

No. 807,703.

PATENTED DEC. 19, 1905.

C. J. WALLEN.
WINDOW CONSTRUCTION.
APPLICATION FILED APR. 17, 1905.

2 SHEETS—SHEET 1

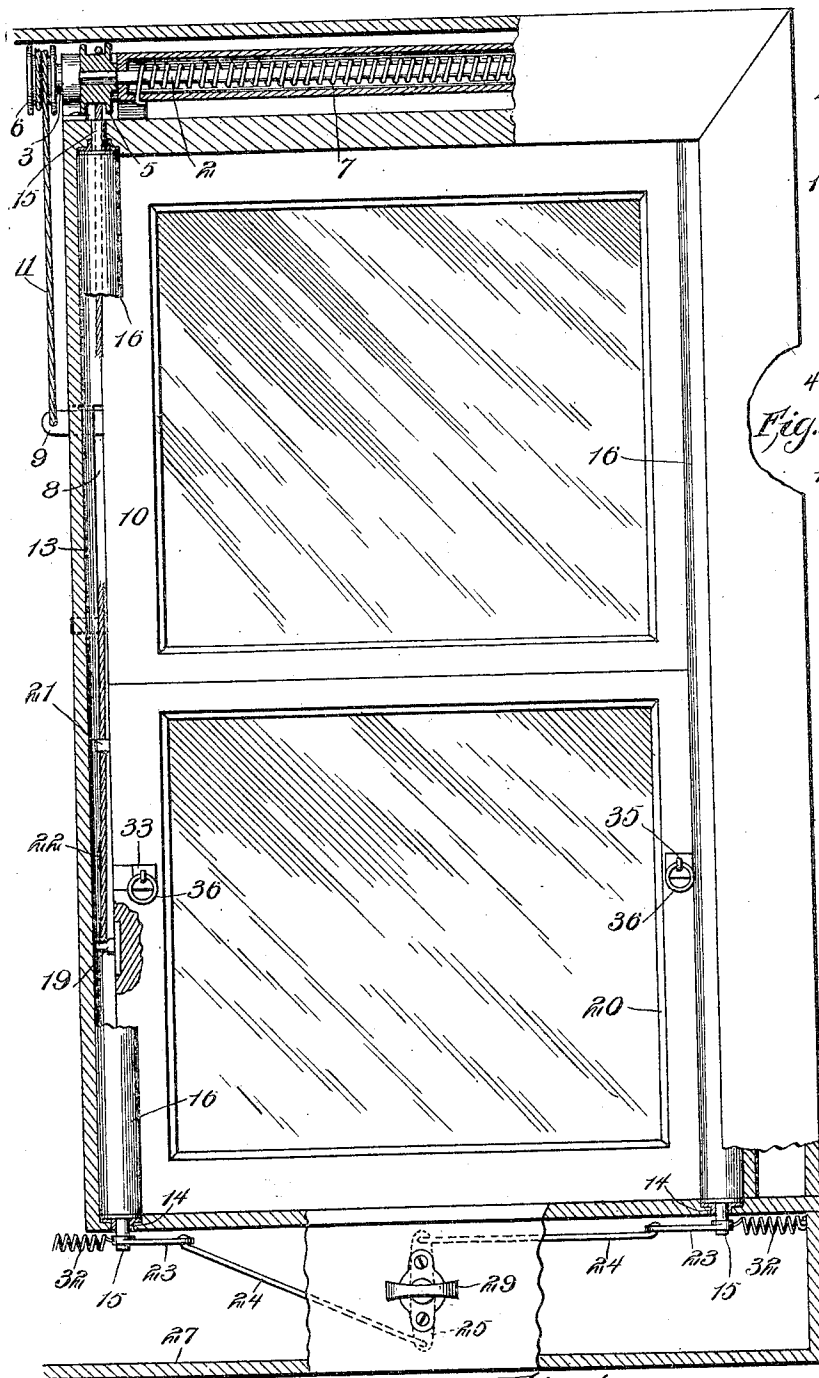


Fig. 1.

