(No Model.)

E. F. CROISSANT.

WINDOW.

No. 580,520. Patented Apr. 13, 1897.

Fig. 1.

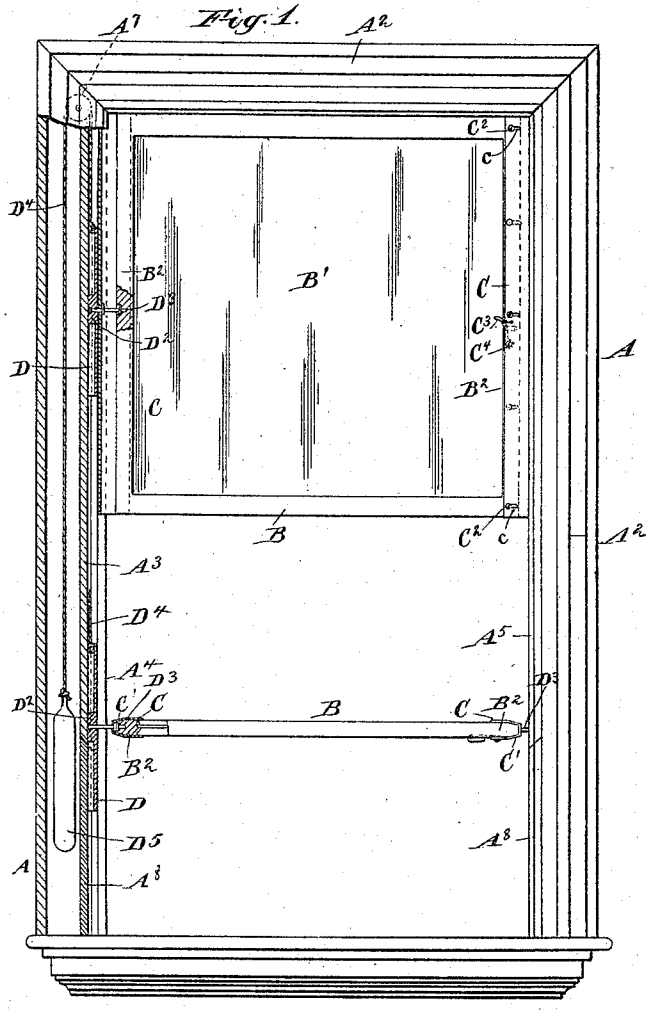


Fig. 4.

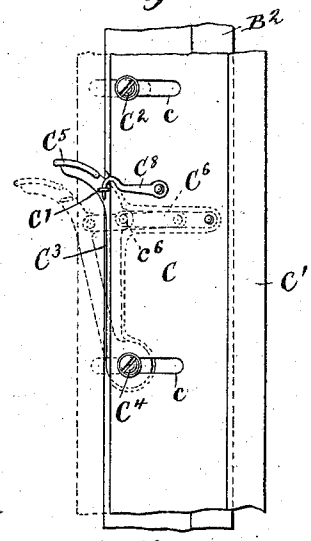


Fig. 5.

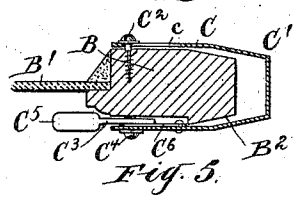


Fig. 2.

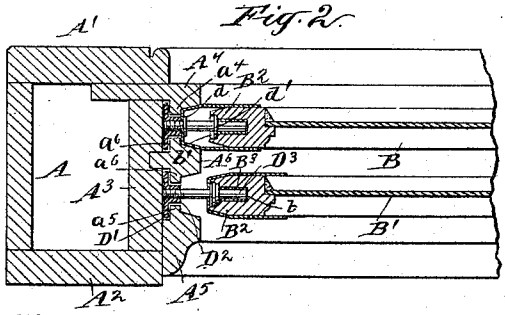
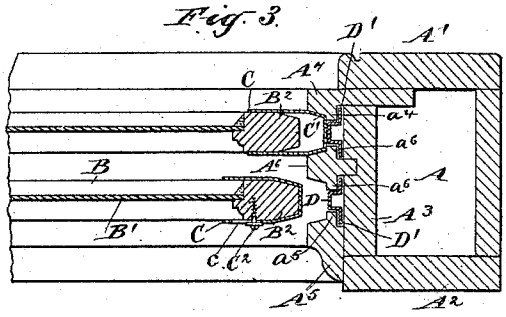


Fig. 3.



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UNITED STATES PATENT OFFICE.

EUGENE F. CROISSANT, OF WEST HOBOKEN, NEW JERSEY.

WINDOW.

SPECIFICATION forming part of Letters Patent No. 580,520, dated April 13, 1897.

Application filed September 24, 1896. Serial No. 606,828. (No model.)

To all whom it may concern:

Be it known that I, EUGENE F. CROISSANT, a citizen of the United States, residing at West Hoboken, in the county of Hudson and State of New Jersey, have invented a certain new and useful Improvement in Windows, of which the following is a specification.

