No. 616,484. Patented Dec. 27, 1898.

E. MYERS.

WINDOW.

(Application filed Aug. 23, 1897.)

(No Model.) 2 Sheets—Sheet 1.

Fig 1

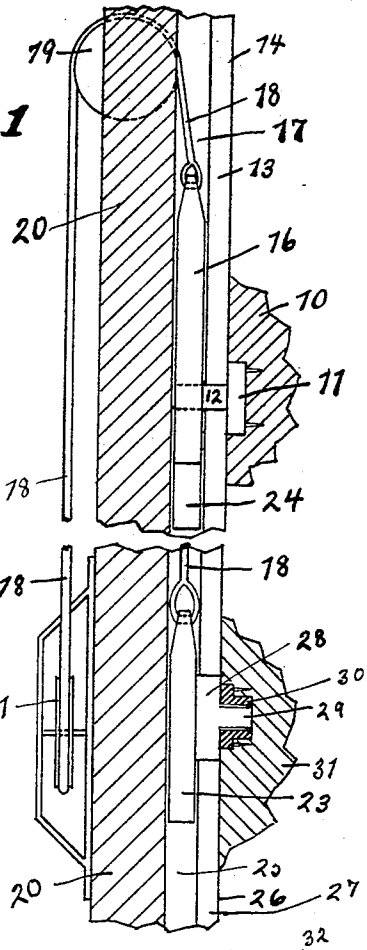


Fig 3

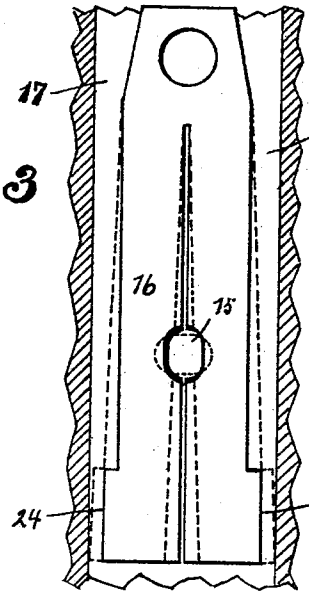


Fig 4

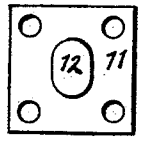


Fig 5

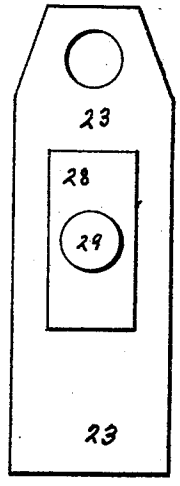


Fig 6

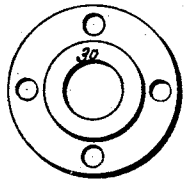


Fig 2

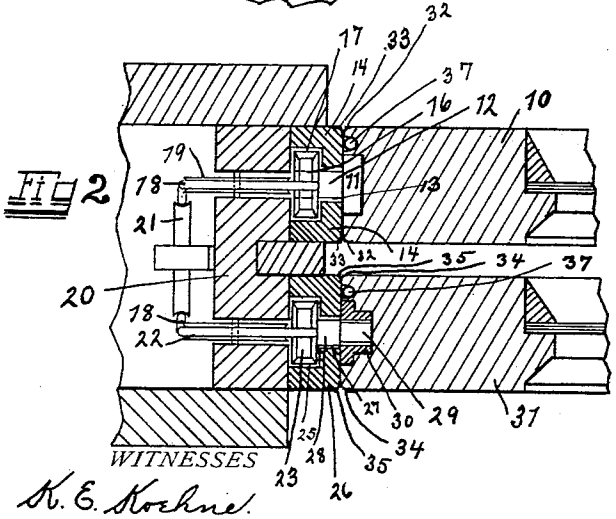
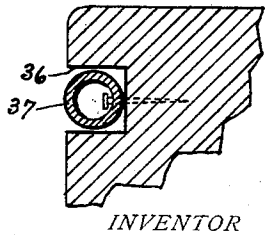


Fig 7.