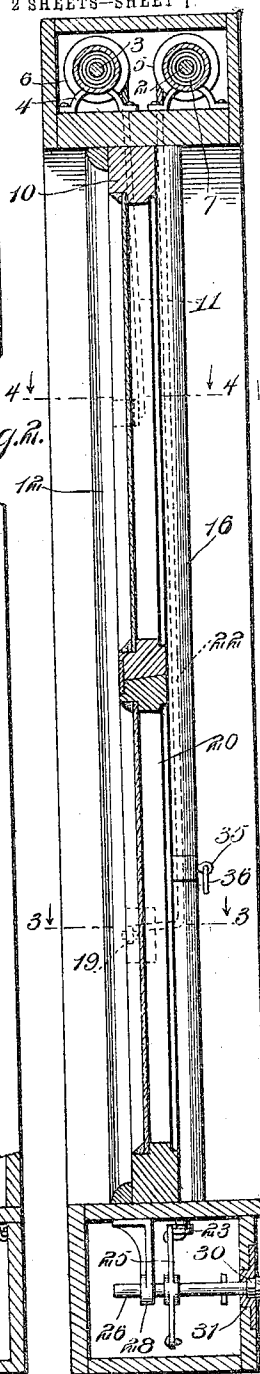


Fig. 2.

Witnesses

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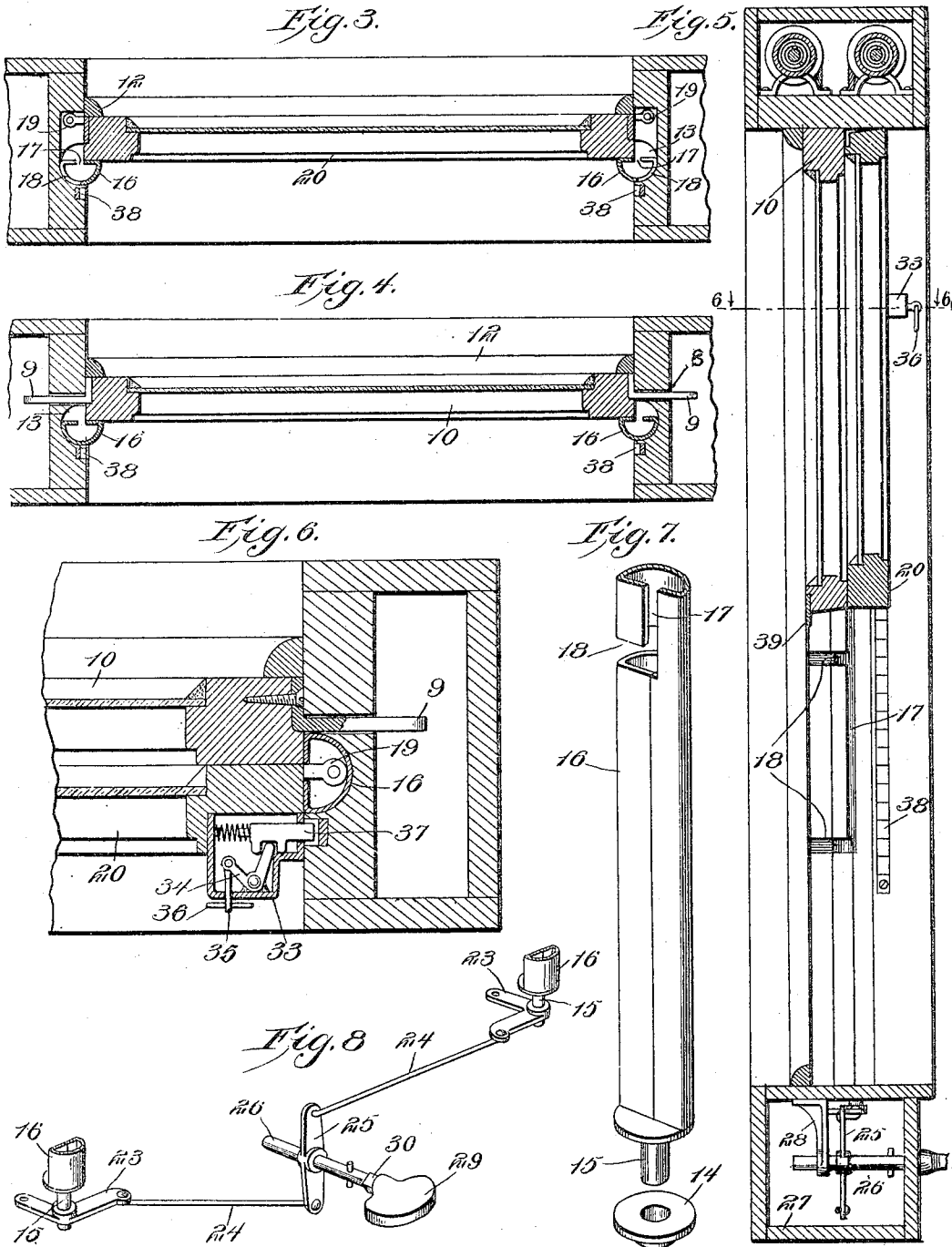
Fig. 1.

