 45 secure the locking-strips to the different rails, while nails 46 secure the tenons to the stiles.

It will be observed that when screens, doors, sashes, blinds, and the like are put together in accordance with my invention it is only necessary to saw and plane the different parts and nail them together, and hence frames can be produced at a small cost and with rapidity, while they will be exceedingly strong and durable.

Of course the locking-strips and tenons could be made of metal, if desirable, and, further than this, many changes might be resorted to by a skilled mechanic without detracting from any of the advantages of my invention, and hence it is to be understood that I do not limit myself to the precise construction herein shown and described, but consider that I am entitled to all such variations as come within the spirit and scope of the invention.

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

1. In a frame, the combination with stiles having grooves or recesses, of rails grooved from end to end, and locking-strips located in the grooves of the rails and having projecting ends which are received in the grooves of the stiles.

2. In a frame, the combination with stiles having grooves, of rails having tenons adapted for reception in the grooves of the stile, and also provided with additional grooves, and locking-strips received in the grooves of the rails and provided with projecting ends also received in the grooves of the stiles.

3. In a door, the combination with stiles having grooves, of rails having tenons fitted in said grooves, and said rails being provided with grooves, a muntin having grooves, and locking-strips located in the grooves of the muntin and having projecting ends received in the grooves of the rails.

4. In a door, the combination with stiles having grooves, of rails having tenons fitted in the grooves of the stiles, and also provided with upper and lower longitudinal grooves, locking-strips received in the grooves of the rails and having projecting ends fitted in the grooves of the stiles, a muntin having vertically-extending grooves, locking-strips fitted in said grooves of the muntin and provided with projecting ends received in the grooves in the rails, and panels fitting in the grooves in the stiles, the rails and the muntin.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

SOLOMON J. HORCHELER.

Witnesses:
W. C. KOHLMETZ,
WM. HORCHELER.