

R. HENDERSON.

WINDOW.

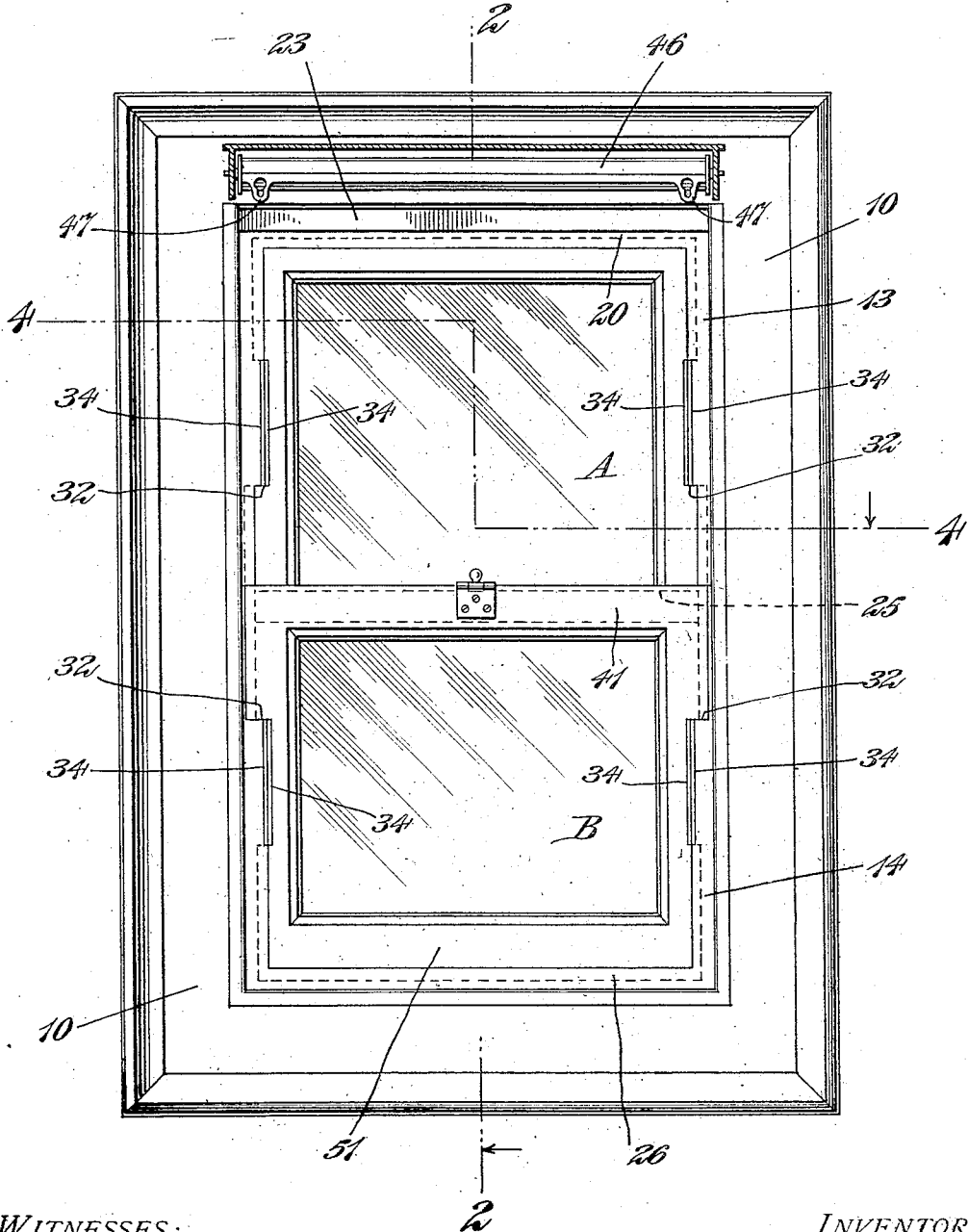
APPLICATION FILED AUG. 17, 1911.

1,054,116.

Patented Feb. 25, 1913.

3 SHEETS—SHEET 1.

Fig. 1.



