No. 647,653. Patented Apr. 17, 1900.

S. J. FELL.

COMBINED SLIDING AND SWINGING WINDOW.

(Application filed July 17, 1899.)

(No Model.)

Fig. 1.

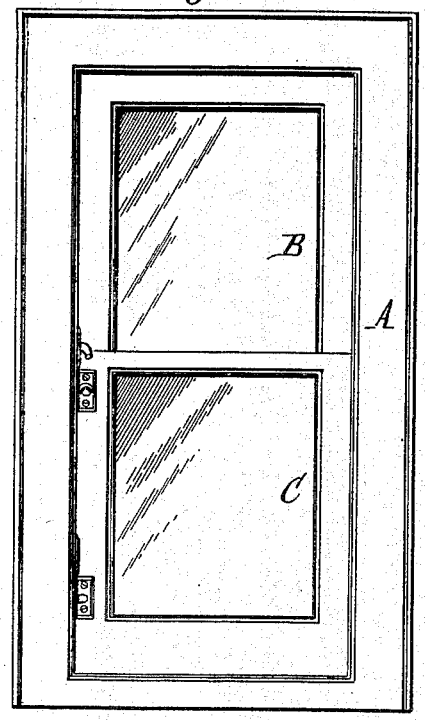


Fig. 2.

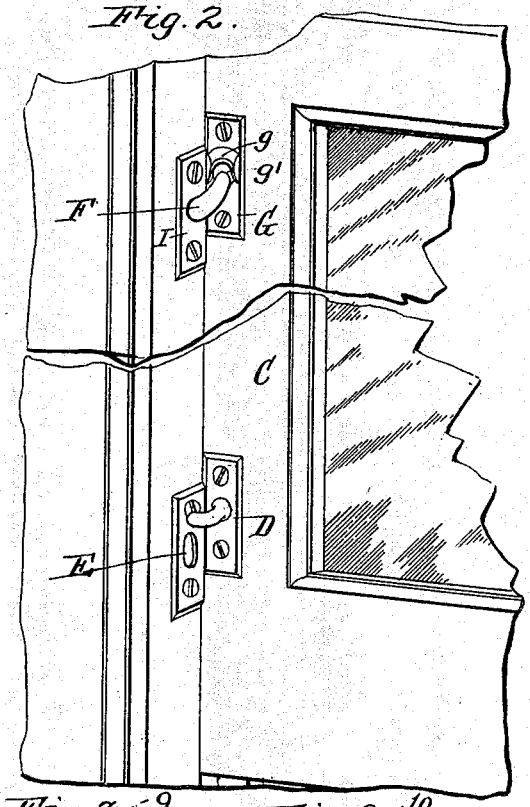


Fig. 3.

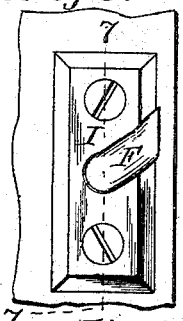


Fig. 4.

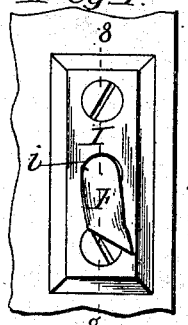


Fig. 7.

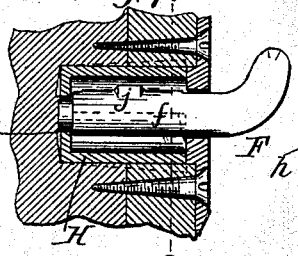


Fig. 8.

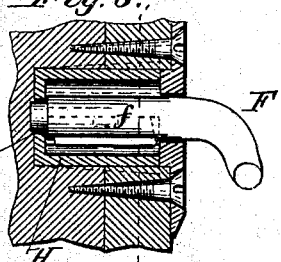


Fig. 5.

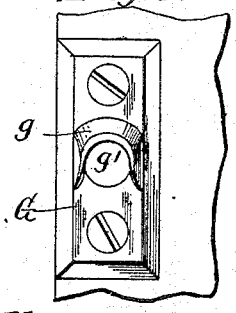


Fig. 6.

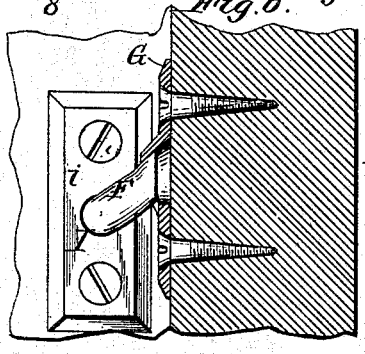


Fig. 9.

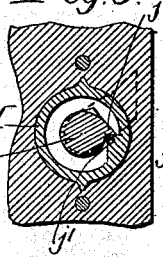
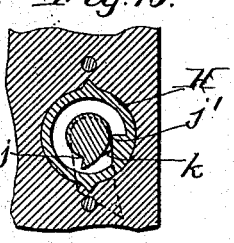


Fig. 10.



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UNITED STATES PATENT OFFICE.

