No. 806,241. PATENTED DEC. 5, 1905.

M. J. DALY & T. S. LEAKE.

WINDOW SASH.

APPLICATION FILED SEPT. 6, 1904. RENEWED OCT. 30, 1905.

3 SHEETS—SHEET 1.

Fig. 1.

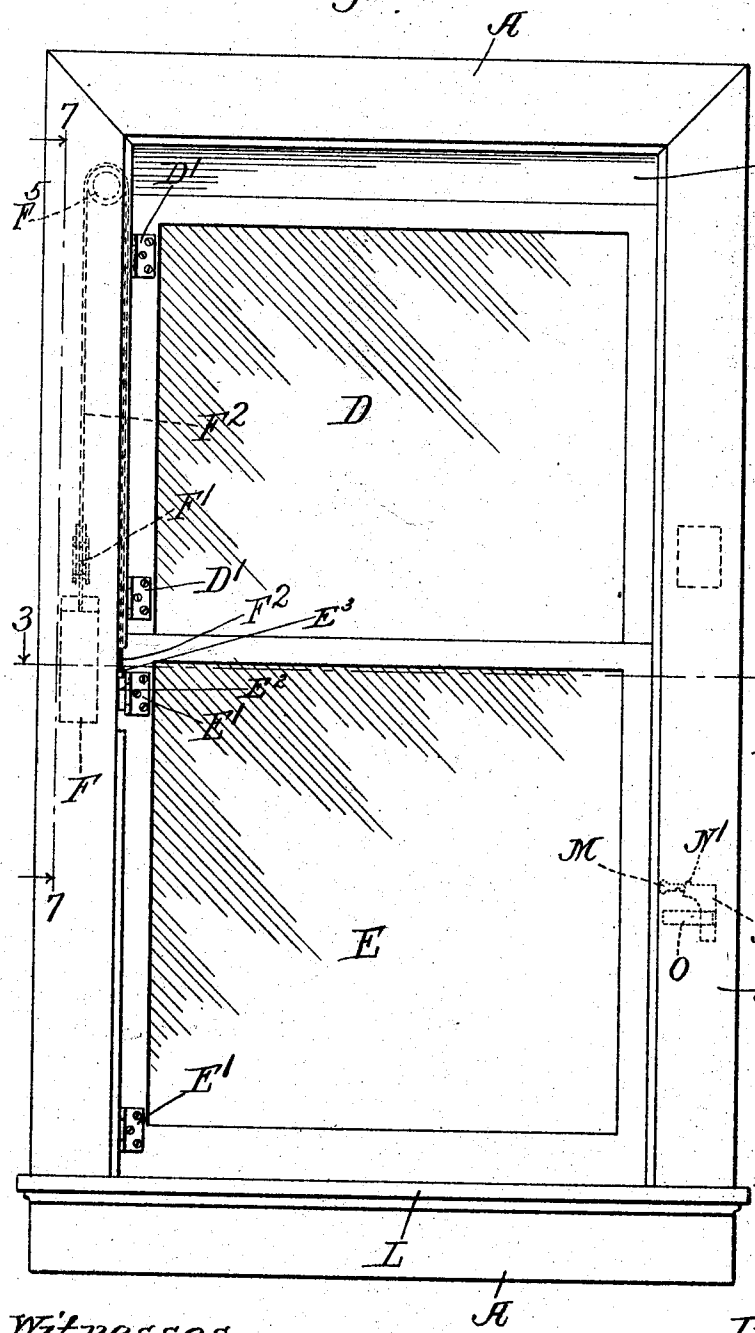
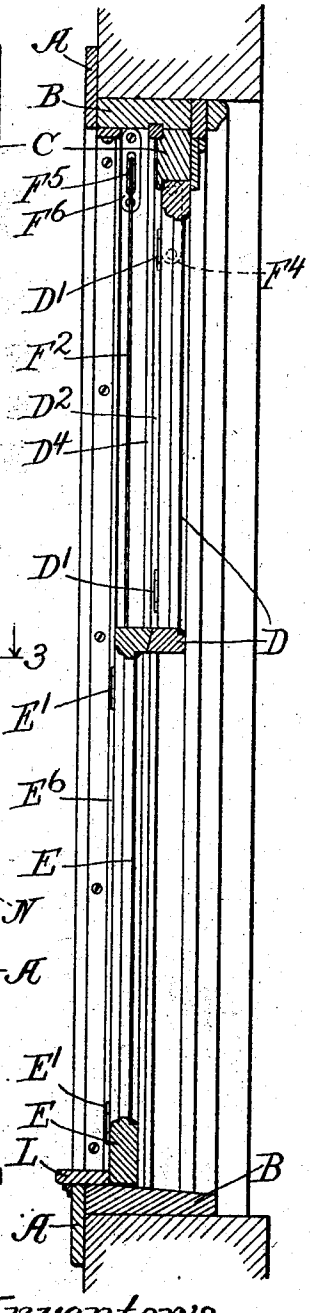



