

(No Model.)

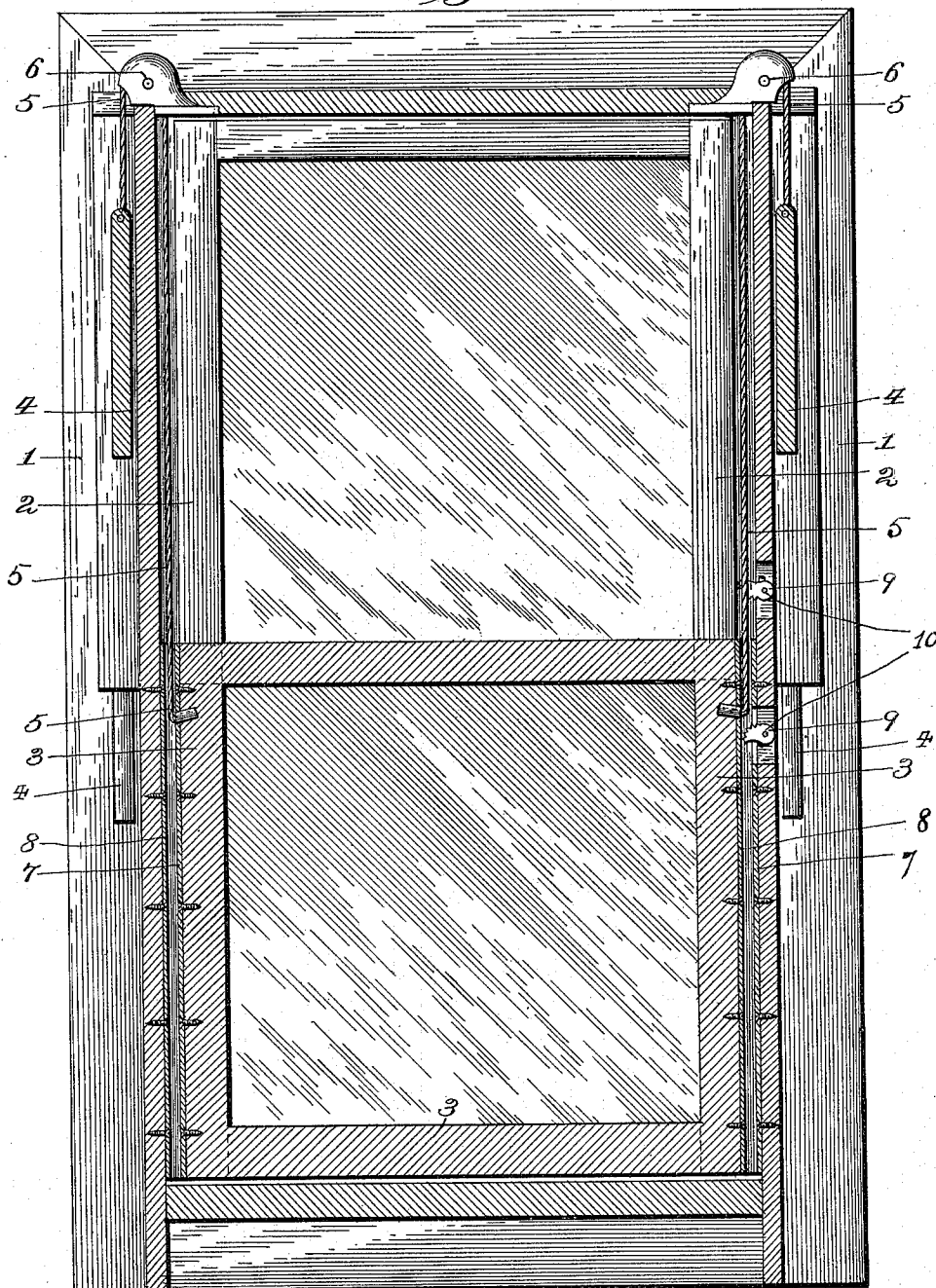
3 Sheets—Sheet 1.

