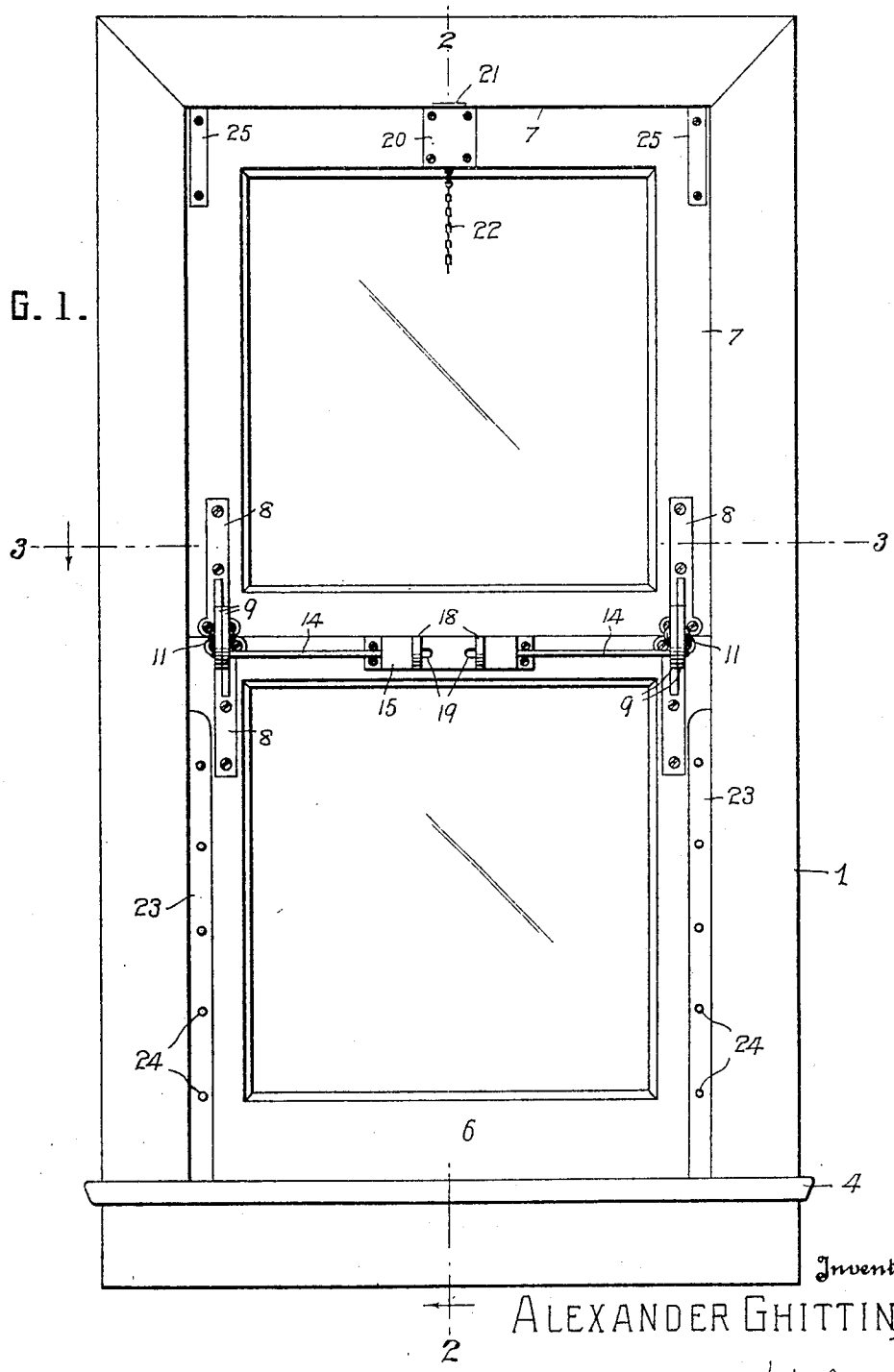
Dec. 8, 1931. A. GHITTINO 1,835,389

WINDOW CONSTRUCTION

Filed Nov. 19, 1930 2 Sheets-Sheet 1

FIG. 1.



