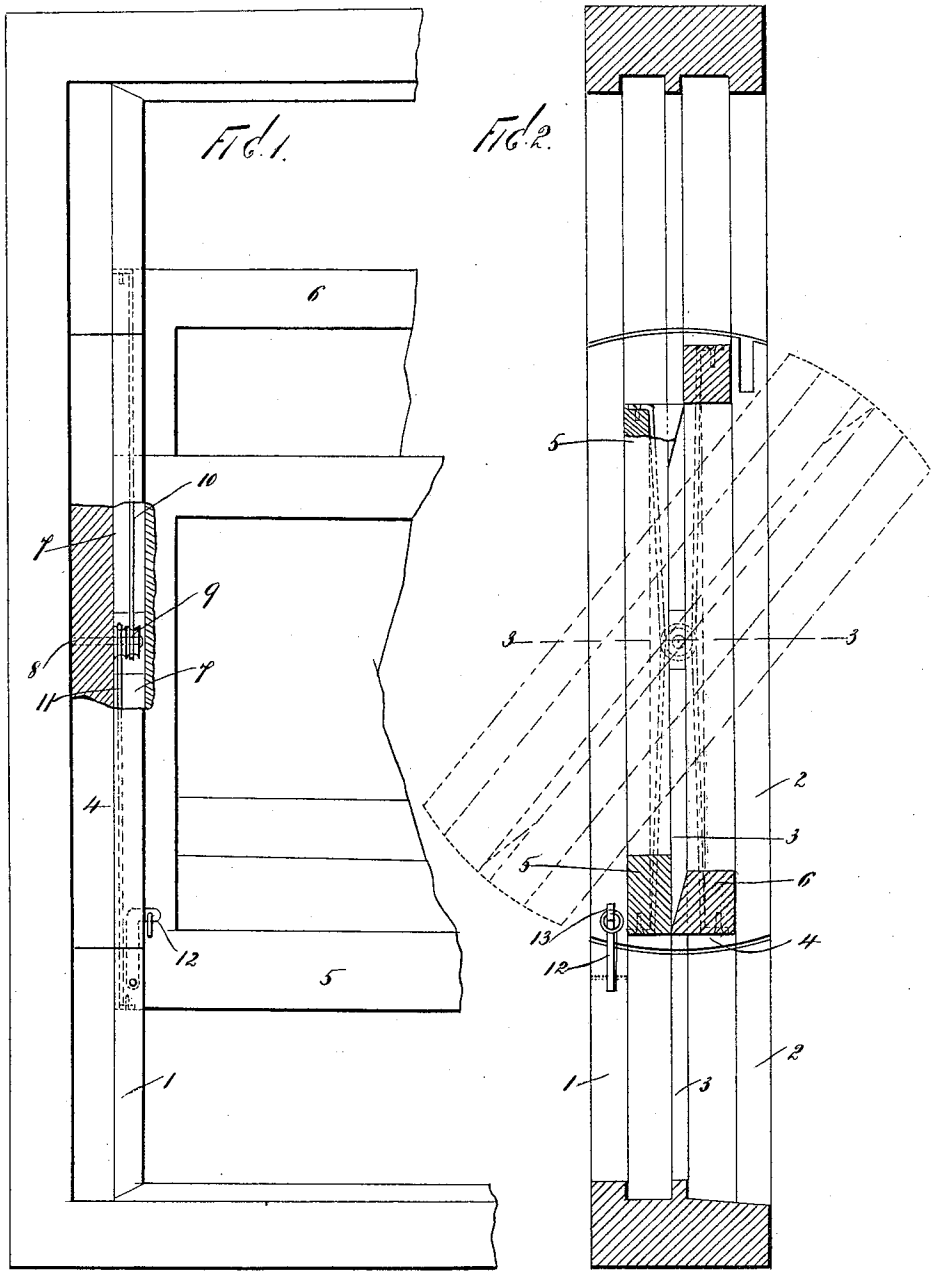
No. 607,427. Patented July 19, 1898.

E. DUVAL.

WINDOW FRAME AND SASH.

(Application filed Jan. 3, 1898.)

(No Model.) 2 Sheets—Sheet 1.



WITNESSES
John Buckler,
V. Im. Fosler.

