

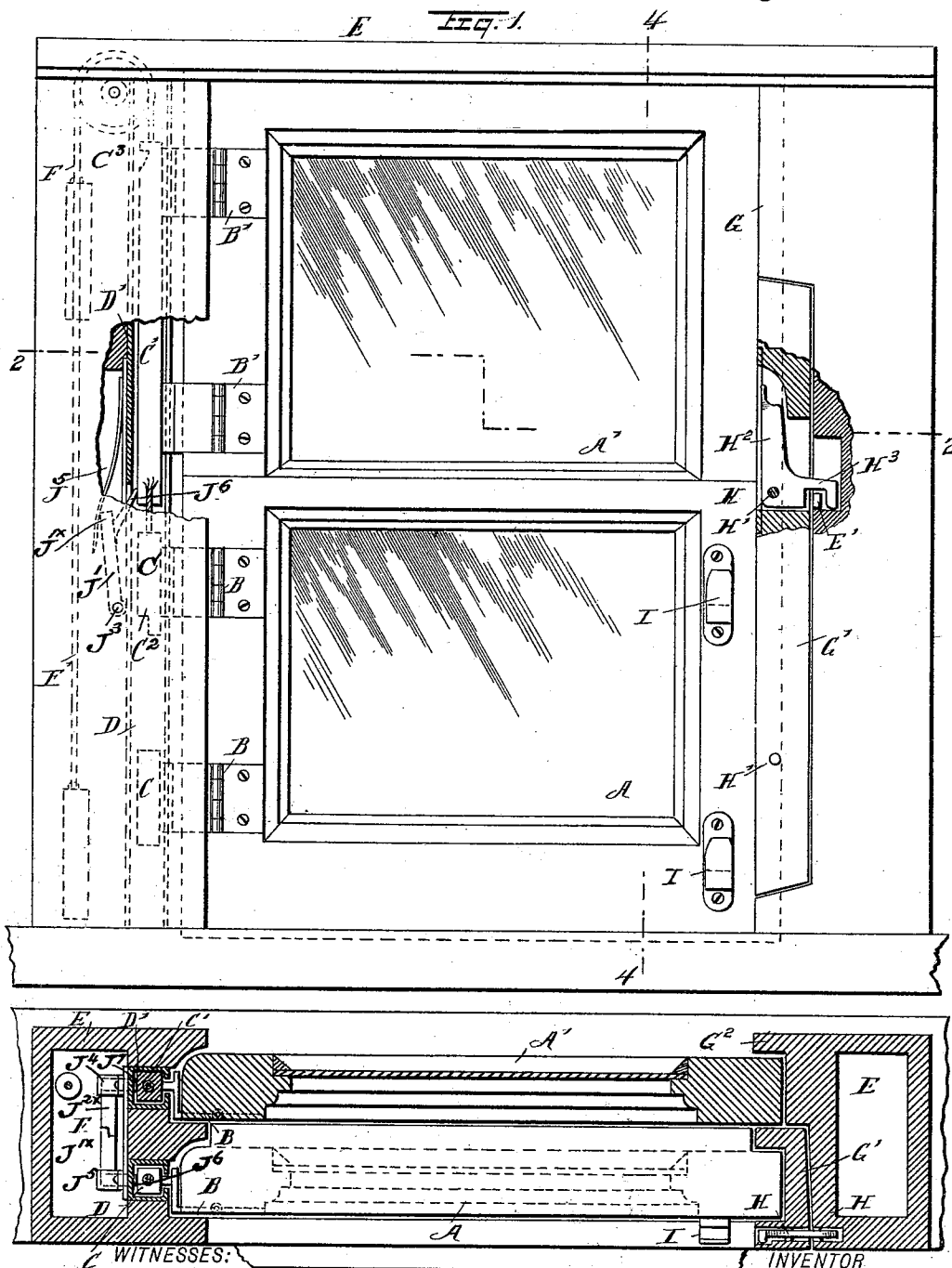
(Model.)

2 Sheets—Sheet 1.

J. B. GRATTAROLA.
WINDOW.

No. 544,164.

Patented Aug. 6. 1895.



H. Walker

Fig. 2.

J. B. Grattarola.

BY *Munn & Co.*

ATTORNEYS.

Theo. G. Foster, Jr.