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Filed Nov. 19, 1930 2 Sheets-Sheet 2

FIG. 2.

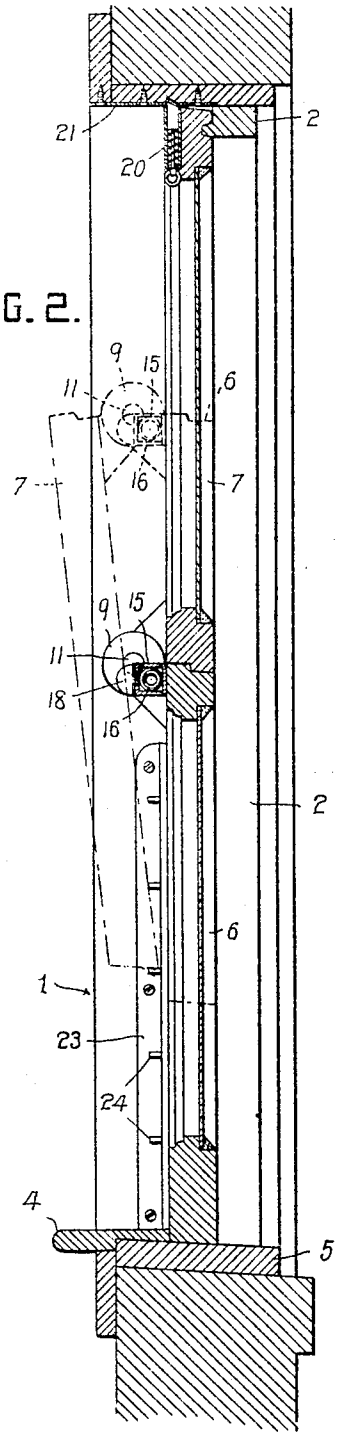


FIG. 4.

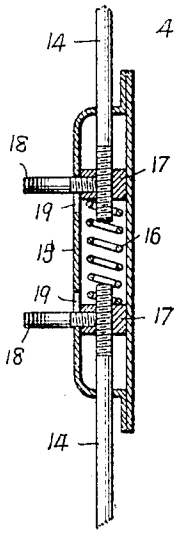


FIG. 3.

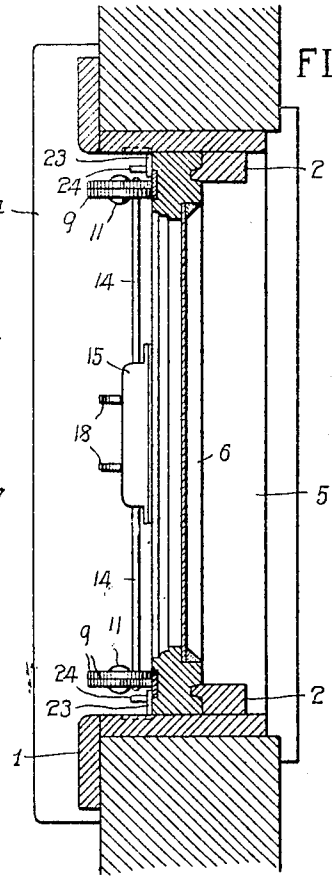


FIG. 5.

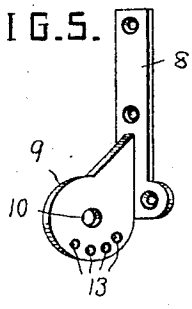
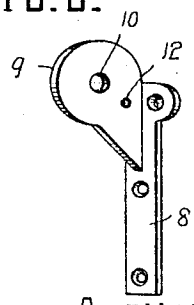


FIG. 6.



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Search Room

Patented Dec. 8, 1931 1,835,389

UNITED STATES PATENT OFFICE

ALEXANDER GHITTINO, OF NEW YORK, N. Y.

