D. R. RIZZOLO.

PIVOTED REVERSIBLE WINDOW.

APPLICATION FILED SEPT. 15, 1916.

1,255,464.

Patented Feb. 5, 1918.

2 SHEETS—SHEET 1.

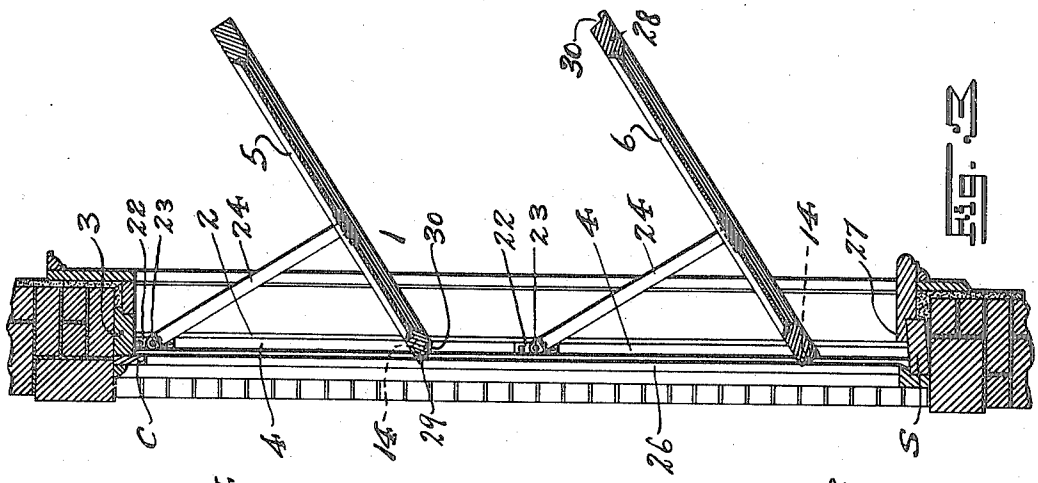


Fig. 3.

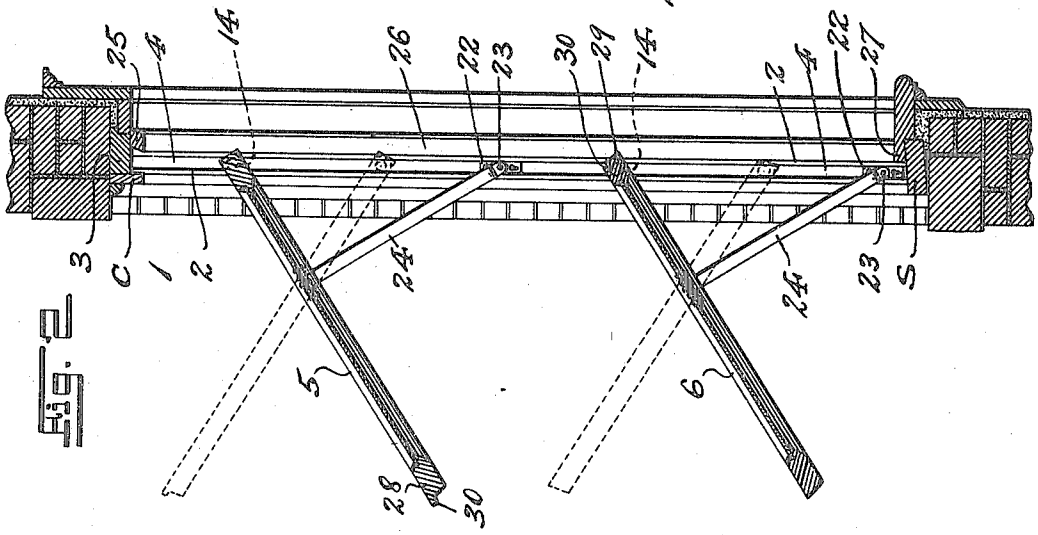


Fig. 2.

