No. 631,256. Patented Aug. 15, 1899.

A. A. KLEIN.

WINDOW.

(Application filed Apr. 5, 1899.)

(No Model.)

FIG. 1.

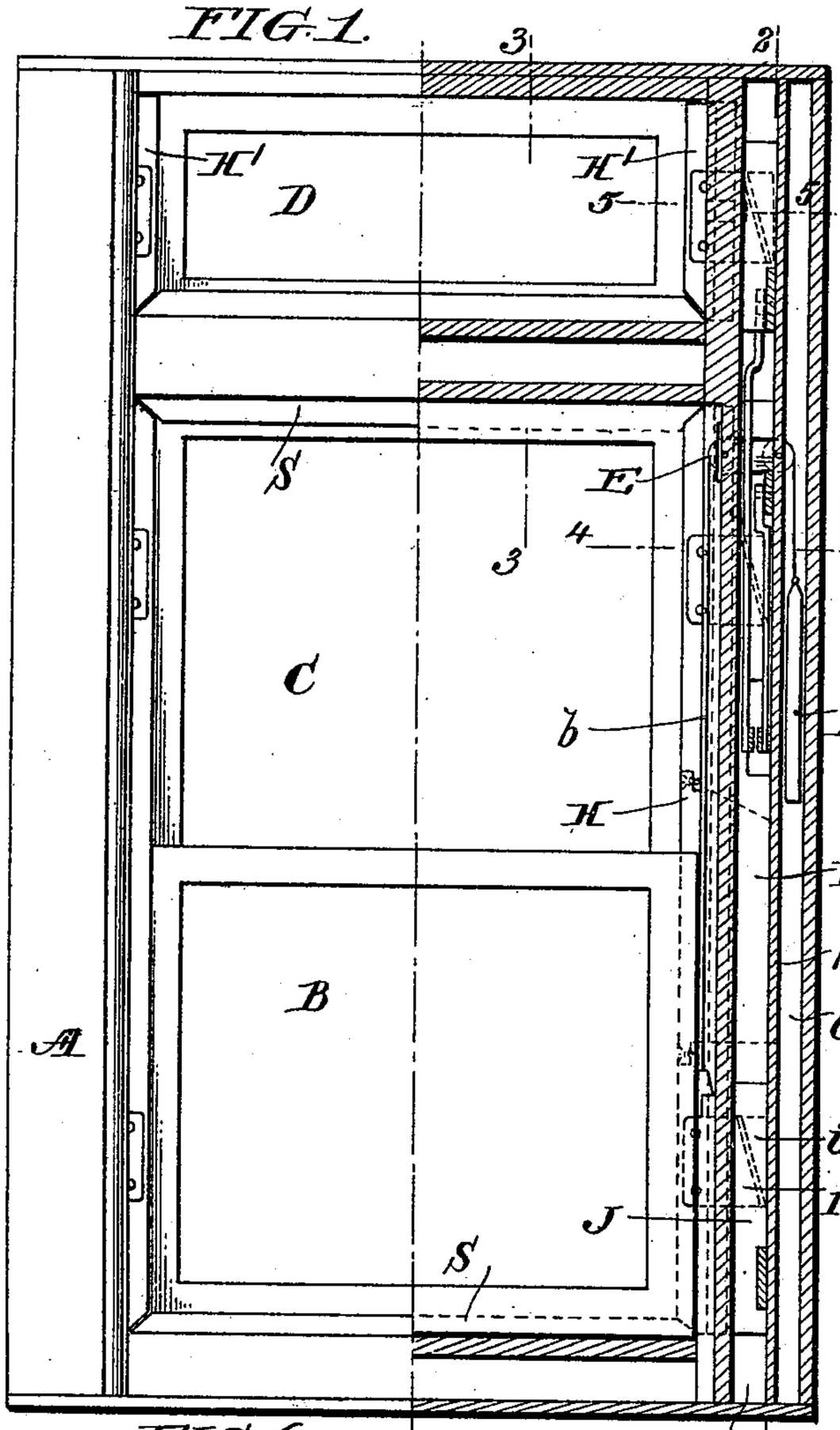


FIG. 3.

