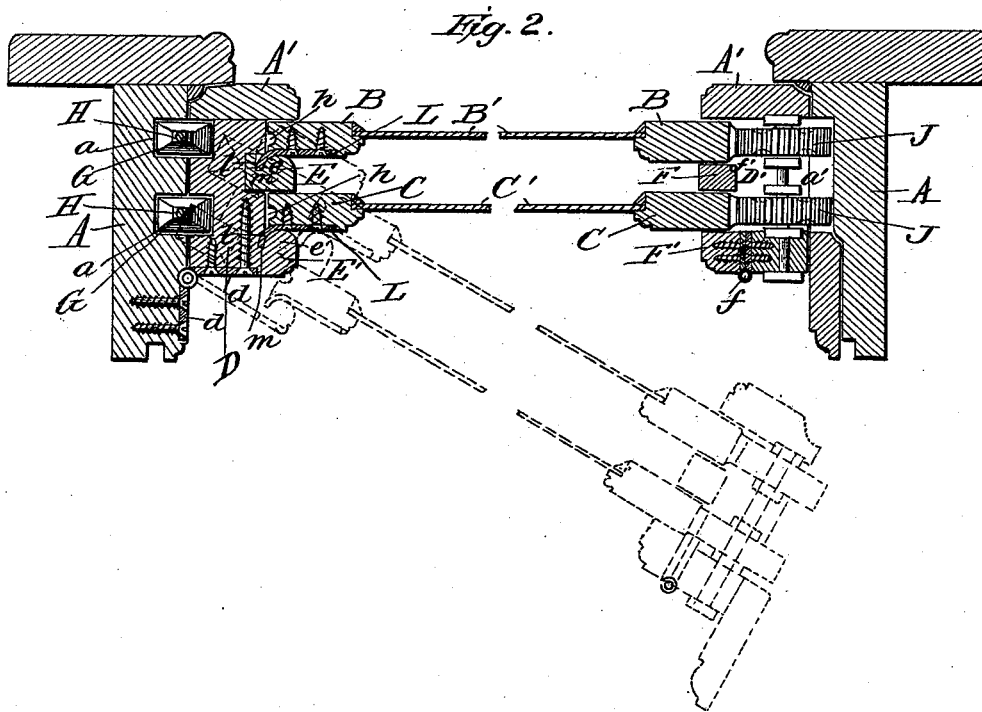
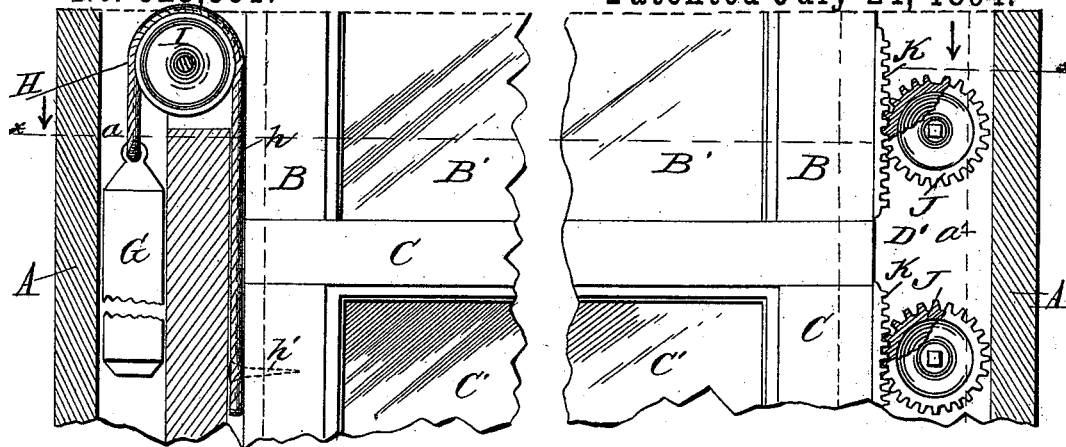


A. P. NIELSEN.

WINDOW FRAME AND SASH.

No. 523,591.

Patented July 24, 1894.



