April 27, 1926.

H. NEVISON

1,582,618

WINDOW

Filed June 25, 1925 2 Sheets-Sheet 1

Fig. 1.

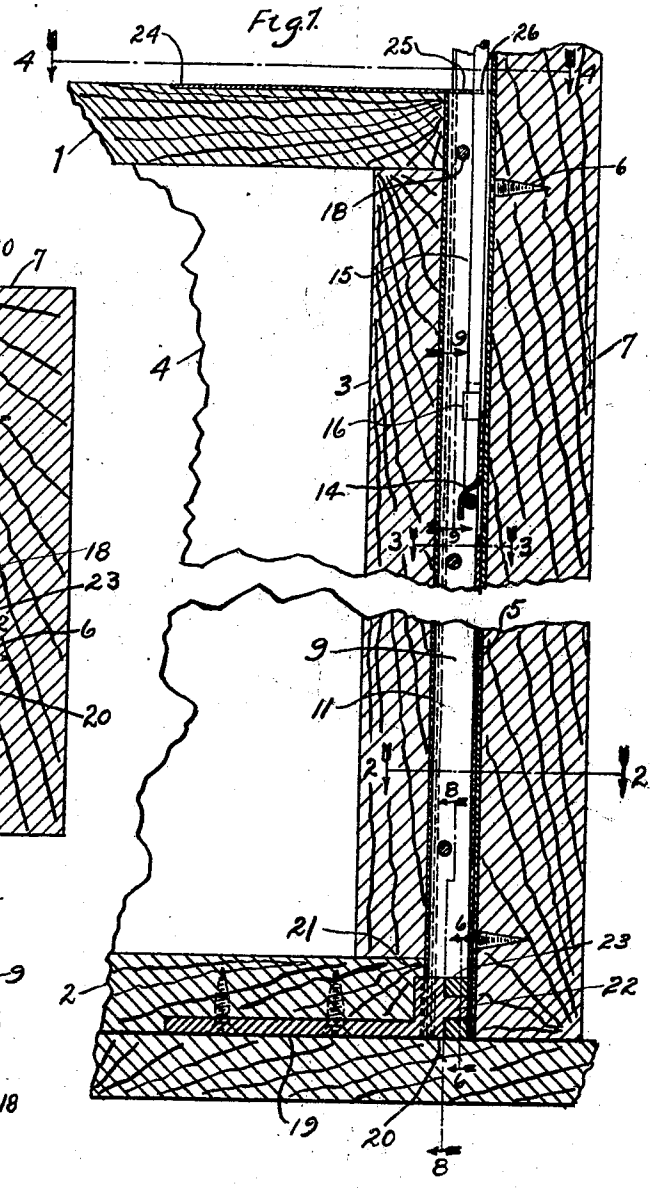


Fig. 2.

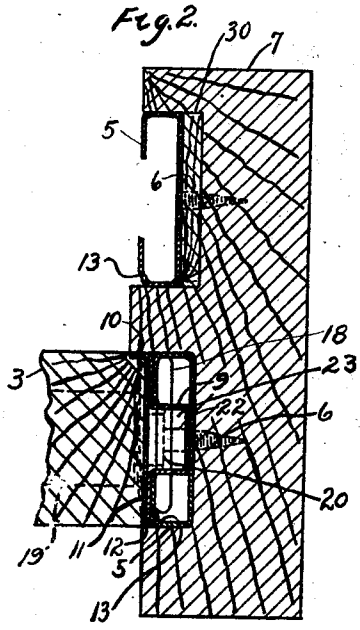
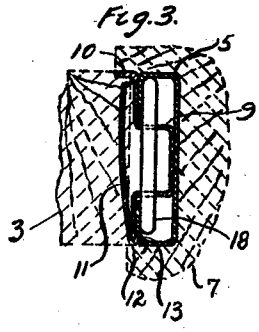


Fig. 3.



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Fig.4.

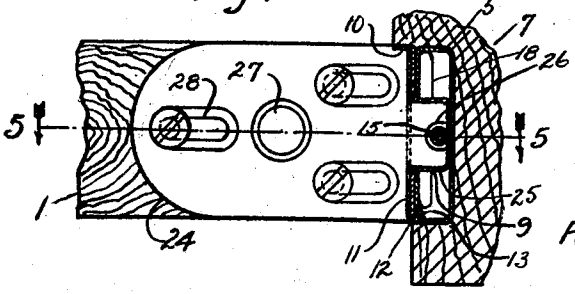


Fig.5.

