No. 631,564. Patented Aug. 22, 1899.

W. J. DUNN.

WINDOW.

(Application filed Mar. 10, 1899.)

(No Model.) 3 Sheets—Sheet 1.

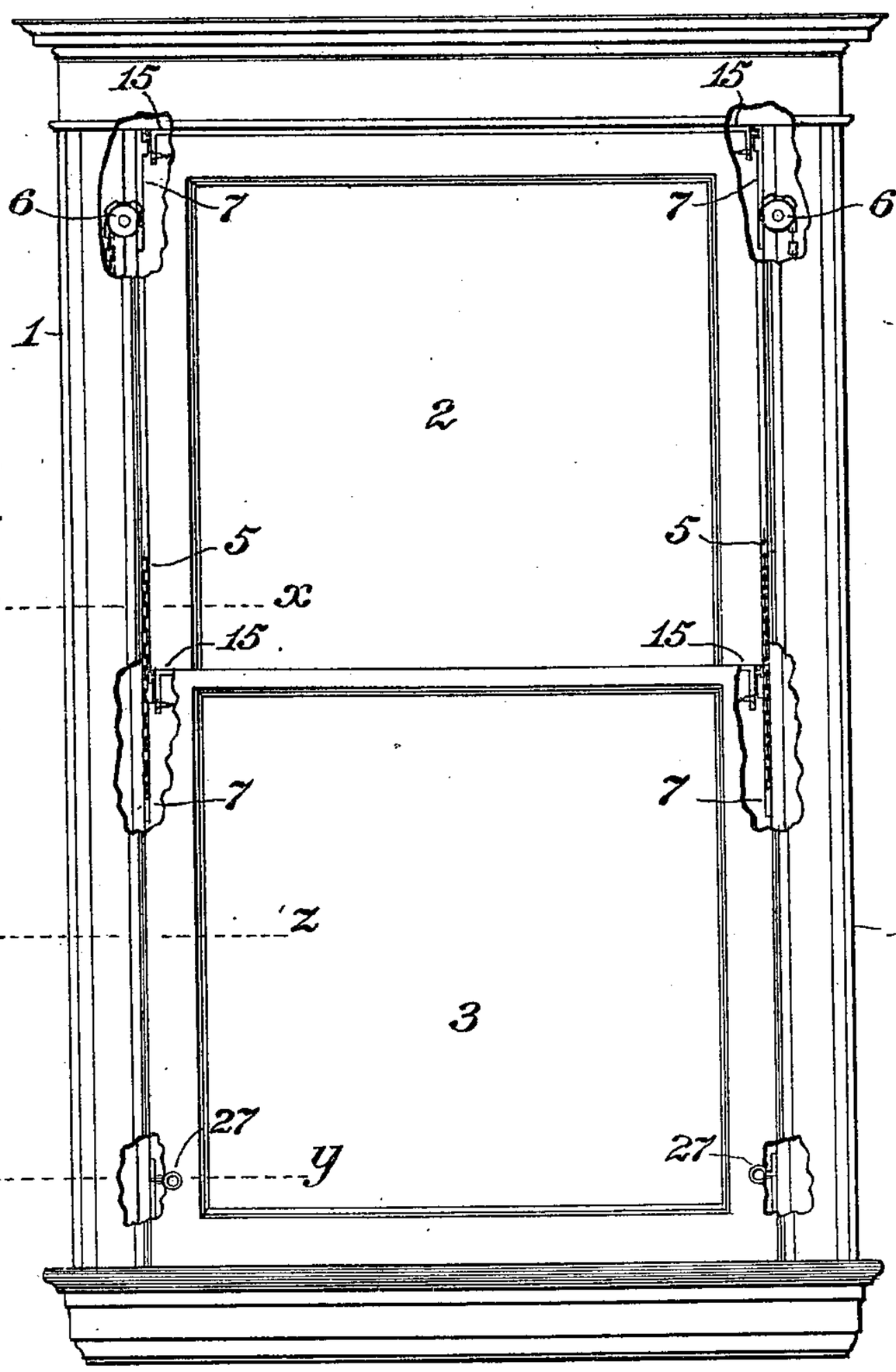

FIG. 1.

