No. 833,795. PATENTED OCT. 23, 1906.

L. M. NEABREY.

PIVOT WINDOW.

APPLICATION FILED APR. 17, 1905.

Fig. 1.

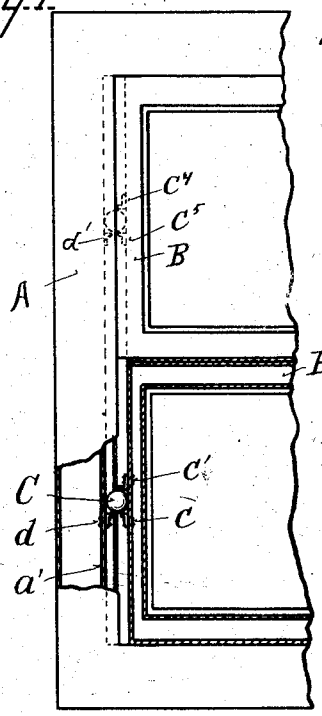


Fig. 2.

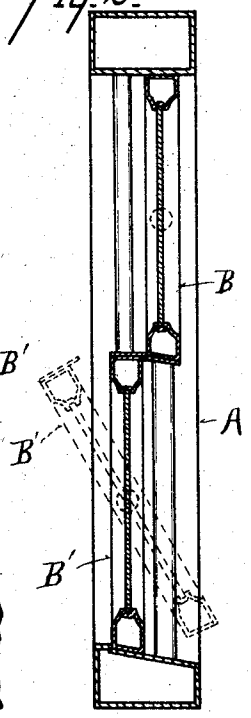
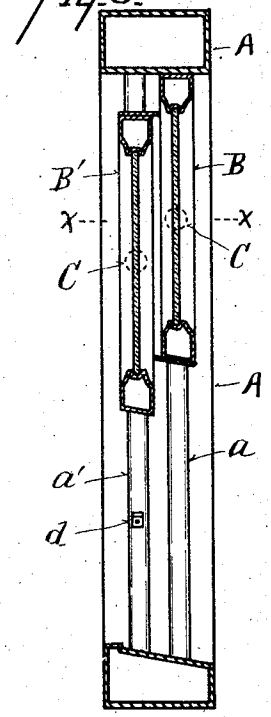


Fig. 3.



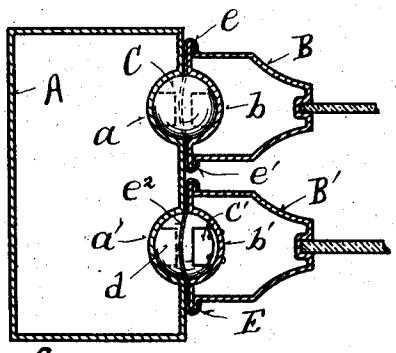


Fig. 4.

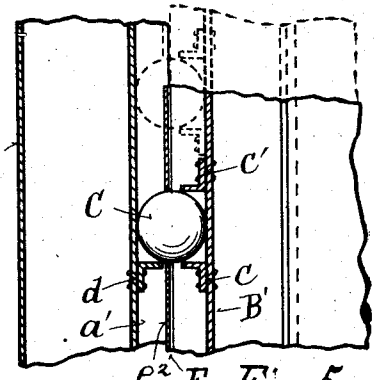


Fig. 5.

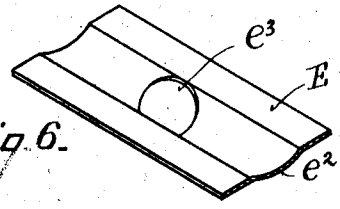


Fig. 6.

Witnesses
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UNITED STATES PATENT OFFICE.

LEONARD M. NEABREY, OF CINCINNATI, OHIO.

PIVOT-WINDOW.

No. 833,795. Specification of Letters Patent. Patented Oct. 23, 1906.

Application filed April 17, 1905. Serial No. 255,942.

To all whom it may concern:

Be it known that I, LEONARD M. NEABREY, a citizen of the United States of America, and a resident of Cincinnati, county of Hamilton, State of Ohio, have invented certain new and useful Improvements in Pivot-Windows, of which the following is a specification.

