(No Model.)

G. JOHNSTONE.

SUPPORT FOR WINDOW SASHES.

No. 570,022. Patented Oct. 27, 1896.

Fig. 2.

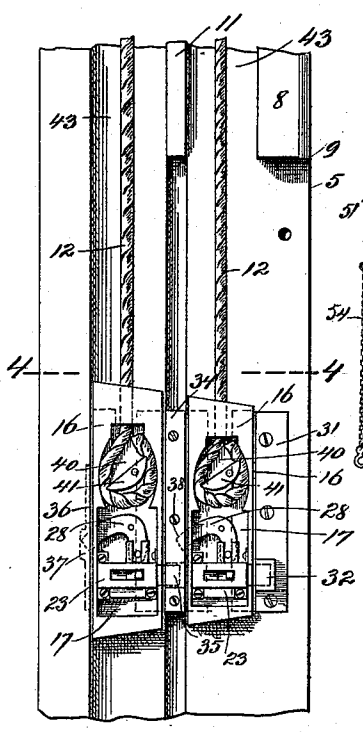


Fig. 1.

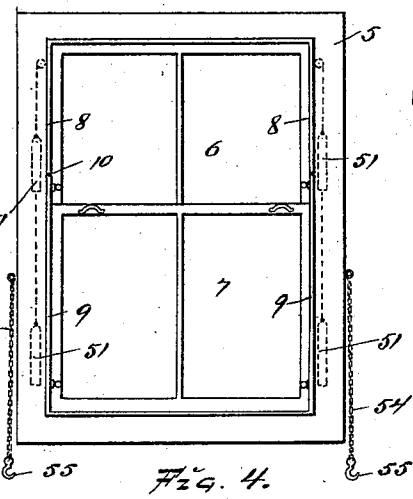


Fig. 3.

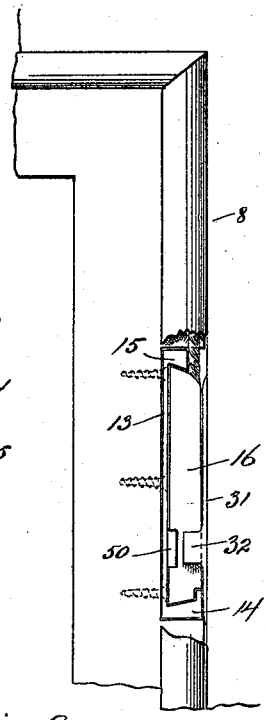


Fig. 4.

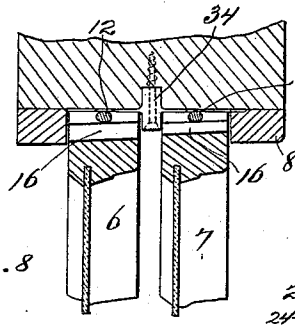


Fig. 8.

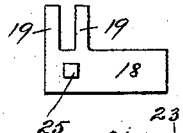


Fig. 9.

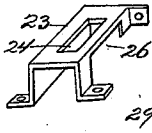


Fig. 5.

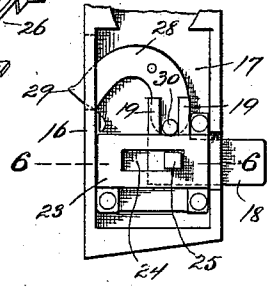


Fig. 6.

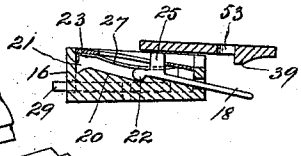
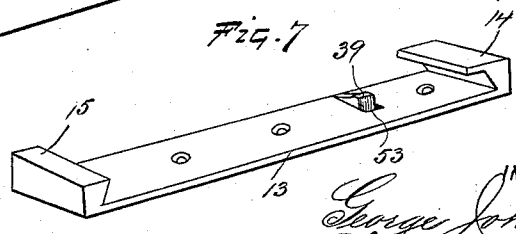


Fig. 7.



WITNESSES

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SUPPORT FOR WINDOW-SASHES.

SPECIFICATION forming part of Letters Patent No. 570,022, dated October 27, 1896.