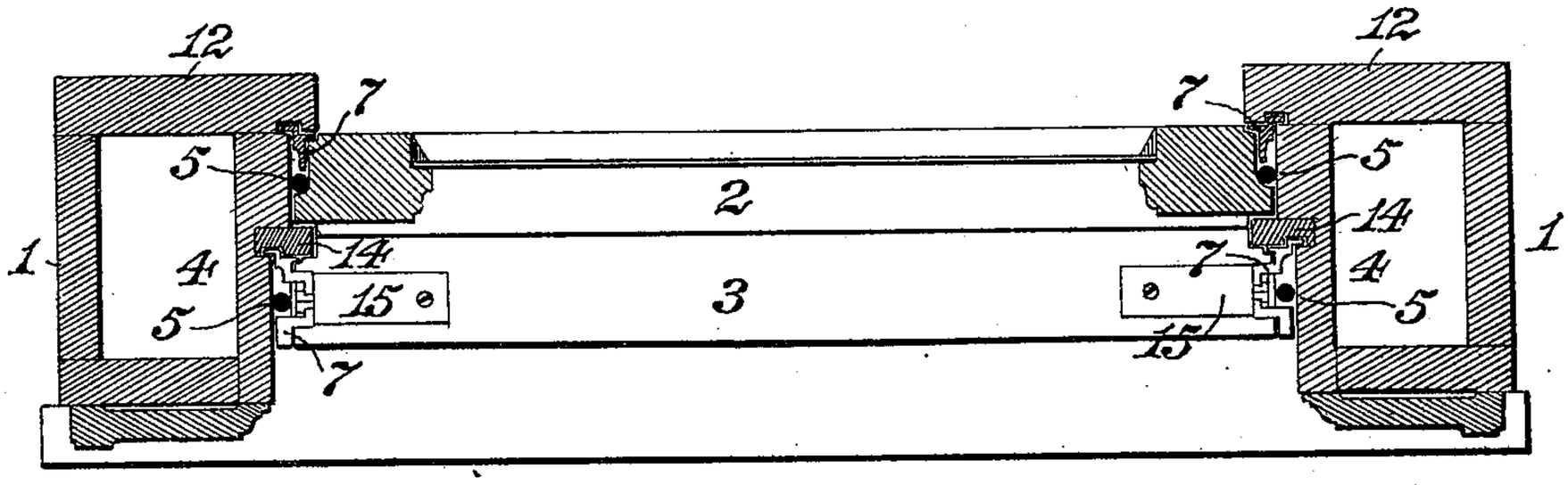

FIG. 2.