J. H. SHULL.
WINDOW APPLIANCE.

No. 573,489.

Patented Dec. 22, 1896.

Fig. 1.



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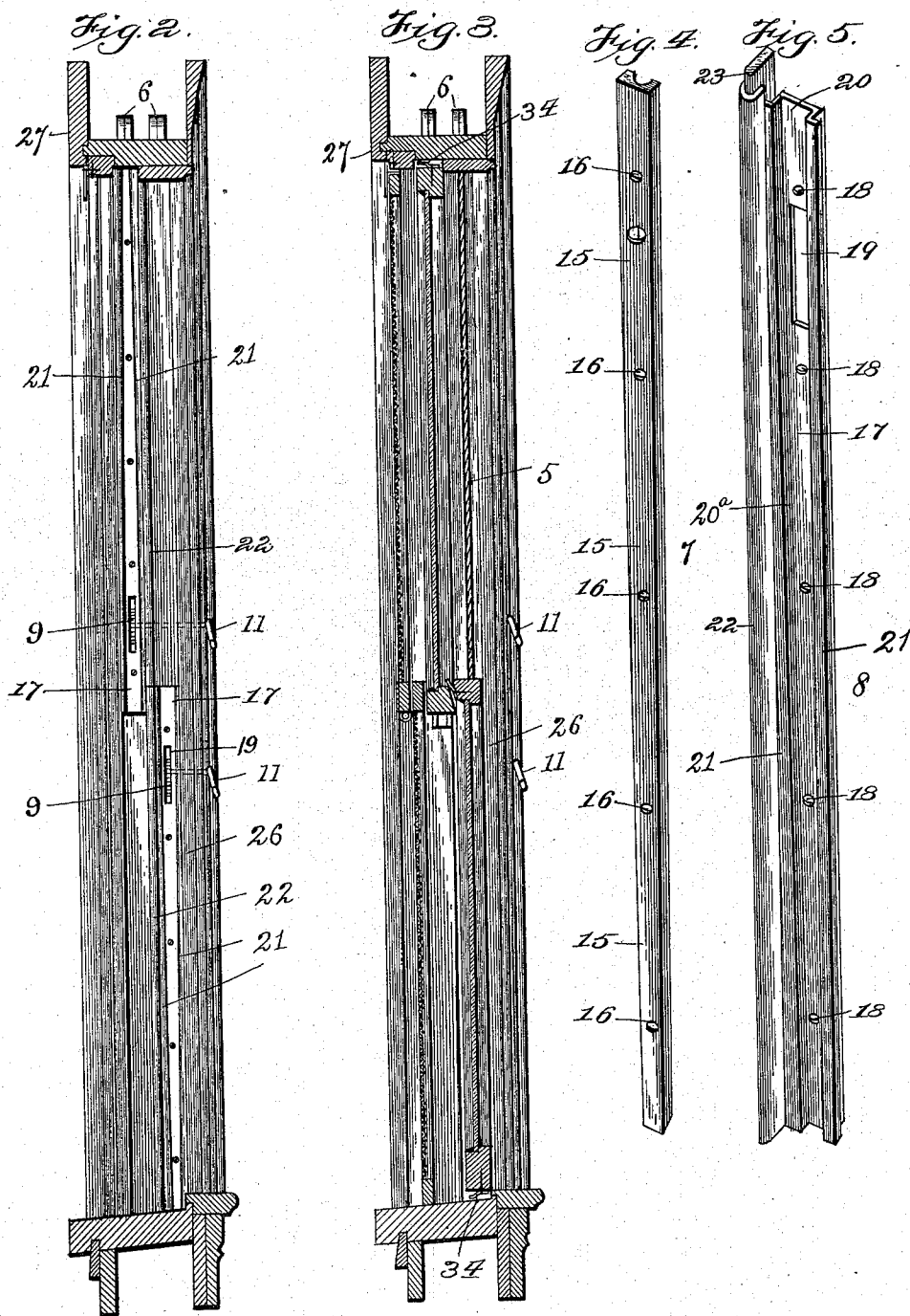
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J. H. SHULL.
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(No Model.)