The object of my invention is a means for pivoting windows which is simple and strong in construction and which permits the lower sash either to swing or to slide in the frame. This object is attained by the means described in the specification and illustrated in the drawings, in which—

Figure 1 is a front elevation of part of a window frame and sash, part of the frame and lower sash being cut away to show the means of pivoting embodying my invention. Fig. 2 is a central sectional view of the frame, showing the sashes in their closed position, the dotted lines showing the lower sash swung upon its pivot. Fig. 3 is a similar view showing the lower sash pushed up to its upper position. Fig. 4 is a horizontal sectional view, taken upon line x x of Fig. 3, upon an enlarged scale. Fig. 5 is a detail vertical sectional view of a lower sash and frame, the full line showing the position of the ball when the sash is in its lowermost position and the dotted line showing the position of the same when the sash is somewhat raised. Fig. 6 is a detail perspective view of the weather-strip.

I have illustrated my invention as applied to a metal window; but the same could be applied to those of wood. The frames A have vertical grooves a a' formed in them, these grooves being made, preferably, semicircular. The moldings and the parting-strip ordinarily found in window-frames are omitted from my frame. The upper and lower sashes B B' have grooves b b' to register with the grooves in the sides of the frame. The grooves b b' are likewise preferably semicircular in cross-section and form, with the grooves in the frames, cylindrical ways. Secured to the sides of the sashes at directly opposite points in each are two plates c c' in the lower sash and c^4 c^5 in the upper sash. These plates are placed a distance apart equal to the diameter of the ways formed by the grooves in the sash and the frames, generally approximating one inch.

Within the groove a' is secured a bracket d, which registers with the lower of the plates c of the lower sash in its lowermost position in the frame, a similar bracket being secured at the opposite side of the frame. Within the groove a a bracket d' is placed to register with the lower plate c^5 in the upper sash when in its uppermost position. Between the plates c c' and c^4 c^5 balls C, preferably of steel and of a diameter equal to the diameter of the ways formed by the grooves in the sashes and the frames, are placed. These balls form pivots for the window-sashes to swing upon, which reduce the friction of the swinging to a minimum, so that the movement is accomplished with ease and smoothness. In the lower sash, since the bracket in the frame comes only below the balls, the sash may be raised in a manner similar to an ordinary sliding window-sash, the balls then acting simply as retainers to prevent lateral displacement of the sash in its frame.

To exclude the wind, dirt, and rain, I have provided a weather-strip of metal E, which at its edges e e' is turned outward to engage the front and rear faces of the sash and has a central vertical curved rib e^2, which fits into the grooves a a' when the sashes are in their vertical positions. Rib e^2 has a circular hole e^3 cut into it to pass the balls C. When the sash is swung upon its pivots, the ribs e^2, contacting the edges of the grooves a a', are flattened, so as to permit the swinging of the sash. When the sash is again brought to its vertical position, the ribs e^2 spring into the grooves a a' and resume their normal position to exclude the elements.

What I claim is—

1. The combination of a window-frame having recesses upon each of its sides, a sash in the frame having recesses upon its sides registering with the recesses in the frame and forming ways therewith, balls in the ways and means for holding the balls at opposite points of the sash to act as pivots therefor.

2. The combination of a window-frame having grooves in its sides, sashes having grooves in their sides to register with the grooves in the window-frame and to form ways therewith, balls in the ways and supports secured to the sashes and the frames to hold the balls at opposite sides of the sashes to act as pivots therefor.

3. The combination of a window-frame having grooves semicircular in cross-section upon each of its sides, a sash in the frame having grooves semicircular in cross-section upon its sides registering with the grooves in the frame and forming cylindrical ways

therewith, balls in the ways of the diameter of the cylindrical ways and means for holding the balls at opposite points of the sash to act as pivots therefor.

4. A window-frame having grooves in its sides, sashes in the window-frame having grooves in their sides to register with the grooves in the frame, balls in the ways, plates secured upon opposite sides of the sashes above and below the balls and brackets secured in the grooves in the frames and registering with the lower of the plates in the sashes when the sashes are in their closed position.

5. The combination of a window-frame having grooves in its sides, sashes in the frame having grooves in their sides to register with the grooves in the frames and forming ways therewith, balls in the ways, means for holding the balls at opposite points of the sashes to act as pivots therefor and weather-strips each consisting of a strip of metal engaging the sash and having a longitudinal rib to fit into the grooves in the frame and cut to pass the ball.

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Witnesses:
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