Application filed August 13, 1896. Serial No. 602,599. (No model.)

To all whom it may concern:

Be it known that I, GEORGE JOHNSTONE, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Supports for Window-Sashes, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof, in which similar numerals of reference indicate corresponding parts wherever found throughout the several views.

This invention relates to windows, and particularly to windows in which the sashes are supported in the frames by counterbalance-weights, which are connected therewith by means of cables, ropes, or chains; and the object of the invention is to provide improved means for detachably connecting the cables or chains with the window-sashes, and also to provide means whereby the sashes may be turned outwardly and supported at their lower ends after they are disconnected from the cables in order that the glass therein may be cleaned on both sides.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which—

Figure 1 is a front view of a window provided with window-sashes which are supported according to my invention. Fig. 2, an inside view of one side of the frame, showing the sashes disconnected from the cables or chains by which they are supported and showing the upper ends of the sashes turned outwardly; Fig. 3, a side view of a portion of the frame with one of the beads or strips by which the sashes are held in place broken away, so as to show the method of connecting the cables or chains with said sashes; Fig. 4, a section on the line 4 4 of Fig. 2; Fig. 5, an enlarged view of a part of the device by which the cables or chains are connected with the window-sashes; Fig. 6, a transverse section on the line 6 6 of Fig. 5 and showing a part of the sash connected therewith; Fig. 7, a perspective view of a part of the locking device by which the cables or chains are connected with the sashes; Fig. 8, a plan view of a locking-bolt which I employ, and Fig. 9 a perspective view of a casing in which said bolt is mounted.

In the drawings forming part of this specification, reference being made to Fig. 1, I have shown at 5 a window-frame which is provided with the usual upper and lower sashes 6 and 7 and the outer strip or bead 8, by which the lower sash is held in place, and in the practice of my invention said outer strip or bead 8 is formed of two parts, the lower part 9 extending upwardly above the lower sash and terminating at 10, and said lower part 9 is adapted to be removed whenever desired.

The central vertical bead or strip 11, which separates the upper and lower sashes, is also formed of two parts, the lower part terminating on a line with the lower part of the bead or strip 8.

I also provide improved locking devices for connecting the cables, cords, or chains 12, by which the sashes are supported, with said sashes, and these locking devices consist of a plate 13, one of which is countersunk in each side of each sash, and said plate 13 is provided at each end with outwardly and inwardly directed shoulders or projections 14 and 15, which terminate on a line with the side of the sashes, and these projections or shoulders 14 and 15 are also beveled or inclined inwardly.

I also provide a block 16, a front edge view of which is given in Fig. 3, and an inside view of which is given in Fig. 2, one of these blocks being provided for each of the plates 13 and for each side of each sash, and said block 16 is cut away longitudinally of its inner side, so as to form in the lower portion thereof a rectangular or oblong chamber 17, in which near the lower end thereof is mounted a transverse locking-bar 18, which is shown in Fig. 8, and which is provided at its inner end with two upwardly-directed projections 19, and the back wall of the chamber 17 is inclined upwardly and backwardly, as shown at 20 in Fig. 6, and at the rear edge thereof is a cavity or recess 21, and the inner end of the locking-bar 18 is provided with a head 22, and said locking-bar 18 is inclosed by a transverse casing 23, which is shown in Fig. 9, which is provided in the upper side thereof with a longitudinal slot 24, through which passes a lug or projection 25, formed on the inner end of the locking-bar

18, and the frame 23, which incloses said locking-bar, is cut away on its upper side, as shown at 26, so as to permit of the free movement of the upwardly-directed projections 19 on the inner end of said locking-bar, and between the top plate of said casing and the inner end of said locking-bar is placed a plate-spring 27, which bears on said locking-bar or the head 22 thereof, said spring being best shown in Fig. 6, and pivotally mounted in the upper end of the chamber 17 is a lever 28, one end of which projects outwardly and backwardly through the rear side wall of the chamber 17, as shown at 29, and the other end of which extends downwardly in said chamber, and is provided with a lug or projection 30, which passes between the upwardly-directed projections 19 on the locking-bar 18, and by which said lever is operated as hereinafter described.