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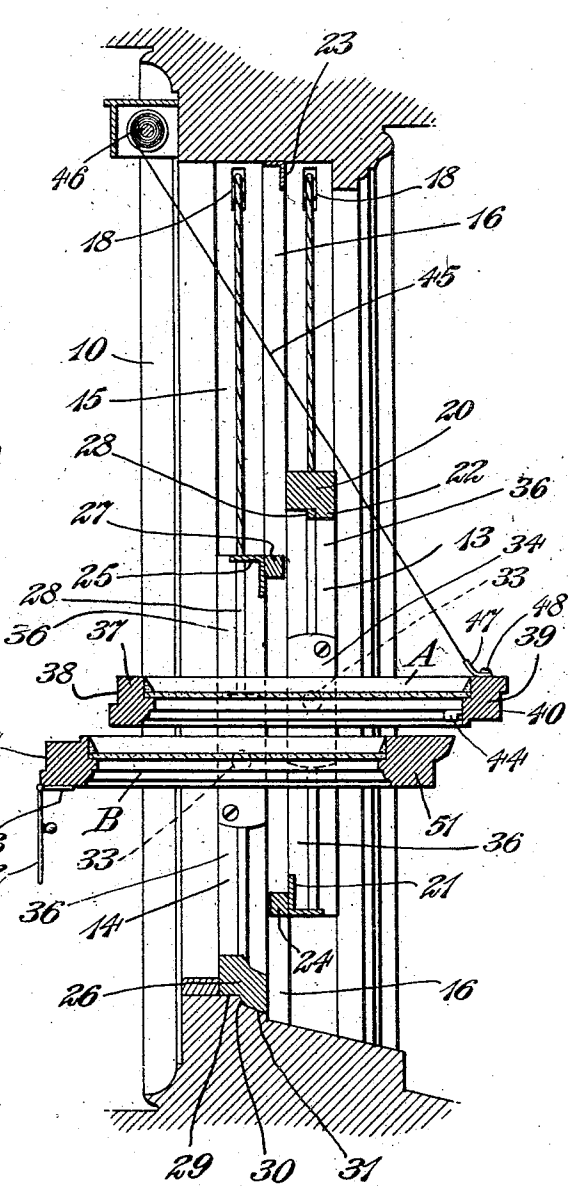
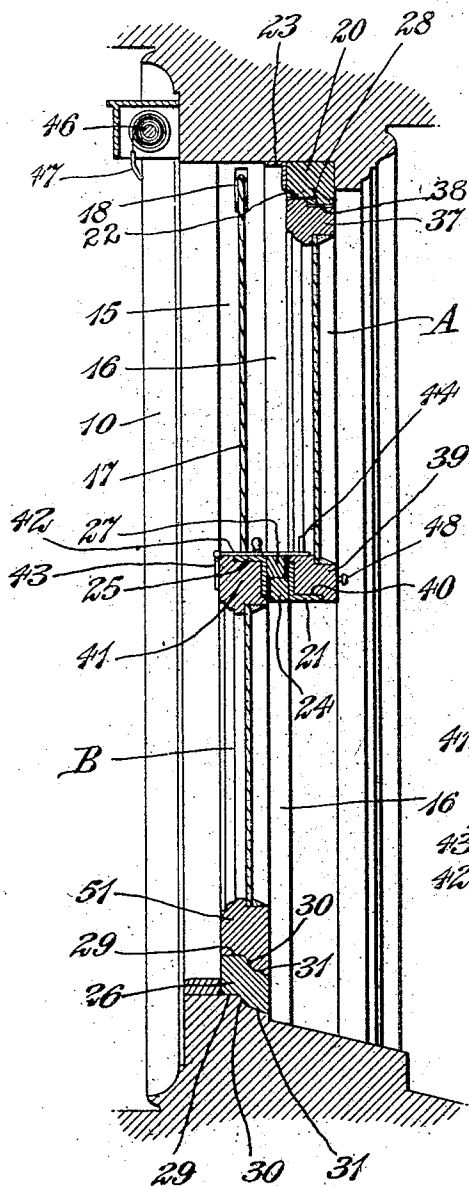
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3 SHEETS—SHEET 2.