SAMUEL J. FELL, OF BUFFALO, NEW YORK.

COMBINED SLIDING AND SWINGING WINDOW.

SPECIFICATION forming part of Letters Patent No. 647,653, dated April 17, 1900.

Application filed July 17, 1899. Serial No. 724,054. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL J. FELL, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Combined Sliding and Swinging Windows, of which the following is a specification.

This invention relates to that class of windows in which the lower sash is capable of a combined sliding and swinging movement, so that the same can be swung inwardly into the room for conveniently cleaning and repairing it, and more particularly to a window in which the hinge-joint between the sash and the window-frame consists of a socket arranged on one of these parts and a hook or spur arranged on the other part and adapted to engage in the socket, such hook-and-socket connections being arranged near the upper and lower ends of the sash. A window having such hooks and sockets is shown in Letters Patent of the United States No. 589,242, granted August 31, 1897, to Lewis S. Bradshaw.

The principal object of my invention is to so construct the coöperating hook and socket members of the hinge-joint that they can be arranged in such close proximity to each other as to render their engagement certain and reliable and at the same time permit the sash to be raised and lowered without restraint, like an ordinary sliding sash, and without marring or defacing the same.

The invention has the further object to improve the construction of the hook with a view of increasing its strength and securely attaching it to its support.

In the accompanying drawings, Figure 1 is a front elevation of a window embodying my invention. Fig. 2 is a fragmentary perspective view thereof, showing the relative position of the hooks and sockets of the lower sash preparatory to swinging the sash inwardly. Fig. 3 is a fragmentary face view of the jamb and the reversible hook, on an enlarged scale, showing the hook turned up into its operative position. Fig. 4 is a similar view showing the hook turned down to its inoperative position. Fig. 5 is a fragmentary face view of the sash and the upper socket-plate on an enlarged scale. Fig. 6 is a fragmentary sectional elevation of the jamb and the sash, showing the socket-plate of the sash engaged with the hook of the jamb preparatory to swinging the sash inwardly. Figs. 7 and 8 are vertical sections in lines 7 7 and 8 8, Figs. 3 and 4, respectively. Figs. 9 and 10 are transverse vertical sections in lines 9 9 and 10 10, Figs. 7 and 8, respectively.

Like letters of reference refer to like parts in the several figures.

A is the window-frame, and B and C are the upper and lower sashes, which slide in the window-frame in the usual manner. The sashes are connected by cords with the customary counterweights, which are not shown in the drawings.

D is the lower hook, which is rigidly secured to the face of the lower sash, at one side thereof, and E is the corresponding socket or socket-plate secured to the adjacent jamb of the window-frame and adapted to receive the hook D for forming a hinge-joint. The hook D points toward the socket-plate E and is preferably arranged, substantially, in a horizontal plane, and the opening of the socket-plate is elongated vertically, as shown in Fig. 2, to facilitate the entrance of the hook into the same.

F is the upper hook, which is attached to the jamb near the top of the lower sash, in the closed position of the latter, and G is the corresponding socket or socket-plate which is secured to the face of the sash adjacent to said hook. The socket-plate G is provided on its face with an inverted-U-shaped lip or flange *g*, which extends around the top and sides of its socket or opening *g'* and projects outward sufficiently to overhang the point of the upper hook F, so that the lip engages over the point of the hook as soon as the sash is lowered sufficiently for this purpose and before the same is swung inwardly, as shown in Fig. 6. The side portions of the lip *g* preferably diverge or flare downwardly, as shown, to facilitate the entrance of the hook into the socket. This upper hook is arranged to move out of the way of the lip on the socket-plate G when not in use, so as not to interfere with the sliding movements of the sash. For this purpose the hook is provided with a horizontal shank or spindle *f*, which is journaled in a horizontal bearing arranged in the jamb, so that the hook can be turned into the upwardly-projecting position shown in Figs. 2,

3, 6, and 7 or swung down into the depending position shown in Figs. 4 and 8. This bearing preferably consists of a barrel or casing H, seated in a mortise formed in the jamb and provided in its closed inner end with a central opening *h*, in which the reduced inner end of the hook-shank turns, and a face-plate or escutcheon I, secured to the face of the jamb and provided with an opening *i*, in which the outer portion of the shank turns. The face-plate I closes the outer end of the casing H. The rotary or reversible hook when in its upper or operative position is prevented from swinging inwardly beyond that position by a lug or nose *j*, formed on its shank and abutting against a shoulder or stop *j'*, formed in the interior of the casing H, as shown in Fig. 9, so that the hook in this position supports the lower sash like a rigid hook. When this hook is in its depending or inoperative position, it is held out of contact with the sash by a lug or nose *k*, which is formed on its shank and bears against the upright side of the stop *j'*, as shown in Fig. 10, thereby preventing the hook from rubbing against the sash and marring the same.