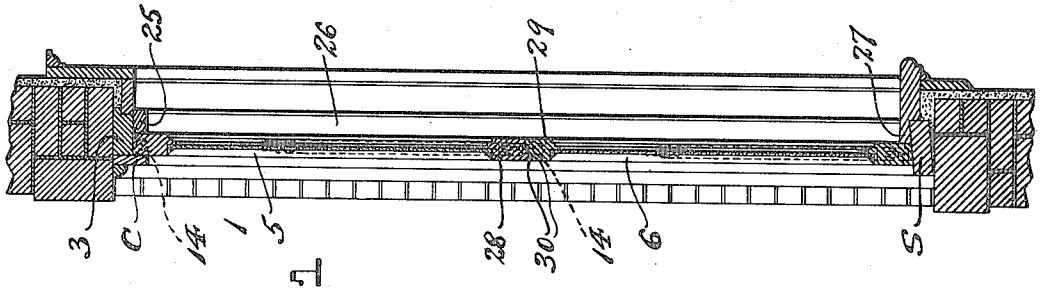


Fig. 1.

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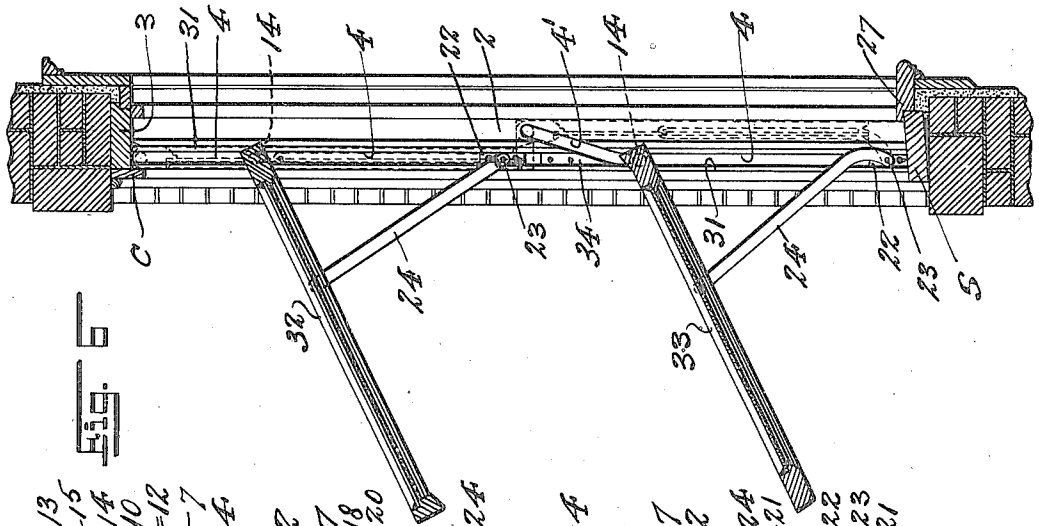


Fig. 6.

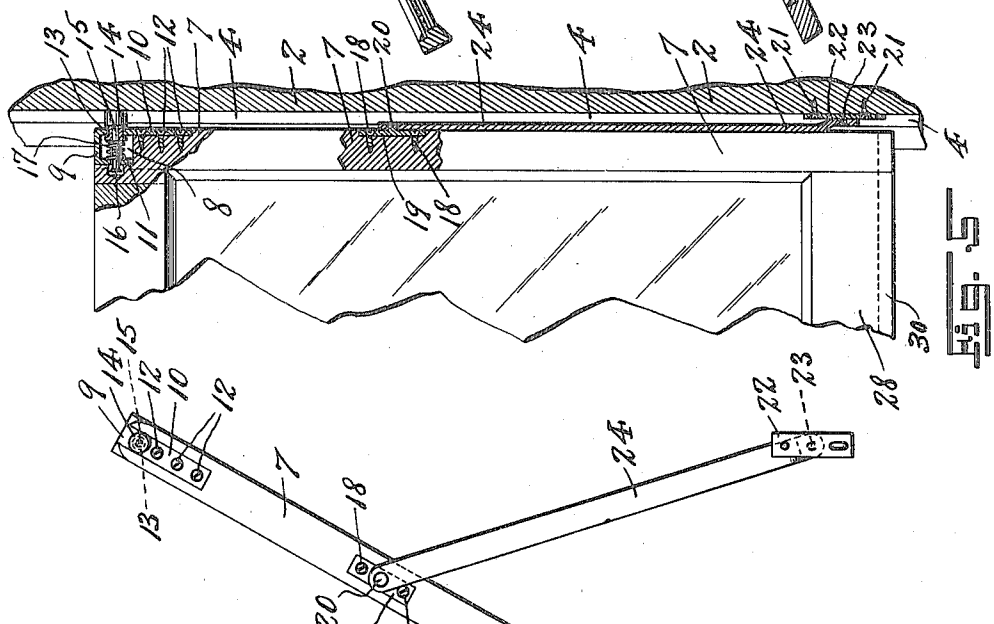


Fig. 5.