WINDOW CONSTRUCTION

Application filed November 19, 1930. Serial No. 496,717.

This invention relates to improvements in window construction, and more particularly to the type of window whose sashes are pivoted to swing on a horizontal axis.

Among the objects in view are simplification and inexpensiveness of construction and efficiency of operation, and more particularly ease and facility of adjustment, maximum capacity for variation in circulation control and readiness of complete detachment and replacement.

With these and other objects in view as will in part hereinafter become apparent and in part be stated, the invention includes sashes pivoted together and means for sustaining one sash at different angles to the other when moved about the axis of the pivot.

The invention also includes such sashes in combination with a frame in which one of the sashes is slidingly mounted, and also includes means for sustaining the slidingly mounted sash at various elevations.

The invention comprises certain other novel constructions, combinations, and arrangements of parts as subsequently specified and claimed.

In the accompanying drawings,—

Figure 1 is a front elevation of a window embodying the features of the present invention.

Figure 2 is a vertical section therethrough taken on the plane indicated by line 2—2 of Figure 1.

Figure 3 is a horizontal section taken approximately on the plane indicated by line 3—3 of Figure 1, looking downward.

Figure 4 is an enlarged, detailed, sectional elevation of the latch housing and cooperating parts.

Figure 5 is an enlarged, detailed perspective view of a leaf of one of the hinges detached, being the leaf preferably secured to the upper sash.

Figure 6 is a similar view of the cooperating leaf.

Referring to the drawings by numerals, 1 indicates any appropriate window framing having the vertical stops 2, 2, and the horizontal stop 3 at the top of the framing. The usual seat 4 is preferably employed and fixed to the usual sill 5 in the customary position to snugly accommodiate the sash between the outer edge of the seat 4 and the inner edges of stops 2.

A lower sash 6 is mounted to slide vertically along stops 2 in contact with the edges of the stops and inward thereof. To the sash 6 is pivotally connected an upper sash 7, the form of the pivotal connection being susceptible of a wide range of variation, but preferably involving two hinges each consisting of a pair of leaves or hinge plates, and each of which plates includes an attaching plate 8 and an outstanding eye 9. Each of the eyes 9 is preferably in the form of a substantially circular or disc-shaped plate perforated centrally at 10 through which extends the pintle 11. Plates 8 are fixed to the inner faces of the side bars of the sashes 6 and 7, so that the sashes may hinge relative to each other and more specifically the upper sash may hinge inwardly about pintles 11. One of the hinge plates of each pair, preferably that fixed to the lower sash, is provided with a perforation 12 near the periphery of the disc, and the disc of the cooperating plate is provided with a series of perforations 13 spaced circumferentially and located to successively register with perforation 12 as the upper sash 7 swings inward. Obviously, the hinge plates may be conversely located with respect to the sashes and the plate having the plurality of perforations 13. For each pair of hinges a bolt 14 is provided and proportioned and located to be thrust through perforation 12 and into any one of the perforations 13 in register therewith at any given time. Bolts 14 are preferably spring stressed for being retained normally in the interlocking relation of extending through aperture 12 and one of the apertures 13 and subject to withdrawal therefrom against spring pressure. Of course, numerous forms of details may be employed for subjecting the bolts 14 to such pressure, a preferred form being seen in Figures 1, 2, and 4 wherein a housing 15 is shown as fixed to the upper horizontal bar of the lower sash 6, into which housing the bolts 14 extend endwise. A spring 16 is arranged within the housing 15 between the ad-