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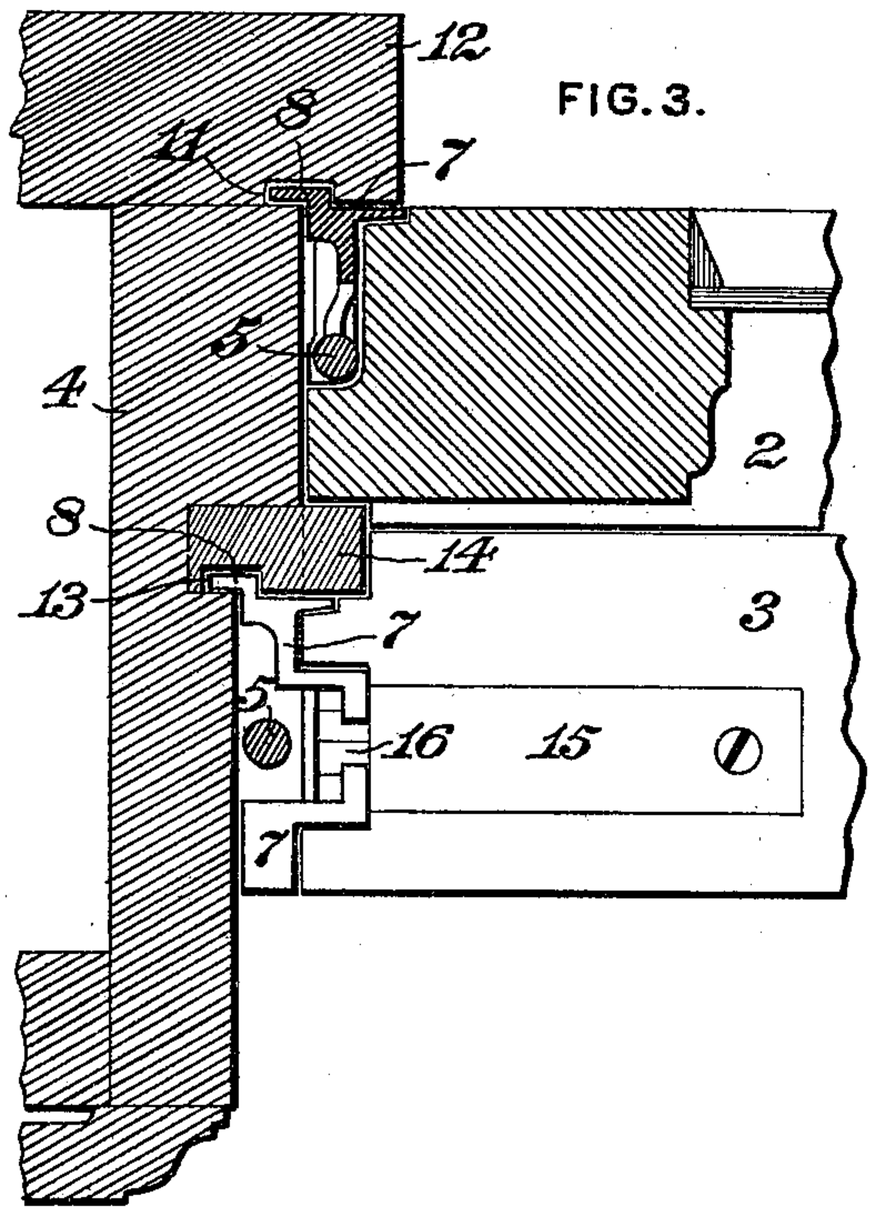
FIG. 3.



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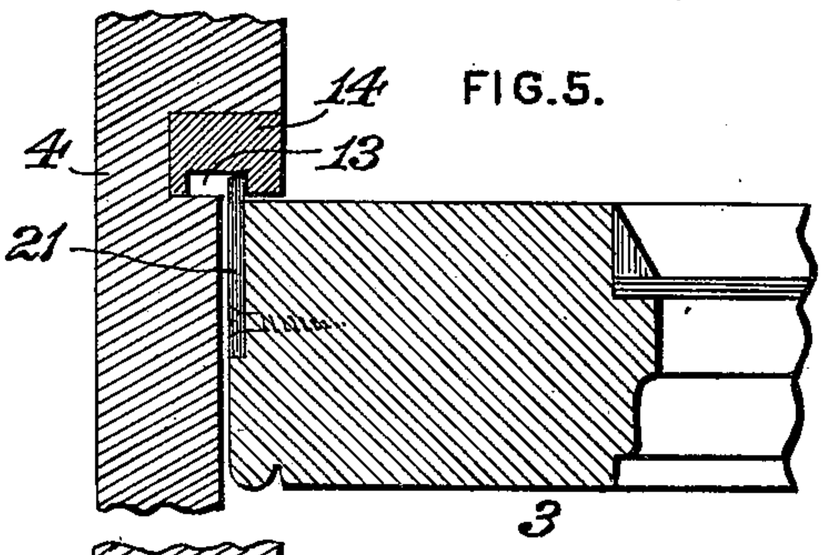

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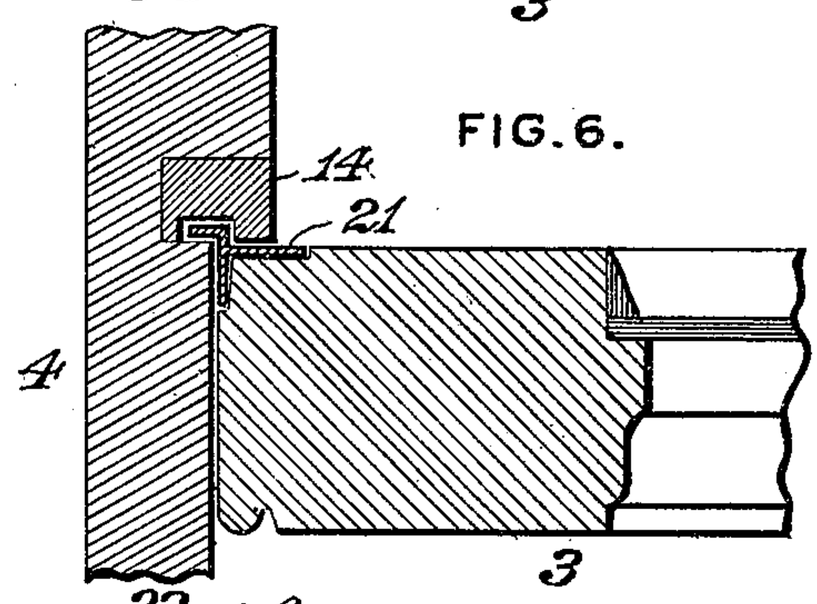