Fig. 7.

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PIVOTED REVERSIBLE WINDOW.

1,255,464. Specification of Letters Patent. Patented Feb. 5, 1918.

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To all whom it may concern:

Be it known that I, DONATO R. RIZZOLO, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Pivoted Reversible Windows; 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, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

The present invention relates, generally, to improvements in windows, and the invention has reference, more particularly, to a novel construction of pivoted reversible window-sash.

The present invention has for its principal object to provide a very simple, cheap and easily manipulated window, the sashes of which are so mounted in the window-frame that both of the same may be fully opened at one time, thereby permitting a one hundred per cent. opening for ventilation; and, furthermore, are so mounted that they may be reversed, that is turned inside out, so that both sides of the glass may be cleaned from within the building, thereby eliminating danger of falling out of the window when cleaning the same; and, still further, are so mounted that the same may be opened to any degree, and will maintain themselves in any degree of opened position.

Another object of my present invention is to provide an exceedingly cheap and simple arrangement and construction of supporting or suspending fittings for my novel construction of pivoted reversible window-sashes, so designed that the window-sashes may be mounted in the window-frame so as to open outwardly or inwardly therefrom as may be desired.

Other objects of the present invention, not at this time more particularly enumerated, will be clearly understood from the following detailed description of the same.

With the various objects of my present invention in view, the same consists, primarily, in the novel construction of pivoted reversible windows hereinafter set forth; and the invention consists, furthermore, in the novel arrangements and combinations of the various devices and parts, as well as in the details of the construction of the same, all of which will be more fully described in the following specification, and then finally embodied in the claim which is appended to and which forms an essential part of the said specification.

The invention is clearly illustrated in the accompanying drawings, in which:—

Figure 1 is a vertical longitudinal section taken through a window-frame fitted with pivoted reversible window-sashes made according to and embodying the principles of my present invention, said window-sashes being shown in closed positions.

Fig. 2 is a similar view, said window-sashes being shown in opened positions.

Fig. 3 is a similar view, said window-sashes being shown mounted so as to open inwardly instead of outwardly, the same being shown in opened positions.

Fig. 4 is a side elevation of one of my novel window-sashes and the mechanism for mounting the same, removed from the window-frame, said view being drawn on an enlarged scale.

Fig. 5 is an enlarged detail longitudinal cross section through a window-frame illustrating the novel window-sash mounted therein, and the mechanism for so mounting the same.

Fig. 6 is a view similar to that shown in Fig. 2 but illustrating a pair of old-fashioned sliding window-sashes fitted with the novel means for pivotally mounting the same so that they will operate in the manner of my novel pivoted reversible window-sashes.

Similar characters of reference are employed in all of the above-described views, to indicate corresponding parts.

Referring now to the said drawings, the reference character 1 indicates the complete window made according to and embodying the principles of my present invention, the same comprising a window-frame formed by the jambs 2, head 3 and sill *s*. Each jamb 2 is provided with a vertically extending guide-groove 4, running from the top to the bottom thereof.