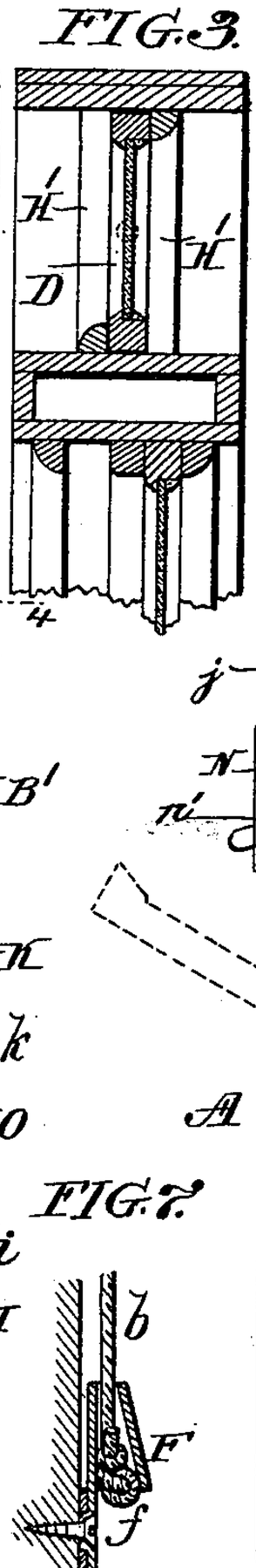


FIG. 2.

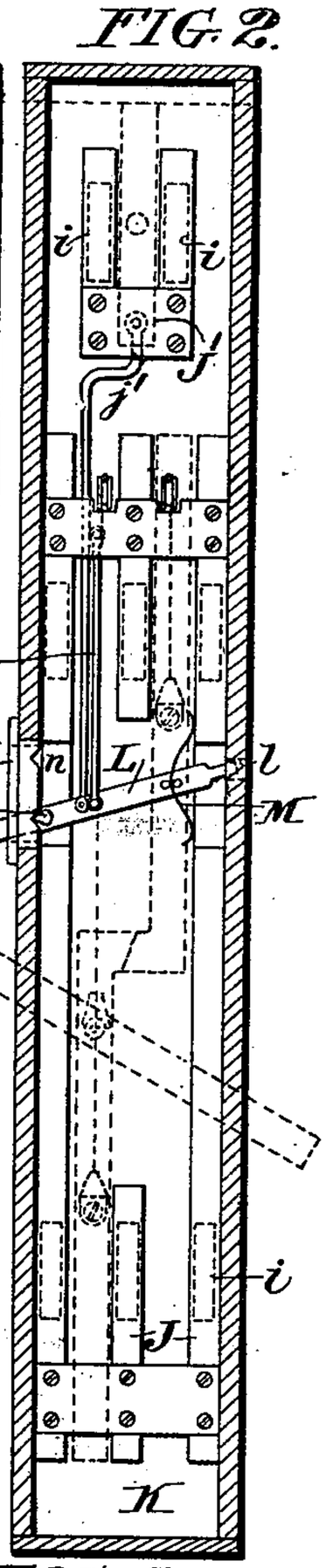


FIG. 7.

FIG. 4.

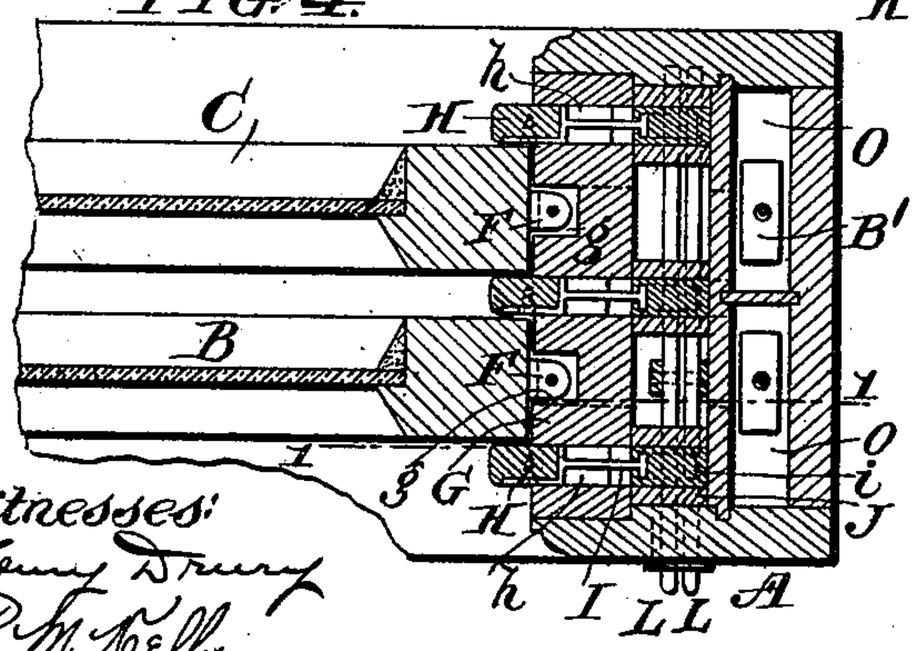


FIG. 5.