FIG. 4.

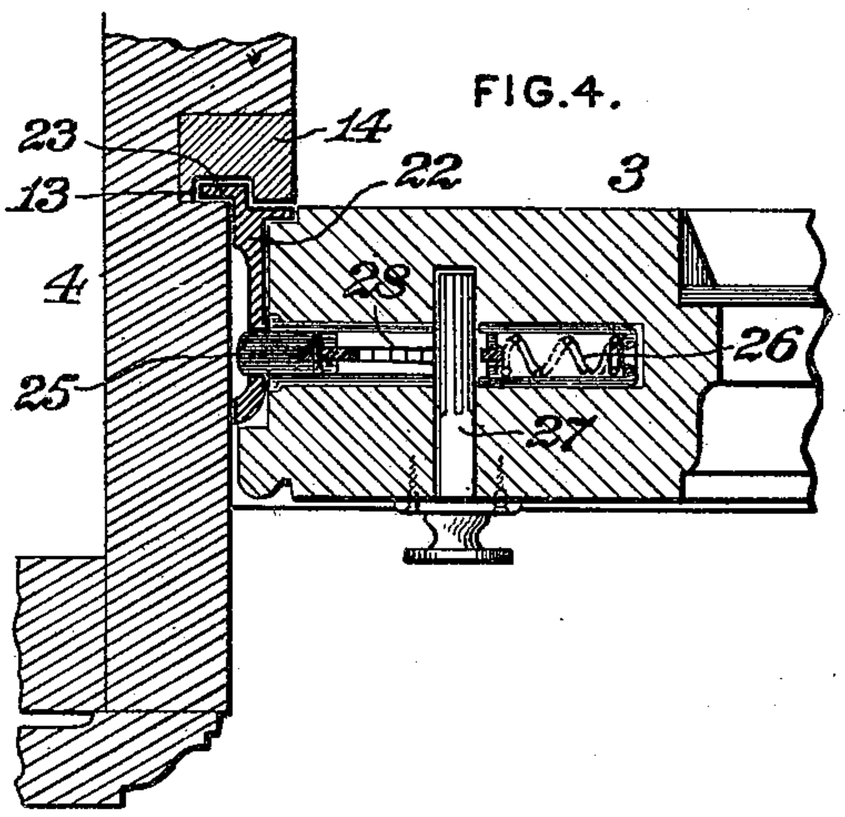
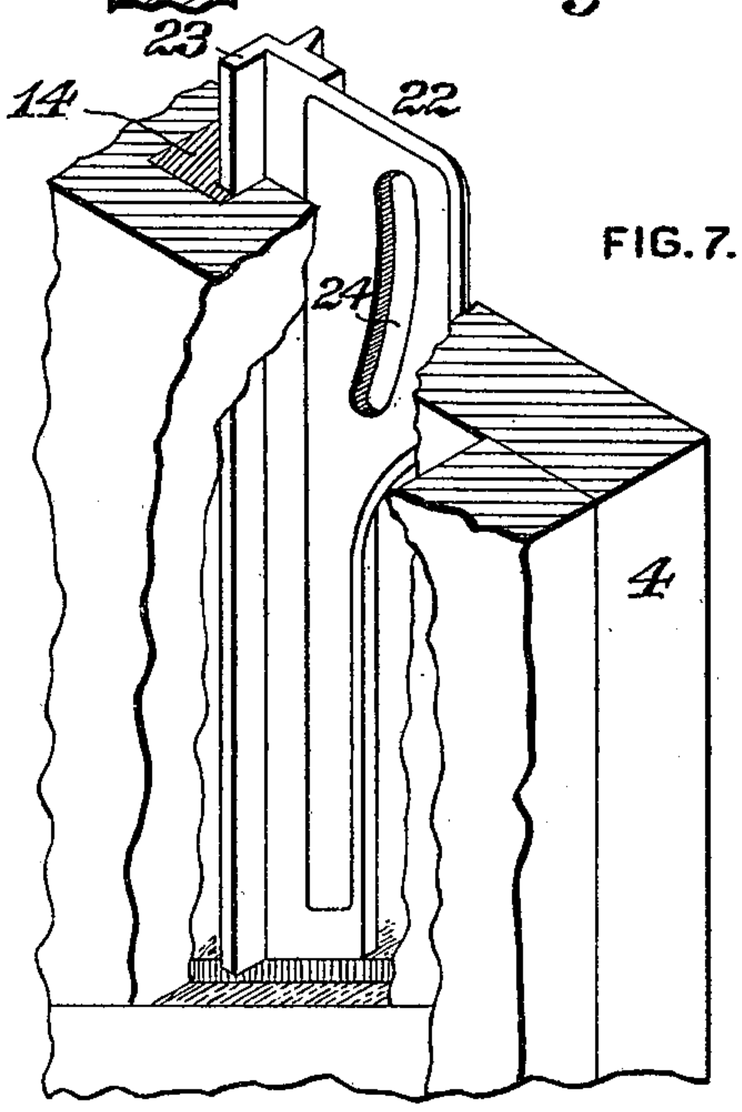