The reference characters 5 and 6 respectively indicate upper and lower window-sashes adapted to be arranged in the window-frame. The upper ends of the side rails 7 of each window-sash is cut away to provide a receiving socket or space 8 for a supporting frame 9, having at its outer end a downwardly extending face-plate 10, and at its inner end a back-plate 11 spaced rearwardly from said face-plate. The back-plate 11 is normally located within the receiving socket or space 8, while the face-plate 10, which is considerably longer, closes over the receiving socket or space 8, and extends downwardly along the face of the side rail 7, being perforated for the reception or insertion of fastening screws 12, whereby the said supporting-frame 9 and its members are retained in operatively secured relation to the window-sash. Said face-plate 10 is provided with an opening leading into said socket or space 8, in which opening is journaled a tubular sleeve 13. The reference character 14 indicates a sliding fulcrum stud adapted to ride in an adjacent guide-groove 4, into which it projects. Said sliding fulcrum stud is preferably cylindrical in form, although it may be made in other shapes if it is so desired. Connected with said sliding fulcrum stud 14, so as to project rearwardly therefrom, is a stem 15, the same passing through said tubular sleeve 13, and thence through said receiving socket or space 8 so that its rearward free end may be supported in an opening formed in said back-plate 11. The rearwardly projecting free end of said stem extends beyond said back-plate 11, so that said stem and said sliding fulcrum stud 14 may be capable of a slight longitudinal movement as well as a rotary movement as mounted in connection with said supporting-frame 9. The rearward free end of said stem 15 is provided with a slightly enlarged head 16 adapted, by engagement with said back-plate 11, to limit the forward movement of said stem and sliding fulcrum stud relative to said supporting-frame 9. Coiled about said stem 15, between the back-plate 11 at one end and the tubular sleeve 13 at the other end, is a compression spring 17, adapted by virtue of its tension to exercise a forward thrust upon said tubular sleeve 13 which is in turn transmitted by the latter to said sliding fulcrum stud 14, whereby said fulcrum stud is thrust against the bottom of the guide-groove 4 to cause the same to frictionally engage the jamb 2, so that the sash is held by such frictional resistance in any position to which the same has been moved when the window-sash is operated. The face-plate 10 of said supporting-frame 9 is countersunk in the face of the side rail 7, so as to be flush with the surface thereof.

Secured to the face of each side rail 7, in a suitable location intermediate of its upper and lower ends, but preferably slightly above the center of said side rails 7, by means of fastening screws 18, is a sash pivot-plate 19, the same being countersunk so as to be flush with the surface of said side rail 7. Connected rigidly with said sash pivot-plate 19, so as as to project outwardly therefrom, is a pivot-stud 20.

Secured to the face of each jamb 2, in a location opposite the lower end of each window-sash and in alinement with said guide-groove 4, by means of fastening screws 21, is a jamb pivot-plate 22, to which is rigidly secured a pivot-stud 23, adapted to project outwardly therefrom.

The reference character 24 indicates a strut or stay arm, the upper end of which is pivotally secured to said pivot-stud 20 of said sash pivot-plate 19, and the lower end of which is pivotally secured to said pivot-stud 23 of said jamb pivot-plate 22.

When the respective window-sashes 5 and 6 are in closed positions, as shown in Fig. 1 of the drawings, their inner sides are brought into stopped engagement with the upper stop-bead 25, side stop-beads 26 and stool 27 of the window-frame, and the upper rail of the upper window-sash 5 enters between the head-casing *c* and said upper stop-bead of the window-frame, thus assuring a perfectly weather tight fitting of the window-sashes in the window-frame. The respective meeting-rails 28 and 29 of the window-sashes 5 and 6 are also provided with the lap-joint members 30, thus tightly closing the same at their meeting point.

In operating the window-sashes 5 and 6 to open the same, or either of them, it is necessary merely to push outwardly upon the lower ends of the same, causing such lower ends to swing outwardly. In thus swinging the window-sashes outwardly, the strut or stay-arms 24 thereof are caused to describe an outwardly swinging arc about their lower ends, which are pivoted to the jamb pivot-plates 22, by reason of the upper ends thereof, which are pivoted to the sash pivot-plates 19, being carried outward by the outward movement of said sashes upon which said sash pivot-plates are carried. By reason of the positive connection of the sashes with the strut or stay-arms 24, the lower ends of which are fixed, the upper ends of said sashes are caused to move downwardly between the jambs 2, as the strut or stay-arms 24 swing outwardly and downwardly. This downward movement of the upper ends of the sashes is controlled and guided by reason of the engagement of the sliding fulcrum studs 14 in the guide-grooves 4, consequently as the sashes swing outward they also tend to assume a horizontal plane, and will be horizontally disposed, relative to the window-frame, when said sliding fulcrum

studs 14 move downward in said guide-grooves 4 to a point horizontally opposite the end of said strut or stap-arms where pivoted to the sash pivot-plates 19, in which position the window-sashes are fully open. The thrust of the compression springs 17, as above explained, exerts a sufficient pressure upon said sliding fulcrum studs 14, to cause the same to frictionally bind against the jambs 2 at the bottom of the guide-grooves 4, and therefore will hold the window-sashes against any tendency to swing back to closed position. The strut or stay-arms 24 being obliquely disposed between the window-sashes and window-frame, when the former are open, will firmly support the weight of the window-sashes.