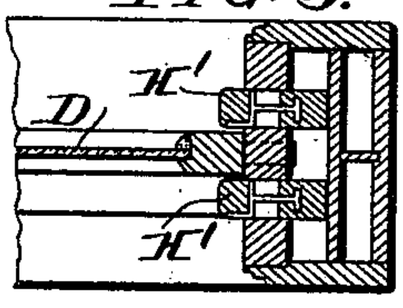
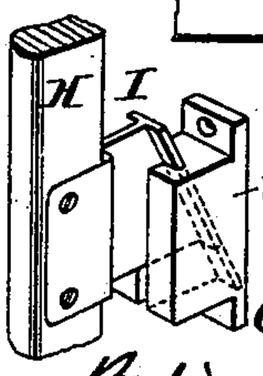


FIG. 6.



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By his atty.
[signature]

UNITED STATES PATENT OFFICE.

ADOLPH A. KLEIN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO FREDERICK C. KELLNER, OF SAME PLACE.

WINDOW.

SPECIFICATION forming part of Letters Patent No. 631,256, dated August 15, 1899.

Application filed April 5, 1899. Serial No. 711,786. (No model.)

To all whom it may concern:

Be it known that I, ADOLPH A. KLEIN, of the city and county of Philadelphia, in the State of Pennsylvania, have invented an Improvement in Windows, of which the following is a specification.

My invention has reference to windows; and it consists of certain improvements which are fully set forth in the following specification and shown in the accompanying drawings, which form a part thereof.

The object of my invention is to provide a construction of window suitable for proper ventilation and cleaning.

My improvements comprehend certain constructions whereby the window-sashes may be turned at an angle in the frames upon horizontal axes corresponding to the pivot connections with the cords or counterweighted chains, whereby the said sashes may permit full ventilation through the window-opening or enable the outside surface of the glass to be presented to the inside of the window for cleaning.

In carrying out my invention I provide suitable vertical guides for the window-sashes, upon which they are pivoted and counterbalanced, and combine therewith a series of guide-beads adjustable laterally, so as to be projected beyond the side edges of the sashes or withdrawn to permit them to be rotated upon their horizontal pivots when desired. I prefer to adjust the said beads on each side of the window-frame by means of hand-operated devices.

It is evident that my improvements may be applied to the window for either or all of the sashes as desired.

The invention will be better understood by reference to the accompanying drawings, in which—

Figure 1 is a front elevation of a window-frame with one-half in section, taken on line 1 1 of Fig. 4 and embodying my improvements. Fig. 2 is a vertical transverse section of same on line 2 2 of Fig. 1. Fig. 3 is a similar section on line 3 3 of Fig. 1. Fig. 4 is a transverse section on line 4 4 of Fig. 1. Fig. 5 is a similar section on line 5 5 of Fig. 1. Fig. 6 is a perspective view of one of the cam devices for moving the beads laterally, and Fig. 7 is an enlarged view of the means for attaching the counterweights or sustaining-cord to the window-sash.

A is the main frame of the window; B and C, the usual lower and upper sashes.

D is a transom, which may be used or not, as desired, separately or in conjunction with the other windows. The window-frame on each side of the windows B and C is provided with vertical grooves *g*, in which the guides F work. These guides F are pivoted to the window-sashes by means of screws *f*, as shown in Fig. 7, and are also attached to the cords, chains, or tapes *b*, which pass upward through the said grooves *g* and over the pulleys E to the counterweights B′ for counterweighting the said sashes. The counterweights move vertically in weight-boxes O.

H are three vertical beads and form guides between which the window-sashes move normally and by which they are held in vertical position. These beads H are adjustable laterally and work in grooves *h* in the frame G of the window-frame A. Secured to these beads are a series of cam-arms I, which extend through the frame G to the rear and are guided in cam-guides *i*. These cam-guides *i* are carried in a frame J of any suitable construction, shown in the drawings as formed of upright wooden strips, connected by cross-strips on account of lightness. By moving the frame J upward the guide *i* operates upon the cam-arms I to draw them backward, and thereby withdraw the beads H from outward to shielded positions within the grooves *h*. The reverse movement of the frame J causes the beads to be projected. The frame J is moved by means of a lever L, having a loose connection at *l* in the window-frame and extending at the forward part through a slotted guide-plate N, having at the rear or inner side notches *n*, into which a projection *n′* on the lever L is adapted to catch for the purpose of locking the beads in a withdrawn or rejected position. A spring M operates to press the lever L outward, so as to insure its connection in the notches *n*. Any suitable construction of lever may be employed or the frame J may be moved in any other manner desired.

The lever L is shown as connected by a link *j* with the said frame J, but it may be connected in any other manner.

S represents the upper and lower beads or raised portions of the window-frame for receiving the sash at top and bottom.

