

(No Model.)

2 Sheets—Sheet 1.

M. E. KNIGHT & A. B. HARRINGTON.

WINDOW FRAME AND SASH.

No. 519,333.

Patented May 8, 1894.

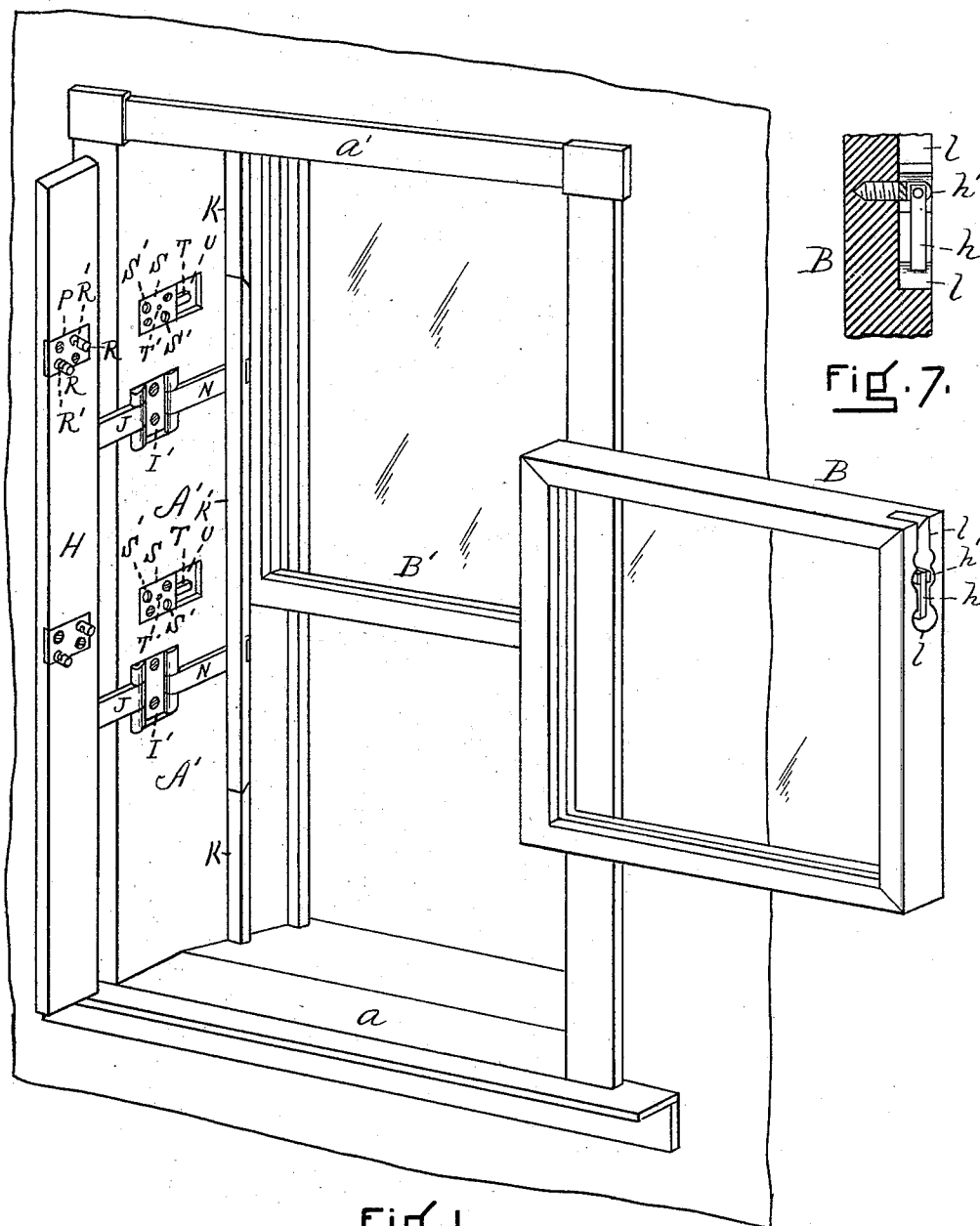


Fig. 1.