FIG. 7.



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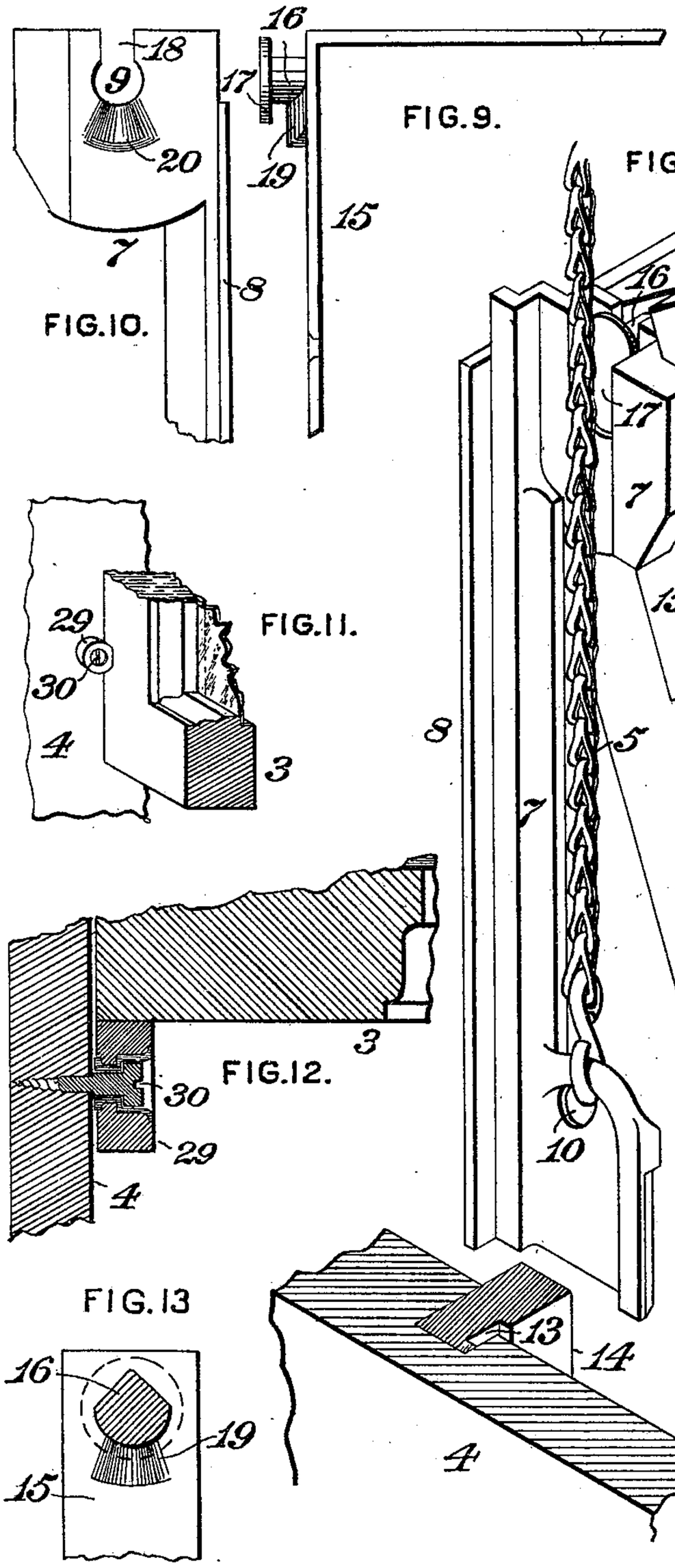