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WINDOW CONSTRUCTION.

No. 807,703.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, CARL J. WALLEN, a citizen of the United States, residing at Youngstown, in the county of Mahoning and State of Ohio, have invented certain new and useful Improvements in Window Construction; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in window construction; and its object is to provide a window-casing having sashes adapted when closed to fit one beneath the other.

Another object is to provide a combined guide, lock, and weather-strip which serves to hold the sashes securely in closed position.

A further object is to mount the lower sash in such a manner as to permit the same to be drawn from under the upper sash and raised or lowered as ordinarily, the strip before referred to serving to guide it in its movement.

With the above and other objects in view the invention consists of a casing having an upper sash vertically movable therein and fitted within each side of the casing, and partly overlapped by the upper sash is a rotatable tubular guide-strip having a longitudinally-extending slot adapted to receive projections upon the lower sash in the casing. Transversely-extending slots are provided at points within the strip, so as to enable the lower sash to be forced into or out of position beneath the upper sash. Means are also provided for simultaneously rotating the strips, so as to cause them to assume a position over the inner faces of the sashes when closed, and thereby hold them against displacement and prevent the admission of air around the sashes.

The invention also consists of the further novel constructions and combinations of parts hereinafter more fully described, and pointed out in the claims.

In the accompanying drawings I have shown the preferred form of my invention.

In said drawings, Figure 1 is a view, partly in elevation and partly in section, of a window-casing embodying my improvements. Fig. 2 is a central vertical section thereof. Fig. 3 is a section on line 3 3, Fig. 2. Fig. 4 is a section on line 4 4, Fig. 2. Fig. 5 is a central vertical section through the casing and showing the lower sash raised. Fig. 6 is an enlarged section on line 6 6, Fig. 5. Fig. 7 is a detail perspective view of a portion of one of the guiding and lock strips, and

Fig. 8 is a perspective view of the strip-operating mechanism.

Referring to the figures by numerals of reference, 1 is a window-casing having parallel shafts 2 and 3, mounted in brackets 4, arranged within the top of the casing, and these shafts have drums 5 and 6 connected to the ends thereof. A coiled spring 7 surrounds each shaft and is secured at opposite ends thereto and to its bracket 4, so that when the shaft is rotated in one direction the spring is tensioned. Each side of the window-casing is slotted longitudinally, as at 8, and extending through each slot is an arm 9, projecting from one side of the upper window-sash 10. A cord 11 connects each arm 9 with one of the drums 6, and said cords are so wound upon the drum that when sash 10 is lowered and the cords 11 unwound the springs surrounding the shaft 3 will be tensioned.