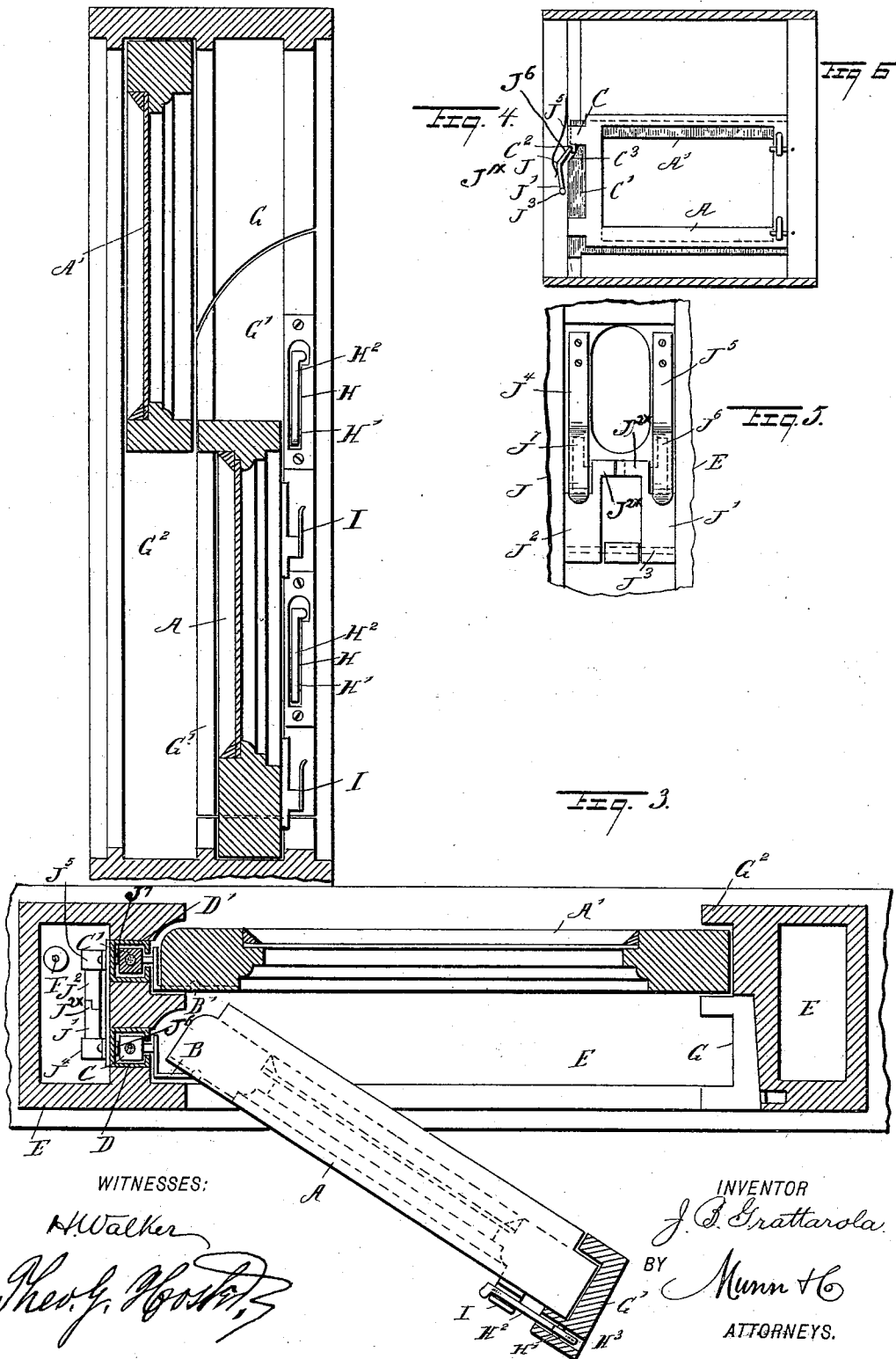
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WITNESSES:

H. Walker

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UNITED STATES PATENT OFFICE.

JOHN B. GRATTAROLA, OF NEW YORK, N. Y.

WINDOW.

SPECIFICATION forming part of Letters Patent No. 544,164, dated August 6, 1895.

Application filed August 28, 1894. Serial No. 521,509. (Model.)

To all whom it may concern:

Be it known that I, JOHN B. GRATTAROLA, of New York city, in the county and State of New York, have invented a new and Improved Window, of which the following is a full, clear, and exact description.