3 Sheets—Sheet 3.

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Fig. 6.

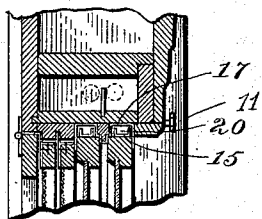


Fig. 7.

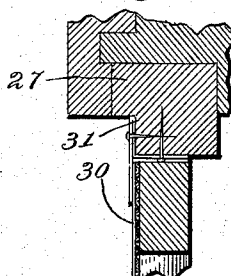


Fig. 8.

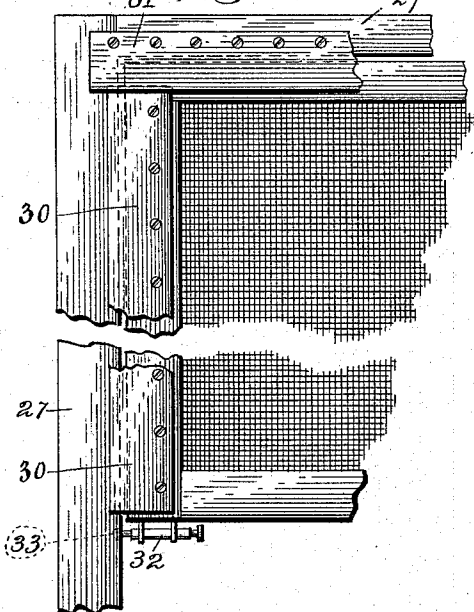


Fig. 9.

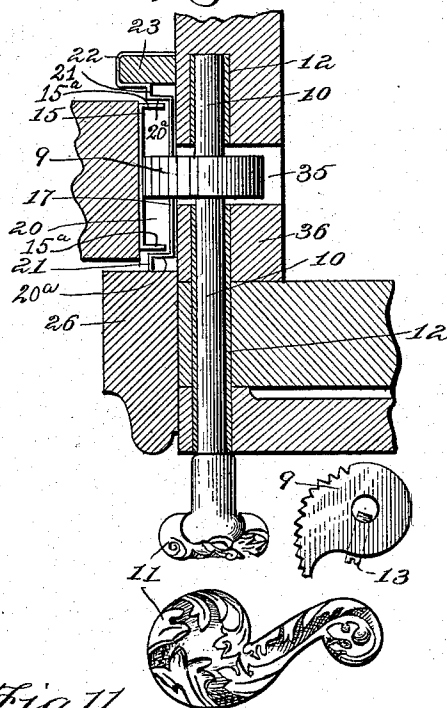


Fig. 10.

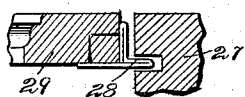
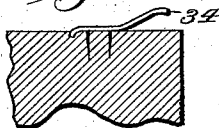


Fig. 11.



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UNITED STATES PATENT OFFICE.

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WINDOW APPLIANCE.

SPECIFICATION forming part of Letters Patent No. 573,489, dated December 22, 1896.

Application filed December 18, 1895. Serial No. 572,585. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. SHULL, a citizen of the United States, residing at Wellesley, in the county of Norfolk and State of Massachusetts, have invented new and useful Improvements in Window Appliances, of which the following is a specification.

My invention relates to appliances suited to all windows closed by one or more vertical sliding sash, whereby counterbalancing weights or springs may be used or omitted, thus adapting my improvements to old or new windows in public or private buildings, railway passenger-cars, street-cars, &c.

The object of my invention is to provide means by which the sash in a window-frame are so joined to the frame and to each other that when closed they are perfectly rigid and wind and dust proof, the sash being prevented from coming in contact with the window-frame or the stop or with each other, but permitting a free and easy movement of the sash when started regardless of paint, varnish, or atmospheric changes, such means likewise providing for removing and replacing the sash in the frame.

A further object is to provide means by which the sash in a window-frame are held rigid and securely locked at any point, whereby rattling of the sash by the wind and further displacement from the outside are prevented, the means employed for this purpose being especially applicable to means for carrying out the previously-mentioned objects of my invention.