The main stop-lug *j* of the hook is preferably so arranged that when the hook is swung up into its operative position it curves or inclines from its point toward its shank, and the lip *g* of the upper socket-plate G is correspondingly inclined, so that in swinging the lower sash into the room the hook and lip aid in effecting this movement. The socket-plate is preferably not countersunk, but raised on the face of the sash, and the rotary hook when in its upper position extends inwardly in close proximity to the face of said plate to insure a positive interlocking of the lip *g* with the point of the hook before the sash is swung into the room. The point or end of the hook is cut off vertically, as shown, to permit of this close engagement of the hook and the lip.

The cord of the lower sash, which is located at the side opposite the hinge members, is detachably connected with the sash, and the adjacent portion of the window-stop is made removable, as in the Letters Patent hereinbefore referred to.

In the normal position of the lower sash and the hinge members the movable upper hook F is swung down to the reversed position shown in Figs. 4 and 8, in which position its point clears the lip *g* of the socket-plate G, permitting the sash to be freely raised and lowered.

When it is desired to swing the lower sash inwardly, the detachable portion of the right-hand window-stop is removed and the sash raised sufficiently to bring the upper socket-plate G above the rotary hook F. This hook is then swung upwardly and inwardly to its operative position, and the sash is lowered until the lip *g* engages with the point of the hook, as shown in Fig. 6, after which the sash is swung inwardly and the right-hand cord detached therefrom. When the hook and lip are thus engaged, the lower hook D registers with its coöperating socket-plate E, and upon swinging the sash into the room the same is pivotally supported by the two sets of hinge members. By arranging the overhanging lip *g* at the top of the opening in the upper socket-plate and making the corresponding hook F movable, so that it can be turned out of the way when not in use, these parts can be brought in such a close relation as to practically hinge the sash to the window-frame before the same is swung inwardly, thereby insuring a positive engagement of the hinge members and avoiding all liability of dropping the sash in swinging it or of marring the sash, which occurs when the hinge members fail to engage with each other. This positive engagement of the parts also renders it unnecessary to exercise special care or to support the sash in the act of coupling it to the window-frame. Upon swinging the sash into the room the lip *g*, in conjunction with the hook F, draws the sash laterally toward the side of the jamb at which it is hinged and centers the sash between the jambs, thereby insuring the necessary clearance of the sash to prevent its binding against the jamb. The pointed and upwardly-curved form of the hook in connection with the inclined position of the lip effectually prevents the lip from slipping off the hook. After cleaning the window the detached sash-cord is again attached to the sash, the latter is returned to its normal position, the window-stop is replaced, and the rotary hook F swung down to its inoperative position, in which it clears the sash and the lip *g* and avoids marring the sash in raising and lowering the same.

As the rotary hook has a comparatively-long shank, which is supported in the casing H both at its inner and outer ends, the hook is firmly attached to the jamb and capable of withstanding considerable strain without danger of breaking.

The lower hook has a tendency to readily enter its socket and does not therefore require to be arranged in such close relation to its socket-plate as the upper hook. For this reason the lower hook may be stationary and is arranged at a sufficient distance from the jamb to prevent marring of the same.

I claim as my invention—

1. The combination with a window-sash having on its face a fixed socket-plate provided above its opening with a forwardly-projecting lip or flange, of the window-frame provided with a reversible hook which is arranged to project inwardly into the path of said lip when the hook is in its operative or elevated position and to clear said lip when the hook is in its inoperative or depending position, and a stop arranged to limit the inward and downward movement of the hook when in its operative position, substantially as set forth.

2. The combination with the window-frame having a movable hook capable of being

moved either into an operative or an inoperative position, and arranged to stand normally in an inclined position, of the sliding sash having a socket provided at its top with an inclined overhanging lip adapted to engage with said hook, substantially as set forth.

3. The combination with the window-frame having a movable hook capable of being moved into an operative or an inoperative position, of the sliding sash having a socket-plate provided on its face with a projecting lip or flange which extends around the top and sides of the opening in said plate and which is adapted to engage with said hook, substantially as set forth.

4. The combination with the sash having a socket, of the window-frame having a horizontal bearing or casing provided with a stop, and a reversible hook having a shank which is journaled in said bearing or casing and which is provided with a lug or nose adapted to engage against the stop of said casing and arranged to limit the inward movement of the hook when in its upper or operative position, substantially as set forth.

5. The combination with the sash having a socket, of the window-frame having a horizontal bearing or casing, provided with a stop, and a reversible hook having a shank which is journaled in said bearing and which is provided with a lug or nose adapted to engage against said stop and arranged to limit the inward movement of the hook when in its inoperative or depending position, substantially as set forth.

6. The combination with the sliding sash having a socket, of the window frame or jamb having a horizontal casing provided in its closed inner end with an opening and closed at its outer end by a perforated plate which is secured to the face of the jamb, and a reversible hook having a shank which is journaled at its inner and outer ends in the openings of said casing and said face-plate and which is provided with a stop for limiting the rotary movement of the hook beyond its operative position, substantially as set forth.

Witness my hand this 11th day of July, 1899.

SAMUEL J. FELL.

Witnesses:
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ELLA R. DEAN.