Fig. 2.

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3 SHEETS—SHEET 2.

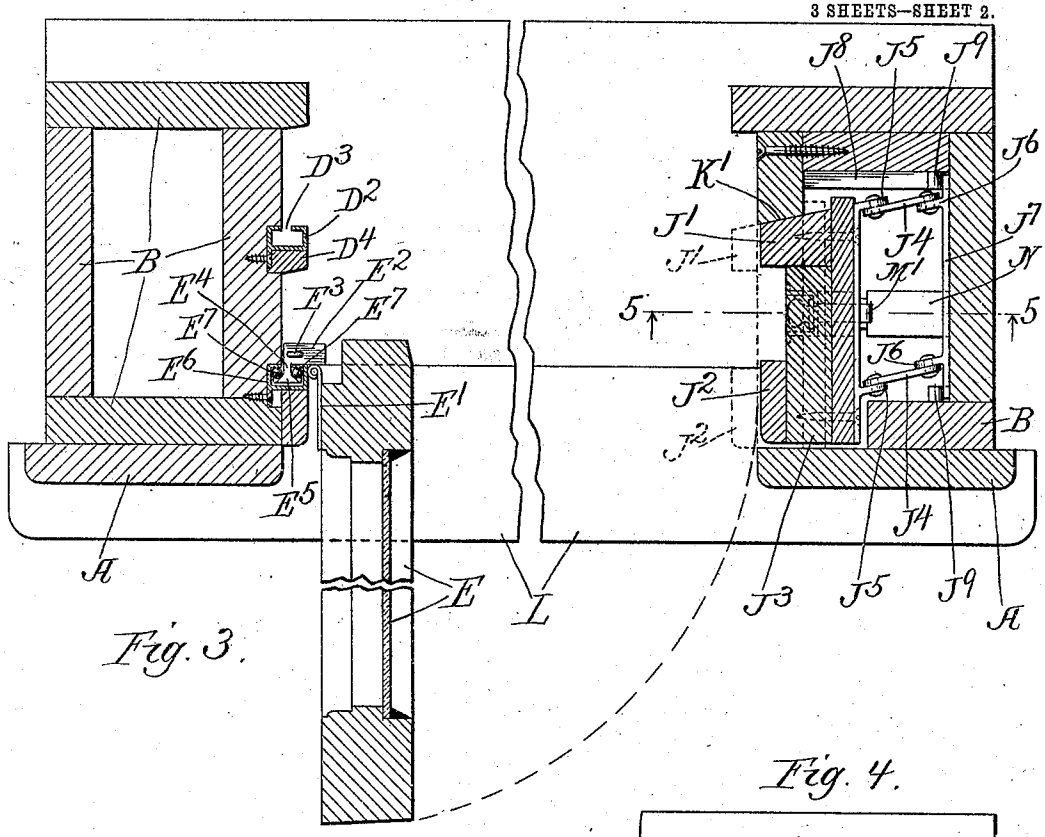



Fig. 3.