Fig. 2.

Fig. 3.



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3 SHEETS—SHEET 3.

1,054,116

Fig. 4.

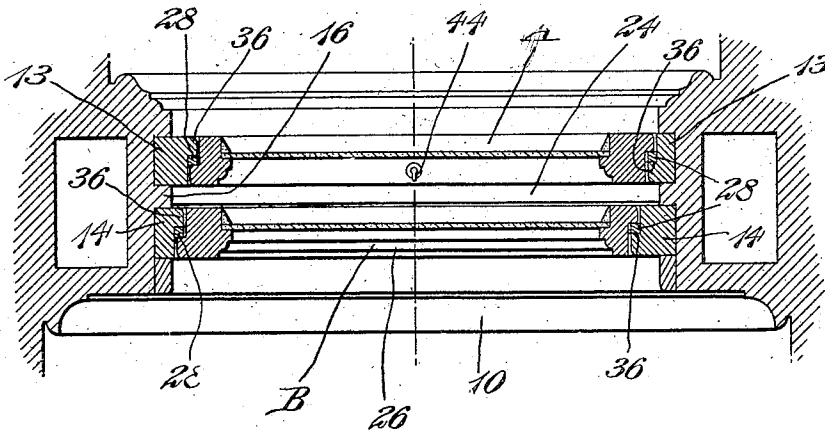


Fig. 5.

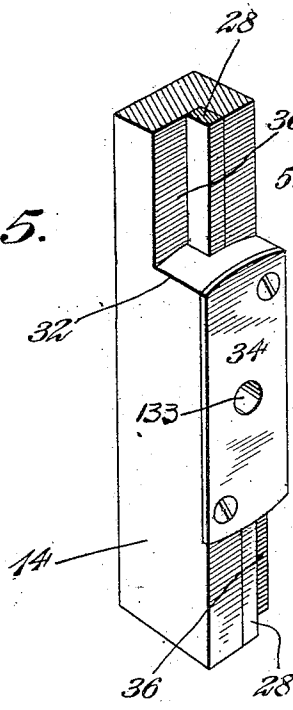
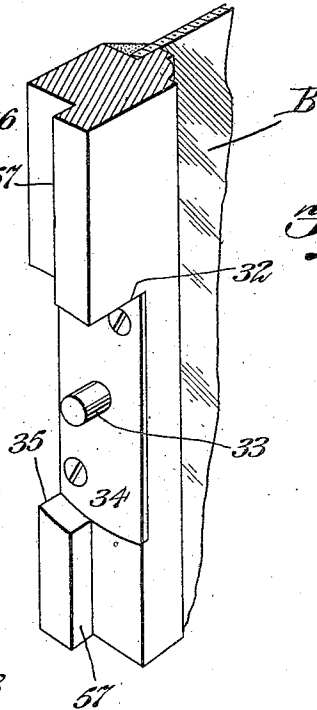


Fig. 6.



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WINDOW.

1,054,116.

Specification of Letters Patent.

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Application filed August 17, 1911. Serial No. 644,611.

To all whom it may concern:

Be it known that I, ROBERT HENDERSON, a subject of the King of Great Britain, who have declared my intention of becoming a citizen of the United States, residing in the city of New York, borough of Manhattan, county and State of New York, have invented a certain new and useful Window, of which the following is a specification.

10 This invention is a window, embodying sliding frames in which sashes are pivoted, whereby the frames are capable of sliding movement and the sashes, of a pivotal move-

15 In the practical embodiment of the invention a pair of sliding frames are employed which are hung or counterweighted like the usual window sash. Each of the frames is provided with a glass carrying sash, the side stiles of which are pivoted to the side stiles of its respective sliding frame. Moreover, each sliding frame, and the sash pivoted therein, are rabbeted on their meeting edges so that the sashes may be swung on their axes afforded by the horizontally disposed pivots, said rabbets affording weather joints when the sashes are in vertical, normally closed position. Furthermore, the sashes are so proportioned that when the frames are slid into juxtaposition, the sashes may be simultaneously tilted on their horizontal axes, the narrowest portion of one sash passing through the widest part of the frame of the other sash, and vice versa.