FIG. 9.

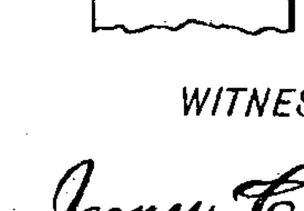
FIG. 10.

FIG. 11.

FIG. 12.

FIG. 13

FIG. 8.



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WINDOW.

SPECIFICATION forming part of Letters Patent No. 631,564, dated August 22, 1899.

Application filed March 10, 1899. Serial No. 708,530. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM J. DUNN, of Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Windows, of which improvement the following is a specification.

My invention relates to windows of the class in which the sashes are adapted to be moved upon pivots relatively to the window-frames in addition to being movable vertically therein; and its object is to provide simple and inexpensive means which shall be readily applicable in connection with window frames and sashes of the ordinary construction, by the employment of which the upper and lower sashes may be swung inwardly when desired, so as to enable the glass to be cleaned on both sides from the interior of the apartment in which the window is located, thereby completely obviating the great liability to fatal accidents which exists with windows that require access from the outside in order to clean them and avoiding the necessity of removing a screen, storm-window, or outer bars, or detaching the sash cords or chains.

My invention is designed, further, to dispense with springs heretofore employed in windows of this character, to render the window more effectually storm and weather proof than heretofore, and to so construct and combine the operative members that they shall be permanently connected in proper relation, so as to obviate liability to displacement in service and that there shall be no protrusion or substantial exposure of fittings other than the sash-locks when the sashes are in place.

To this end my invention, generally stated, consists in the combination of a window-frame, travelers having angle ribs or tongues fitted to slide in grooves in the stiles thereof, a sash inclosing said travelers and pivoted at one end thereto, and sash-suspenders connected to the travelers; also, in the combination of a window-frame, travelers fitted to slide on the stiles thereof and having tongues fitting grooves therein, sashes pivoted to the travelers, and sash-suspenders connected to the travelers; also, in the combination of a window-frame, a sliding and pivoted sash and a weather-strip fitting in said sash and in a groove in the parting-bead of the frame; also, in the combination of a sliding and pivoted sash and improved means for locking said sash as against pivotal movement.

The improvement claimed is hereinafter fully set forth.

In the accompanying drawings, Figure 1 is an inside view in elevation of a window illustrating an embodiment of my invention; Fig. 2, a transverse section, on an enlarged scale, through the same on the line *x x* of Fig. 1; Fig. 3, a partial transverse section, on a further enlarged scale, on the same line; Fig. 4, a similar section on the line *y y* of Fig. 1; Figs. 5 and 6, similar sections on the line *z z* of Fig. 1, illustrating different forms of weather-strips; Fig. 7, an isometrical view, partly in section, showing a locking-bolt traveler; Fig. 8, a similar view showing a portion of a sash when swung on its pivots and a pivot-piece, traveler, and suspender; Fig. 9, a side view in elevation of a pivot-piece; Fig. 10, a view in elevation of the upper portion of a traveler as seen from the inner side; Fig. 11, a perspective section showing one corner of a sash with a simplified form of locking device; Fig. 12, a horizontal section, on an enlarged scale, through the same; and Fig. 13, a vertical section through a sash-pivot.