WITNESSES

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(No Model.) 2 Sheets—Sheet 2.

Fig 8

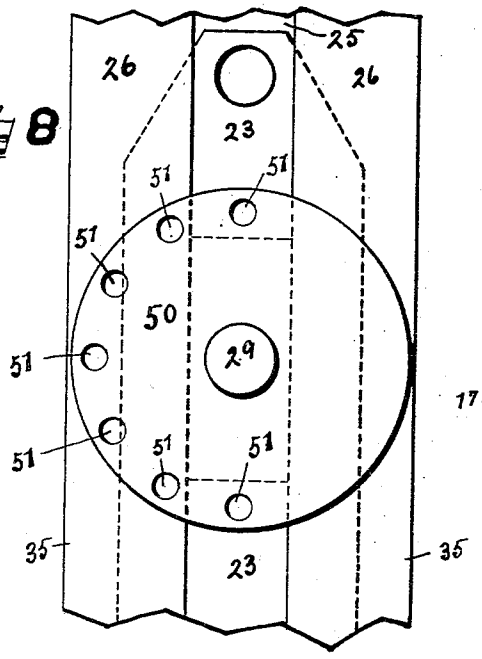


Fig 11

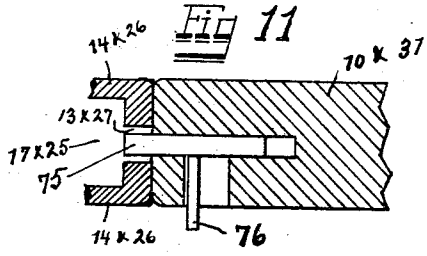


Fig 10

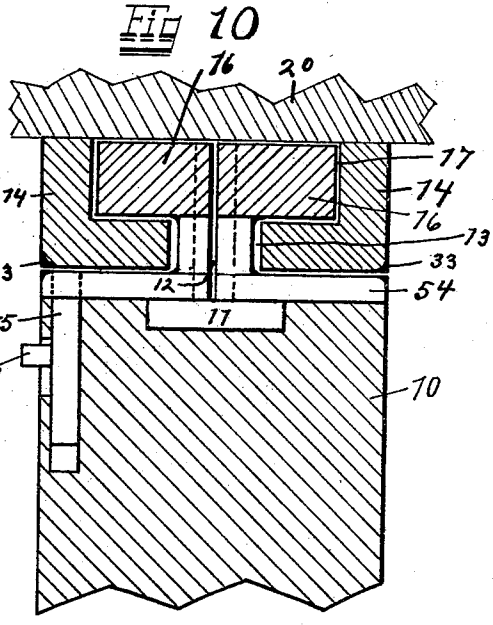
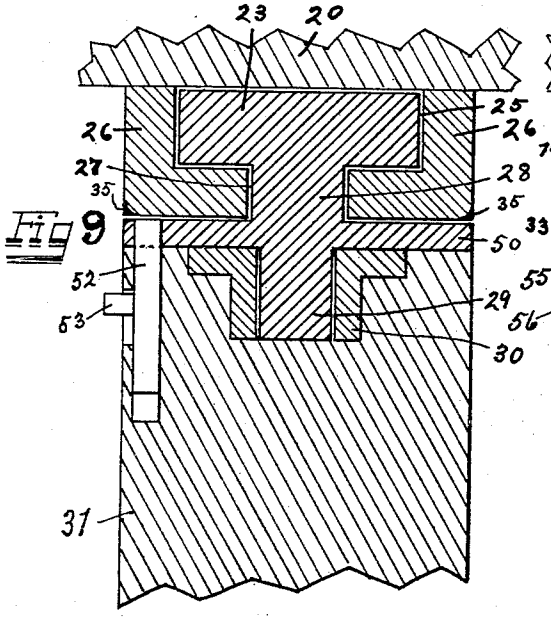


Fig 9



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UNITED STATES PATENT OFFICE.

ELMER MYERS, OF DAYTON, OHIO, ASSIGNOR OF ONE-HALF TO GERTRUDE DRIGGS, OF SAME PLACE.