Fig. 4.

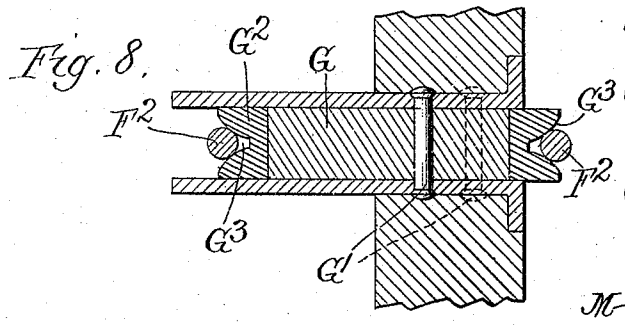
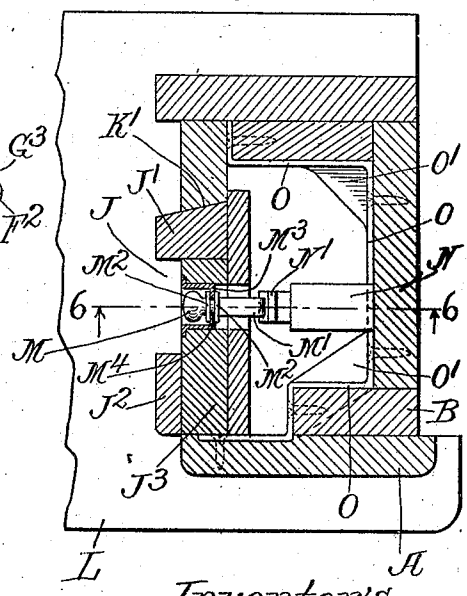



Fig. 8.

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3 SHEETS—SHEET 3.

Fig. 7.

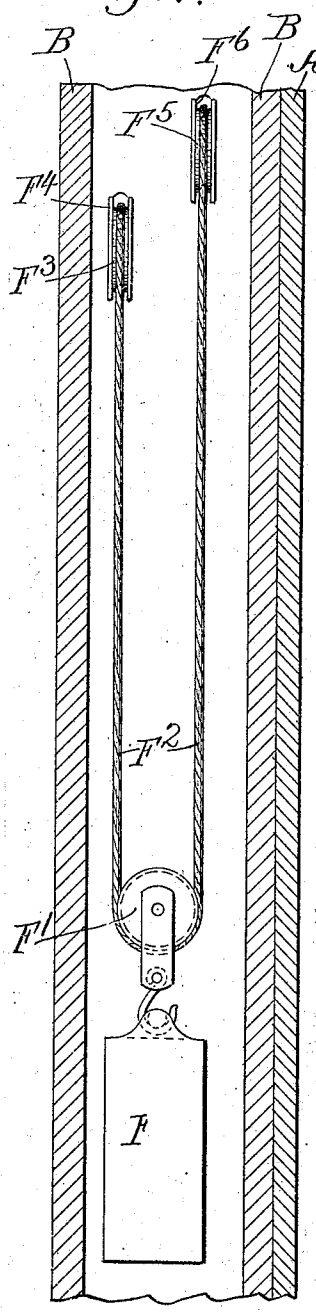



Fig. 5.