When it is desired to reverse the windows for cleaning or for setting the windows at an incline, as indicated in dotted lines in Fig. 2, the sashes are moved up or down to the required position, the levers L on each side of the frame are then raised, so that the upright beads are withdrawn, and then the said sashes may be revolved upon their supports F to the desired inclination or for complete reversal. When moved into such positions, they may be held by more or less friction through the action of the beads if the lever L is pressed downward again, for in this action the beads will move outward until they press upon the lateral edges of the sashes. I have shown the beads for both the upper and lower sashes C B continuous; but it is evident that the adjustability of the beads may only be for one sash, or by simply duplicating the parts separate adjustable beads may be had for both sashes.

The transom D may be locked or permitted to rotate on its transverse axis by adjusting the beads H′ in precisely the same manner as in the case of the beads H, the said beads being operated by the same character of mechanism, comprising the parts *i*, operated by a frame J′, which frame, by means of a link *j*′, connects with a similar lever L, arranged side by side with the first-described lever, as indicated in Fig. 4. In this manner the transom may be locked or unlocked to permit rotation partially or wholly.

If desired, the windows C and D may be employed without the sash B, in which case we will have two sets of beads operated independently and corresponding to the two sashes C D.

The frames J and the means for operating them are arranged in a compartment K, which is separated from the counterweight-compartment O by a division *k*, so that the counterweights will in no wise interfere with the proper operation of the bead-operating devices.

While I prefer the construction shown, the details may be modified without departing from the spirit of the invention.

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

1. In a window the combination of the main frame having a vertical guide-groove and two vertical compartments on each side, two window-sashes free to revolve within said window-frame on transverse axes, counterbalancing-weights guided in the outer vertical compartments of the window-frame, flexible connections from said counterweights guided in the guide-grooves of the window-frame and to which the window-sashes are pivoted, laterally-movable beads of a vertical height sufficient to include both the upper and lower sashes when closed carried by the window-frame so as to be moved in front of or withdrawn from the lateral edges of the window-sashes, and means located in the other of the vertical compartments of the window-frame and extending through the walls thereof for adjusting the beads laterally with respect to both sashes.

2. In a window the combination of the main frame having a vertical guide-groove, a window-sash free to revolve within said window-frame on a transverse axis, counterbalanced supporting devices to which the window-sash is pivoted guided in the guide-grooves, laterally-movable beads carried by the window-frame so as to be moved in front of or withdrawn from the lateral edges of both the upper and lower window-sashes, and means carried by the window-frame for adjusting said beads laterally with respect to said window-sash, said means consisting of a vertically-movable frame arranged within the window-frame, a movable hand-operated part to move said frame upward or downward extending through the front of the window-frame, and cam connections between said frame and the beads at upper and lower parts of them whereby a vertical movement of the frame and cam devices will cause a lateral movement of the beads.

3. A window-frame having its side upright portions formed with two vertical compartments and having the inner or adjacent sides of the two upright portions provided with a series of grooves *h*, *g*, arranged alternately and vertically, vertically-movable sashes adapted to said window-frames, counterweight devices for said sashes guided in the outer vertical compartments of the window-frame and connected with the window-sashes in line with the grooves *g*, laterally-adjustable beads H of a size to be wholly received within the grooves *h* of the window-frame and movable into and out of said grooves, and adjusting devices for adjusting said beads arranged within the other of the vertical compartments of the window-frame and having connections through the inner walls of the grooves *h* and connecting with the beads H whereby the said beads are carried and adjusted independently of the sashes.

4. A window-frame containing two vertical compartments, a vertically-movable window-sash, a counterweight movable in one of the compartments and connected by a cord or its equivalent with the sash to counterbalance it, laterally-adjustable beads on each side of the sash adapted to hold it against rotation, and hand-operated means located in the other compartment of the frame connecting with the beads for moving them laterally into or out of the window-frame whereby they may be withdrawn from the sash or projected to guide it as desired.

5. A window consisting of a window-frame

combined with two sashes, supports for said sashes whereby they may rotate upon transverse axes, laterally-adjustable beads adapted to be moved in front of the sashes to lock them against rotation or withdrawn into the window-frame to free the sashes, and means for separately operating the beads corresponding to each of the sashes leading to a common place on the window-frame.

6. A window consisting of a window-frame structure, combined with two sashes pivoted at different heights and closing openings through the frame at different elevations, separate supports for said sashes whereby they may independently rotate upon transverse axes, independent laterally-adjustable beads adapted to be moved independently in front of the two sashes to lock them separately against rotation or withdrawn into the window-frame structure to free either or both of the sashes, and means for separately operating the beads of each of the two sashes.

In testimony of which invention I hereunto set my hand.

ADOLPH A. KLEIN.

Witnesses:
R. M. HUNTER,
J. W. KENWORTHY.