

No. 776,721.

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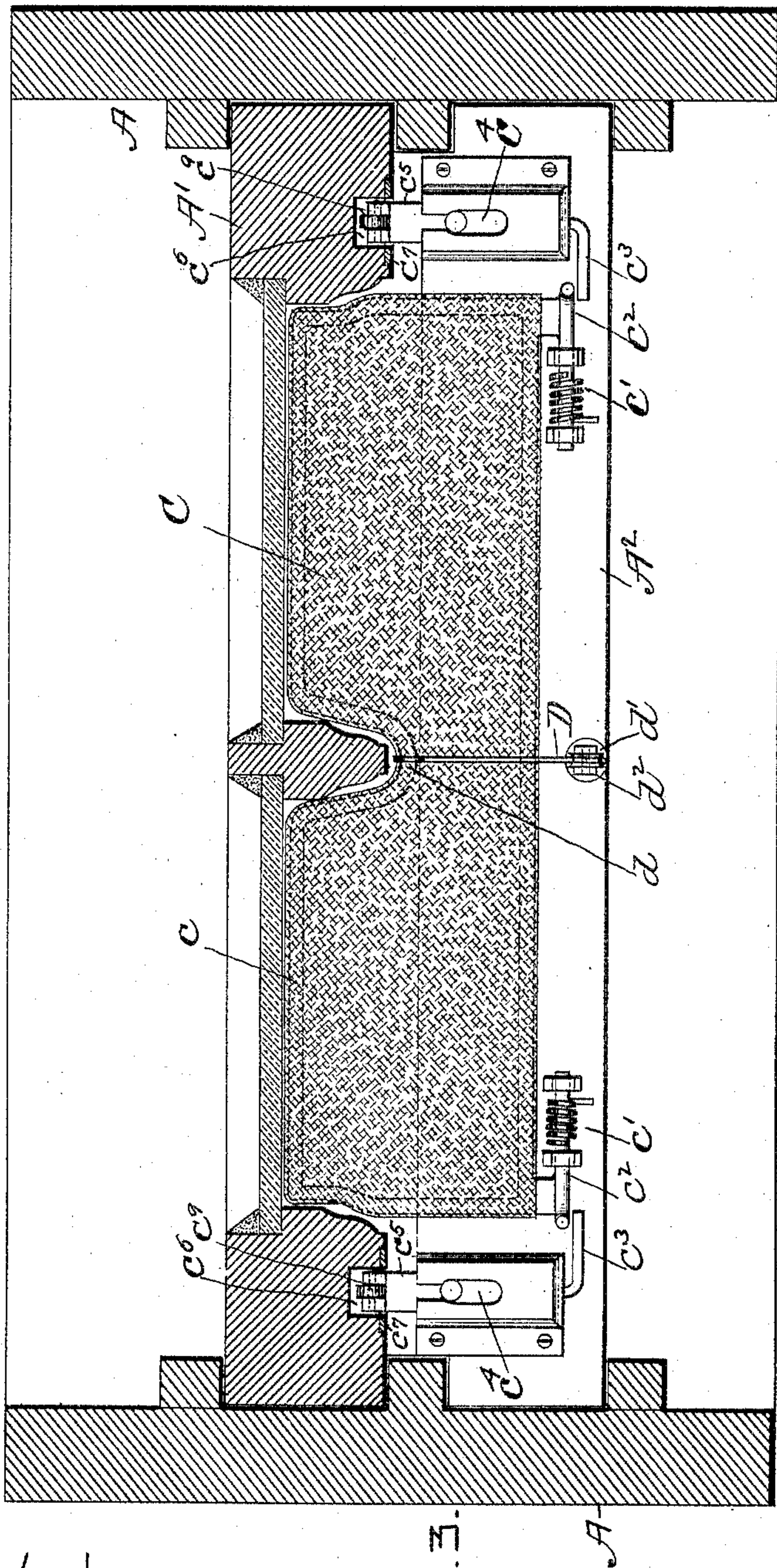
L. A. BRENNENSTUHL & M. SULKIN.

WINDOW.

APPLICATION FILED NOV. 2, 1903.