WITNESSES  
F. L. Ourand  
James H. Jones

INVENTOR:  
Andrew P. Nielsen.  
by Louis Bagger & Co.  
his Attorneys.

(No Model.)

2 Sheets—Sheet 2.

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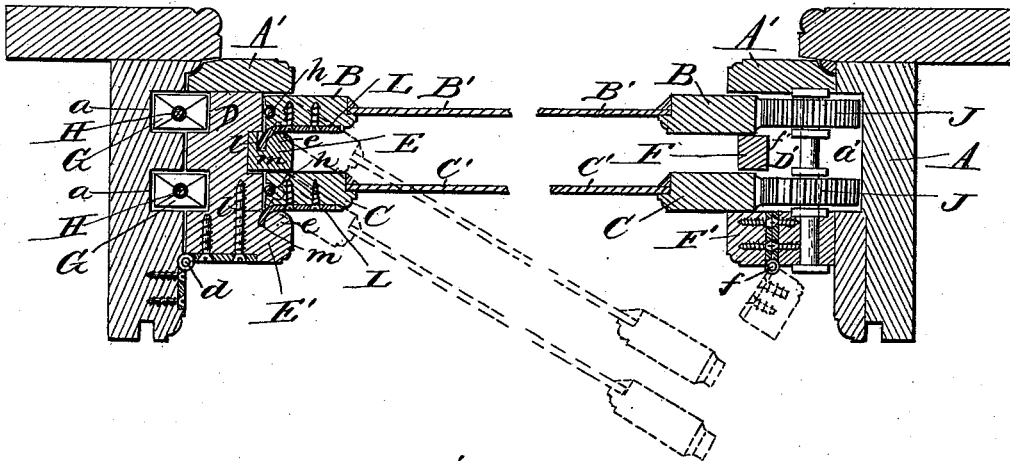


Fig. 3.

WITNESSES:

*F. L. Durand*  
*Emmett Jones*

INVENTOR:

*Andrew P. Nielsen.*  
*by Louis R. Rogers & Co.*  
Attorneys.

# UNITED STATES PATENT OFFICE.

ANDREW P. NIELSEN, OF RICHMOND HILL, NEW YORK, ASSIGNOR OF ONE-HALF TO AUGUST QUORTRUP, OF SAME PLACE.

## WINDOW FRAME AND SASH.

SPECIFICATION forming part of Letters Patent No. 523,591, dated July 24, 1894.

Application filed February 26, 1894. Serial No. 501,588. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW P. NIELSEN, a citizen of the United States, and a resident of Richmond Hill, Long Island, in the county of Queens and State of New York, have invented certain new and useful Improvements in Window Frames and Sashes; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a front view of the lower part of an upper, and the upper part of a lower, window-sash of my improved construction, with the adjacent portions of the casing; the facing or housing of the same having been removed to show the mechanism for raising and lowering the sashes. Fig. 2 is a transverse sectional view on the horizontal plane indicated by the broken line marked  $x-x$  in Fig. 1, looking downwardly; the dotted lines indicating the position of the inside window-frame and sashes when swung open; and Fig. 3 is a similar view on the same section line; but showing, in dotted lines, the position of the sashes when swung open inwardly, without also opening the inside sash-frame.

Like letters of reference designate corresponding parts in all the figures.

This invention relates to the construction of window frames and sashes of that type in which the sliding sashes may be swung open inwardly, when desired, to facilitate cleansing and polishing of the window-panes; and it consists in the improved construction of the compound or duplex frame or casing and the sliding sashes, and in the combination of the sliding and laterally hinged sashes with the duplex frame; substantially as will be hereinafter more fully described and claimed.

On the accompanying drawings, the reference-letters A A designate the two parallel side-pieces or stiles of the stationary window-casing; the upper sliding sash-frame being shown at B, and the lower sash at C, while the window-panes, framed in these sashes, are shown at B' and C' respectively. Fas-

tened by hinges  $d$  to one of the stationary stiles or side-pieces A is another frame DD', upon one of the sides, D, of which the vertical sash-guides or rails E and E' are fastened, while the opposite side D' is similarly provided with the parallel sash-guides F and F'. The sash-guides E and E', appertaining to the side-piece D are rounded off on the sides facing the sliding sash-rails B and C, as shown at  $e$  and  $e'$ , respectively; and the sash-guide F' appertaining to the opposite side-piece D', and corresponding to the guide-rail E' of the left side-piece D, is hinged, by a flap-hinge  $f$ , upon the part D', so that it may be opened and swung to one side, out of the way of the window-sashes, as shown in dotted lines in Fig. 3.