20 The invention comprises other features of construction which are illustrated in the accompanying drawings, and which will be more particularly hereinafter described and claimed.

25 In the accompanying drawings, I have illustrated one practical embodiment of the invention, but the construction shown therein is to be understood as illustrative, only, and not as defining the limits of the invention.

30 Figure 1 is a front elevation partly in section of a window embodying the invention. Fig. 2 is a vertical section on line 2—2 of Fig. 1 showing sashes in their closed position. Fig. 3 is a vertical section illustrating the position of the sashes and their frames when both sashes are swung open. Fig. 4 is a transverse section on the line 4—4 of Fig. 1, both sashes being positioned

together. Fig. 5 is a detail view of one side stile showing one pivotal socket. Fig. 6 is a detail view of a portion of a stile of a window sash showing pivotal bearings which cooperate with the socket of Fig. 5.

35 The window 10, which may be of any preferred construction and of any suitable material, is provided with upper and lower sashes, indicated at A and B, respectively, and these sashes are mounted for pivotal movement within sliding frames, one of which 13 supports the upper sash and the other 14 carries or supports the lower sash. The frames 13, 14 are slidably mounted in suitable guides 15 of the window casing and are separated by the usual parting strip 16. These frames 13, 14 and their sashes are counterbalanced by suitable sash weights (not shown) said weights being connected to each frame by flexible connections, such as a rope or chain 17, which extends from the weight over a pulley 18 to a side strip of the frame to which it is attached in any suitable manner. The sash frame, including its attached sash, is capable of vertically sliding movement with respect to the window casing, as is usual with counterweighted window sashes of ordinary construction. Sash frame 13, for the upper window sash, comprises side members of any preferred form which slide in the guides 15 and which are connected for simultaneous vertical movement by the cross rails 20, 21, the upper rail 20 of said sash, being of any preferred form in cross section, such as a rectangular rail, to form a tight wind joint with the window casing. This rail 20 is preferably rabbeted at 22 to limit the outward movement of the upper sash and to secure the desired wind joint. Rail 20 cooperates with a transverse angle iron 23, to produce a tight wind joint and prevent rattling of the sash frame. This angle iron 23 is preferably secured at its ends to the parting strips 16 and along one wall thereof to the upper part of the window frame. The lower rail 21 of the frame 13 is constructed, preferably, of metal and is angular in cross section, producing a horizontal wall and a vertical wall, and affixed to said vertical wall, and extending the full length thereof, is a strip 24, the purpose of which will hereinafter appear.

The lower sash frame 14 is, in all substantial respects, similar in construction to the

upper sash of frame 13, in that it embodies the side members positioned to slide in the casing guides 15, and cross rails 25, 26, which are similar to cross rails 21, 20, respectively, of sash frame 13. The upper cross rail 25 of the lower sash is angular in cross section, having a vertical wall and a horizontal wall, the vertical wall being provided with a strip 27, secured thereto similar to the strip 24 of frame 13. Strips 24 and 27 are preferably angular in cross section and are so united to the cross rails 21, 25 that said strips will cooperate, when the sash frames are in their uppermost and lowermost positions, respectively, to form an angular or zig zag wind joint, as clearly illustrated in Fig. 2. To construct this wind joint I prefer to position the angular cross rails 21, 25 so that their vertical faces are parallel, but their horizontal faces are in different horizontal planes. The upper and lower faces of lower rail 26 may be of any desired form in cross section to form a wind and weather joint but in the preferred construction the upper and lower faces of the rail are preferably provided with a horizontal face 29, beginning at the inner edge of the frame and extending for a portion of the thickness of the rail. The rail is then cut downwardly as at 30, at an angle of approximately 50° or 60°, for a short distance, thence at a less angle (at 31) say 20° or 30° to the other or outer face of the rail. The lower rail of window casing 10, and the lower rail of window sash B, are correspondingly cut so that said rail 26 will form a tight wind and weather joint between the cooperating rails.