Sash 10 normally contacts at its outer face with a stop-bead 12, secured within the casing, and the side edges of this sash overlap grooves 13, which are semicircular in cross-section and extend longitudinally within the sides of the casing. The sash 10 does not extend beyond the longitudinal centers of the grooves, but is preferably in alinement therewith. Arranged within each end of each groove 13 is a bearing-ring 14, which receives a tubular stem 15. One of these stems is formed at each end of a tubular semicylindrical guide-strip 16, which fits snugly within the groove 13 and is adapted to assume a position with its flat face alining with the window-casing. Each of the strips 16 has a longitudinally-extending slot 17 formed at the center of its flat face, and laterally-extending slots 18 communicate with the slot 17. All of these slots 17 and 18 are of sufficient size to permit arms 19, which extend laterally from the lower sash 20, to travel therein. Holding-lugs 21 also extend from the lower sash 20 and are adapted to travel within the slots 17 and 18, and the two slots 18 of each guide-strip are spaced apart a distance equal to the distance between arms 19 and lugs 21. It will therefore be seen that when sash 20 is in its lowest position its arms 19 and lugs 21 will rest within the two slots 18 of each strip 16. Sash-cords 22 are connected to the arms 19 and extend through lugs 21 and then through the guide-strips 16 and their upper tubular extensions 15 to the drums 5. The springs of shaft 2, to which drums 5 are secured, is under tension when sash 20 is lowered.

Oppositely-arranged bell-crank levers 23 are secured to the lower extensions 15, and the inwardly-extending arms of these levers are connected by rods 24 with a lever 25, secured to a rotatable pin 26. This pin is supported within the sash 27 of the window-casing by a bracket 28 and extends through the front of the sash and has a head 29 whereby it may be either rotated or drawn longitudinally. The head has an angular portion 30, which is normally seated in a corresponding socket 31 in the sill. Springs 32 connect the other arms of levers 23 with the window-casing.

A casing 33 is secured to the inner face of sash 20, near each side thereof, and each casing contains a bell-crank lever 34, to which is connected an operating-rod 35, having a ring or other suitable device 36 secured to it. Lever 34 engages and is adapted to operate a spring-pressed plunger 37, which is normally projected from the side of the casing 33 and is adapted when sash 20 is raised to engage any one of the series of ratchet-teeth 38, secured to the inner face of the window-casing.

When the sash 20 is in position beneath sash 10, its arms 19 and lugs 21 rest within the slots 18, and the strips 16 are disposed with their flat faces contacting with the inner surface of sashes 10 and 20, as shown in Figs. 1, 2, 3, and 4. These strips are held normally in this position by the springs 32, which are connected to bell-crank levers 23. They are also locked by the angular portion 30 of head 29, which is seated in socket 31. When it is desired to raise the lower sash, the pin 26 is drawn longitudinally, so as to release the angular portion 30 from its socket, and said pin is then rotated, so as to operate the bell-crank lever 23 and extend springs 32. This operation will cause the strips 16 to rotate in their grooves 13 until their flat faces register or aline with the inner faces of the casing. Sash 20 is then drawn inward, causing its arms 19 and lugs 21 to slide in slots 18 until they assume a position within the vertical slots 17. The tensioned spring connected to drums 5 will then cause said drums to rotate and will raise sash 20, so that its arms 19 and lugs 21 will travel longitudinally within slots 17. By means of the plungers 37 and the ratchet-teeth 38 sash 20 can be locked in any desired position. When it is desired to close the window, the sash 20 is drawn downward after being released from the ratchet-teeth and is then pressed outward in position under sash 10. Strips 16 are subsequently automatically rotated by springs 32, so as to overlap the inner face of sash 10. They can then be locked by forcing the angular portion of head 29 into its socket 31.