WITNESSES

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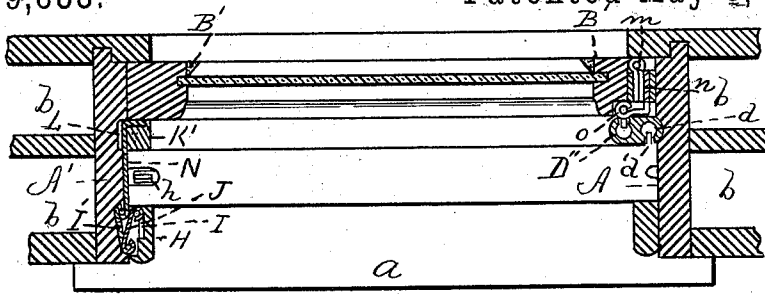


Fig. 2.

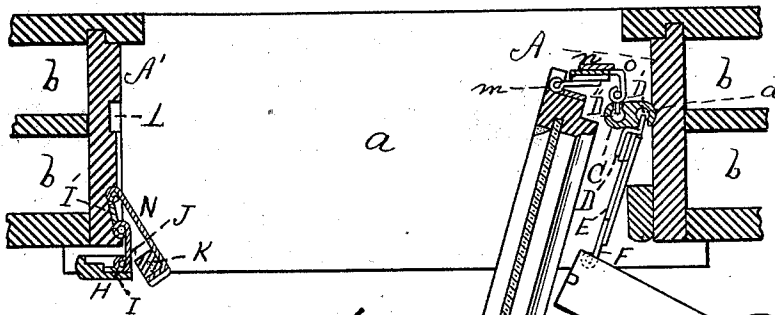


Fig. 3.

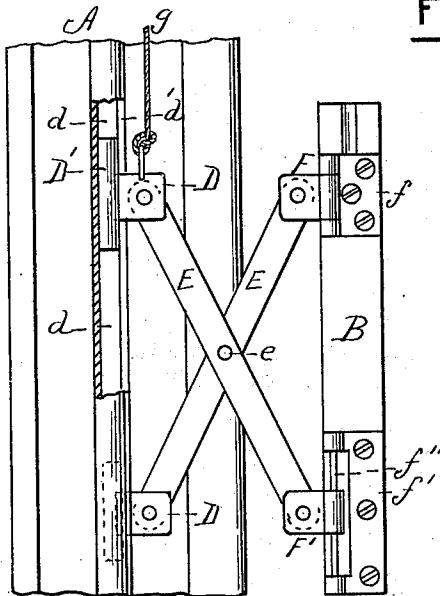


Fig. 4.

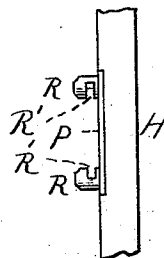


Fig. 5.

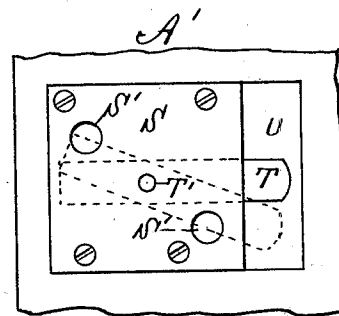


Fig. 6.

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UNITED STATES PATENT OFFICE.

MARGARET E. KNIGHT AND ALBERT B. HARRINGTON, OF SOUTH FRAMINGHAM, ASSIGNORS TO SAID KNIGHT AND JOHN S. LOCKWOOD, OF BOSTON, MASSACHUSETTS.

WINDOW FRAME AND SASH.

SPECIFICATION forming part of Letters Patent No. 519,333, dated May 8, 1894.

Application filed May 12, 1893. Serial No. 473,919. (No model.)

To all whom it may concern:

Be it known that we, MARGARET E. KNIGHT and ALBERT B. HARRINGTON, citizens of the United States, residing at South Framingham, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Window Frames and Sashes, of which the following is a specification.

In this invention, the window-frame and sashes are so constructed that both the upper and lower sashes not only slide vertically, but are arranged to swing horizontally inward, so that the sashes are rendered easily accessible for cleaning or other purposes. And the invention consists in the novel construction and arrangement of parts hereinafter described, whereby the sashes are rendered capable of both the sliding and swinging movements, without injuring the appearance of the window-frame or enabling the sashes to be swung inward from the outside.