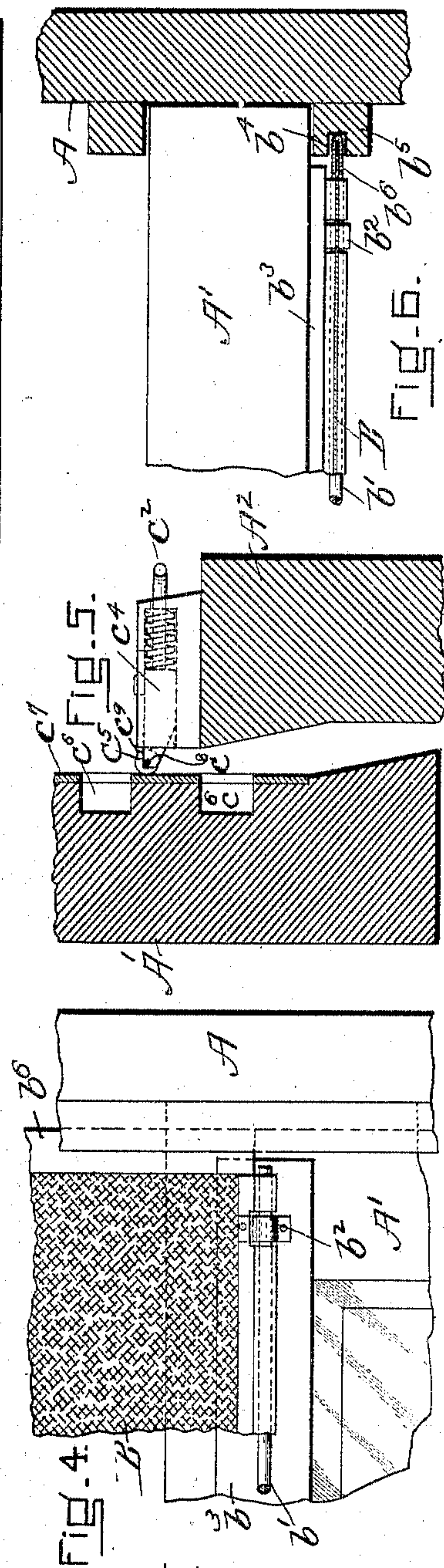
NO MODEL.

3 SHEETS—SHEET 3.



WITNESSES =

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then Aug 15 -

UNITED STATES PATENT OFFICE.

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WINDOW.

SPECIFICATION forming part of Letters Patent No. 776,721, dated December 6, 1904.

Application filed November 2, 1903. Serial No. 179,532. (No model.)

To all whom it may concern:

Be it known that we, LAWRENCE A. BRENNENSTUHL and MICHAEL SULKIN, citizens of the United States, both of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Windows, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

Our invention relates to an improvement in windows having vertically-moving upper and lower sashes; and it consists in providing the respective sashes in said windows with a permanent set of screens which will close the space left by the opening, preferably of the upper sash and also the space then left between the sashes. In providing the respective sashes in the windows with a set of screens of this character we are endeavoring to supply a need which is especially felt in hospitals and other institutions where it is desirable to open the windows in order to provide proper ventilation and at the same time necessary to eliminate draft, dust, and other injurious influences following the direct flow of the outside air. Our invention is also most useful in theaters, churches, and other places of public gathering where oftentimes the windows are thrown open much to the injury of those seated near them, also for the ventilation of sleeping-chambers, most especially in winter, when owing to the extreme draft occasioned by the cold air outside and the warm air within the chamber one does not dare to open a window sufficiently to obtain proper ventilation of the apartment, and in summer it is effective, closing as it does when the window is open every point of possible entry of insects which might otherwise find their way into the apartment, much to the inconvenience of the occupant.

Our invention also pertains to other incidental attachments to the window which assist in the operation and manipulation of the sashes, all of which can best be seen by reference to the drawings, wherein—

Figure 1 shows the window fitted with our improved attachments in front elevation. Fig.

2 shows the window and sashes in vertical section. Fig. 3 shows the window in horizontal cross-section. Fig. 4 shows in elevation a detail of construction, to which reference will hereinafter be made. Fig. 5 shows in vertical section a detail of construction, to which reference will hereinafter be made. Fig. 6 shows in horizontal section a detail of construction, to which reference will hereinafter be made.

