April 12, 1932. H. T. WALTON 1,854,005

WINDOW

Filed May 21, 1930 2 Sheets-Sheet 1

FIG. I.

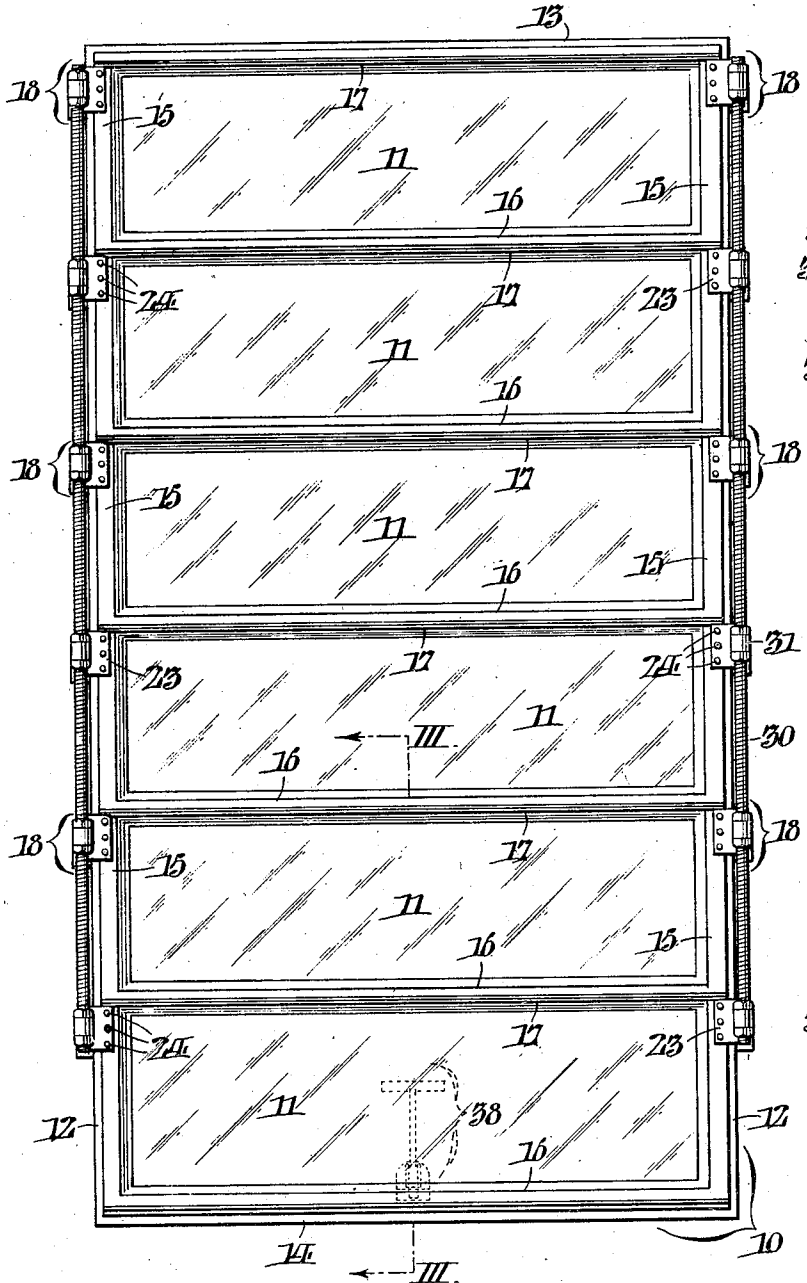
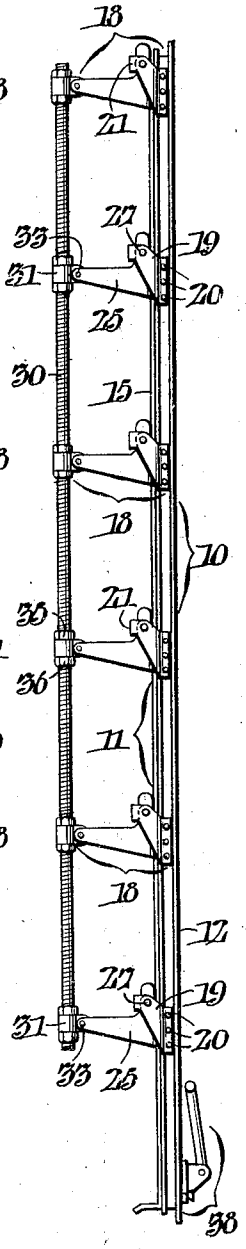


FIG. II.