If is is desired to reverse the window-sashes for cleaning purposes, the upper ends are pushed downwardly so as to carry the sliding fulcrum studs 14 farther down in the guide-grooves 4, which tends to swing upwardly and inwardly the lower ends of the window-sashes, utilizing the sash pivot-plates 19 as connected with the upper ends of said strut or stay-arms 24, as a pivot or fulcrum, thus reversing the sash and turning its outer side inwardly toward the window-frame, so that the same may be easily reached and cleaned from within the latter, all of which is indicated by the dotted representation of the window-sashes as shown in Fig. 2 of the drawings.

It will thus be apparent that the present invention provides an exceedingly simple arrangement and construction of double sash window, both members of which may be opened at once, if desired, to give the full maximum opening of the window-frame for the purposes of ventilation; and which may be reversed so as to be readily cleaned on both sides from within the interior of the building in which they are located. Furthermore, it will be apparent that the mechanical elements and devices for thus mounting the window-sashes in the window-frame have been reduced to the utmost simplicity, so that a cheap and yet efficient and strong construction of mounting elements and devices are provided, all so arranged and combined as to permit of a perfect weather tight fitting of the window-sashes within the window-frame.

Referring now to Fig. 3 of the accompanying drawings, I have illustrated the window-sashes mounted in the window-frame so as to open inwardly instead of outwardly thereof and as will be apparent this is accomplished without structural changes of the mountings and supporting devices being necessary. All that it is necessary to do is to reverse the relative positions of the sliding fulcrum studs 14 and strut or stay-arms 24.

Referring now more particularly to Fig. 6 of the drawings, I have illustrated therein the equipment of the old style double hung sliding window-sashes with sliding fulcrum studs 14 and struts or stay-arms 24, so that the same may be caused to operate in the manner of my novel reversible pivoted window-sashes. In such application of my invention, the slide-grooves 31 for the upper sash 32 is provided with a guide-groove 4 in which the sliding fulcrum studs 14 are arranged and move. Since, however, the old sashes were arranged to move past each other when lowered or raised, and consequently the lower sash 33 is normally situated in a vertical plane to the rear of that of the upper sash, it is necessary to provide a rearwardly inclined guide-groove portion 4′ leading out of the main guide-groove 4, so that the sliding fulcrum studs 14 connected with the lower sash 33, may be so guided when said lower sash moves into closed position, that its upper end will be carried back of the lower end of the upper sash in the lapping relation normally assumed by double hung window-sashes when the same are closed.

To assure this operation, a switch-block 34 is inserted in said guide-groove 4 at the juncture therewith of guide-groove portion 4′. The general operation of such window-sashes 32 and 33, when so mounted, will be the same as already above described.

I am aware that some changes may be made in the several arrangements and combinations of the various devices and parts of my present invention, as well as in the details of the construction of the same, without departing from the scope of the said invention as set forth in the foregoing specification, and as defined in the claim appended hereto. Hence, I do not limit my invention to the exact arrangements and combinations of the said parts as described in the foregoing specification, nor do I confine myself to the exact details of the construction of the said parts as illustrated in the accompanying drawings.

I claim: —

In a pivoted stay supported reversible window, the combination with the window-sash having receiving sockets in its upper corners, of a supporting frame mounted in connection with each receiving-socket comprising a downwardly extending face-plate secured to said window-sash and extending upwardly over said receiving-socket, a back-plate connected in rearward spaced relation to said face-plate within said receiving-socket, a sliding fulcrum-stud projecting from the exterior face of said face plate adapted to ride in a vertical guide-groove of a window-frame, a stem connected with said fulcrum-stud extending rearwardly through said face-plate, receiving-socket and back-plate, a sleeve on said stem adapted to

extend through said face-plate and bear against said fulcrum-stud, and a push-spring coiled about said stem and bearing against said back-plate and the inner end of said sleeve to impart an outward thrust to said fulcrum-stud.

In testimony, that I claim the invention set forth above I have hereunto set my hand this 12th day of September, 1916.

DONATO R. RIZZOLO.

Witnesses:
FRED'K C. FRAENTZEL,
FREDK. H. W. FRAENTZEL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents. Washington, D. C."