In the drawings a window is shown comprising the casing A and the upper and lower sashes A' and A², respectively. Coming on the outside of the window and fitting on the under side beneath the head of the casing is a roller-screen B. The screen is made of any suitable material, depending upon its particular use. When used as a draft-extinguisher and ventilating-screen, it is made of cloth or such material as will cut off all draft, yet permitting of a free percolation of air through it. In special cases the screen may be used for purposes of ventilation, yet made to exclude dust or other objectionable matter. It may be made only insect-proof, this especially in summer, when the exclusion of insects and not draft is the major consideration. The screen is hung by being contained in a guard b, which is fastened to the head of the casing of the frame, as to a board a. The guard b extends downwardly around and is made to entirely envelop and protect the screen, when rolled up, from the weather. The bottom edge of the screen is fastened onto the outside facing of the outer rail of the upper sash, so as to become unrolled as the sash is opened, so closing the space left by its opening. A satisfactory way of securing the edge of the screen to the sash-rail, permitting of its being easily detached and also securing it in such a way that the screen may unroll straight and evenly, is to have the edge of the screen so made as to receive a rod b', run through it, which rod runs also through arbors b², fastened to a strip b³, secured to the sash-rail. (See Fig. 4.) It is to be noticed that the edge of the screen is cut out somewhat to permit of the entry of these arbors. This mode of connection is especially good not only for the reasons above mentioned,

but also because the screen is secured to lie out slightly from the edge of the sash-rail, so that the respective side edges of the screen will come in proper alinement to fit into the grooves b^4 , formed in the pieces or strips b^5 , fixed along the sides of the casing just outside and alongside the respective runways formed therein. (See Fig. 6.) It is necessary, of course, when the window is opened to hold the screen so that it will not sag, as it might otherwise do if there were an excessive draft, so to prevent this sagging the edges of the screen are fitted to be contained and to run in these grooves, which tends to hold the screen in place. In order to make more secure this method of retention, the side edges of the screen are preferably bound with some kind of tape b^6 . A copper tape, permitting of the free rolling of the screen, is found to be very good for this purpose. In order to make the screen still more rigid and secure, it is also preferably reinforced by cross-bars of copper, b^7 , or some other reinforcing material suitably spaced and extending laterally from side to side, so as not to interfere with the free rolling of the screen. (See Fig. 1.) In connection with the upper sash there is also to be noticed the flap B' , which is fastened to the inside of the casing b and extends with inclined bearings against the screen at the point b^8 . This flap closes the space which would otherwise be left open between the screen and the casing for the free entry of air up through this space, especially when the window was open, and which space would gradually grow larger as the screen became unwound. The flap B' , however, being preferably made of some resilient substance, draws with permanent bearing against the edge of the screen whatsoever its position of unwinding may be, so completely closing the space under all circumstances. Then by extending as it does to bear tangentially upon the screen it does not interfere with its proper rolling or unrolling. The space left between the sashes when the upper sash is open, or the lower sash, for that matter, is closed by a screen C , fastened upon a frame c , which is hinged to the top surface of the upper rail to the lower sash. (See Fig. 3.) The frame c , bearing the screen, is so made that the screen will completely fill this space so left, provision of course being made for the mullion with which the upper sash is usually provided. The frame also makes a spring connection c' with the said top rail of the sash, so that the frame is normally held pressed down, when the screen will close this space between the sashes. The screen itself is preferably made of the same material as the screen B , which, as said before, is so made or of such material as depends upon its particular kind of usage. Inasmuch as the screen C is turned up or raised when the upper sash is lowered, it serves as a convenient means of unlocking the sashes con-

sequent upon such movement. The frame of the screen is accordingly fitted at either end with a bar c^2 , which contacts against the turned ends c^3 of the respective spring-bolts c^4 , fitted to the top of the said upper rail of the lower sash at either side and in line with the side rails to the upper sash, so that the nose or ends c^5 of the respective bolts will fit into slots or sockets c^6 , cut in the front facing of the said respective side rails and through wearing-plates c^7 , with which said rails are provided, wherefore the sashes may be locked together, and, further, the relation of the frame-bars c^2 and the turned ends c^3 of the bolts is such that these bolts will be retracted from their respective slots or sockets in the side rails of the upper sash when the screen C is raised, so unlocking the sashes, when the upper sash may be run down. (See Figs. 2 and 3.) It is to be noticed in this connection that the plates c^7 receive the wear of the bolts which might otherwise come directly upon the front facing of the side rails to the sash. They are cut with the slots or sockets c^6 at such points as determine the respective locked positions of the sashes, one set of slots, of course, being so placed that the sashes become locked together when closed and other sets of slots being so placed as to receive the bolts at various points of the upper sash's opening, when said upper sash may be locked at corresponding points of adjusted position. As said before, the bolts are released by raising the screen C , whereupon the upper sash may be lowered to any point of adjusted position; but when the upper sash is opened to any point of adjusted position the respective bolts are released simply by raising the upper sash, for it is to be noted that the noses or ends of these bolts are provided with oblique edges c^8 , against which will draw when the sash is raised the lower edges of the respective slots or sockets c^6 , into which the noses or ends of the bolts extend, wherefore the bolts will be automatically thrown back. As the upper sash is raised the spring-bolts b^4 will then bear to rub against the wearing-plates upon the side rails until the sash becomes completely closed, when they will slip into the slots or sockets c^6 , which correspond with the closed position of the respective sashes. Another special feature of the construction is also to be noted. Inasmuch as the noses or ends of the respective bolts are destined to wear considerably against the wearing-strips of the side rails of the upper sash, each is accordingly provided with a roller-bearing c^9 , fitting therein. Such roller-bearing contacts with the wearing-plates and not only tends to take up the wear which would otherwise come upon the parts, but also insures the free running of the bolts.