jacent ends of bolts 14 and located to stress the bolts apart, whereby the bolts are stressed toward a position extending through registering openings 12 and 13. As a convenient means of retaining the parts in their proper relation and facilitating operation and control, each bolt 14 is preferably threaded at its inner end portion within housing 15 and engaged by a nut 17 slidingly mounted within the housing. The nut 17 may be adjusted along the bolts for varying their distance apart, and the spring 16 is preferably of a size to surround the projecting end portions of the bolts 14 and to have its ends engage the contiguous faces of nuts 17. Operating tabs 18 are arranged with their shanks extending through slots 19 in housing 15 and in operative engagement with nuts 17. While the connection between the shanks of tabs 18 and nuts 17 may be any of various forms, one convenient arrangement is to thread the said shanks laterally into the nuts 17. When thus threaded into nuts 17, the shanks of tabs 18 not only serve to detachably connect the tabs to the nuts and thereby facilitate assemblage and dismantling, but may also serve as set screws to prevent relative movement of nuts 17 with reference to their respective bolts 14. The tabs 18 are preferably spaced apart a distance for convenient manual manipulation, as by the placing of the thumb on one tab 18 and the forefinger on the other for drawing the two toward each other. When the tabs are drawn toward each other sufficiently, the bolts 14 will be withdrawn from perforations 13, but the spacing between the inner ends of bolts 14 within housing 15 is preferably such that the bolts cannot be pressed toward each other to an extent withdrawing them entirely from perforations 12. This is merely a precaution against the inconvenience which would result from dislocation of the free outer end portions of the bolts and may be controlled by the length of the slots 19, or otherwise as preferred. It is desirable to have the perforation 12 in each of the respective hinge plates and the first perforation 13, that is the perforation nearer the sash, in such relation that, when bolts 14 extend through perforations 12 and the first of the perforations 13, the sashes 6 and 7 will be in their upright position or vertical alinement as seen in full lines in Figure 2. Thus, the bolts and the cooperating parts serve as locking means for locking the sash 7 in its closed position, and since sash 6 cannot move so long as sash 7 is not moved, the window is locked in place in this manner. This locking device, however, affords the further facility that, when it is desired to allow a little circulation through the upper part of the window opening, the operator may withdraw bolts 14 from perforation 13 and swing the sash 7 inward about the axis of the hinges, stopping at any point desired in the length of the row of perforations 13, and then by releasing the bolts 14 and allowing them to enter the selected perforations 13, the sash may be locked in the inward inclined position.

As a means of supplemental locking of the window in place, and more particularly the uper sash 7, a latch 20 is preferably provided carried by the upper, horizontal bar of upper sash 7. Any appropriate keeper 21 is preferably fixed to the under face of the top plate of the window frame immediately above the sash 7 in position to receive the plunger of latch 20. Any appropriate operating mechanism, such as a chain 22, may be provided for actuating the plunger of latch 20, which plunger is preferably spring-stressed to its locking or seating position. Thus, when the parts are in the position seen in full lines in Figure 2, the sashes 6 and 7 are locked in their upright position both by bolts 14 and by latch 20, and, in order to swing sash 7 inward, it is necessary first to withdraw the plunger of latch 20, and then move the sash to the position desired. It will be understood, of course, that latch 20 is supplemental in its action and aids in preventing looseness of the parts when in the completely closed position.

Fixed to the sides of the window frame and upstanding from the seat 4 just inward of sash 6 and snugly engaging the same are angle plates 23, 23, provided with projecting pins, lugs, or other apropriate detents or stops, 24, 24 spaced apart vertically along the respective angles plates. Each angle plate has one of its webs fixed to the respective side of the window frame, and may be countersunk therein, as clearly seen in Figure 3, or otherwise arranged as preferred. The other web of each angle plate in each instance outstands laterally from the respective side of the window frame and serves as an inward guide or limit for the respective vertical bar of the lower sash 6. Lower sash 6, therefore, is arranged to slide freely vertically between stops 2 and the outstanding webs of angle plates 23.

Since the sash 7 is of the same width as sash 6, it will be apparent that, when sash 7 is swung to its lowermost position upon its hinged connection with sash 6, the now lower edge which is normally the upper edge of sash 7, may be caused to move into contact with a pair of the stops 24, providing sash 7 is sufficiently elevated to enable sash 7 to reach such stops. Thus, sash 6 may, after sash 7 has been swung to its lowermost position, be slid upward to any desired extent within the limits of the several stops 24 and be sustained in such elevated position by merely moving the sash 7 into engagement with the stops, as indicated in dotted lines in Figure 2. Ventilation at top and bottom is thus facilitated. As a means of avoiding wear, wear plates 25, 25 may be

Search Room

fixed to the sash 7 to directly engage stops 24.

