No. 651,994. Patented June 19, 1900.

# W. W. HOLLAND.

## SASH CONSTRUCTION.

(Application filed Apr. 13, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

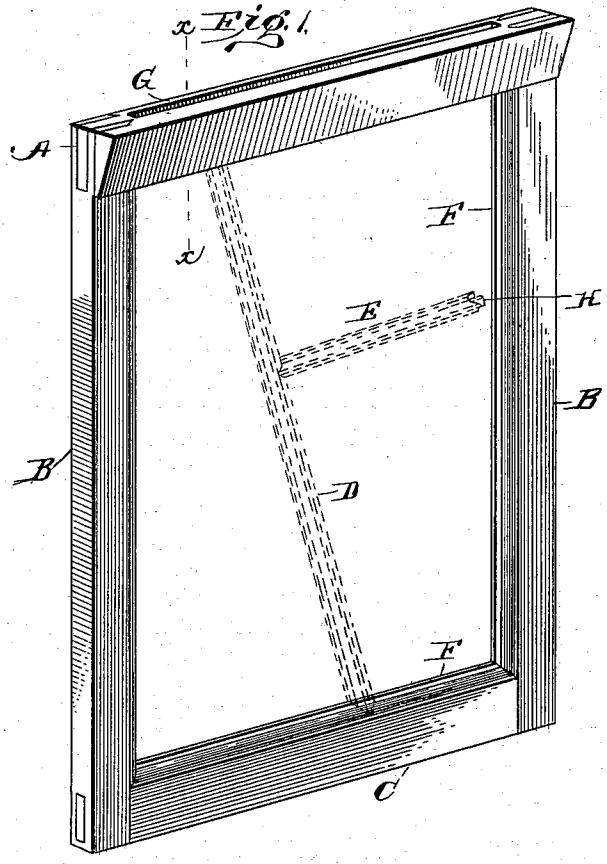



Fig. 2.

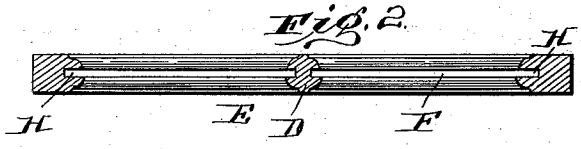



Fig. 3.

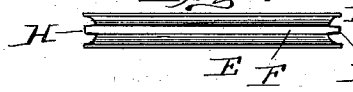



Fig. 4.




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(No Model.) 2 Sheets—Sheet 2.

Fig. 5.

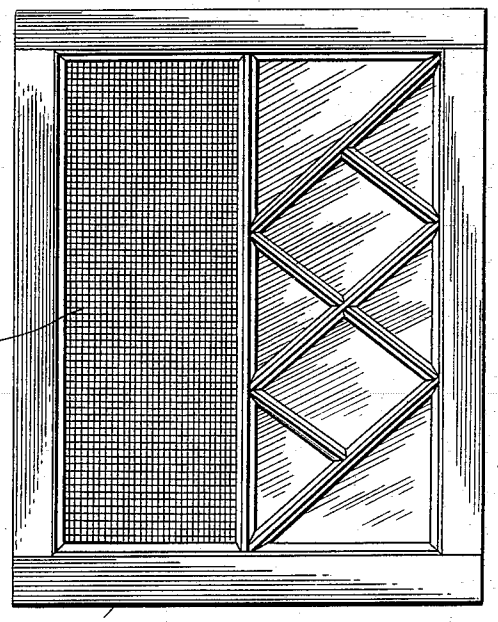



Fig. 5a

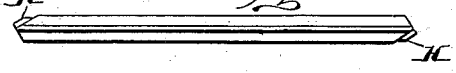



Fig. 6

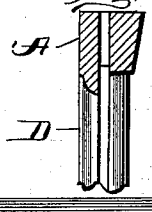



Fig. 7.

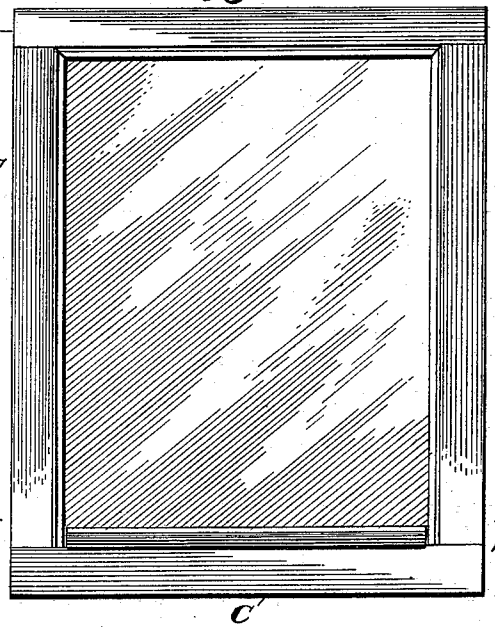
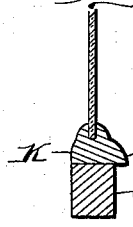



Fig. 8.




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# UNITED STATES PATENT OFFICE.

WILLIE WASHINGTON HOLLAND, OF BREMOND, TEXAS.

## SASH CONSTRUCTION.

SPECIFICATION forming part of Letters Patent No. 651,994, dated June 19, 1900.

Application filed April 13, 1900. Serial No. 12,736. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIE WASHINGTON HOLLAND, a citizen of the United States, residing at Bremond, in the county of Robertson and State of Texas, have invented certain new and useful Improvements in Sash Construction; 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 sash construction, and more particularly to that class having grooves in the inner edges of the rails, mullions, and stiles for the reception of the glass, which is thus held without putty or points.