INVENTOR
Ernst Duval,
BY
Edgar Peterlo
ATTORNEYS

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 607,427. Patented July 19, 1898.

E. DUVAL.

WINDOW FRAME AND SASH.

(Application filed Jan. 3, 1898.)

(No Model.) 2 Sheets—Sheet 2.

FIG. 3.

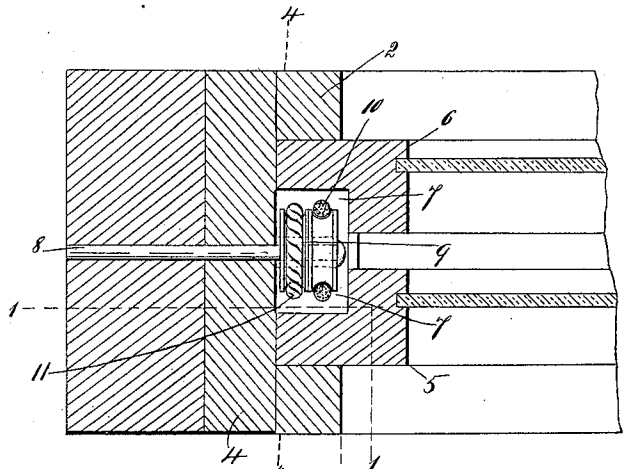
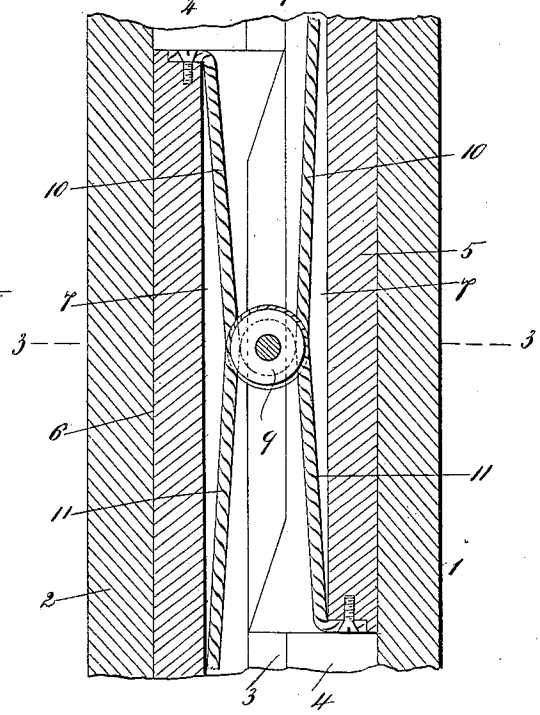


FIG. 4.



WITNESSES

John Buckler,

V. Jno. Fosler.

INVENTOR

Ernst Duval,

BY

Edgar Tate & Co

ATTORNEYS.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ERNST DUVAL, OF HAMILTON, CANADA.

WINDOW FRAME AND SASH.

SPECIFICATION forming part of Letters Patent No. 607,427, dated July 19, 1898.

Application filed January 3, 1898. Serial No. 665,330. (No model.)

To all whom it may concern:

Be it known that I, ERNST DUVAL, a subject of the Queen of Great Britain, residing at Hamilton, in the county of Wentworth and Province of Ontario, Canada, have invented certain new and useful Improvements in Window Frames and Sashes, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

The improvements in window frames and sashes forming the subject of this invention are designed to obviate the use of weights, to afford a construction to move the sashes in convenient position for cleaning, and to provide for ventilation at either the top or bottom in connection with connected and coöperating sashes, herein shown and described.

The invention consists in the features of construction and combinations of parts hereinafter fully described and specifically claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by the same numerals of reference in each of the views, and in which—

Figure 1 is an elevation of a window frame and sashes constructed in accordance with this invention and partially in vertical section on the line 1 1 of Fig. 3. Fig. 2 is a vertical transverse section. Fig. 3 is a horizontal section on the line 3 3 of Figs. 1, 2, and 4; and Fig. 4 is a vertical section on the line 4 4 of Fig. 3.