The angle bars 23 are preferably of a length somewhat less than the length of sash 6, or, in other words, less than one-half the length of the window opening, so that it is possible to slide sash 6 upward sufficiently high for the lower edge of the sash to move beyond the horizontal plane of the upper end of angle bars 23. When this has been done, the two sashes 6 and 7 (the latter having been folded downward) may be bodily removed from the window opening and leave the same entirely clear. Maximum control of ventilation and maximum ventilation are, therefore, contemplated and provided by the invention. Furthermore, treatment of the sashes, such as cleansing, painting, and repairing, is rendered easy, and the necessity for operators appearing at the outside of the window is entirely avoided.

I claim:—

1. In window structures, the combination, with a sash, and a sash pivoted thereto, of means for locking the sashes to each other against relative pivotal movement.

2. In window construction, the combination, with a sash, and a sash pivoted thereto, of means for locking the sashes against relative pivotal movement, the locking means being adapted to lock the sashes in various angular relations to each other.

3. In window structures, the combination, with a sash, and a sash pivoted thereto, of means for locking the sashes against relative pivotal movement, the locking means engaging the pivotal connection between the sashes.

4. In window structures, the combination, with a sash, and a sash pivoted thereto, of means for locking the sashes against relative pivotal movement, the pivotal connection between the sashes comprising a hinge having overlying, relatively movable plates, and the locking means engaging one of the plates, and the other plate being provided with a series of receiving means for the locking means to enable locking of the sashes in various angular relations to each other.

5. In window structures, the combination, with a sash, and a sash pivoted thereto, of means for locking the sashes against relative pivotal movement, the first-mentioned sash being adapted to be slidingly mounted and the locking means being adapted to lock the second sash in outstanding relation to the first.

6. In window structures, the combination, with a window frame, of a sash slidingly mounted therein, and a sash pivoted to the first-mentioned sash to swing vertically, and means for locking the second-mentioned sash in various angular relations to the first-mentioned sash.

7. The combination, with a window frame, of a sash mounted to slide vertically therein, a sash pivoted to the first-mentioned sash to swing vertically and adapted to be moved to position for supporting the first-mentioned sash above its lowermost position.

8. The combination, with a window frame, of a sash mounted to slide therein, a sash pivoted to the first-mentioned sash, and means carried by the frame for receiving the second-mentioned sash to retain the first-mentioned sash in positions other than closed.

9. The combination as claimed in claim 8 wherein the second-mentioned sash is pivoted to swing vertically.

10. The combination as claimed in claim 8 wherein the second-mentioned sash is pivoted to swing vertically and the first-mentioned sash is mounted to slide vertically.

11. The combination as claimed in claim 8 wherein the window frame is provided with stops for receiving the pivoted sash.

12. The combination as claimed in claim 8 wherein the second-mentioned sash is pivoted to swing vertically, the first-mentioned sash is mounted to slide vertically, and the window frame is provided with means for receiving the pivoted sash in an inverted position to support the sliding sash above a closed position.

13. The combination, with a window frame, of a sash vertically slidingly mounted therein, a superimposed sash pivoted to the first-mentioned sash to swing vertically, and stops for receiving the second-mentioned sash to support the same with the first-mentioned sash above a closed position.

14. The combination, with a window frame, of a vertically sliding sash mounted therein, a sash superimposed thereon, a hinge pivotally connecting said sashes for enabling the superimposed sash to swing vertically, said hinge having plates outstanding from the sashes in substantial face contact, one of said plates having a perforation and the other having a series of perforations in arcuate alinement and spaced from the axis of movement equal to the spacing of the first perforation, and a bolt extending through the first perforation in position for engaging any one of the perforations of the other plate.

In testimony whereof I affix my signature.

ALEXANDER GHITTINO.