Dec. 7, 1926. 1,610,084

J. M. FROWENFELD

WINDOW SASH OPERATING DEVICE

Filed August 15, 1923

Fig. 1.

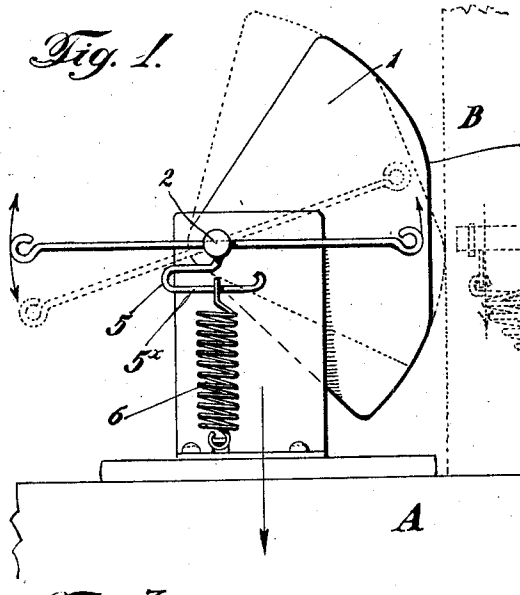


Fig. 2.

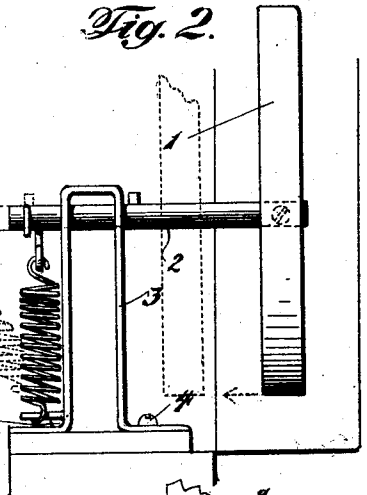
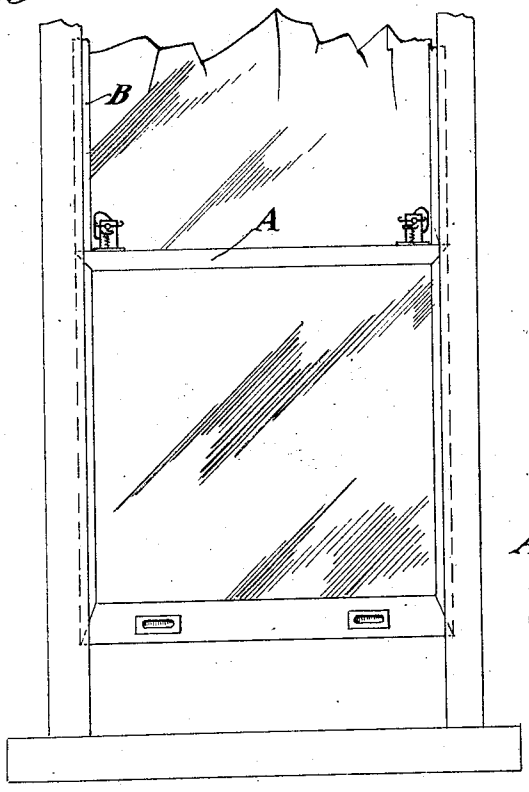


Fig. 3.



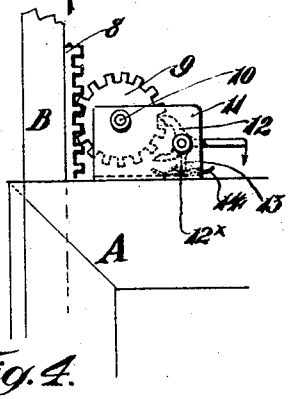


Fig. 4.

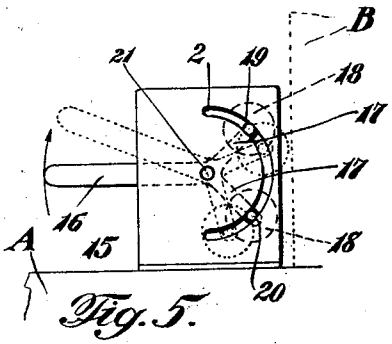


Fig. 5.

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UNITED STATES PATENT OFFICE.

JAMES M. FROWENFELD, OF NEW YORK, N. Y.

WINDOW-SASH-OPERATING DEVICE.

Application filed August 15, 1923. Serial No. 657,504.

The primary object of my invention is to provide means whereby the upper sash may be lowered or raised by movements of the lower sash.

The invention will be understood by reference to the accompanying drawings, in which—

Fig. 1 is a side elevation of an embodiment of the invention, its action being illustrated by dotted lines, and

Fig. 2 is an end elevation of the same.

Fig. 3 is a front elevation of upper and lower window sashes having an embodiment of the invention applied thereto.

Figs. 4 and 5 illustrate on side elevation, certain modifications of the device.

The characteristic of my device is that when set for a given operation, say for lowering the upper sash, the lower sash is freely movable to the desired position whereupon a reverse movement of the lower sash will carry downward the upper sash. It is desirable that the device be duplicated at each side of the window sash as shown in Fig. 3 to provide balance so as to prevent jamming.

Each device is preferably constructed in accordance with Figs. 1 and 2. By reference to those figures it will be seen that the member caried by the lower sash and which engages the upper sash to operate the same consists of a cam 1 carried at the end of a shaft 2 which in turn is supported within the bearing apertures of a bracket 3 secured by screws 4 to the top of the lower sash.

