

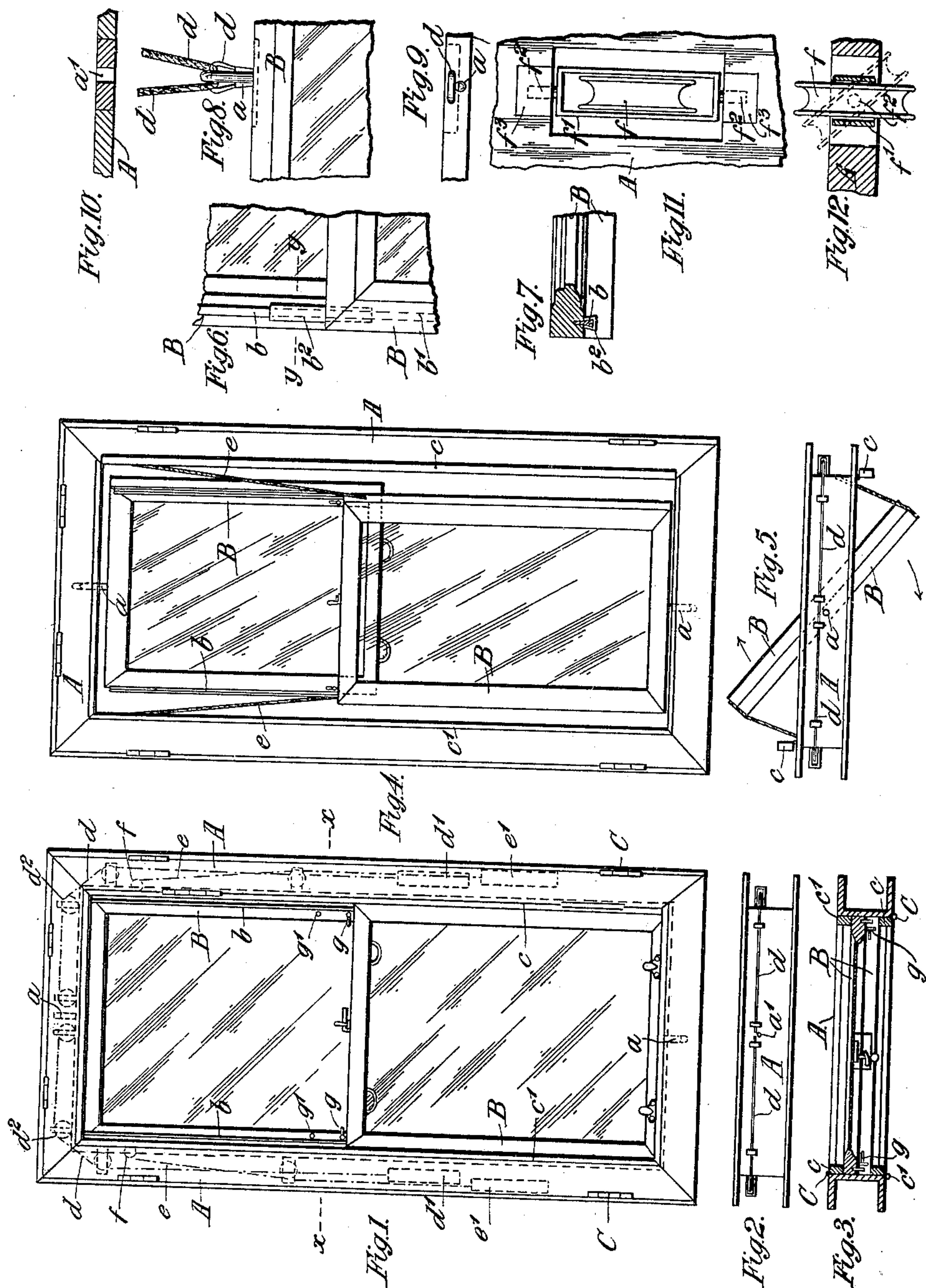
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Patented Aug. 1, 1899.