The invention relates to that class of windows in which the sash may be raised or lowered in grooves in the frame and may also be conditioned to be rotated on horizontally-arranged pivots for purposes of cleaning and repairs.

The invention consists, essentially, of a sash of less width than the opening in the frame, provided with expanding guides on the vertical edges matching to the grooves in the frame when extended and lying within the clear opening in the frame when contracted, and pins extending laterally inward from slides guided in the frame engaging corresponding holes in the stiles of the sash, so that the latter may swing or rotate thereon when desired. The sash cords and weights or other sash-balancing mechanism are attached to the slides, thus allowing the sash to be raised and lowered, as usual, and means are provided for insuring a close joint between the sash-guides and frame, and also for conveniently operating the guides in throwing them out or in.

The invention also consists in certain novel construction and arrangement of parts, which will be first fully described, and then pointed out in the claims.

The accompanying drawings form a part of this specification and represent what I consider the best means of carrying out the invention.

Figure 1 is an elevation, partly in vertical section, showing the upper sash engaged in the frame and the lower sash partially revolved to lie in a horizontal plane. Fig. 2 is a horizontal section taken on a line passing through the supporting-pins of both sashes. One sash is conditioned to be revolved. Fig. 3 is a similar view showing the sashes similarly conditioned, the line of section being on a different plane. Fig. 4 is an elevation of a portion, showing the mechanism for operating the guides. Fig. 5 is a horizontal section of the same, partly in plan view.

Similar letters of reference indicate the same parts in all the figures.

A is the window-frame, certain portions being designated by supernumerals, as A′ A^2.

A′ is the hanging stile, A^2 the casing, and A^3 the pulley-stile, all of any ordinary or approved construction.

A^4 is the blind-stop, A^5 the inside stop, and A^6 the parting-strip, the spaces between forming grooves to guide the sashes B in their up-and-down travel. The grooves are peculiar, being wider next the sash and gradually narrowing toward the pulley-stile, as shown in Figs. 2 and 3. Shoulders a^4, a^5, and a^6 on the parts A^4 A^5 A^6 form the bottoms of the grooves and also the T-shaped ways beyond, serving a purpose which will presently appear.

The width of the sash B, carrying the glass B′, is something less than the distance between the stops on the opposite sides of the frame, and it therefore does not engage in the grooves. The vertical edges B^2 are beveled on the same angles and are each provided with a guide C, of thin galvanized iron or other sheet metal, bent to an approximately U form in section, the wings embracing the sash-stile, and the remaining portion C′ bent to match on its interior to the bevel B^2 on the sash and on the exterior to the beveled walls of the grooves. The guides C C′ are movable laterally upon the sash and may be thrown out to closely engage the grooves or be drawn inward against the sash, in which latter position the sash is free. They are held to the sash by screws C^2, extending loosely through the horizontal slots *c* into the stile, and each is provided with a lever C^3, attached to the sash by a screw C^4, passing through a slot *c* and aiding the screws C^2 to govern the direction and extent of the motion. The lever C^3 carries at its upper end a thumb-piece C^5 and a link C^6, attached at the point c^6. A slight inward pull upon the lever C^3 draws its guide C out of the corresponding groove and a reverse movement again engages it, the several slots *c* and screws C^2 insuring parallelism, as will be readily understood.

C^7 is an eye on the lever C^3, and C^8 is a hook pivoted on the guide C in such position as to engage the eye and hold the lever and prevent accidental disengagement of the guide and groove.

There are four guides C, one on each vertical edge of each sash B, and a lever for each arranged on the inner face of the sash near the mid-height or other point within easy reach of the hand. There may be as many slots *c* as are found desirable. I have shown three on the inner face and two on the outer face, arranged at points intermediate to the others to avoid danger of interference by the holding-screws C^2 entering from opposite sides.

D D are slides, four in number, two for each sash. They are of metal, cast or otherwise produced in the hollow form shown. Each is provided with vertical flanges D′ D′, extending the entire length and engaging in the rabbets or offsets formed by the shoulders a^4 a^5 a^6 on the stops and parting-strips. They also have each a filled or solid central portion D^2, which is drilled and tapped to receive the screw-threaded end of a pin D^3, firmly screwed home therein and then upset or headed to prevent its removal. The cross-section of the slide is in effect a dovetail or T, matching to the corresponding ways formed by the shoulders, as before described. The pins D^3 extend loosely through the metal of the guides C into holes *b* in the sash, protected by metal bushings B^3, and sustain the sash.

D^4 are sash-cords attached one to the upper end of each slide D and extending upward over a pulley A^7, set in the head of the frame, and is knotted to a sash-weight D^5 in the weight-pocket provided in the frame.

The holes in the guides C through which the pins D^3 pass are reinforced by washers *d*, soldered to the metal on the inner face, and the holes *b* are counterbored at *b′* to receive them and also to take similar washers *d′*, secured to the pins, serving as shoulders taking the lateral thrust of the sash.

A section A^8 on each side at the lower part of the frame is removable. It is of sufficient length to allow the slide D to pass out or in, thus allowing the entire sash to be swung into the apartment, if desired, at any time for repairs. Access to the weight-pocket may be had through the same opening.