I also secure to the inner portion of the frame of the window a vertical plate 31, which is provided with a keeper 32, which is adapted to receive the end of the locking-bar 18 in the locking apparatus which is adapted to be connected with the lower sash, and secured in the groove 33 in which the bead or strip 11 is placed and in transverse line with the plate 31 is a short bar 34, which is provided with a socket 35, which is adapted to receive the locking-bar 18 in the apparatus which is designed to be connected with the upper sash, and secured to the rear portion of the sash or to the outer bead or strip secured thereto is a thin plate 36, which is provided with an opening 37, which is adapted to receive the end 29 of the lever 28 of the locking device for the upper sash, and the bar 34 is provided on its inner side with a cavity or recess 38, which is adapted to receive the outer end 29 of the lever 28, which is connected with the locking apparatus of the lower sash.

The block 16 for the upper sash is longer than the block 16 for the lower sash, as shown in Fig. 2, and each end of each block is beveled inwardly, as is also clearly shown in said figure, and the plates 13, provided with the end shoulders or projections 14 and 15, which are correspondingly beveled, are also provided on their inner sides with an inclined lug or projection 39, by which the locking-bolts 18 are operated, and formed in the upper end of each of the blocks 16 and communicating with said chambers 17 is an additional chamber 40, in which is pivoted a cam-shaped block 41, and the cable, rope, or cord 12 is passed through a groove or opening formed in the outer sides of the block 16 at the upper end thereof, and around said cam-shaped block 41, and by this means said cable or rope is secured in said block 16 without tying, as clearly shown in Fig. 2.

I also provide angular castings 42, which are secured in each of the lower corners of the window-frame, and which are designed to conform to the shape of the corners and with the spaces 43, in which the sashes are mounted, and said castings are each provided with a transverse plate 44, behind and above which are depending lugs or projections 45, below which are openings 46, through which hooks 47, secured to the lower side of the upper sash 6, are adapted to pass, and the front lower portions of said castings are provided with lugs or projections 48, which correspond with or are located on a line with the central vertical groove or space 33, in which the bead or strip 11 is placed, and the lower sash 7 is provided with hooks or projections 49 similar to the hooks or projections 47 on the upper sash, which pass through openings in the inner portion of said castings and engage with said lugs or projections 48.

The normal position of the locking-blocks 16, when not connected with the sashes, is shown in Fig. 2 and are locked in connection with the plates 31 and 36 and the central bar 34, and, as hereinbefore stated, the plates 13 are countersunk in the sides of the sashes, and all that is necessary to connect the sashes therewith is to move each sash backwardly into its proper position, the upper sash being placed in position first, and in this operation the blocks 16, which are designed to be connected with said upper sash or the beveled ends thereof, pass beneath and within the beveled inclined ends of the shoulders or projections 14 and 15 on the plates 13, which are secured to the sash, and the lug or projection 39 passes through an angular notch or recess 50, formed in the side of the block 16 or the outer wall of the compartment 17, which is formed therein, and said lug or projection strikes the corresponding lug or projection 25 on the locking-bar 18 and forces it backwardly out of the keeper 32, and at the same time forces the outer end 29 of the lever 28 inwardly, and thus releases the block or blocks 16 from the plate 36 in the bar 34, and the sash is then supported by the ropes, cables, or chains 12, which are provided with the usual counterbalance-weights, as shown at 51 in Fig. 1.

The lower sash is placed in position in the same manner, and whenever it is desired to lower the sashes and turn them outwardly, as shown in Fig. 2, for cleaning or other purposes, each sash is depressed to its lowermost position, the strips or beads 8 and 11, or the lower portions thereof, are removed, and said sashes are disconnected from the blocks 16 by simply pulling the upper ends thereof outwardly, and in this operation the locking-bars 18 are again operated by the plate 13, so as to lock the blocks 16 in the position shown in Fig. 2.