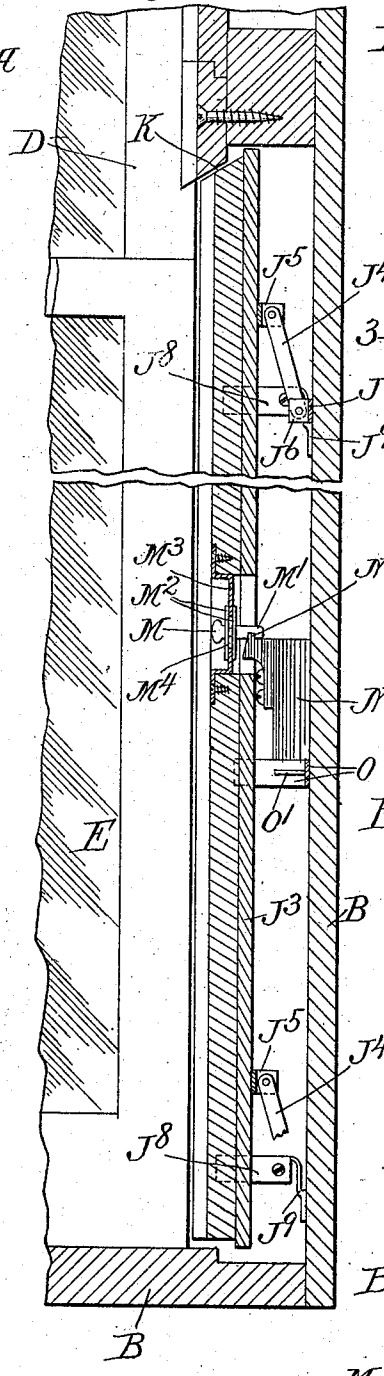
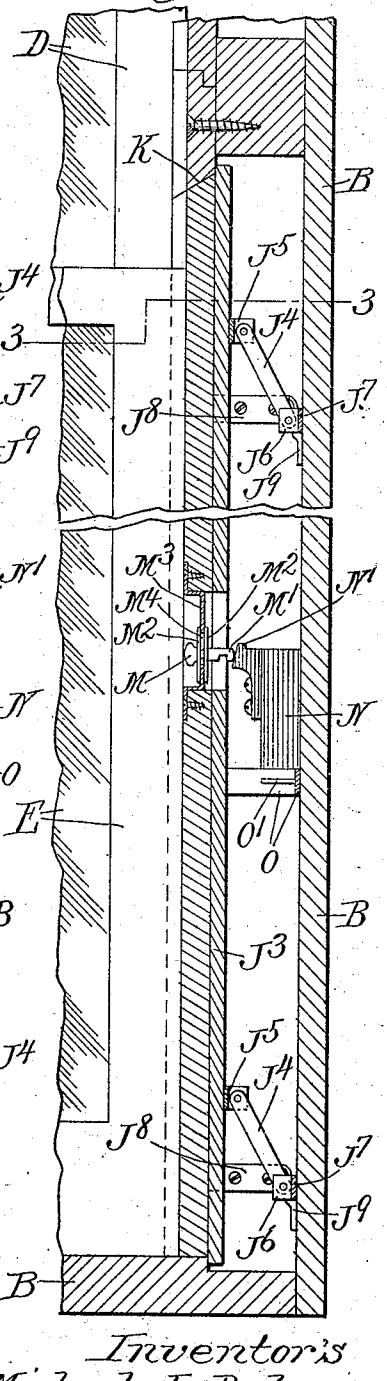



Fig. 6.

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# UNITED STATES PATENT OFFICE.

MICHAEL J. DALY AND THOMAS S. LEAKE, OF CHICAGO, ILLINOIS.

## WINDOW-SASH.

No. 806,241. Specification of Letters Patent. Patented Dec. 5, 1905.

Application filed September 6, 1904. Renewed October 30, 1905. Serial No. 285,022.

*To all whom it may concern:*

Be it known that we, MICHAEL J. DALY and THOMAS S. LEAKE, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Window-Sashes, of which the following is a specification.

Our invention relates to windows, and has for its object to provide certain new and useful improvements hereinafter more fully described.