The invention relates to reversible windows, and its object is to provide a new and improved window having a comparatively simple mechanism to permit of readily sliding the sashes up and down, to swing the same inward, and give access to both faces of the sashes for cleaning and for other purposes.

The invention consists principally of a sash pivoted at one side on a slidable bar or guide-piece and adapted to be locked at its other side to a removable part of the sash guideway.

The invention also consists in certain parts and details and combinations of the same, as will be hereinafter fully described and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the views.

Figure 1 is a face view of the improvement, with parts broken out and parts in section. Fig. 2 is a sectional plan view of the same on the line 2 2 of Fig. 1. Fig. 3 is a similar view of the same, showing the lower sash swung inward. Fig. 4 is a transverse section of the improvement on the line 4 4 of Fig. 1. Fig. 5 is a side elevation of the device for holding the slidable slide-bars in position, and Fig. 6 is a reduced diagrammatical view showing the sashes lowered. This view is designed more especially to illustrate the stop device for holding the slide-bars in position to be removed.

The improved window, as illustrated, has its lower and upper sashes A and A' connected at one side by hinges B and B', respectively, with slide-bars C and C', respectively, fitted to slide vertically in suitable guideways D and D', respectively, secured or arranged in the window-frame E. The slide-bars C and C' are hung on the usual sash-cords F and F', respectively, passing over suitable pulleys and provided with counterbalancing weights, as indicated in Fig. 1.

The free side of the lower sash A is fitted

to slide vertically in a guideway G, having a portion G' made removable from the window-casing E, while the guideway G² for the free end of the upper sash A' is a fixed part of the window-frame, and the lower portion is formed by the removable guideway part G'. This removable guideway part G' for the lower sash A is adapted to be locked in place on the window-casing E, and is also adapted to be locked to the lower sash A, and for this purpose I provide one or more locking mechanisms H, each consisting principally of a bell-crank lever fulcrumed at H' in the guideway part G', as plainly illustrated in Figs. 1 and 2. The arm H² of this bell-crank lever is adapted to engage a catch I secured on the front face of the lower sash A at the free side thereof, while the other arm H³ of this bell-crank lever is adapted to engage a fixed catch E', held in the window-casing E, so that when the said bell-crank lever is in the position shown in Fig. 1 the vertical arm H² is located within the recess of the guideway part G', and consequently disengaged from the catch I. The horizontal arm H³ of the said bell-crank lever now engages the fixed catch E', so that the guideway part G' is locked to the casing.

When the guideway part is locked in place, then the sash A can be readily moved up and down, being counterbalanced by the sash-cord F and weight, it being understood that the hinged side of the sash moves up and down with its slide-bar C, while the free side slides up and down in the continuous guideway G. The upper sash A' can likewise be moved up and down in the usual manner, it being understood that its hinged side moves up and down with the slide-bar C', while the free side slides in the guideway G². Now when it is desired to swing the sashes A and A' inward the lower sash A is slightly raised, and then the bell-crank levers of the locking devices H are swung outward, so that the arm H² engages the catch I and the other arm H³ moves out of contact or engagement with the fixed catch E'. By this arrangement the guideway part G' is unlocked from the casing E and is locked to the free end of the lower sash A. The operator can now swing the sashes inward, carrying along the guideway part G', as indicated in Fig. 3. The upper sash A' is

now moved into a lowermost position, so as to bring its free side opposite that portion of the guideway G from which the part G' has been removed by the inward movement of the sash A, so that this upper sash A' can now be swung inward similarly to the sash A.

It will be seen that an operator standing in a room has convenient access to the outer faces of both sashes A and A' for cleaning and for other purposes. When it is desired to again move the sashes into their normal position for sliding the same up and down in their guideways, the operator first moves the upper sash A' back into the position shown in Fig. 2, then closes the lower sash A by swinging the same inward, the guideway part G' then fitting into its place in the frame E, so as to again form a continuous guideway for the lower sash. The operator then swings the bell-crank levers back into their normal position, (shown in Fig. 1,) whereby the arm H² of each bell-crank lever moves out of engagement with its catch I and the other arm H³ moves in engagement with the fixed catch E' in the casing E. The lower sash A is now free to slide up and down, it being understood that the guideway part G' is again locked to the casing E.