A further object is to provide means by which sliding or stationary screens or storm-sash are applied to the entire window without interfering with either sash or blinds.

Further objects of my invention are to construct and combine the parts so as to attain certain other advantages to be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a sectional front elevation of a two-sash window having the various parts of my invention applied thereto. Fig. 2 is a side elevation of one side of the frame. Fig. 3 is a vertical central section of Fig. 1. Figs. 4 and 5 are perspective views of the movable and

stationary portions of the metallic guides which are applied, respectively, to the sash and frame. Fig. 6 is a horizontal section through the meeting-rails in Fig. 3. Fig. 7 is an enlarged vertical section showing manner of securing the upper storm sash or screen at top. Fig. 8 is a fragmental outside elevation showing the same. Fig. 9 is a horizontal section through the axis of the shaft of one of the locks, showing the portion of the window in which it is used and showing, detached, the counterbalance and the toothed cam. Fig. 10 is a sectional view showing manner of mounting the lower storm sash or screen in the frame. Fig. 11 is a vertical transverse section through one of the rails, showing a packing.

Referring to Figs. 1 and 2, 1 represents a window-frame in which the upper sash 2 and lower sash 3 are adapted to slide, said sash being supported by weights 4 through the medium of cords or tapes 5, which pass over pulleys 6. The sash are adapted to slide by metallic guides 7 8, secured, respectively, to the sash and window-frame, as will hereinafter appear, and each window may be locked at any point against opening (or further opening if they are partly opened for ventilation) by means of locking toothed cams 9, which, as seen in Fig. 9, are mounted on shafts 10 and are under control of counterbalances 11, which are so adjusted with relation to the cams that they hold the latter in position to engage the sash.

12 represents thimbles inserted in the frame to form a bearing for the shaft 10, and 13 is a set-screw for fixing the cams 9 on shaft 10.

Each sash is provided with a metallic guide 7 in the form of a wedge 15, Fig. 4, of hollow construction for cheapness, lightness, and convenience in attachment, and said wedge is formed with outwardly-projecting walls 15^a and is applied to the sash with its open side out, in order that it may be screwed through apertures 16 to the sash, and the screw-heads will be out of the way to prevent friction when sliding. On the window-frame, opposite the position of each sash when closed, is a metallic way 17, Fig. 5, which is provided with apertures 18 for attachment and slot 19

for the locking-cam. Each one of these ways 17 is preferably formed of bent sheet metal and is formed with a longitudinal wedge-shaped channel 20, in which the wedge 15 fits, 5 Figs. 6 and 9, and the parts are proportioned so as to make a tight fit between them when the sash is in closed position, but by reason of the tapered form they will immediately become loose at the outset of movement. Extending on either side of the channel 20 are inwardly-projecting walls 20^a and outwardly-projecting flat portions 21 for the purpose of giving ample room for the window-sash to move without contact with the frame-stop. 10 On the inside edge of one of the faces 21 is formed the dividing-bead 22, which is located so as to separate the sash. The upper and lower ways 17 are identical in form, but reversed in position, and when they are placed 20 on the side of the frame the beads 22 of the upper and lower sashways are brought into coincidence in such a way that they practically form a continuous bead from top to bottom, one or both being cut away to form a fit and to allow the channels 20 to overlap. 25 (See Fig. 2.) If desired, the metal bead 22, which is formed by folding the metal upon itself, may have a wooden filling 23, and this wooden filling may be utilized, if desired, to connect the meeting ends of the beads, it being allowed to project at one end, as shown at the upper end of Fig. 5. The ways 17 may terminate at such points as to permit the sash to be removed from them when slid 30 open position, and for this purpose the wall portions may terminate short of the bead, so as to leave a projection of the latter, as shown at the lower end of Fig. 5. The edges of flat portions 21, which are presented outward on the lower ways, are preferably faced by the window stop-bead 26, while those on the upper sashways, which are presented outward, abut against any suitable strip, such, for instance, as a strip 27, which I have shown 40 adapted to hold screens or storm-sash, as will now be described.