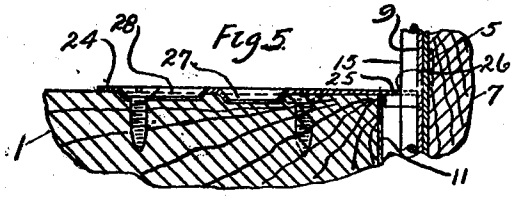


Fig.7.

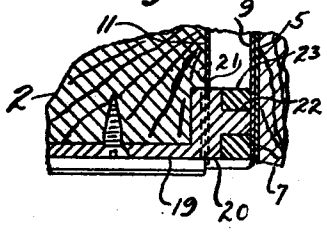
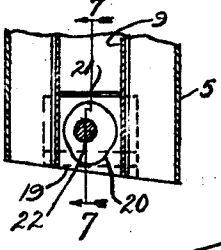


Fig.6.



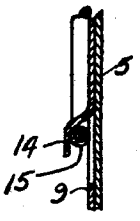


Fig.11.

Fig.10.

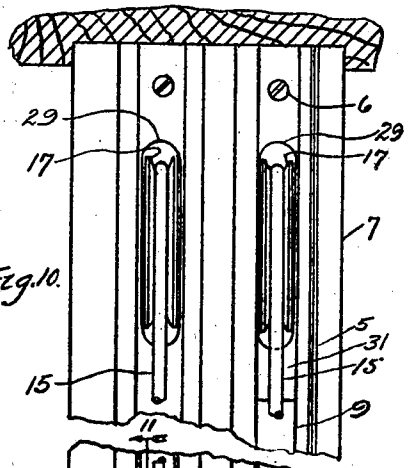


Fig.9.

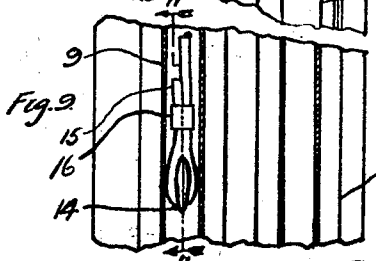


Fig.8.

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Patented Apr. 27, 1926. 1,582,618

UNITED STATES PATENT OFFICE.

HENRY NEVISON, OF LINCOLN PARK, MICHIGAN.

WINDOW.

Application filed June 25, 1925. Serial No. 39,489.

To all whom it may concern:

Be it known that I, HENRY NEVISON, a citizen of the United States, residing at Lincoln Park, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Windows, of which the following is a specification.

This invention relates to certain novel and useful improvements in window construction, and is designed particularly for use with sash adapted to slide vertically in their frames.

The objects of my invention are as follows: first, to provide for the swinging of the sashes to an approximately horizontal position within the room for cleaning; second, to provide a swinging window having a weather tight joint between the sash and its frame; third, to provide a swinging sash having non-rattling features; fourth, to provide a swinging window that is capable of being economically installed in the ordinary type of sash and frame with its sash cord and weights; and fifth, to provide for exceptionally easy sliding operation by reducing the friction of the sash within its frame.

I attain these objects by the mechanism illustrated in the accompanying drawing, in which—

Figure 1 is a vertical section of the window and sash in a plane parallel to and at the surface of the glass in the lower sash; Fig. 2, a horizontal section on the line 2—2, Fig. 2; Fig. 3, a horizontal section on the line 3—3, Fig. 1; Fig. 4, a horizontal section on the line 4—4, Fig. 1; Fig. 5, a vertical section on the line 5—5, Fig. 4; Fig. 6, a vertical section on line 6—6, Fig. 1; Fig. 7, a vertical section on line 7—7, Fig. 6; Fig. 8, a vertical section on line 8—8, Fig. 1, showing both sashes swung to a cleaning position; Fig. 9, a vertical section on line 9—9, Fig. 1; Fig. 10, a side view of the upper ends of the metal guides in the window casing; and Fig. 11, a vertical section on line 11—11, Fig. 9.

Similar numerals refer to similar parts throughout the several views.

The window sash shown in the drawings is of the ordinary type, having an upper cross member 1, a lower cross member 2, a vertical stile 3, and a glass pane 4. Metal shells 5, are fastened by screws 6 in the vertical grooves of the window casing 7. The metal shell 5 is formed with an open side toward the stile 3, the open side acting as a groove in which slides the metal shell 9. Metal shell 9 is formed with a flange 10 against which the stile 3 contacts when the window is swung to a closed position.