My invention is herein exemplified as applied in connection with a window frame or casing 1, which is of the ordinary rectangular box form, and, except as to the features of my invention hereinafter described, accords substantially with those of the usual construction. An upper outer sash 2 and a lower inner sash 3 are fitted to slide vertically between pulley-stiles 4 4 and are supported and balanced, as in the ordinary construction, by means of sash-suspenders 5, which may be either cords or chains, as preferred, and which pass around pulleys 6, journaled in the pulley-stiles 4, and are connected to sash-weights (not shown) traversing on the outer sides of the pulley-stiles.

In order to enable the sashes 2 3 to be swung inwardly when desired, so as to afford access to the outer sides of their panes of glass for cleaning or other purposes, each sash is pivotally connected adjacent to its top to two metal travelers or pivot-bearings 7, which fit freely in recesses formed in the

outer sides of the sash-stiles and traverse vertically with the sashes between the same and the inner faces of the pulley-stiles 4. The travelers are provided with open-topped pivot-sockets 9 at their upper ends and with eyes 10 near their lower ends, to which the sash-suspenders 5 are connected. The travelers are guided and cause to move truly parallel with the pulley-stiles and sash-stiles by longitudinal tongues 8, the tongues of the travelers of the upper sash fitting in grooves or ways 11 in the blind-stiles 12 and those of the travelers of the lower sash fitting in grooves or ways 13 in the parting-beads 14.

Pivot-pieces 15, which are preferably metal castings in the form of two light plates connected at right angles, are screwed or otherwise suitably secured to each of the sashes 2 3 at the upper corners thereof, each of said pivot-pieces carrying a sash-pivot 16, having a head 17 on its outer end and adapted to fit and turn freely in the pivot-socket 9 of one of the travelers 7. An open slot 18, the width of which is less than the diameter of the pivot 16, extends from each pivot-socket to the top of the traveler, and the pivots are flattened or cut away at top, as shown in Figs. 1 and 13, so that they may be entered into the sockets when the pivot-pieces are inclined relatively to the travelers, but cannot be displaced from the sockets when the pivot-pieces stand vertical, as in the normal position and vertical movements of the sashes. A double incline 19, the sides of which lead downwardly in opposite directions from the vertical axial plane of the pivot, is formed on each pivot-piece, said inclines fitting in correspondingly inclined or curved recesses 20 on the inner sides of the travelers. The relation of the double inclines and the recesses is such that as a sash is swung in the pivot-sockets the travelers are forced outwardly against the pulley-stiles 4, thereby locking them as against vertical movement and preventing the sash from moving up or down while being swung.

The parting-beads 14 are reduced in depth below the check-rail and made flush with the faces of the outer portions of the pulley-stiles 4, between which the upper sash 2 slides, as shown in Figs. 4, 5, and 6, and the pulley-stiles are also reduced in depth from the parting-beads to the inner face of the window-frame. The pulley-stiles extend over the edges of the inside casing of the window-frame, so as to avoid joints between the pulley-stiles and frame at the sides of the sashes, and no stops are required to cover joints, as in the ordinary frames.

In order to make the window effectually weather-proof without employing inside stops, metal weather-strips 21 are fitted in grooves in the outer edges of the lower sash 3 and in the parting-bead 14, as shown in Figs. 5 and 6. These may either be secured to the sash, as in Fig. 5, or to the parting-bead, as in Fig. 6, a close joint being made in either case.

During the periods in which the upper sash 2 stands or moves in its normal vertical plane it is prevented from displacement therefrom by the parting-beads, as in the ordinary constructions. The lower sash 3 is maintained in normal vertical position, except when desired to be swung inwardly, by means of a locking device of any suitable and preferred construction, by which the sash may be engaged with and disengaged from the lower portion of one or both of the travelers 7 or with and from an independent locking traveler or travelers 22. The locking-traveler 22, similarly to the main travelers 7, moves with the lower sash 2 and fits in a lateral recess therein and is similarly provided with a longitudinal guide-tongue 23, fitting in a groove 13 of the adjacent parting-bead 14. A curved slot 24 in the locking-traveler is normally engaged by an automatic locking-bolt 25, which is fitted to slide horizontally in the lower sash and is held in engagement with the locking-traveler by a spring 26. When it is desired to swing the sash outwardly, the locking-bolt is withdrawn from the slot of the traveler by rotating a toothed shank 27, journaled in the lower sash and engaging a rack 28 on the locking-bolt. The traveler 22 then drops to the bottom of the window and the sash may be swung outwardly upon its pivots 16.