One object of my invention is to further improve sash of this construction by providing means for detachably connecting the stiles and mullions each to the other and to the rails at any point, whereby the sash can be readily adapted to receive panes of like or varying proportions and shapes without changing the rails.

It is also my object to facilitate the removal of the glass, especially where large fixed panes are used; also, to provide sash of this character with fly-screens and blinds or shutters which are interchangeable each with the other and with the panes of glass, the screens being adapted to fill either the entire space filled by the glass or be interchangeable with individual panes, whereby a screened ventilating medium may be provided for a portion of the window, allowing the sash to be locked in either event.

In the accompanying drawings, forming a part of this specification, I have shown my invention as applied to a window-sash, though its adaptability to hot-house sash or to doors and other glass-holding frames is evident.

Figure 1 is a perspective view of the sash, showing in dotted lines manner of removing mullions and stiles. Fig. 2 is a cross-section of the sash, taken just above a stile. Figs. 3 and 4 are detail views of a stile. Fig. 5 is an elevation showing a screen in place of one of the detached panes, and Fig. 5ª the modified form of stile detached when diamond-shaped panes are used. Fig. 6 is a detailed section taken on line *x x* of Fig. 1, showing top of the mullion. Fig. 7 is a modified form of auxiliary stile for use when a single sheet of glass is inserted in the frame, and Fig. 8 is a detail view showing a cross-section of the auxiliary stile in position.

Referring more particularly to the drawings, A denotes the top rail of the sash, B the side rails, and C the bottom rail.

D denotes a mullion, and E a stile.

F denotes like grooves in the top, bottom, and side rails of the window-frame and also in the mullion and stile.

G denotes a slot extending through the top rail for the admission and removal of window panes, screens, and blinds or shutters.

H denotes tongues formed integral with the stiles and mullions, projecting at each end between the grooves in the same vertical plane therewith and adapted to fit into corresponding grooves F in the rails.

J denotes a screen having a thin metallic frame, the side rails of which are adapted to slide in the grooves F of the rails and mullions and its bottom rail to fit like grooves in the stiles. In the drawings said screens are shown as filling the space of a detached pane, providing a screened ventilating medium in part of the sash. Screens are also made to fill the entire space occupied by the glass, mullions, and stiles. The same kind of thin metal frame is used, and the auxiliary stile hereinafter mentioned may be used, if desired, for its bottom rail. By using a like thin metal frame with an opaque material I can also substitute a blind which would act as an inside shutter.

K denotes an auxiliary stile designed to rest upon the bottom rail of the sash, and serves as a purchase to lift or slide upward large or heavy panes of glass or large screens. The upper side of this stile is grooved to receive the glass or screen frame, while the lower side is a flat surface and, as shown in Fig. 8, projects beyond the lower rail, forming a ledge *k*.

Whatever the shape or size of the panes or screens may be, they may all be inserted through the slot in the top rail, which registers with the grooves in the side rails and in the mullions, the tongues of the mullions which enter said slot insuring exact register

of groove and slot. As the pane or screen is pushed down its lower edge fits in the groove in the upper side of the stile, the tongues of the stile fitting the grooves of the side rail and mullion, insuring exact register with said grooves of the groove in the stile.

The window frame and sash, including the stiles and mullions, may be made of metal wood—in fireproof buildings preferably of or metal, in which instance the blinds are made of thin sheet-steel. The stiles and mullions are of the same shape and proportions except in length and are provided with like grooves and tongues. This is an advantage, as it lessens the cost of production and adds to the convenience in handling. The mullions and stiles are removed, as shown in Fig. 1, by lifting at one end until the tongue at this end becomes disengaged with the groove F. Again, it is evident that the grooves being alike in mullion, stile, and rails and the tongues alike in mullion and stile the latter may be used in different lengths and hold panes of various sizes. Thus the same sash-rails will serve for different designs of windows, it only being necessary to adjust the stiles and mullions in the grooves to meet the size and shape of the panes. For example, if a single pane of glass is to be used all the stiles and mullions are removed and my auxiliary stile placed at the bottom, if desired. On the other hand, if the colonial design of windows is used the mullions and stiles are multiplied, if necessary, to support a number of panes. Again, if diamond-shaped panes are to be used the shape of the ends of the mullions and stiles would be changed to conform to the construction shown in Figs. 5 and 5ª.

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

1. In a sash having one rail slotted to admit glass and the opposite rail and side rails grooved to register with said slot, the combination of adjustable and detachable mullions having grooves and tongues which register with said slot and grooves whereby panes of glass of varying widths may be inserted and held in said sash.

2. In a sash having a slotted rail for the insertion of glass and other rails of said sash grooved to register with said slot, the combination of adjustable and detachable mullions having grooves and tongues which register with said slot and grooves, and adjustable and detachable stiles having tongues and grooves which register with grooves of said rails and mullions whereby panes of glass of varying sizes may be inserted and held in said sash.

3. In a window-sashing having its top rail slotted to admit the panes of glass and the side and bottom rails grooved to register with said slot, the combination of adjustable and detachable mullions having grooves and tongues which register with said slot and grooves, adjustable and detachable stiles having tongues which register with grooves of said rails and mullions, and a screen having a flat metal frame adapted to enter said slot and grooves and be detachably connected therewith.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIE WASHINGTON HOLLAND.

Witnesses:
E. B. MOORE,
HICKS HEARN.