WINDOW.

SPECIFICATION forming part of Letters Patent No. 616,484, dated December 27, 1898.

Application filed August 23, 1897. Serial No. 649,161. (No model.)

To all whom it may concern:

Be it known that I, ELMER MYERS, a citizen of the United States, residing at Dayton, Montgomery county, Ohio, have invented a new and useful Improvement in Windows; 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 make and use the same, reference being had to the accompanying drawings, forming a part of this invention.

My invention relates to improvements in window constructions, and it more particularly relates to such constructions wherein the windows or their sash are mounted to turn upon pivots for the purpose of more readily and scientifically regulating the draft and incidentally for more ready and convenient cleaning.

My invention consists in certain new constructions, arrangements, combinations, and modes of operation of the different parts, as will hereinafter more fully appear, and be specifically mentioned in the annexed claims.

The objects of my invention are attained in the present instance by the means illustrated in the accompanying drawings, in which—

Figure 1 is a sectional elevation of a portion of one side of the casing and sash constructed in accordance with my invention, the section-line passing through the pivots of the upper and lower sash. Fig. 2 is a sectional plan view of the parts shown in Fig. 1. Fig. 3 is a front elevation of one of the guides for the upper sash and showing a portion of the slot in which it slides. Fig. 4 is a front view of one of the elliptical trunnions or pivots projecting from opposite sides of the upper sash. Fig. 5 is a front view of one of the guides for the lower sash. Fig. 6 is a front view of one of the bearings inserted on opposite sides of the lower sash. Fig. 7 is a sectional plan view of a portion of the stiles and illustrating the preferred form of weather-strip. Fig. 8 is a front view of the locking-plate for the lower sash. Fig. 9 is a sectional plan view illustrating the locking mechanism for the lower sash. Fig. 10 is a sectional plan view of the locking mechanism for the upper sash. Fig. 11 is a sectional view of the lower portion of one of the stiles of the window-sash and showing the supplemental locking-bolt 75.

Like characters of reference are employed to designate corresponding parts throughout the several views.

In the drawings, 10 represents the stile or side frame of the upper sash, at about the center of which is inserted a plate 11, Figs. 1 and 4, suitably secured to the stile 10 by screws or other convenient means. Projecting over plate 11 is an elliptical pin 12, passing through vertical slot 13, Fig. 2, in oppositely-arranged strips 14. Said pin 12 engages in an elliptical opening 15, Fig. 3, formed in a bifurcated bar 16, slidably mounted in vertical slot 17, Figs. 2 and 3, formed in and toward the rear of said portions 14, said slot 17 connected with and being an enlargement of said slot 13. To the top of said bar 16 is connected a flexible cord 18, of woven fabric or metal, which cord 18 passes vertically upward in said slot 17 and over pulley 19 in the pulley-stile 20 of the window-casing. Said cord 19 then passes vertically downward on the inside of said pulley-stile 20 and over a pulley 21, Figs. 1 and 2, thence vertically upward to and over pulley 22, mounted on the opposite side of said pulley-stile 20. From pulley 22 said cord 18 passes vertically downward and connects with the guide 23 for the lower sash, as hereinafter specified. The lower bifurcated ends of bar 16 are provided with bearing-surface 24, adapted to engage the sides of slot 17 when said pin 12 is caused to turn in opening 15 of bar 16 by the turning of the upper sash upon its pivots 12. The engagement of said bearing-surfaces 24 of bar 16 with the sides of said slot 17 locks said bars 16 on opposite sides in their respective slots 17 and prevents the upper sash from assuming other than a horizontal position when the lower sash is also turned, as hereinafter specified.

The guides 23 for the lower sash are mounted on opposite sides in slots 25 in portions 26, being separated on their outer faces by a slot 27, through which projects a rectangular lug 28, integral with guides 23, Figs. 1, 2, and 5. Said projection 28 slides freely in slot 27 and is provided with a central projecting pivot portion 29, provided with bearing in thimble

30, secured to and embedded in the opposite stiles 31 of the lower sash.