In the drawings forming part of this specification, 1 and 2 are the inner and outer beads or strips, and 3 the parting bead or strip, of a window-frame. The said parts are of approved construction, with the exception, however, that swiveled plates 4, forming part of the side pieces of the frame, carry sections of these strips and beads. The said sections of the strips and beads are longer than the sashes, so that when the latter are situated and held by the strips and beads they form in effect a frame that can turn on such swivels to reverse the sashes and facilitate cleaning.

In the drawings the inner sash 5 is shorter than the outer sash 6, to be referred to hereinafter, and the side rails of said sashes have longitudinal grooves 7 in their adjacent outer corners in which the sash-cords are situated. The pivot-pins 8, affording the swivel between plates 4 and the frame, extend inwardly and carry double-grooved pulleys 9, around which sash-cords 10 and 11 are trained. The pulley 9 is situated in the space formed by the grooves 7, the parting-bead 3 being cut away, as shown. The ends of the sash-cord 10 are connected with the upper ends of both sashes, and the cord 11 with the lower ends thereof, and it is manifest that the sashes must move oppositely and simultaneously. The sashes consequently balance each other, whereby weights are avoided, while they remain at any desired position.

The plates 4 are swiveled centrally between their ends and are held in position by pivoted catches 12, fastened within slots at the upper ends of the lower stationary portions of the inner beads or strips. The end portions of the plates 4 that come opposite these catches are provided with slots 13 to receive said catches.

It is seen from the foregoing description that when the plates 4 are held by the catches the sashes can be raised and lowered, moving oppositely and simultaneously, however, to make an opening at the top and bottom. By moving the sashes to stand between the plates they form a frame therewith and can be reversed to facilitate cleaning the outer faces of the lights.

As a further improvement in oppositely-moving sashes of this character they are of different lengths, so that by moving them to positions opposite normal an opening is left at the top or bottom to afford ventilation. In the accompanying drawings the inner sash is the shorter, so that if it is moved to its extreme upper limit the outer sash is in contact with the sill, but an opening is left at the top of the window. It is obvious that by making the outer sash the shorter the opening is at the bottom, and, furthermore, that by reversing the sashes by means of the swivel the opening at the top or bottom is increased.

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

1. The combination with a window-frame, of plates swiveled thereto by pins and carry-

ing sections of the stops and beads, pulleys on the ends of said pins, and sash-cords connected with said sashes and passing around said pulleys, substantially as set forth.

2. A window-frame the opposite sides of which are provided with the usual beads or strips between which the sashes are placed, said sides of said frame being also provided with pivoted plates which form part of the frame and which carry part of said beads or strips, said plates being approximately of the same length as the window-sashes, sashes mounted between said beads or strips, the adjacent sides of which are provided with longitudinal grooves, a double pulley mounted in the said grooves at each side of the window-sashes, and two sash-cords at each side of the sashes, one of said sash-cords at each side being passed around said pulleys and connected with the top of both sashes and the other sash-cord at each side being passed around said pulleys and connected with the bottom of each sash, substantially as shown and described.

3. A window-frame the opposite sides of which are provided with the usual beads or strips between which the sashes are placed, said sides of said frame being also provided with pivoted plates which form part of the frame and which carry part of said beads or strips, said plates being approximately of the same length as the window-sashes, sashes mounted between said beads or strips, the adjacent sides of which are provided with longitudinal grooves, a double pulley mounted in the said grooves at each side of the window-sashes, and two sash-cords at each side of the sashes, one of said sash-cords at each side being passed around said pulleys and connected with the top of both sashes, and the other sash-cord at each side being passed around said pulleys and connected with the bottom of each sash, one of said sashes being longer than the other, substantially as shown and described.

4. A window-frame the sides of which are provided with the usual vertical strips or beads between which the sashes are placed, said sides of said frame being also provided with pivoted plates which form part of the frame and also carry part of the said beads or strips, sashes mounted in said frame, double pulleys mounted centrally of each of said pivoted plates, and two sash-cords connected with each of said pulleys, one of said sash-cords at each side being passed around the corresponding pulley and connected with the top of both sashes, and the other cord at each side being passed around the corresponding pulleys and connected with the bottom of both sashes, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 30th day of December, 1897.

ERNST DUVAL.

Witnesses:
JOHN H. HENDRAY,
B. E. HERALD.