Figure 1 is a front elevation of a window containing our invention with parts illustrated in dotted lines. Fig. 2 is a vertical section. Fig. 3 is a cross-section on the line 3 3 of Figs. 1 and 6. Fig. 4 is a cross-section of the latch not in use. Fig. 5 is a vertical section on the line 5 5 of Fig. 3. Fig. 6 is a vertical section on the line 6 6 of Fig. 4. Fig. 7 is a detail of the pulley-and-weight device, and Fig. 8 is a detail of the pulley.

Like parts are indicated by the same letter in all the figures.

A A are the parts of the window-casing, of any desired size and form, associated with the window-casing portions B B, the whole adapted to form a window frame or casing of substantially the ordinary form and style. To work out our invention satisfactorily, the upper window-sash should be shorter than the lower. This may be accomplished in some cases by putting the extension-piece C in the upper frame.

D is the upper window and sash. D′ D′ are hinges whereby this upper window-sash is hinged to a piece which slides in the hollow vertical piece $D^2$, which is slotted at $D^3$ and associated with the parting-rail piece $D^4$.

E is the lower window and sash, provided with the hinges E′ E′, whereby it is hinged to a vertically-sliding piece $E^2$, provided with an upper hook $E^3$ and a neck $E^4$ and an inner enlargement $E^5$, adapted to travel in the hollow vertical piece $E^6$. $E^7$ $E^7$ are roller-bearings which are arranged in this hollow vertical piece on both sides of the neck and enlargement $E^4$ and $E^5$, so that the hinged piece will freely travel vertically without binding or cramping. The hinge D′ is in like manner associated with a like part which travels in a vertical hollow piece $D^2$.

F is a weight suspended from the pulley F′, around which travels the cord or chain $F^2$. One end of this cord or chain travels about the pulley $F^3$ on the case $F^4$, which is attached to the window-casing, and the other end of the cord or chain $F^2$ travels over the pulley $F^5$, which is attached to the frame $F^6$, which is in turn secured to the wood casing. The extremity of one end of the cord or chain is attached to the hook $E^3$, as shown in Fig. 1, and the other extremity of the cord or chain to a corresponding hook on the corresponding vertical sliding piece, to which is hinged the upper window. The attachment of the chain or cord to the vertical piece upon which the upper sash is hinged is precisely the same as in the case of the lower sash, as shown in Fig. 1. Thus either of the windows can be moved up or down and both are held in their predetermined positions by the action of one and the same weight. The pulley may be of a special pattern, which we will now describe. It may consist of a central block G, attached to its case in a fixed position by means of the rivets G′ G′ and provided with an outer rotating frictional rim $G^2$, which may be grooved, as at $G^3$, and in which travels the cord $F^2$, or it may be provided with a sprocket for a chain, if desired. Thus, as previously suggested, either of the windows can be moved up or down to any desired extent. The side of the window-casing opposite the side where the windows are hinged is provided with laterally-movable parts, which we will now describe.

Referring to Fig. 4, the lower window will travel in the groove J, formed between the pieces J′ and $J^2$, which are supported on the back plate $J^3$. This back plate $J^3$ is connected to the fixed portion of the casing B by the pivoted links $J^4$ $J^4$, each of which is pivoted at its upper end to the projection $J^5$ on the back plate $J^3$ and at its lower end to a projection $J^6$ on a cross-bar $J^7$, which is moved into position along the guide $J^8$ and then dropped back of the holding-pieces $J^9$ $J^9$,

which are outwardly curved at their upper ends away from and secured at their lower ends to the casing part B. The moving parts are undercut, as indicated at K and K′, so as to permit the parts J′ and J² to retreat when these parts are pushed back in the position indicated.