In order to check the motion of the sliding bars C and C', I provide a device J, held in the casing E in the box part containing the weights for the balancing-cords F and F', as plainly illustrated in Figs. 1, 2, 3, and 5. This device is arranged in such a manner that it limits the downward-sliding motion of the upper sash, and when the latter is moved into its lowermost position then it actuates the device to limit the downward sliding of the lower sash, (previously raised a short distance,) so as to bring the lower sash into the exact position for properly engaging the bell-crank levers with the catches I.

The device J consists of the arms J' and J², arranged alongside each other and pivoted at their lower ends on a pin J³, held in suitable bearings on the inner side of the weight-box of the casing E, as shown in Figs. 3 and 5. The free ends of the arms are provided with inturned projections or fingers J'^x J^{2x}, respectively, which overlap and are pressed on by springs J⁴ and J⁵, respectively, and on the free ends are also formed adjacent to said fingers J'^x J^{2x} inwardly and upwardly extending lugs J⁶ and J⁷, adapted to engage notches C² and C³ in the slide-bars C and C', respectively.

The finger J^{2x} on the arm J² is arranged to lie beneath the finger J'^x on arm J', whereby the arm J', which is in position to engage the notch C² in guide-bar C of the lower sash, is normally held out of engagement with said notch by reason of the lug J⁷ on arm J² which bears against the flat face of the guide-bar C' of the upper sash; but when the upper sash is lowered sufficiently to permit the lug J⁷ to engage its notch C³ said arm J² is pressed inward by its spring J⁴, so that the lug J⁶

on arm J' is no longer held out of engagement with the notch C² in the guide-bar C of the lower sash, but is free to engage said notch. Thus it will be seen that when the upper sash is lowered it is automatically stopped in the proper position to be swung out of its guides, and at the same time acts to release the stop device for similarly positioning the lower sash. On the other hand, when the upper sash is again raised, it is evident that the lower side of notch C³, being beveled, the arm J' will be again raised out of operative position.

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

1. The combination of a casing having guideways, one of which is provided with a removable part at one side, a sash pivoted to the side of the casing a slide plate arranged to move in the guideway opposite to that guideway having the removable part, a sash pivoted to the slide plate and adapted for sliding movement along the guideways, means for locking said removable part to the casing, and means for locking the removable part to the sash when the same is to be swung upon its pivot, substantially as set forth.

2. The combination of a casing having a sliding sash adapted to be removed when set in a predetermined position, and a stop device mounted on the casing and adapted to stop the sash against movement when the same is in its predetermined position, said stop being engaged and normally held out of operative position by the said sash, substantially as set forth.

3. The combination of a casing having sliding sashes one of which is adapted to be removed when in a predetermined position, a stop device mounted on the casing and adapted to stop said sash in said predetermined position when the same is to be removed, said stop-device being normally held out of operative position by the other sash, substantially as set forth.

4. A window, comprising a counterbalanced bar fitted to slide in guideways in the window frame, a lower sash hinged on the said slidable bar and provided at its free side with catches, a guideway in the window casing and adapted to be engaged by the free side of the said lower sash, part of the said guideway being removable, and a locking mechanism adapted to lock the said removable part of the guideway to either the said window casing or to the said sash, substantially as shown and described.

5. The combination of a casing having sliding sashes adapted to be removed when in a predetermined position and a stop device for stopping both sashes in said predetermined position, said stop device being normally held out of operation by the upper sash and being released by the downward movement thereof, substantially as set forth.

6. The combination of a casing having guide

ways, sashes arranged to slide in said guide ways, one of the guide ways having at one side a removable lower part adapted to be locked to the casing and when unlocked to permit the removal of both sashes from the guide ways at that side of the casing and a stop-device mounted on the casing and adapted to stop said sashes in position opposite the removable part of the guideway said stop device being held out of operation by the upper sash when the same is raised, substantially as set forth.

7. The combination of a frame having guide-ways, sashes adapted when set in a predetermined position to be swung clear of the guide-ways and each having a slide-bar pivoted to one side, said slide bars being both at one side of the casing and adapted to slide

therein and being provided with notches located adjacent to the upper end of each sash, and spring-actuated arms mounted on the casing and adapted to engage the notches in the slide-bars, substantially as set forth.

8. The combination of a casing having sliding sashes one of which is adapted to be removed when in a predetermined position, and a normally inoperative stop-device mounted on the casing in position to engage and stop the removable sash in said predetermined position, said stop-device being adapted to be actuated by the sliding movement of one of the sashes, substantially as set forth.

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Witnesses:

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ALDINA BIAGI.