The stiles 10 and 31, respectively, of the upper and lower sash are in bearing contact with the faces, respectively, of portions 14 and 26 on opposite sides, and the stile 10 is provided with rounded or beveled corners 32, and the portions 14 are provided with correspondingly-rounded outer corners, while the stile 31 is provided with rounded or beveled corners 34, and the portions 26 are provided with correspondingly rounded or beveled outer corners 35, Fig. 2.

Toward the outer or weather side the stiles 10 and 31, respectively, of the upper and lower sash are each provided with the vertical channel 36, Figs. 2 and 7, in which is secured a weather-strip 37, preferably formed of a hollow tube of flexible material, secured to the window-stile only at the inner edge of said tube.

The pulley 21, Figs. 1 and 2, is revolubly mounted in a frame separate from the pivotal support for the pulleys 19 and 22, said separate frame being rigidly secured below said pulleys and adjacent that portion of each pulley-stile 20 which is common with all window-casings, and is termed the "weight-pocket" or a "removable panel," said removable panel being located near the lower end of each pulley-stile and adapted to be removed when the lower sash is raised, as is well known. The axes of the pulleys 21 on opposite sides are substantially in line with the adjacent faces of said sash, while the grooved peripheries of said pulleys 21 are at right angles to and terminate substantially in line with the terminations of the grooved peripheries of the pulleys 19 and 22, so that said cord 18 runs substantially vertical between said pulleys. As said pulleys 21 are at a distance below the pulleys 19 and 22, said vertical portions of said cord 18 between said pulleys are about the length of the vertical movement of said sash, so that one portion of said cord passes only over pulley 19, a different and further portion of said cord passes only over said pulley 21, and a different and further portion of said cord passes only over said pulley 22, thereby preventing the passage of the same portion of said cord in reverse curves over said pulleys and distributing the usual wear throughout the length of said cord, all of which materially adds to the efficiency and durability of said cord.

It is apparent that when the pulleys 21 are mounted adjacent the usual weight-pocket or removable panel in each stile said pulleys and cords may be secured in position and my invention readily attached to window-casings that are already in position and use without disturbing or marring the casing.

From the foregoing description it is apparent that when the lower sash is raised the upper sash is correspondingly lowered, and that if it is desired to admit fresh air at the top only the upper sash can be turned more or less upon its pivots 12. Likewise if fresh air is desired to be admitted only at the bottom the lower sash can be turned more or less upon its bearings 30 for pivots 29. It will likewise be observed that since the upper and lower sash are connected with and counterbalance each other through said cord 18 one of the sash when turned is kept in a horizontal position by the other sash remaining unturned; but when both sash are turned they are both liable to be moved from the horizontal position unless the clamping-bar 16, with its eccentric pivot 12, is employed in opposite sides of one of the sash to lock the same in a horizontal position to the window-casing whenever said sash is turned. In order to lock the lower sash at any convenient turned position, I provide a plate 50, Figs. 8 and 9, adjacent to the stile 31 on one side of the lower sash and integral with the rectangular portion 28 of guide 23. Said plate is provided with a series of openings 51, arranged in the arc of a circle concentric with the pivot 29. The sash 31 is provided with a laterally-sliding bolt 52, having an operating projection 53 for moving said bolt 52 into one of said openings 51 in said plate 50 for the purpose of locking the lower sash at any convenient turned position, as heretofore specified.

In order to lock the upper sash in any of its convenient turned positions, I provide a bifurcated plate 54, secured to the opposite members of said bar 16 by projections passing through the said slot 13, Fig. 10, said plate 54 being provided with a series of openings similar to said plate 50 and adapted to receive a bolt 55 with operating projection 56 for locking said upper sash at predetermined turned positions, as heretofore specified for the lower sash 31.

Plates 50 and 54 are provided with recesses in the stiles of the window-sash, and said plates are formed round for the purpose of conveniently forming said recesses and for turning the windows in desirable positions.