WITNESSES

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WINDOW

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FIG. III.

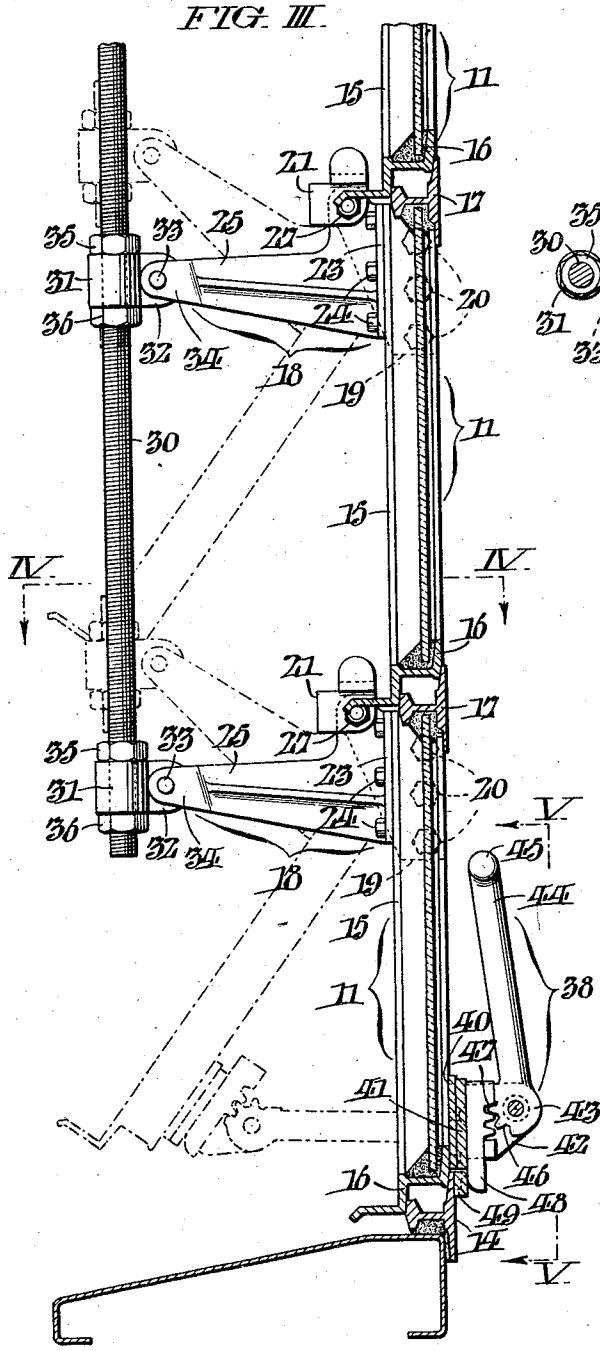


FIG. IV.

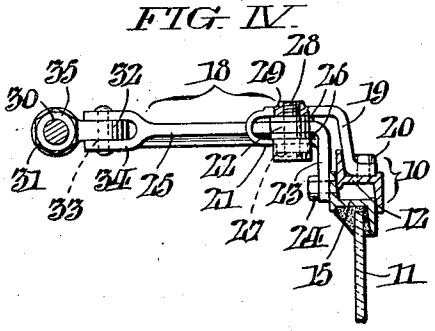
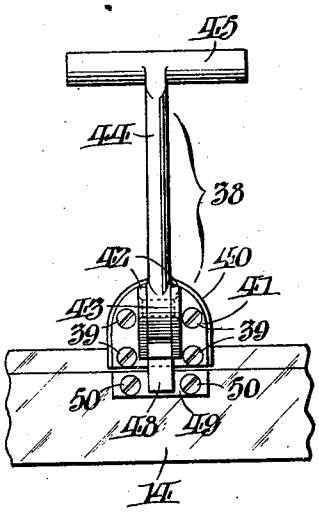


FIG. V.