The nature of the invention, in detail, is fully described below and illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a window-frame and sashes, embodying our invention, the lower sash being swung open inward. Fig. 2 is a horizontal section taken through the upper sash, the sashes being in their ordinary closed position. Fig. 3 is a horizontal section taken through the upper sash with both sashes swung inward. Fig. 4 is an elevation from the inside of the right inner surface of a portion of a window-frame, with the lower sash swung inward into the position shown in Fig. 1, a portion of the parting bead in the jamb being represented as broken out. Fig. 5 is an edge view of a portion of the hinged stop-rail showing the locking-bolts. Fig. 6 is an enlarged plan of one of the perforated plates for locking the stop-rail. Fig. 7 is a detail in vertical section, showing the latch below described for engaging the cord.

Similar letters of reference indicate corresponding parts.

The drawings represent a double-hung window and frame, of which *a* is the sill, *a'* the lintel, *A* and *A'* respectively the jambs on the right and left sides, *b* the casings for the weights, and *B* and *B'* respectively the lower

and upper sashes. The parting bead *C*, which lies vertically next the right hand jamb *A* between the two sashes, is made preferably of metal, and is provided with a vertical channel *d*, the mouth *d'* of which is made narrower than the main portion, and constitutes a vertical slot in the front side of the bead. (Figs. 2, 3, and 4.) A pair of slides *D* extend through this slot and have their rear ends *D'* thickened and of shape to fit into the channel *d*. (See Fig. 4.) These slides, which project at right angles to the front side of the parting bead, have pivotally secured to them levers *E* swiveled centrally on each other at *e*, and the opposite ends of these levers are pivotally secured to the leaves *F F'*, which, with the leaves *f f'* and pintles, constitute hinges secured to the right edge of the lower sash *B*. The leaf *f'*, and pintle *f''* of the lower hinge are elongated as shown in Fig. 4. When, therefore, the lower sash is swung into the positions shown in Figs. 1, 3, and 4, by means of the construction of the frame described below, the crossed levers *E*, which are on the principle of a lazy-tongs, allow the lower sash to leave the jamb *A*, and thus move its pivotal point from said jamb to a point in front of the window-casing, the leaf *F'* sliding on the pintle *f''*, and the slides *D* sliding in the slot *d'* by means of their thickened rear ends *D'* which slide in the channel *d*. Thus the right edge of the sash *B* is enabled to move to a sufficient distance from the window-frame to allow said sash to swing back into the positions shown in Figs. 1 and 4.

The cord *g*, instead of extending from the right hand edge of the sash, is secured to the upper slide *D* and passes up over a pulley in the ordinary manner to a weight in the casing *b*. The cord on the other side of the sash *B* is secured to it by means of a latch *h* which is pivoted to, and depends from, a bracket *h'* in a chamber or recess *l* in the left hand edge of the sash *B*, see Figs. 1 and 7. This cord extends up through said recess over a pulley in the ordinary manner, and when the sash *B* is to be swung open the latch *h* is swung up and the end of said cord slipped off the bracket or shank *h'*, freeing the sash. The other sash *B'* is hung in the same manner as

the lower sash, its right edge being provided with hinges *m* exactly similar to the hinges *F* *F'* *f* *f'* *f''*, and said hinges are connected by crossed levers or lazy-tongs *n* which are pivotally secured to slides *o*, constructed like the slides *DD'*, and moving in channels *D''* formed on the rear side of the metallic bead *C* and exactly similar to the slot *d d'*; hence the upper sash can by means of the construction below described, be swung into the position shown in Fig. 3 in the same manner as the lower sash; and said upper sash is provided with the same arrangements for attaching the cords, as described in connection with the lower sash.

It is apparent that in order to allow the left edges of the two sashes to swing from their positions as described, the parting bead between the sashes on the left side and the stop-rail in front of the lower sash on that side, must be peculiarly constructed. In order to allow the lower sash to swing, a stop-rail *H*, which is usually screwed to the left jamb, is hinged thereto as shown. The two hinges consist of leaves *I* secured rigidly to the rear side of the stop-rail *H*, leaves *I'* set into and secured rigidly to the jamb *A'*, and connecting leaves *J* pivotally secured to the ordinary pintles on the rear edges of the leaves *I* and front edges of the leaves *I'*. Thus, when the lower sash is to be swung as above described, the stop-rail *H* is swung forward and sidewise from the position shown in Fig. 2 into the position shown in Fig. 3, thus leaving the left edge of the lower sash free.