It is obvious that the upper and lower sash may, if desirable, be supported and counterbalanced by the usual weights.

In Fig. 11 is illustrated a bolt 75, having operating projection 76 and embedded in each of the sash near their lower ends or as far away from the pivot-points of the sash as convenient. This bolt 65 is adapted to be thrown into engagement with the window-casing or with slots 13 or 27 as a lock to prevent the turning of the window-sash from the outside when the window is closed, while the bolts engaging with lock-plates 50 and 54, Figs. 9 and 10, are for the purpose of locking the windows in a turned and opened position and prevent them from being further turned from the outside.

Having now so fully described my invention that others skilled in the art may be able to freely make and use the same when the exclusive grant shall cease to operate, what I

claim, and desire to secure by Letters Patent, is—

1. In a window, the combination of a casing having oppositely-located pulley-stiles; an upper and a lower sash sliding between said pulley-stiles in different planes; pulleys, 19 and 22, mounted near the top of each pulley-stile in substantially the same plane; a pulley, 21, revolubly mounted in a frame separate from the pivotal support of said pulleys, 19 and 22, and secured near the lower end of each stile, the axes of said pulleys, 21, being substantially in line with the adjacent edges of said sash; a separate cord passing over said pulleys in each stile, the ends of each cord being respectively secured to the upper and lower sash; whereby said pulleys are adapted to engage different portions of said cords; substantially as specified.

2. In a window, the combination with the upper and lower sash and the casing therefor, of a subcasing arranged intermediate each sash and the casing, said subcasing extending substantially the length of said casing and being formed of separated stationary strips secured to and projecting beyond any other part of said casing; beveled corners for the vertical exterior edges of said stationary strips and said sash; a pivot in the slot between said strips and connected with said sash on opposite sides; and a cord in said slot on opposite sides and connecting with said pivot and running over a pulley in the pulley-stile; substantially as specified.

3. In a window, the combination with the sash and casing; of separated stationary portions intermediate the sash and casing, which portions project beyond said casing; an enlarged slot in the edges of said portions adjacent each pulley-stile of the casing; pivots projecting from said enlarged slots; bearings in opposite sides of said sash for said pivots; a pulley in each pulley-stile of the casing; and cords in said enlarged slots and connecting with said pivots and running over said pulleys, substantially as specified.

4. In a window, the combination with the sash and casing, of portions 26 intermediate said casing and sash, slots 25 and 27 in said portions 26, a guide 23 in said slot 25, a pivot 29 projecting from guide 23 through slot 27 and provided with a bearing in thimble 30 attached to the sash, a pulley in the pulley-stile of the casing, and a cord running over said pulley and connected with said guide 23, substantially as specified.

5. In a window, the combination with the sash and casing, and a pulley in the pulley-stile of the casing, of portions 26 between said casing and sash, slots 25 and 27 in said portions 26, a guide 23 sliding vertically in slot 25, a rectangular projection 28 of guide 23 sliding vertically in slot 27, a pivot 29 projecting from portion 28 and provided with a bearing in thimble 30 secured to the sash, and a cord running over said pulley and connected with said guide 23 for counterbalancing said sash, substantially as specified.

6. In a window, the combination with the sash, the casing therefor, and pulleys in the pulley-stile of the casing, of portions 26 intermediate the casing and sash on opposite sides, slots 25 and 27 on opposite sides, in portions 26, a guide 23 in each slot 25, a pivot passing through slot 27 and pivoting the sash to said guide 23, a cord running over said pulleys and connecting with guides 23, beveled corners 34 upon the sash, and round corners 35 upon the outer corners of the portions 26, substantially as specified.

7. In a window, the combination of the casing, one or more vertically-moving sash in said casing, stationary projections on opposite sides of said casing for meeting said sash, one or more movable members at each side of said casing; pivots connecting opposite sides of said sash with said movable members, said pivots connecting with said sash intermediate the ends of said sash; a slot in and near the weather edge of each stile of the sash, and a tubular weather-strip secured only at one edge to the bottom of said slot and adapted to contact with said stationary projections, substantially as specified.