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UNITED STATES PATENT OFFICE

HOWARD T. WALTON, OF COLLINGSWOOD, NEW JERSEY, ASSIGNOR TO DAVID LUPTON'S SONS COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA

WINDOW

Application filed May 21, 1930. Serial No. 454,208.

This invention relates to windows, and it has reference more specifically to windows designed for use in houses of detention such as hospitals, asylums and similar institutions.

Considered from the broadest standpoint, my invention is directed toward affording, in buildings of the kind referred to, the maximum amount of ventilation, and at the same time insuring against the possibility of escape on the part of the inmates. This desiderata I attain through provision of a window with a multiplicity of narrow pivotally mounted horizontal sashes which are continuously coordinated for simultaneous actuation, and frictionally restrained for capacity to resist displacement under the influence of gravity and wind pressure in different positions of opening.

In connection with sash coordinating means for windows characterized as above, I aim to compensate for inaccuracies of construction and also for wear of the parts, by providing for relative adjustment of the sashes individually to predetermine weather tightness of said sashes when in closed position.

Still other objects and attendant advantages of this invention will be manifest from the detailed description which follows in connection with the attached drawings, whereof Fig. I is a frontal elevation of a detention window conveniently embodying the present improvements.

Fig. II is an edge elevation of the window viewed from the right in Fig. I.

Fig. III is a partial vertical section of the window, taken as indicated by the arrows III—III in Fig. I, and drawn to a larger scale.

Fig. IV is a detail section taken as indicated by the arrows IV—IV in Fig. III; and,

Fig. V is a fragmentary elevation, viewed as indicated by the arrows V—V in Fig. III, showing latch means of a type which I prefer to employ to lock the sashes of the window in closed position.

For convenience of illustration herein, I have shown my invention as embodied in a window of metallic construction. As delineated, the window consists of a frame 10 which is adapted to be permanently set into a wall opening; and a multiplicity of narrow vertically arranged sashes 11 which are pivotally mounted on the frame 10 for upward swinging movement to open position substantially about their top edges. The side verticals 12 of the frame 10 are in this instance of Z cross section as shown in Fig. IV, while the top and bottom horizontals 13, 14 are of T cross section, as shown in Fig. III. The sashes 11 on the other hand have side verticals 15 and bottom horizontals 16 of Z cross section, and top horizontals 17 of T cross section, also as clearly shown respectively in Figs. IV and III. With the window closed, as in Fig. III, the bottom horizontal rail 16 of one sash 10 overlaps the top horizontal rail 17 of the sash immediately beneath it with formation of a double weather seal. From Fig. IV it will be noted that the side verticals 15 of the sashes 10 meet with the side verticals 12 of the frame 10 in a similar manner to form a double weather seal. The precise details just described as to the construction of the window and its sashes are not to be regarded as essential to my invention, since the present improvements can be embodied as readily in windows constructed from lumber or sheet metal.

To pivotally support the sashes 11 at opposite ends for swinging movement as aforesaid, I provide special hinges which are comprehensively indicated respectively by the numeral 18. The fixed or bracket components 19 of these hinges are of right angled configuration in plan, see Fig. IV, and rigidly secured to the side verticals of the frame 10 by screw bolts 20. The outer ends of the hinge components 19 are clevised as at 21 to receive the pivot ears 22 of the companion hinge components 23, which latter are secured to the sashes 11 by screw bolts 24 and formed with outwardly reaching arms 25. At the pivot juncture of each hinge 18, between the ear 22 of the component 23 and the contiguous faces of the clevise 21 of the component 19, are interposed washers 26; and a pintle bolt 27 is passed through the assemblage, the end of said bolt being threaded, as at 28 in

Fig. IV, and taking into a boss 29 formed on the component 19 as shown. By adjusting the pintle bolts 27, the requisite degree of frictional resistance may be predetermined between the contacting areas of the hinge components 19, 23 at the pivots to insure maintenance of the sashes 11 against displacement under the influence of gravity and wind pressure when in open position.

The improved coordinating means which I provide to continuously couple the several sashes 11 of the window for simultaneous actuation, includes a pair of threaded rods 30. Mounted on these rods 30 are collars 31 with laterally extending apertured lugs 32 which are pivoted at 33 within bifurcations 34 at the ends of the hinge arms 25. The collars 31 fit the rods 30 loosely, but are held in position between nuts 35 and 36 that engage the threads of said rods. The adjustment thus provided for at the point of connection of the sash arms 25 with the coupling rods 30, obviously makes it possible to predetermine air tightness of the sashes 11 when in closed position.