Weather strip 11 is formed from metal into a convex shape as shown in Fig. 3 and is fastened by folding the edge 12 around the inside edge of the metal shell 9. The corner 13 of the metal shell 5 is formed with a slight depression which allows the rounded edge 12 of the weather strip 11 to assemble snugly as shown. The rounded edge 12 allows the window to be easily swung from an open to a closed position without damaging the corner of the stile 3. The weather strip 11 and metal shell 9 extend for the full height of each stile and slide with the stile as the sash is operated up and down within the groove of metal shell 5. A hook 14 is formed by punching a hole in the wall of the metal shell 9 and pressing a portion of the metal into the shape as shown in Fig. 11. Sash cord 15 is looped around the hook 14 and the end of the sash cord is retained by clip 16. Thus the sliding of the window sash together with the metal shell 9 and weather strip 11 is facilitated by the ordinary sash cord 15, operating over pulleys 17, the sash cord 15 being attached to the usual sash cord weight which operates within the casing and which is not shown in the drawings. Also the sliding of the window sash is further facilitated by the action of the roller pins 18 which fit within holes in the walls of the sliding metal shell 9 and bear against the inside of the fixed metal shell 5. The roller pins 18 are rounded at their ends and are retained from end motion by the end walls of the metal shell 5.

In a groove at the bottom of the lower cross member 2, of each sash is fastened a bracket 19 having a cam 20, which extends through a hole 21 in weather strip 11 into the groove formed by the walls of sliding shell 9. When the window sash is in a vertical and sliding position, the cam 20 has its shortest length lying in a horizontal plane and its longest length in a vertical plane as shown in Fig. 6. In this position the shortest length fits, without binding, between the walls of the shell 9. When the window is swung into a reclining position for cleaning, as shown in Fig. 8, the longest length of the cam 20 moves through an angle of approxi-

mately 90° and then lies in a horizontal plane. The longest length of the cam 20 is made slightly greater than the distance between the walls of the metal shell 9 and thus binds or wedges itself into a fixed position which in turn locks the window in position for cleaning. The bracket 19 is further extended into a round pivot 22 which turns within the bearing block 23, the bearing block 23 being suitably fastened to the inner walls of the shell 9. The pivot 22 fitting within the bearing block 23 thus forms a swivelling connection between the lower cross member 2 of the window sash and the sliding metal shell 9. It is to be noted that the pivot 22 is eccentrically located toward the inside of the sliding sash. This allows the bottom of each sash to swing clear of the flange 10, when the sashes are swung to a cleaning position as shown in Fig. 8.

At the top of the upper cross member 1 of each sash is fastened a lock plate 24 which has a tongue 25 which fits between the walls of the sliding metal shell 9. The tongue 25 has a slot 26 through which operates the sash cord 15. The tongue not only operates as a lock to keep the window sash in a vertical sliding position but also forms a weather protection for the inside of the sliding metal shell 9. The lock plate 24 is preferably made of pressed metal with a finger hole 27 and elongated screw holes 28 which permit of sliding the lock plate 24 with its tongue 25 out of engagement with the sliding metal shell 9, thus allowing the window to swivel inward to a cleaning position.

It is to be noted that the fixed metal shells 5 extend for the full length of the casing and are made with a recess 29 which fits around the pulleys 17. Also the upper ends of the sliding metal shells 9 are made with a slot 31 which allows the metal shells 9 together with its sash to slide up to the top of the casing without interfering with the pulleys 17. In Fig. 10, the sliding metal shell 9 is shown at the upper end of its travel.

To allow the upper sash to be swung inwardly over the lower sash, as shown in Fig. 8, it is necessary to make the upper sash slightly narrower than its mating lower one. This necessitates moving the fixed metal shell 5, for the outer sash, in toward the center of the window sash to accommodate the narrower upper sash. This is economically accomplished by using a wood filler strip 30, as shown in Fig. 2, this in turn allowing the use of the same sized sliding shell 9 and fixed shell 5 for each sash.

To operate to a cleaning position, operator slides both sashes to the bottom of the casing, slides the lock plate 24 out of engagement with the sliding metal shell 9 and then the sash will swivel in bearing block 23 until it occupies a position as shown in Fig. 8, when it will be locked by the cam 20 within the sliding shell 9, from further vertical movement.

I claim:—

1. In a window, the combination of a casing having vertical grooves, a fixed metal shell suitably mounted within the said grooves, the said fixed metal shell being provided with a longitudinal opening in one of its walls, a metal plate slidably mounted against the said fixed metal shell and having a rectangular section adapted to receive and be fastened to a sash cord, and extending within the longitudinal opening in the said fixed metal shell, a trunnion block suitably mounted within the rectangular section of the said sliding metal plate at its lower end, a weather strip, suitably fastened to the inside edge of the said sliding metal plate, and being adapted to slide with it, a sash having a side stile adjacent the said weather strip and being adapted to slide with it, a locking plate slidably mounted at the top of the said sash, the said locking plate fitting within the rectangular section of the said sliding plate, and a trunnion bracket, suitably mounted at the bottom of the said sash, the said trunnion bracket having cam surfaces extending within the rectangular section of the said sliding metal plate and being further provided with an eccentric trunnion adjacent the cam surfaces, the eccentric trunnion being adapted to swivel in the trunnion block on the said sliding metal plate.