W. TURNBULL.  
SLIDING SASH WINDOW.

(No Model.)

(Application filed Feb. 8, 1899.)



Witnesses

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# UNITED STATES PATENT OFFICE.

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## SLIDING-SASH WINDOW.

SPECIFICATION forming part of Letters Patent No. 630,137, dated August 1, 1899.

Application filed February 8, 1899. Serial No. 704,974. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM TURNBULL, a subject of the Queen of Great Britain, residing at Dalkeith, in the county of Mid-Lothian, Scotland, have invented new and useful Improvements in Sliding-Sash Windows, of which the following is a specification.

This invention relates to sliding-sash windows; and it has for its object to so construct them as to enable them to be easily cleaned from inside a room, so avoiding risk of accident. To this end I provide means whereby the sashes can in addition to sliding be swung around on pivots arranged at the top and bottom of the window, but which pivots in no way interfere with the ordinary action of the sashes and only serve their purpose when the latter are slid into or near their closed position. The sashes are also provided with suitable devices for locking them together when in the latter position, so that they will both turn together. In this way the cleaning of the windows can be easily effected without risk when the sashes are swung around to bring their outer sides inward.

Reference being had to the drawings, Figure 1 is a general elevation of one construction of my improved sliding-sash window, the same being closed. Fig. 2 is a plan thereof, and Fig. 3 is a horizontal section on the line  $xx$  of Fig. 1. Fig. 4 is also an elevation corresponding to Fig. 1, but showing the sashes partly turned on their pivots. Fig. 5 is a plan of the same. Fig. 6 is a detail view showing in elevation a device for effecting the sliding connection between the sashes. Fig. 7 is a horizontal section on the line  $yy$  of Fig. 6. Fig. 8 is a fragmentary side view of the top rail of the upper sash, showing one of the pivots and a swivel for the sash-cord adjacent thereto. Fig. 9 is a plan of the same, and Fig. 10 shows in section one of the sockets for the pivots. Figs. 11 and 12 are respectively a side view and a plan of a swiveling sash-pulley employed with the construction of window illustrated.

The detail views Figs. 6 to 11 are drawn to a larger scale than Figs. 1 to 6.

A is the window-frame, and B are the sashes.

$a$  are the pivots, which are in this case arranged centrally on the top and bottom rails of

the sashes and fit into corresponding sockets  $a'$  in the upper and lower parts of the frame A.

The sashes are held together in sliding connection by means of guiding-strips  $b$  on one sash, adapted to fit or dovetail into undercut grooves  $b'$  in the adjacent face of the other sash, a metal clip  $b^2$  being provided as an extension of the groove, if desired. This arrangement enables the ordinary parting-beads to be omitted, as the same would interfere with the turning of the window on its pivots.

$c$  are hinged strips or beads, of which there are two diagonally opposite each other, one inside and the other outside the frame, the other two beads  $c'$  being fixed, as usual. These beads normally serve in the ordinary way as guides for the sashes; but the hinging of the pair  $c$  enables them to be turned out of the way, Fig. 5, when they are to be swung on their pivots.

$d$  are the cords, and  $d'$  the weights of the upper sash, while  $e$  and  $e'$  are respectively the cords and weights of the lower sash, said parts being shown in dotted lines.

It will be seen that the cords of the upper sash extend over a series of guide-pulleys  $d^2$ , also shown in dotted lines, to the middle of the upper part of the window, where they are united to a swivel  $d^3$ , secured to the top rail beside the upper pivot. This arrangement prevents the strain of the cords  $d$  interfering with the turning movement; but obviously the cords might be connected to the sides of the sash, if desired.

The cords of the lower sash are arranged in the ordinary way, as the parts between their pulleys  $f$  and the sash are long enough to allow of the sash turning around without any inconvenient strain. The said pulleys  $f$  are, however, arranged so that they can swivel to suit the inclination of the cords, this being especially useful in preventing the cords from leaving the pulleys when the sash is returning to its normal position. The swiveling is provided for by mounting the pulleys in frames  $f'$ , having pivots  $f^2$  at their upper and lower ends, said pivots fitting into sockets  $f^3$  on the window-frame.