In Fig. 3 it is obvious that the lower sash can be swung inwardly, as indicated in that figure. It can be raised slightly, so as to escape the lower sill L, and may then be turned inwardly. In order to move these parts J′ and J² backwardly, however, the window must be first raised until the latch is uncovered. The latch consists of the part M, having the inner hook M′ and associated with the guide-plates M² M², one on each side of the plate M³. The part M passes through the slot M⁴, so that it can be raised. N is a fixed block on the part B, provided with a hook N′. By raising the latch-piece M in its slot and then pushing it, together with the parts J′ and J², inwardly the latch M will engage the hook N′ and the parts will be locked in the position indicated in Fig. 5. The lower sash may now be moved down and swung inwardly, as indicated in Fig. 3. It may then be washed. It can also be run upwardly out of the way, and the upper sash can be lowered and also swung inwardly. In a case where the sashes are of such length and so mounted that the upper sash cannot be drawn down below the lower edge of the raised lower sash then the upper sash can, nevertheless, be swung inwardly until it engages the lower portion of the raised lower sash, and this will give sufficient opportunity for washing it, &c.

O is a trough-like sheet-metal plate with the corner-ribs O′, and it serves to support the non-moving parts.

Of course these parts may be greatly altered, and we do not wish to be understood as giving exact proportions or relations of construction. The parts may be greatly modified in their several relations, form, size, and proportion.

The use and operation of our invention are as follows: When the window is closed, the parts are in the positions indicated in Fig. 1. Obviously either the upper or the lower sash can be moved up or down to any desired position, the single weight controlling both. When the person in charge desires to clean the windows, he will raise the lower window until the latch is exposed. He will then push the latch up and push it, with the strips J and J² and their associated parts, into the position shown in Fig. 3, whereupon the latch will engage the hook N′ and the parts will be locked in this position. The upper sash can now be lowered and swung into the room, as indicated in Fig. 3, for cleaning, painting, or repairing, as the case may be. The sash can then be pushed upwardly while in its inwardly-swung position and the upper sash can be moved downwardly until it is below the lower sash.

We claim—

1. In a window, the combination of a window-sash with a vertically-movable piece on which it is hinged and antifriction-balls between the vertically-movable part and the piece in which it moves such sash grooved so as to inclose the vertical movable piece.

2. In a window, the combination of a hollow vertical piece with a vertically-movable part, and a window-sash hinged to said vertically-movable part, and antifriction-balls in the hollow part such sash grooved so as to inclose the vertical movable piece.

3. In a window, the combination of a hollow vertical piece with a slot in one side, a vertically-movable portion having a narrow neck to pass through the slot, and a larger portion to lie in the hollow, and a window hinged to the vertically-movable portion, and antifrictional balls in the hollow of the vertical part such sash grooved so as to inclose the vertical movable piece.

4. In a window, the combination of a window-frame with an inwardly-moving side section which permits the window-sash to swing inwardly at such side, said inwardly-moving portion supported on pivoted links secured to a stationary part of the window-frame and a latch device to hold the side section to the window-frame.

5. In a window, the combination of a window-frame with an inwardly-moving side section which permits the window-sash to swing inwardly at such side, said inwardly-moving portion supported on angularly-placed pivoted links secured to a stationary part of the window-frame and a latch device to hold the side section to the window-frame.

6. In a window, the combination of a window-frame with an inwardly-moving side section which permits the window-sash to swing inwardly at such side, said inwardly-moving portion supported on pivoted links, and a latch engaging with the stationary part of the window-frame adapted to hold the parts in their inner position.

7. In a window, the combination of a window-frame with an inwardly-moving side section which permits the window-sash to swing inwardly at such side, said inwardly-moving portion supported on angularly-placed pivoted links, and a latch engaging with the stationary part of the window-frame adapted to hold the parts in their inner position.

8. In a window, the combination of a window-frame with an inwardly-moving side section which permits the window-sash to

swing inwardly at such side, such inwardly-moving portion supported on pivoted links removably secured to a stationary part of the window-frame.

9. In a window, the combination of a window-frame with an inwardly-moving side section which permits the window-sash to swing inwardly at such side, such inwardly-moving portion supported on pivoted links, and holding-pieces on a stationary part of the window-frame for removably supporting the links, said holding-pieces provided with curved guiding portions.

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