By reason of the fact that the various attachments are especially adapted to be used on windows in hospitals, churches, theaters, or large buildings where the windows are high

and not easily accessible we employ means for raising the screen C, and so for unlocking and releasing the sashes by a cord D, secured to the screen at d , and thence running over a pulley d' , fixed by a suitable connection d'' to the upper rail of the lower sash. The pulley is so disposed that simply by drawing upon this cord the screen C is raised, when the sashes become unlocked and the upper sash may be run down as desired. Upon the release of the cord D the screen C will assume its normal closed position, as before mentioned, and the bolts then released will be in readiness to slide into any of the slots or sockets c^6 corresponding with the position which the upper sash is lowered to assume when the upper sash will be held at such point.

It is, perhaps, unnecessary to further refer to the operation of the various attachments. It is sufficient to say that, assuming the sashes to be both closed, they may be unlocked by raising the screen C directly or by drawing upon the cord D. Upon the unlocking of the sashes the upper sash may be run down, drawing with it the screen B, which, with the auxiliary flap B', closes the space left by the opening of the sash. When the upper sash has been lowered to the desired point, the screen C is then let go to resume its normal closed position, filling the space between the sashes. When it is desired to close the sash, it may be run up in the usual manner.

Having thus fully described our invention, we claim and desire to secure by Letters Patent of the United States—

1. In a window having vertically-moving sashes, the combination therewith of a roller-screen supported to hang upon the outside beneath the head-casing of said window and secured along one edge to the upper of said sashes to be unrolled thereby as said sash is lowered for closing the space left by its opening, and for closing the space between the sashes when opened, a screen, a spring for holding said screen in a normally closed position, a bolt secured to said upper rail of the lower sash and engaging with said upper sash, whereby the respective sashes are locked together, and means connecting said screen with said bolt, whereby the same will become released when the screen is raised.

2. In a window having vertically-moving sashes, the combination therewith of a roller-screen supported to hang upon the outside beneath the head-casing of said window and secured along one edge to the upper of said sashes to be unrolled thereby as said sash is lowered for closing the space left by its open-

ing, a guard for protecting and enveloping said roller-screen when rolled up, a flapper-piece for keeping closed the space between the screen and its guard, means for holding and retaining the side edges of said screen when the screen is unrolled, and for closing the space between the sashes when opened, a screen, a spring for holding said screen in a normally closed position, a bolt secured to said upper rail of the lower sash and engaging with said upper sash, whereby the respective sashes are locked together, and means connecting said screen with said bolt, whereby the same will become released when the screen is raised.

3. In a window having vertically-moving upper and lower sashes, the combination therewith of a screen adapted to close the space between the respective sashes, a spring for holding said screen in a normally closed position, a bolt secured to said upper rail of the lower sash and engaging with said upper sash whereby the respective sashes are locked together, and means connecting said screen with said bolt or bolts whereby the same will become released when the screen is raised.

4. In a window having vertically-moving upper and lower sashes, the combination therewith of a screen, the frame of which is secured to the top rail of the lower sash and which screen is adapted to close the space between the respective sashes, a bolt secured to the rail of said lower sash, which bolt makes locking engagement with the adjacent side rail of said upper sash, a wearing-plate fixed to said side rail for receiving the contact of said bolt and having one or more slots cut therein for receiving the bolt, and means combining said screen and bolt whereby the bolt may be withdrawn when the screen is lifted.

5. In a window having vertically-moving upper and lower sashes, the combination therewith of a screen, the frame of which is pivoted to the upper rail of the lower sash, a bolt having a roller-bearing fixed in the nose or end thereof, likewise secured to said upper rail and projecting to engage at one or more points with the adjacent side rail of said upper sash, said bolt having a turned end, a bar projecting from the side of said screen to engage with the turned end of said bolt whereby said bolt may be withdrawn when the screen is raised, and means for raising said screen substantially as described.

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In presence of—

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