Any well-known form of stop may be used to hold the window in an open position.



For ordinary purposes the window is opened and closed by sliding either or both of the sashes up or down, as the case may be, in the usual manner. When, however, it is desired to open the window by turning it upon its pivots, this is effected in the following way: The hinged beads *c* are turned into the position shown in Fig. 5 and the lower sash is locked to the upper sash by means of small bolts *g*, adapted to be pushed into holes *g'* in the stiles of the upper sash. Both sashes are then drawn down slightly, so that an opening is left at the top and bottom of the window, as in Fig. 4, just sufficient to enable the sashes to clear the beads at the top and bottom of the frame without, however, drawing either of the pivots out of their sockets. The sashes can then be turned around freely in the direction of the arrows, Fig. 5, say to bring their outer sides inward for cleaning.

In order to facilitate access to the guide-pulleys in case of a sash-cord requiring to be renewed, the top and sides of the window-frame may have their inner walls hinged, as at *C*, so that they can be readily opened without risk of damaging them. Furthermore, the fixed beads on the window-frame are preferably made in one therewith, so as to avoid drafts as far as possible, and the top and bottom beads of the window may be hinged, so that they can be turned out of the way, like the beads *c*, when the window is to be swung around. Moreover, if desired, either or both of the pivots *a* might be secured to the frame *A*, the socket or sockets to receive them being in such case secured in the sash-rails.

By the construction above described the advantages of the ordinary sliding-sash windows are to a large extent combined with those of the French or casement windows, besides which by turning the window on its vertical axis it can be set at any angle to catch the slightest breeze, which will be of great advantage for airing rooms.

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

1. In a sash-window, the combination of the upper and lower slidable sashes directly pivoted, respectively, to the top and bottom of the window-frame, devices for locking one sash, directly to and unlocking it from the other, and weighted sash-cords for the sashes, substantially as described.

2. In a sash-window, the combination with the window-frame, of the upper sliding sash centrally pivoted at its upper end directly to

the top of the frame, the lower sliding sash centrally pivoted at its lower end directly to the bottom of the frame, a guide carried by one sash and directly engaging and sliding in a guideway carried by the other sash, and weighted, independent sash-cords connected, respectively, with the two sashes, substantially as described.

3. In a sash-window, the combination with the window-frame, having a pivot-bearing at its top and bottom, of the upper sliding and turning sash carrying a pivot at its upper end to engage and disengage said top pivot-bearing, the lower sliding and turning sash carrying a pivot at its lower end to engage and disengage said bottom pivot-bearing, devices for locking one sash to and unlocking it from the other, and weighted sash-cords for the sashes, substantially as described.

4. In a sash-window, the combination with the window-frame having a pivot-bearing at its top and bottom, of the sliding and turning upper sash carrying a pivot at its upper end to engage and disengage said top pivot-bearing, the sliding and turning lower sash carrying a pivot to engage and disengage said bottom pivot-bearing, devices for directly locking one sash to and unlocking it from the other, vertical guides and guideways sliding in engagement with each other and carried, respectively, by the sashes, and weighted sash-cords for the two sashes, substantially as described.

5. In a sash-window, the combination of a sliding connection between the sashes, pivots at the top and bottom of the window, means for locking the sashes together, sash cords and weights connected centrally to the top sash, and corresponding cords and weights connected to the sides of the lower sash, substantially as described.

6. In a sliding and turning sash window, the combination of an upper sash, sash-cords connected centrally to a swivel on the top rail of said sash, a lower sash, sash-cords connected to the sides thereof, swiveling sash-pulleys for these latter cords, guide-pulleys on the frame for each set of cords, and weights on said cords, substantially as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

WILLIAM TURNBULL.

Witnesses:

GEORGE HUTTON,  
FREDERICK PIATT.