The plate 13 is provided at the inner side of the shoulder or projection 39 with a transverse opening 53, and the lug or projection 25 on the locking-bar 18 enters this opening when the sashes are swung into place, as hereinbefore described, and as said sashes are drawn out in the operation of disconnect-

ing them from the blocks 16 the locking-bars 18 are also drawn out, and at the same time depressed by the spring 27 until the lugs or projections 25 are withdrawn from the opening 53, this position of the parts being shown in Fig. 6, and this operation results in locking the blocks 16 in the position shown in Fig. 2, from which they cannot be removed by the counterbalance-weights, and all that is necessary to again connect the sashes therewith is to swing them backwardly, as hereinbefore described, the lower ends being always supported, as shown in Fig. 2, by means of their connection with the castings or supports 42, which are practically a pivotal connection.

It will be apparent that almost any suitable pivotal support may be substituted for the castings 42, by which the lower ends of the sashes are supported when in their lowermost position or when swung out for the purpose of cleaning, as shown in Fig. 2, and I also provide chains 54, which are secured to the sides of the window-frame, and which are provided with hooks 55 at their lower ends, which are adapted to engage with suitable fastening devices on the window-sashes, (not shown,) and by which the upper ends thereof may be supported when swung outwardly, and any suitable supports may be substituted for the chains 54, such as brackets or other devices connected with the window-frame.

My improved window-sash supports are perfectly adapted to accomplish the result for which they are intended, and it will be apparent that the same may be used in connection with any form or style of window-sashes that are supported by counterbalance-weights, and it will also be apparent that many changes in and modifications of the construction herein described may be made without departing from the spirit of my invention or sacrificing its advantages, and I reserve the right to make all such alterations therein as fairly come within the scope of the invention.

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

1. The combination with the frame of a window, and with window-sashes mounted therein, and supported by counterbalance-weights, of means for connecting the sashes with the cables, chains or ropes, by which the counterbalance-weights are supported, consisting of vertically-movable blocks, connected with the ends of said cables, chains or ropes, and corresponding plates secured to the sashes with which said blocks are adapted to be connected, said blocks being adapted to be connected with said plates, by moving the sashes backwardly into their proper position, and said blocks being also provided with locking devices, which are operated by said plates, when the sashes are pulled outwardly, so as to lock the blocks to the window-frame, and said locking devices being operated to release the blocks from the frame when the window-sashes are moved backwardly into position, substantially as shown and described.

2. The combination with the frame of a window, and with window-sashes mounted therein, and supported by counterbalance-weights, of means for connecting the sashes with the cables, chains or ropes, by which the counterbalance-weights are supported, consisting of vertically-movable blocks, connected with the ends of said cables, chains or ropes, and corresponding plates secured to the sashes with which said blocks are adapted to be connected, said blocks being adapted to be connected with said plates, by moving the sashes backwardly, into their proper position, and said blocks being also provided with locking devices, which are operated by said plates, when the sashes are pulled outwardly, so as to lock the blocks to the window-frame, and said locking devices being operated to release the blocks from the frame when the window-sashes are moved backwardly into position, said frame and said sashes being also provided at their lower ends with pivotal or other supports, whereby the sashes may be swung outwardly, when disconnected from the locking-blocks by means of which they are connected with the counterbalance-weights, substantially as shown and described.

3. The combination with the frame of a window, and with window-sashes mounted therein, and supported by counterbalance-weights, of means for connecting the sashes with the cables, chains or ropes, by which the counterbalance-weights are supported, consisting of vertically-movable blocks, connected with the ends of said cables, chains or ropes, and corresponding plates secured to the sashes with which said blocks are adapted to be connected, said blocks being adapted to be connected with said plates, by moving the sashes backwardly, into their proper position, and said blocks being also provided with locking devices, which are operated by said plates, when the sashes are pulled outwardly, so as to lock the blocks to the window-frame, and said locking devices being operated to release the blocks from the frame when the window-sashes are moved backwardly into position, said frame and said sashes being also provided at their lower ends with pivotal or other supports, whereby the sashes may be swung outwardly, when disconnected from the locking-blocks by means of which they are connected with the counterbalance-weights, and the lower side portions of the beads or strips by which the sashes are held in place being removable, substantially as shown and described.