The parting bead next the left jamb *A'* is made in three sections; the upper and lower sections *K* (Fig. 1), are secured rigidly in position in the ordinary manner. Between these sections is a section *K'* (Figs. 1, 2, and 3) which is not secured to the jamb, but lies in a groove *L* therein, and is rigidly secured to horizontal bars *N*, whose front edges are pivotally secured to the plates or leaves *I'*. Hence, to swing the upper sash, it is necessary first to lower it till it is opposite the portion *K'* of the bead, and then swing said bead from the position shown in Fig. 2 into that shown in Fig. 3.

It is desirable that the stop-rail *H* should not be normally in a condition to be swung open either from the inside or the outside of the window. Hence we provide two locks exactly the same in construction, located respectively above the two hinges which connect the stop-rail *H* with the jamb *A'*. These locks, it will be noticed, are so situated that they are not at the same time readily accessible from the outside, in whatever positions the sashes may be when in their ordinary places between the two jambs. The locks consist each of a plate *P* secured to the rear side of the stop-rail *H*, said plate being provided with two horizontally projecting diagonally placed bolts *R*, said bolts, having on their inner sides—that is to say, the lower bolt on its upper side, and the upper bolt on its un-

der side,—notches *R'*. See Figs. 1 and 5. On the jamb are two plates *S*, set coincidently with the plates *P*. Each of these plates has two diagonally placed holes *S'* coinciding with the bolts *R*. *T* is a latch, pivoted at *T'* to the rear side of the plate *S*, a sufficient portion of the jamb being removed to receive it, and projecting beyond the rear end of said plate into a recess *U* formed in the jamb. See Figs. 1 and 6. By swinging the latch *T* from the position shown in full lines in Fig. 6, to that shown in broken lines, said latch is moved into the notches in the bolts *R*, and thus the stop-rail is securely fastened. Hence, before swinging out the sashes, both the latches *T* must be swung out of engagement with the notches in the bolts *R*.

Having thus fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination of a window frame, a slide moving vertically therein, an expandible connection between the slide and the sash, and a sash hinged to said connection, said connection supporting the sash and capable of being expanded so that the entire sash may be swung entirely out of the frame against the building and describe a full half turn or rotation on its pivot, substantially as set forth.

2. The combination of the sash, the window frame, the slide moving vertically therein, and the lazy-tongs secured to said slide and to said sash, said sash being hinged to said lazy-tongs, whereby the sash may be swung entirely out of the frame and enabled to describe a half circle and fold back against the building, substantially as described.

3. The combination of a sash, as *B*, hinges on said sash, one of which is provided with an elongated pintle, the slides *D D'* moving vertically in suitable channels in the bead *A*, and the levers or lazy-tongs *E* pivotally secured to said slides and to the hinges on the sash, substantially as set forth.

4. In combination, a window frame provided with casings for the weights and cords, a sash supported at one edge by a slide which it is pivotally secured by an expandible connection, said sash being provided at its opposite edge with the recess *l*, the bracket *h'* extending horizontally from the sash into said recess, and the latch *h* pivotally suspended in said recess from said bracket, substantially as described.

5. The combination of the jamb *A'* of the window-frame, the stop-rail *H*, and the hinges consisting of leaves or plates *I'*, secured to the jamb, the leaves or plates *I* secured to the stop-rail, and the connecting leaves *J* pivotally secured to the pintles on said leaves or plates *I* and *I'*, substantially as set forth.

6. In a window frame provided with an upper sash swinging as well as sliding in said frame, a bead set between the sashes and consisting of the stationary portion *K* and the movable portion *K'*, said portion *K'* resting

normally within the groove L in the jamb and being rigidly secured to bars N which lie in horizontal grooves in the jamb next the edge of the lower sash and have their front edges 5 pivotally secured to said jamb, substantially as set forth.

7. The combination of the jamb A' provided with the plate S perforated at S', and the latch T pivotally secured to said plate,

and the stop-rail H hinged to said jamb and 10 provided with the bolts or posts R notched at R', said bolts being adapted to enter said perforations, substantially as described.

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Witnesses:

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