To shaft 2 at its end opposite cam 1 is secured, transversely, a bent rod 5, having a normally horizontal section 5^x, forming a lever, the ends of which project substantially beyond each side of the axis of the shaft. One end of a spring 6 is looped over upon horizontal lever 5^x, the opposite end of the spring being secured to bracket 3 at a point in a vertical line extending through the axis of shaft 2. Thus when lever 5^x is placed in horizontal position, the spring will serve to maintain it in that position.

The cam 1 is so formed that when lever 5^x is in horizontal position the edge of the cam will lie out of contact with the upper sash and both sashes may be independently operated.

To simultaneously change the position of lever 5^x and the cam, I have provided an operating arm 6 which passes through the shaft 2 and extends at each side thereof, being formed with an eye at each end to receive a cord for convenient manual operation.

When the left-hand end of operating rod 6 is pulled downwardly, lever 5^x will be so inclined that the looped end of spring will lie in position to hold the shaft 2 and cam 1 in the dotted line position, Fig. 1. In that dotted line position a downward movement of lower sash A will so act upon cam 1 as to force it against upper sash B and therefore sash B will be carried downwardly. However, a reverse movement of the lower sash will release the cam from the upper sash and the lower sash may freely be moved upwardly a certain distance and then lowered so that the upper sash is carried downwardly the required distance.

When it is desired to raise the upper sash the right hand end of operating rod 6 is pulled downwardly until point *a* of the cam rests upon the upper sash whereupon upward movement of the lower sash will impart corresponding movement to the upper sash, and downward movement of the lower sash, will release the cam and be inactive upon the upper sash.

Fig. 4 illustrates a modification, a rack 8 being provided on the upper sash and a rack wheel 9 on the lower sash, the wheel being journaled at 10 in a bracket 11. On bracket 11 is pivoted a latch having two arms 12, 12^x and a pintle 13 adapted to be engaged by a friction-spring 14. The inner ends of arms 12, 12^x, are sharply beveled. When arm 12 is thrown into contact with the teeth of the rack wheel, its beveled face will permit free rotation of the rack wheel in one direction, while the wheel is held by the arm against rotation in the opposite direction. With the parts in the position shown in Figure 4 lower sash A may be moved upwardly without effect upon the upper sash. When moved downwardly, however, the lower sash will carry the upper sash downwardly.

In Fig. 5 the modification is similar in principle to the embodiment illustrated in Fig. 1. On a bracket 15 is pivoted a lever 16 having arms 17, each of which controls a friction wheel 18 the one wheel on a shaft 19 and the second wheel on a shaft 20, the said shafts projecting through a circular slot 21 formed in a side wall of the bracket. The arrangement is such that when arm 16 is moved upwardly to the dotted line position, Fig. 5, upward movement of the lower sash will impart similar movement to the

upper sash, while downward movement of the lower sash, will have no effect upon the upper sash. When arm 16 is moved downwardly from its full line position in Fig. 5 the operation is reverse in effect.

In the device illustrated in Fig. 5 the shaft 21 to which lever 16 is fixed may have applied thereto a spring and connections for holding the lever in active or inactive position, a desirable form of such spring and connections being illustrated in Fig. 1.

Referring to Fig. 1, it will be noted that shaft 2 has secured thereto a pin 2^x which, when the cam 1 is in neutral position (Fig. 1) is in register with aperture 3^x formed in the bracket 3. This permits transverse movement of the cam and endwise movement of the shaft to the dotted line position, so that the two sash may be moved past one another and in reverse positions, which is frequently done in cleaning the glass etc.

It will be understood that various other modifications of the device, may be made within the spirit of the invention.

Having described my invention what I claim and desire to secure by Letters Patent is as follows:—

1. A window sash operating device, comprising a movable member adapted to be carried by one sash in position to engage the second sash, said member being adustable to either one of two active positions and in each position adapted to hold the two sashes together when the first named sash is moved in one direction, and being inactive when said first named sash is moved in the opposite direction.

2. A window sash operating device, comprising a latch adapted to be carried by one sash in position to engage a member of the second sash, said device being adustable to a neutral position and either one of a plurality of active positions, and in each active position adapted to hold the two sashes together when the first named sash is moved in one direction and being inactive when said first named sash is moved in the opposite direction.

3. A device constructed in accordance with claim 1 comprising a cam, in combination with means for yieldingly holding said cam in neutral or active position.

4. A device constructed in accordance with claim 1 comprising a cam in combination with means for yieldingly holding said cam in neutral or either one of two active positions.

5. Means for operating an upper sash which comprises a cam adapted to be carried by a lower sash and having an intermediate meutral point and an active face at each side thereof, in combination with means for operating the cam for engagement of either face thereof with the upper sash.

6. A device constructed in accordance with claim 5 in combination with a spring and means connecting the same to the cam whereby the latter may be yieldingly held in either neutral or active position.

7. A device constructed in accordance with claim 6 in combination with a shaft which supports the cam and an operating rod connected to said shaft and extending at opposite sides thereof.

8. A window sash operating device, comprising a latch device adapted to be carried by one sash in position to engage a complementary latch member on the second sash, said device being adjustable to either one of two active positions and to a neutral position, and in each active position being adapted to hold the two sashes together when the first named sash is moved in one direction and being inactive when said first named sash is moved in the opposite direction.

In testimony whereof, I have signed my name to this specification.

JAMES M. FROWENFELD.