If desired, the inner faces of the sash frames 13, 14 may be provided with a weather strip 28 to insure weather proof joints between the sashes A, B and the several rails of the sash frames.

The sashes A, B, are mounted for pivotal movement on a horizontal axis. This pivoting may be accomplished in any suitable manner, such as that illustrated in Figs. 5 and 6 of the drawings, wherein a pin 33, cooperates with a circular aperture 133, to form one point of pivoting for the sash, certain bearings 34, being provided for smoother operation.

By reference to Fig. 1 it will be seen that sash A is reduced in width beginning at the pivot bearings 34 and ending at the top of the frame; and it will be observed, further, that sash B is similarly reduced in width beginning at pivot 33 and ending at the bottom rail 26 of lower frame. Sashes A and B are therefore cut away to reduce their width at opposite ends of the window, or reversely to each other, as shown in Fig. 1. The sashes A, B are thus cut away to permit said sashes to swing through the sash frames and clear of the

side rails of such frames. The sashes and their frames are provided with a circular bearing 34 and, if desired, with a stop 35 to limit the pivotal movement of the sash. Frames 13 and 14 are provided with rabbets 36 which are engaged by the edges 57 of the wide portions of sashes A, B, to limit the pivotal movement of the sashes in one direction. Accordingly, when the top faces of the upper rails of the two sashes A, B are flush with each other, both sashes can be simultaneously turned on their pivots, for the reason that the narrow portions of the sashes will pass through their respective frames and also the frame of the adjoining sash, the wider portions of both sashes swinging into the building. This adjustment of both sashes is effected at one operation, for the reason that pressure applied against the lower rail of sash B operates to swing the rail through the sash frame 14 and against the lower rail of sash A and, in like manner, to swing said sash A out of engagement with the top and bottom rails of frame 13, thereby turning both sashes to the position shown in Fig. 3.

The top rail 37, of upper sash A, is rabbeted at 38, whereby it is adapted to cooperate with the rabbeted top rail 20, of the frame 13, and the lower rail 39 of sash A fits into the angular rail 21 to form a tight joint and limit the pivotal movement of the sash in a manner to avoid injury to the rabbets 57 of the sashes A, B and the sash frames. If desired, this rail 39 may be cut away as shown at 40 in Fig. 3, to snugly fit the angular rail 21.

The upper rail 41 of sash B is constructed, in all substantial respects, like rail 39 of sash A so that it will cooperate with angular cross rail 25 of lower sash 14 to limit the movement of the upper end of the sash B toward sash A. The lower rail 51 of sash B is constructed to fit the weather tight joints 29, 30, 31 of the lower frame.

When the sashes A, B are in their closed positions as shown in Figs. 1 and 2, they may be retained in such positions against vertical or pivotal movement by a locking plate composed of two members 42, 43 hinged together; one member 43 being screwed to the front face of transverse rail 41 of lower sash B, whereas the other member 42 is adapted to span both meeting rails, *i. e.*, 41 of the lower sash and a portion of rail 39 of the upper sash. Plate 42 is provided with an aperture through which is passed the turn button 44 secured on rail 39, thereby locking both sashes against pivotal or sliding movement.

Inside the window casing is a curtain 45, mounted upon a suitable roller 46, said roller being journaled in suitable brackets or bearings (not shown). This curtain may be used in lieu of the ordinary window shade

and be mounted on a spring roller, or may be raised and lowered by any other suitable means. This curtain 45 is provided also with suitable clips 47 which are adapted to engage with pins 48 on the outer face of the lower rail 39 of the upper sash A when said sash is swung to the position shown in Fig. 3, thereby forming an awning.