To condition the sash for cleaning, &c., the hooks C^8 are turned back and the levers C^3 pulled inward, carrying with them the guides C C′. The lower sash is then raised a few inches to clear the sill and is partially revolved by forcing the lower half outward and upward, bringing the outer face of the sash inward, or the sash may be turned into the horizontal position shown in Fig. 1, and then forced downward upon the sill, leaving the whole space above clear to revolve and clean the upper sash. The latter may then be pushed up in the horizontal position to the head, leaving the clear open space below for the treatment of the lower sash.

If preferred, the sash may be turned over and locked in the perpendicular position with the outer face inward by throwing out the guides C. To facilitate this operation, I propose in some cases to apply a lever similar to the lever C^3, but without its hook C^8 and eye C^7, on the outer face of each guide, so that the latter may be engaged and disengaged when reversed.

To restore the window to its original condition, the upper sash is set perpendicularly and its upper edge engaged in the usual overhead groove. The guides C are then thrust out by operating the levers and the latter locked by the hooks C^8. The lower sash is similarly treated, except that the lower edge is first engaged in the sill to insure perpendicularity and coincidence of the guides with the grooves.

The advantages are obvious. The windows may be cleaned without danger and may be opened to almost the whole extent of the opening in the window-frame for ventilation, if desired. The sash may be swung directly into the apartment and receive new glass or be otherwise treated while lying in convenient position for the operator.

The device is simple and effective, inexpensive, and does not mar the appearance of the sash.

The guides may be painted or otherwise ornamented, and being of metal they do not warp or change their shape, thus insuring a smooth and easy motion to the sashes at all times and conditions of weather.

Modifications may be made in the sizes and proportions of the various parts.

I prefer the beveled form of sash, guides, and grooves for the reason that by its use a very close weatherproof joint may be made between the sash and frame, but the angle of the bevel may be more or less than here shown.

I may in some cases provide two or more eyes C^7, arranged side by side, or by other means hold the guide in engagement with its groove either loosely to allow the sash to slide freely or so closely as to preclude raising or lowering until partially released, thus serving as a weather-strip in inclement seasons.

Any ordinary or approved sash-fasteners may be put on, and other forms of sash-balancing devices may be substituted for the cord and weight shown.

I claim—

1. In a window, a sash of less width than the clear opening in the frame, beveled grooves in the latter for guiding the sash and having vertical slots connecting with ways in the frame, movable guides embracing the sash-stiles and beveled to match said grooves, levers pivoted to said stiles and connected to said guides to throw the latter outward to engage the grooves or draw them inward to release the sash, and means for holding the levers in the engaged position, in combination with slides, one on each side to sustain the sash and matching said ways and traveling therein, oppositely-arranged pins carried by said slides and extending inwardly through said guides and engaged in lateral holes in said sash-stiles to serve as a horizontal axis

on which the sash may be turned when said guides are withdrawn, all substantially as herein specified.

2. The sash B having the beveled stiles B^2, the beveled guides C, C′ embracing the latter, and having the slots *c* engaged by the screws C^2 for holding the guides in place and directing their motion, the lever C^3 for each pivoted to the sash, the link C^6 connecting to the guide and the hook C^8 engaging an eye C^7 on said lever, in combination with the frame A having a clear opening greater than the width of the sash, and beveled grooves receiving said guides, the slides D and pins D^3 therein engaged in said sash, all substantially as herein specified.

3. The sash B having the beveled stiles B^2, the beveled guides C, C′ embracing the latter and having the slots *c* engaged by the screws C^2 for holding the guides in place and directing their motion, the lever C^3 for each, pivoted to the sash, the link C^6 connecting to the guide, and the hook C^8 engaging an eye C^7 on said lever, in combination with the frame A, its beveled blind-stops A^4, inside stops A^5 and parting-strips A^6 forming beveled grooves to receive said guides, the shoulders a^4, a^5, a^6 forming T-ways, the slides D and flanges D′ thereon matching to said ways, and the pins D^3 carried by said slides to support the sash and allow the latter to turn thereon, all substantially as herein specified.

4. The sash B having the beveled stiles B^2, the beveled guides C, C′ embracing the latter and having the slots *c* engaged by the screws C^2 for holding the guides in place and directing their motion, the lever C^3 for each, pivoted to the sash, the link C^6 connecting to the guide, and the hook C^8 engaging an eye C^7 on said lever, in combination with the frame A, its beveled blind-stops A^4, inside stops A^5 and parting-strips A^6 forming beveled grooves to receive said guides, the shoulders a^4, a^5, a^6 forming T-ways, the slides D and flanges D′ thereon matching to said ways, the pins D^3 carried by said slides and engaged in the sash, the sash-cord D^4 attached to said slides, the pulley A^7, and the sash-weight D^5, all arranged to serve as and for the purposes herein specified.

In testimony that I claim the invention above set forth I affix my signature in presence of two witnesses.

EUGENE F. CROISSANT.

Witnesses:
ROBT. CONNOR,
MORTIMER OSBORNE.