In attaching the outside screen or storm-sash the important objects are to do so without interfering with the movement of the window or shutters and secure close joining, 50 while permitting movement of at least the lower one. I accomplish the above objects and I adapt screens or storm-sash to window-frames of ordinary construction without special fitting otherwise than grooving strip 27 to receive tongues 28 of sash 29, which tongues are of metal and attached as shown in Fig. 10. The upper portion of strip 27 is cut away, so that the tongues 28 of the lower screen or 60 storm-window are released and the sash may be taken out or placed in position when the sash is up and then drop down into sliding relation in the groove below. This provides for a sliding lower sash for either screen or storm-window. After this is inserted the upper screen or storm-sash is fixed in position 65 by its tongues 30, which bridge the outside

edges of strips 27 and top plate 31, behind which it enters, while suitable catches 32, carried at the lower corners of the screen or window, enter sockets 33, formed in strips 27. 70 By having the metallic tongues 30 of the upper screen or storm-sash bear against the outside of strips 27 they brace the part against inward movement, while the top plate 31 and catches 32 sustain it against outward movement, and the lower portion may slide up uninterrupted. This construction makes both sash conveniently removable. 75

To make a tight connection, metallic packings 34, Fig. 11, are located between the meeting-rails and between top and bottom rails and head-stiles and sills, as shown in Fig. 3, secured along one edge and projecting up, so that they will be compressed and make a tight 80 joint as the sash come to rest in closed position. These packing-strips are substantially alike in all the places, though they may be adjusted as circumstances may require. In mounting the locking-cam a mortise 35 is 85 formed in the window-stile 36, Fig. 9, so that the toothed cam 8, hereinbefore referred to, can swing therein. As stated, the shaft 10 of cam 9 carries on its outer end a counterbalance 11, which hangs normally so as to keep the cam in position for engaging the window-sash. The size of the mortise 35, however, is such that the counterbalance 11 may be swung around, so as to move the cam away from the sash until the said counterbalance passes over its shaft and brings the cam to rest in a position away from the sash. 90 The cam 9 works through a slot 19 in the way 17 and bites into the hollow side of the sheet-metal wedge 15 in controlling the sash, and this greatly increases the durability of the parts by avoiding wear on wooden surfaces. 95 It is for this additional purpose, also, that the wedge 15 is made hollow, as shown, and attached to the sash with its open side presented outward. 100

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

1. A window-frame comprising stiles having inner and outer metallic ways, each formed with tapering channels receding from the center, with inwardly-projecting walls, and with outwardly-extending flat portions; substantially as described. 105

2. A window-frame comprising stiles having inner and outer metallic ways, each formed with tapering channels receding from the center, and inner and outer sashes provided with metallic wedges, each formed with tapering channels receding from the center; substantially as described. 110

3. A window-frame comprising stiles, having metallic ways provided with slots, sashes having metallic guides and toothed cams projecting through the slots in the ways of the stiles; substantially as described. 115

4. A window-frame comprising the stops, the ways having tapering channels and lo-

ated between the stops, and the sashes having wedges working in the channels of the ways; substantially as described.

5 5. A metallic way formed with a tapering channel, with inwardly-projecting walls, with outwardly-projecting flat portions and with a parting-bead; substantially as described.

10 6. A metallic sash-guide in the form of a wedge having a tapering channel and outwardly-projecting walls; substantially as described.

15 7. In combination with a window-frame, the grooved strips 27 having the upper portion of the groove cut away in each strip, the sash having attached on one face, metallic flanges working in the grooved strips, an upper sash having metallic flanges bearing on

the outside of said strips and means for holding it up consisting of a suitable catch at bottom and a strip at top behind which it enters, 20 as explained.

8. In combination with a window-frame having strips upon its vertical stiles and a top plate extending across said strips; a storm sash or screen fitting between the strips, engaged at its upper end behind the top plate, 25 provided with side flanges which bridge the said strips and secured at its bottom by catches, substantially as set forth.

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Witnesses:

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