The independent locking-travelers are more particularly designed for use in connection with sashes of comparatively large size, and with sashes of ordinary size the slots 24 may with advantage be formed in the lower portions of the main travelers 7 and be engaged by locking-bolts, as above described, the independent locking-travelers not being employed in such case.

Figs. 11 and 12 illustrate a simple form of locking device which may be desirably applied in connection with small sashes, the same consisting of a roller 29, of rubber or other elastic material, journaled on a pin or screw 30, fixed in the pulley-stile. When the sash is lowered to or below the level of the roller 29, the same is compressed and slightly flattened adjacent to the sash, as indicated in Fig. 11, and it then prevents outward movement of the sash without exerting sufficient resistance to substantially interfere with the vertical movements of the sash. It will be obvious that in order to prevent any tendency to lateral cramping of the sash it is desirable to apply a locking device on each side thereof.

In the operation of windows fitted with my improvement the vertical movements of the sashes are effected in the ordinary manner. The lower sash 3 may be turned inwardly when desired by releasing the lock or locks and swinging the sash upon the pivots at its upper end, the operation being effected without detachment of or interference with the sash-suspenders or sash-weights. In order to turn the upper sash inwardly, the lower sash is raised to the top of the window and the upper sash is lowered to the bottom. The parting-beads 14 being, as before described, cut

away flush with the pulley-stiles below the check-rail, the upper sash may then be swung inwardly upon its pivots similarly to the lower sash.

While I have herein described and shown as the preferred construction one in which the sash-pivots are fixed to the sashes and the pivot-sockets formed in the travelers, it will be obvious that the relative location of the pivots and pivot-sockets may be reversed, if desired, without departure from the spirit or operative principle of my invention. I therefore specify a sash provided with upper pivot-sockets and travelers carrying pivots adapted to fit removably therein as the mechanical equivalents of the respective specific members herein set forth.

I claim as my invention and desire to secure by Letters Patent—

1. The combination of a window-frame having a vertical groove formed therein in a plane substantially at right angles to its stile-face, and a sash sliding between the stile-faces of said frame and having a groove or slot in the upper rear portion thereof, with a traveler lying normally in said slot and having a rib or tongue traveling in the vertical groove in the frame, and pivoted connections between the sash and traveler.

2. The combination of a window-frame and a sash sliding between and in contact with the inner faces of the frame-stiles, with a traveler pivotally connected to the sash and having one rib lying in a cut-away part or slot of the sash, a second rib at right angles to the first and sliding in a groove in the frame in a plane immediately to the rear of the plane of travel of the sash.

3. The combination of a window-frame, travelers fitted to slide on the stiles thereof and having pivot-sockets near their upper ends, and open slots, of less width, extending from the pivot-sockets to the tops of the travelers, a sash, and pivots of substantially the same diameter as said sockets but having a cut-away side or face and secured to said sash and adapted to fit and turn in the pivot-sockets of the travelers and to be attached thereto and detached therefrom through the upper open slots thereof.

4. The combination of a window-frame, travelers fitted to slide on the stiles thereof, and having pivot-sockets near their upper ends, and recesses with oppositely-inclined or curved sides below said pivot-sockets, a sash, pivots secured to said sash and adapted to fit and turn in the pivot-sockets, and projections on said sash having double-inclined faces entering the recesses of the travelers.

5. The combination of a window-frame, parting-beads made flush with the faces of the pulley-stiles from the check-rail level to the bottom of the frame, a vertical groove formed in said bead, a sash sliding in said frame, a traveler pivotally connected to the sash and having a rib projecting into the groove in said bead.

6. In a window the combination of a traveler angular in cross-section, with a window-frame having a groove within which one tongue or rib of the traveler slides and a sash having a slot within which the other tongue or rib fits, whereby the traveler is free to slide in the frame but is concealed from view by the sash.

7. The combination of a window-frame, travelers fitted to slide on the stiles thereof, a sash pivoted at one end to the travelers, sash-suspenders connected to the travelers, independent locking-travelers fitted to slide on the stiles, and locking-bolts sliding in the sash and engaging slots in the locking-travelers.

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Witnesses:
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BENJ. J. HEDGER.