8. In a window the combination with a sash and the window-casing, of a bar on opposite sides of said sash, a pivoted connection between said bar and sash, and means actuated by the turning of said sash upon its pivots for locking said bar in any position to said casing, substantially as specified.

9. In a window, the combination with a sash, a casing for the window, and pulleys in the pulley-stiles of the casing, a bar intermediate the casing and sash and sliding with said sash upon opposite sides, cords connecting with said bars and running over said pulleys and adapted to counterbalance said sash, a pivoted connection between said sash and bars, and means for clamping said bars to the casing at any point throughout the movement of said bars and upon the turning of the sash upon its pivot, whereby when said sash is turned said pivotal connections are maintained in alinement, substantially as specified.

10. In a window, the combination with a sash, a casing for the window, and pulleys in the pulley-stiles of said casing, of bars sliding in vertical slots in the casing and on opposite sides of said sash, an eccentric pivot 12 projecting from opposite sides of the sash, an eccentric bearing 15 in each of said bars for said pivot 12, each of said bars being bifurcated through their bearings 15 and provided with bearings 24 on opposite sides adapted to lock said bars in their vertical slots in the casing when eccentric pivots 12 turn in their bearings 15 upon the turning of the sash, substantially as specified.

11. In a window the combination with the upper and lower sash, the casing therefor, of separated stationary strips projecting from

said casing on opposite sides of each sash, bars 16 intermediate said strips and on opposite sides of the upper sash, a pivoted connection between said upper sash and bars 16, a guide 23 intermediate said stationary strips on opposite sides of the lower sash, a pivoted connection between said guides 23 and said lower sash, and cords 18 passing over oppositely-located pulleys 19 and 22 in the top of said casing and pulley 22 within and near the bottom of said casing on opposite sides, said cords connecting the bars 16 on opposite sides with the guides 23, substantially as specified.

12. In a window the combination with the upper and lower sash, the casing therefor, of bars 16 on opposite sides of the upper sash, a pivoted connection between said sash and bars, a guide 23 on opposite sides of the lower sash, a pivoted connection between said guides 23 and said lower sash, a cord 18 connecting the bars 16 with the guides 23 and adapted to counterbalance one sash with the other sash, and means actuated by the turning of one of said sash upon its pivots for locking the bars of said one sash in any position to the casing, whereby the pivots of either or both said upper and lower sash when turned are maintained in alinement at right angles to the sides of said casing, substantially as specified.

13. In a window, the combination with the sash and the casing, of a slot in said casing on opposite sides of said sash, a guide sliding in each of said slots, pivots intermediate said sash and guides on opposite sides and supporting said sash intermediate its ends, and a bolt 75 mounted on the inner side of the sash below said pivot and adapted to engage said slot in the casing to prevent said window-sash when closed from being opened from the outside, substantially as specified.

14. In a window the combination with the sash and casing, of a slotted subcasing projecting from opposite sides of said casing to meet said sash, a vertically-sliding guide in the slots in said subcasing, pivots intermediate said sash and guides, a locking-plate projecting beyond said subcasing, a projection passing through the slot in said subcasing, and rigidly connecting said locking-plate and guide, a recess in said sash for said locking-plate, and a bolt 52 mounted on the inner side of said sash and adapted to engage said locking-plate to lock said sash in turned positions, substantially as specified.

15. In a window, the combination of a sash, a flat stationary casing against which said sash is adapted to slide, a pivot projecting from opposite vertical sides of said sash, a narrow slot in the opposite vertical sides of said casing for said pivots, an enlarged slot at the bottom of and parallel with each of said narrow slots, a guide adapted to slide in each of said enlarged slots, said pivot being secured to or bearing in said guides, a pulley mounted in said casing adjacent one wall of each of said enlarged slots, and sash-counterbalancing cords passing over said pulleys and connected to said guides; whereby the sash-guide and counterbalance-cord are inclosed; substantially as specified.

ELMER MYERS.

Witnesses:
H. M. WALSH,
E. L. ACTON.