The operation may be described as follows:—Assuming that the sashes are closed as shown in Fig. 1, button 44 is turned to release locking plate 42 from engagement with sashes A, B. Either sash A or B may now be tilted or turned on its horizontal pivots 32 to the desired inclined opened position, and the locking devices of pivots 32 will operate to retain the sash in such position. The sash may be moved in a vertical direction by sliding its frame 13 or 14 within the casing guides 15, and this vertically sliding movement may be effected not only when the sash or sashes are closed with respect to their frames 13, 14, but also when said sashes are swung open. Sashes A and B, together with their frames 13, 14, may be moved vertically until said sashes are oppositely disposed, or in corresponding positions. When in this position pressure may be applied to the lower rail 51 of sash B to release said sash from engagement with the bottom and top rails 26, 27, respectively, of the frame 14 and to force the rail 51 into engagement with rail 39 of the adjacent upper sash A, thereby pressing that sash out of engagement with the upper and lower rails 20, 21, of its frame 13, whereupon both sashes A and B may be simultaneously turned on their pivots to parallel horizontal positions, and this conjoint movement of the sashes may be effected by one hand of the operator. The sashes adjusted to the horizontal position shown in Fig. 3, may be moved simultaneously upwardly or downwardly with respect to the window casing, by a vertical movement of the sash frames 13, 14 and the sashes within the window casing 10. To return the sashes A, B to their normal positions with respect to their frames 13, 14 it is only necessary to swing the sashes on their pivotal supports 32 by forcing rail 41 toward and into engagement with its cooperating rail 25 of frame 14, thereby at the same time forcing rail 37 of upper sash A into engagement with rail 20. When sashes A and B are swung to the position shown in Fig. 3 for the purposes of ventilation, the curtain 45 may be drawn from the interior of the window through the casing 10 outwardly to the exterior of the window, and then secured by means of clips 47 and pins 48 to the lower rail 39 of sash A, thereby adapting the curtain to serve as an awning, and at the same time permitting the ventilation of the room. By mounting the curtain on a spring actuated roller 46, the curtain will

automatically remain taut when the sashes are moved to different horizontal positions with respect to the casing 10.

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

1. A window casing having frames mounted for vertical movement therein, each frame being provided with a plurality of rabbets which are in different vertical planes, and sashes mounted within said frames for movement on a horizontal axis, each of said sashes being reduced in width for a portion of its height, whereby said sashes may be moved to a position opposite to each other and be simultaneously swung through said frames in one direction, out of the path of the rabbets of said frame.

2. A window casing having a plurality of frames mounted for vertical movement therein, each of said frames being provided with rabbets which are in different vertical planes, which rabbets are positioned reversely to each other for a portion of the height of said frame, and a plurality of sashes mounted for pivotal movement through said frames, each of said sashes being reduced in width for a portion of its height and provided with means cooperating with the rabbets of said frames for the purpose of precluding the movement of the sashes in one direction, and producing a weather tight joint.

3. A window having a plurality of slidable frames, sashes mounted for pivotal movement in said frames, each sash being reduced in width for a portion of its height, and provided with rabbets at its reduced portion, said sashes being mounted in pairs with the reduced portion of one sash positioned in its frame the reverse to the reduced portion of the other sash, each of said frames being provided with a plurality of reversely positioned rabbets which cooperate with the rabbets and the wide portion of said sashes, whereby when said sashes are moved in a vertical direction to the same horizontal plane, they may be simultaneously turned into inclined and horizontal parallel positions.

4. In a window, a pair of sliding frames, each of said frames having the inner edges of its side stiles cut away for substantially one-half their height, said side stiles being rabbeted at the cut away portion of its inner edges and also in the uncut portions thereof, and the rabbets being positioned reversely to each other relative to the faces of the frames, in combination with sashes mounted for pivotal movement on horizontal axes in the frames, each of said sashes being reduced in width for a portion of its height whereby it is adapted to conform to the cut away stiles of the frame to which it is pivoted, and flanges on the lateral edges

of said sashes reversely positioned to each other for the purpose of cooperating with the rabbeted edges of their respective frames and form a weather joint, the aforesaid cutting away of the frames and of the sashes being of such extent as to allow the narrow portion of one sash with its attached flanges to pass through the narrowest part of the wide portion of the frame of the other sash, and vice versa, whereby the two frames may

be brought into juxtaposition and their sashes simultaneously tilted.

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

ROBERT HENDERSON.

Witnesses:

M. E. FREEMAN,

J. F. MOTHERSHEAD.