4. The herein-described means for connecting window-sashes, with counterbalance-weights, which consist of locking-blocks which are connected with the ends of the cables,

with which the counterbalance-weights are connected, and corresponding plates which are connected with the window-sashes, said blocks and said plates being provided with locking devices, and said sashes being adapted to be disconnected from said blocks by pulling the upper ends thereof, outwardly, the lower ends being provided with suitable supports, and said locking devices being adapted to operate so as to lock the locking-blocks connected with the cables to the window-frame, when the upper ends of the sashes are pulled outwardly, and to release said blocks from said frame when the sashes are moved backwardly into position therein, substantially as shown and described.

5. The combination with a window-frame, and a window-sash mounted therein, and adapted to be supported by counterbalance-weights, of locking devices by which the counterbalance-weights are connected with the sash, said devices consisting of vertically-movable blocks with which the cables by which the counterbalance-weights are supported, are connected, said blocks being adapted to operate in connection with plates secured to the sides of the sash, and said blocks being provided with locking devices which are operated by a shoulder or projection formed on said plates, and by which the blocks are locked, to the window-frame, when the sash is pulled outwardly, and at the same time disconnected from the sash or the plates secured thereto, said locking devices, consisting of transversely-movable locking-bars, mounted in said blocks, or in chambers formed therein, and a lug or projection formed on said plate, substantially as shown and described.

6. The combination with a window-frame, and a window-sash mounted therein, and adapted to be supported by counterbalance-weights, of locking devices by which the counterbalance-weights are connected with the sash, said devices consisting of vertically-movable blocks with which the cables by which the counterbalance-weights are supported, are connected, said blocks being adapted to operate in connection with plates secured to the sides of the sash, and said blocks being provided with locking devices which are operated by a shoulder or projection formed on said plates, and by which the blocks are locked, to the window-frame, when the sash is pulled outwardly, and at the same time disconnected from the sash or the plates secured thereto, said locking devices, consisting of transversely-movable locking-bars, mounted in said blocks, or the chambers formed therein, and a lug or projection formed on said plate, and with levers pivoted in said chambers, said levers and said locking-bars being adapted to be projected at each side of the locking-blocks, and to engage with suitable keepers at the sides thereof, substantially as shown and described.

7. The herein-described means for connecting the counterbalance-weights of a window-sash therewith, which consist of plates secured to the sides of the sash, and provided with outwardly-directed shoulders or projections at the ends thereof, locking-blocks connected with the ends of the cables with which the counterbalance-weights are connected, and adapted to be connected with said plates when the window-sash is moved backwardly into position, said blocks being provided with chambers in their upper ends, and with grooves or passages communicating therewith, and cam-blocks pivoted in said chambers, and the ends of the cables being adapted to be passed into said chambers, and around said cam-blocks, substantially as shown and described.

8. The herein-described means for connecting the counterbalance-weights of a window with the sashes thereof, which consists of locking-blocks connected with the ends of the cables with which the counterbalance-weights are connected, said locking-blocks being adapted to be detachably connected with said sashes, and to be locked thereto, when the sashes are moved backwardly into position, in the window-frame, and to be detached therefrom when the sashes are pulled outwardly, and at the same time locked to the frame, and the lower ends of the frames being provided with supports for the lower ends of the sashes, on which said sashes may be turned outwardly when disconnected from the counterbalance-weights, substantially as shown and described.

9. The herein-described means for connecting the counterbalance-weights of a window with the sashes thereof, which consists of locking-blocks connected with the ends of the cables with which the counterbalance-weights are connected, said locking-blocks being adapted to be detachably connected with said sashes, and to be locked thereto, when the sashes are moved backwardly into position, in the window-frame, and to be detached therefrom when the sashes are pulled outwardly, and at the same time locked to the frame, and the lower ends of the frames being provided with supports for the lower ends of the sashes, on which said sashes may be turned outwardly when disconnected from the counterbalance-weights, and the window-frame being provided with supports for the upper ends of the sashes when the latter are disconnected from the counterbalance-weights, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 28th day of July, 1896.

GEORGE JOHNSTONE.

Witnesses:
W. W. HILL,
CHARLES S. ROGERS.