The stationary side-piece A on one side of the window casing (in the present instance, the left side) is recessed longitudinally, as shown at  $a$ , to make room for the customary sliding sash-balances or counterpoises G G (one for each sash), the cords H of which run over grooved sheaves I, and through longitudinal recesses  $h$  in the adjacent sides of the sliding sashes B and C; the lower end of each sash-cord being fastened to its appropriate sash by one or more nails or screws  $h'$ , in the usual, well-known way. I use sash-weights on one side of the sashes only, however, and employ in lieu thereof on the opposite side of the casing two spring-actuated cog-wheels, J J, one for each sash, which mesh with toothed racks, K K, fastened upon the contiguous sides of the sliding sashes. The wheels J J are hollow and provided with inside springs, the tension or power of which corresponds to the lifting power of their appropriate weights G, connected to the other or opposite side of their respective sashes, so that each sash will be balanced by and between a weight, G, on one side, and one of the spring-actuated cog-wheels J on the other side. To make room for the cog-wheels J J, the adjacent stationary side-piece A on that side of the casing is recessed, opposite to the wheels, as shown at  $a'$ .

Upon the hinged (in this instance left) side of the movable frame DD', the sliding sashes B and C are provided, each, with a metal

plate L, the rearwardly projecting end of which is curved inwardly, as shown at *l*, to form a bent tongue or bearing which will fit within a vertical recess *m* in the vertical sash-guides E and E', back of and parallel to the rounded bearings *e* and *e'*, which face and impinge upon plates L *l*, and upon which the sashes swing laterally in opening them inwardly into the position illustrated in dotted lines in Fig. 3. To permit the sashes B and C, with their glass panes B' and C', to be swung into this position, for cleansing and polishing, or for repairs, &c., it is necessary first to open and swing back, out of the way, the hinged guide-rail F' on the opposite (right) side, and remove the inner parallel guide-rail F by withdrawing it from the groove or recess *f'* in the side-piece D' into which it is inserted. This arrangement permits of the opening, inwardly, of either one of the two sashes, B or C, without disturbing the other, as they are hinged and work independently of one another, so that one may be kept shut while the other is opened inside the room for polishing, and vice-versa.

When it is desired to swing open both sashes at the same time, and with them the hinged inner frame D D' in which they slide, this may be done as represented in dotted lines in Fig. 2; frame D D' swinging open, inwardly, upon its hinges *d d*, and carrying with it the exterior broad guide-rails or facing-rails A' A', one on each side, as well as the sash-weight G G, with their appropriate sheaves and sash-cords, and the balance wheels J J, as clearly represented in dotted lines in Fig. 2. When in the closed position, shown in full line, the hinged frame D D' is

locked to the stationary casing A A by hooks, or any other desired form of fastening not shown which can be easily and conveniently operated; and in order to permit the balance cog-wheels J J to swing clear of the stationary side-piece D', the two recesses *a' a'* are made in one, without any dividing wall between them.

By this construction, I am enabled to cleanse and polish not only the window panes, but the sashes, as well as the frame in which these slide, without endangering life and limb by making it necessary to clean or repair the windows from the outside of the building.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

The combination of the stationary window-casing A A recessed at *a* and *a'*; hinged inside frame D D' provided with the vertical facing-rails A' A', curved and recessed guide-rails E and E', intermediate removable guide-rail F and inner hinged rail F'; sliding sashes B and C hinged independently to the guide-rails E and E', respectively, by curved bearings or hinge-plates L *l*; sash-weights G G and co-operating balance-wheels J J; all constructed and combined to operate substantially as and for the purpose shown and set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

ANDREW P. NIELSEN.

Witnesses:

LEANDER B. FABER,  
HENRY A. MONFORT.