At 40 in Figs. I, III and V, I show a preferred type of latch device for securing the window sashes 11 in closed position. In the present instance, the latch device 38 is attached by screws 39 to a semi-circular anchorage piece 40 welded to the bottom rail of the lowermost of the sashes 11, and adapted to lock with the bottom cross rail 14 of the frame 10, although, if desired, it may be located on the bottom rail 17 of any of the other sashes to lock with the contiguous top rail 16 of the subjacent sash. As illustrated, the latch device 38 comprises a bracket 41 which affords a pair of spaced ears 42 to receive the boss 43 of an actuating handle 44. At its outer end this actuating handle 44 has a cross bar 45 to enable firm grippage thereof; and its boss 43 is formed with gear teeth 46 to intermesh with rack teeth 47 on a bolt 48 which has sliding guidance in the bracket 41 and which locks over a keeper piece 49 secured by screws 50 to the lower horizontal rail 14 of the frame 10. Obviously, swinging of the latch actuating handle 44 clockwise in Fig. III, will be attended by lifting of said bolt to clear the keeper piece 49, whereupon the lowermost of the sashes 11 can be swung or pushed outward as shown in dot-and-dash lines in Fig. III. Through the medium of the rods 30 the movement is communicated to the other sashes 11 which are thus all opened at the same time.

Having thus described my invention, I claim:

1. A window comprising a multiplicity of pivoted sashes with angled hinge-elements projecting therefrom, a threaded rod co-ordinating said arms for simultaneous actuation of the sashes, freely-fitting collars on the rod whereto the hinge-elements are respectively pivoted, and nuts in threaded engagement with the rods at opposite sides of the collars whereby the latter may be positionally adjusted to predetermine air-tightness of all the sashes when in closed position.

2. A window comprising a multiplicity of pivoted sashes with angled hinge-arms projecting therefrom, a threaded rod continuously co-ordinating said arms for simultaneous actuation of the sashes, freely-fitting collars on the rods whereto the arms are respectively pivoted, nuts in threaded engagement with the rods at opposite sides of the collars whereby the latter may be positionally adjusted to predetermine air-tightness of all the sashes when in closed position, and latch means on one of the sashes to lock the window closed.

3. A window comprising a multiplicity of horizontally-pivoted sashes with angled hinge-components projecting therefrom, associated friction-imposing similarly angled hinge-components secured to the side verticals of the window frame, a threaded rod continuously co-ordinating the first mentioned hinge-components for simultaneous actuation of the sashes with freely-fitting collars whereto said components are respectively pivoted, and nuts in threaded engagement on the rod at opposite sides of the collars whereby the latter may be positionally adjusted to predetermine air-tightness of all the sashes when in closed position.

4. A window comprising a multiplicity of horizontally-pivoted sashes with angled hinge-components projecting therefrom, associated clevis-ended friction-imposing similarly-angled hinge-components secured to the side verticals of the window frame, a threaded rod continuously co-ordinating the first mentioned hinge-components for simultaneous actuation of the sashes with freely-fitting collars whereto said components are respectively pivoted, nuts in threaded engagement on the rod at opposite sides of the collars whereby the latter may be positionally adjusted to predetermine air-tightness of all the sashes when in closed position, and latch means on the lower sash to lock the window when closed.

5. A window comprising a multiplicity of horizontally-pivoted sashes with angled hinge-components projecting therefrom, associated clevis-ended friction-imposing similarly-angled hinge-components secured to the side verticals of the window frame, a threaded rod continuously co-ordinating the first mentioned hinge-components for simultaneous actuation, freely-fitting collars on the rod having lateral lugs whereto the last mentioned hinge-components are respectively pivoted, nuts in threaded engagement with the rod at opposite sides of the collars whereby the latter may be positionally adjusted to predetermine air-tightness of all the sashes

when in closed position, and latch means on the lower sash comprising a rack bolt with an actuator having a toothed boss co-operative therewith to effect movement of said bolt into and out of window-locking position.

In testimony whereof, I have hereunto signed my name at Philadelphia, Pennsylvania, this 30th day of April, 1930.

HOWARD T. WALTON.