2. In a window, the combination of a sliding metal plate having a formed longitudinal groove adapted to receive and be fastened to a sash cord, a weather strip suitably mounted at the inside edge of and extending across the groove in the said sliding metal plate, a sash having a stile adjacent the said weather strip, a trunnion block suitably mounted within the longitudinal groove of the said sliding metal plate at its lower end, a bracket suitably mounted at the bottom of the sash, the said bracket having a cam section extending through the said weather strip into the longitudinal groove of the said sliding metal plate and an eccentric trunnion adapted to swivel in the said trunnion block within the longitudinal groove of the said sliding metal plate, the cam section of the said bracket having a normal horizontal length slightly less and a normal vertical length slightly greater than the horizontal width of the longitudinal groove in the said sliding metal plate, and means for locking the said sash in a vertical sliding position.

3. In a window, the combination of a casing having vertical grooves, a fixed metal shell suitably mounted within the said grooves, the said fixed metal shell being provided with a longitudinal opening in one of its walls, a metal plate slidably mounted against the said fixed metal shell and having a rectangular section, adapted to receive

and be fastened to a sash cord, and extending within the longitudinal opening in the fixed metal shell, rollers rotatably mounted within the walls of the rectangular section of said sliding metal plate, the said rollers engaging the inside walls of the said fixed metal shell, a weather strip suitably mounted at the inside edge of and extending across the groove in the said sliding metal plate, a sash having a stile adjacent the said weather strip, means for swinging the sash inwardly to an inclined position, and means for locking the sash in a vertical position.

4. In a window, the combination of a sliding metal plate having a formed longitudinal groove, adapted to receive and be fastened to a sash cord, a weather strip suitably mounted at the inside edge of and extending across the groove in the said sliding metal plate, a sash having a stile adjacent the said weather strip, a plate slidably mounted at the top of the said sash, the said plate being provided with an opening for a sash cord, and engaging the formed longitudinal groove in the said sliding metal plate, and means for swinging the sash to an inwardly inclined position.

5. In a window, the combination of a sliding metal plate having a formed longitudinal groove, adapted to receive and be fastened to a sash cord, a weather strip suitably mounted at the inside edge of and extending across the groove in the said sliding metal plate, a sash having a stile adjacent the said weather strip, a trunnion block suitably mounted within the longitudinal groove in the said sliding metal plate, a bracket, suitably mounted at the bottom of the said sash, and having a trunnion swivelling in the said trunnion block, the said bracket being further provided with a cam, the said cam extending through the said weather strip into the longitudinal groove in the said sliding metal plate and being adapted to engage the inside walls of the longitudinal groove in the said sliding metal plate when the sash is swung to an inwardly inclined position, the said engagement locking the sash in its inwardly inclined position, and means for locking the sash in a vertical position.

6. In a window, the combination of a casing having vertical grooves of a like depth, a fixed metal shell suitably mounted at the bottom of the inner groove, the said fixed metal shell being provided with a longitudinal opening in one of its walls, a spacer block mounted at the bottom of the outer groove, a fixed metal shell suitably mounted in the outer groove, adjacent the spacer block, the said fixed metal shell in the outer groove being identical in thickness with the said fixed metal shell in the inner groove, and being provided with a longitudinal opening in one of its walls, a metal plate slidably mounted against the said fixed metal shells and having a rectangular section adapted to receive and be fastened to a sash cord and extending within the longitudinal opening in the said fixed metal shells, a weather strip, suitably fastened to the inside edge of and extending across the groove in the said sliding metal plate, a sash having a side stile adjacent the said weather strip, means for swinging the said sash to an inwardly inclined position, and means for locking the said sash in a vertical sliding position.

7. In a window, the combination of a casing having vertical grooves, a fixed metal shell suitably mounted in and extending for the full length of the said grooves, the said fixed metal shell being provided with a longitudinal opening in one of its walls, a sash having side stiles, a metal plate slidably mounted against the said fixed metal shell and having a rectangular section adapted to receive and be fastened to a sash cord and extending within the longitudinal opening in the fixed metal shell, the said sliding metal plate extending for the full vertical length of the said sash, a weather strip suitably fastened to the inside edge of and extending across the groove in the said sliding plate, the said weather strip being adjacent the side stile of and extending for the vertical length of the said sash, means for swinging the said sash to an inwardly inclined position, and means for locking the said sash in a vertical sliding position.

HENRY NEVISON.