It will be understood, of course, that the casing is grooved transversely, so as to permit of the lateral movement of arms 19 and lugs 21 when the same are in slots 18. The adjoining rails of sashes 10 and 20 are prefer-

ably beveled, and the upper sash is provided with a shield or guard 39, which is adapted to overlap sash 20 when the window is closed and prevent air from entering between the two sashes.

It will be seen that the strips 16 not only serve as guides for the lower sash, but also act as locks and weather-strips. With this construction of window it is unnecessary to employ parting-strips and, moreover, it is absolutely impossible to open the window from the outside.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a window-casing, of a rotatable sash-cord-receiving strip arranged longitudinally within the casing and adapted to be overlapped and engaged by a sash, and means for moving the strip into position upon one face of and out of engagement with the sash.

2. The combination with a window-casing, of sash-cord-receiving locking-strips rotatably mounted on opposite sides of the casing, and means for simultaneously projecting the strips from the casing.

3. The combination of a window-casing having grooves therein, of slotted sash-cord-receiving locking-strips within the grooves and extending longitudinally of the casing, and means for simultaneously projecting the strips from the grooves.

4. The combination with a window-casing having sashes therein one upon the other; of sash-cord-receiving locking-strips movably connected to the casing, and means for simultaneously projecting the strips from the casing to overlap the sashes.

5. The combination with a window-casing having a sash therein, and longitudinally-extending grooves within the casing, of a slotted locking-strip within each of the grooves and normally engaged by the sash, and means for simultaneously projecting said strips from the grooves to overlap opposite edges of the sash, said strips being adapted to receive the cords of the sash.

6. The combination with a window-casing having a sash therein, and longitudinally-extending grooves within the casing; of slotted rotatable locking-strips within the grooves and normally engaged by the sash, and means for simultaneously rotating and projecting said strips from the grooves to overlap the sash, said strips being adapted to receive the cords of the sash.

7. The combination with a window-casing having a sash therein, and longitudinally-extending grooves within the casing; of slotted locking-strips rotatably mounted within the grooves and having faces alining with the adjoining faces of the casing, said strips being normally engaged by the sash and adapted to receive cords of the sash, and means for

simultaneously rotating the strips to project the same from the grooves.

8. The combination with a window-casing having a sash therein; of longitudinally-extending slotted strips movably mounted within the casing, and means upon the sash adapted to travel within the slots.

9. The combination with a window-casing having a sash therein; of longitudinally-extending slotted strips movably mounted within the casing, means upon the sash adapted to travel within the slots, and mechanism for simultaneously projecting the strips from the casing.

10. The combination with a window-casing, of an inwardly and upwardly movable sash therein, and combined sash-guide, sash-cord receiving and locking strips within the casing.

11. The combination with a casing, of an inwardly and upwardly movable sash therein, and combined sash-guide, sash-cord receiving and locking strips rotatably mounted within the casing.

12. The combination with a window-casing, of an inwardly and upwardly movable sash therein, combined sash-guide, sash-cord receiving and locking strips movably connected to the casing, and means for simultaneously operating said strips to lock or unlock the sash.

13. The combination with a window-casing having longitudinally - extending grooves therein, of combined guide and locking strips movably mounted within the grooves, an inwardly and upwardly movable sash mounted within said strips, and means for simultaneously operating the strips to lock or unlock the sash.

14. The combination with a window-casing having longitudinally - extending grooves therein, of combined guide and locking strips within the grooves each of said strips having an angular slot therein, an inwardly and upwardly movable sash within the casing and projections upon the sash and movable within the slots.

15. The combination with a casing having an upper sash and a lower sash adapted to be located in alinement with the upper sash; of combined guide and locking strips movably connected to the casing and having angular slots therein, and projections upon the lower sash adapted to travel within the slots.

16. The combination with a casing having an upper sash and longitudinally-extending grooves in the casing, of combined guide and locking strips mounted within the grooves, an inwardly and upwardly movable sash within the casing and adapted to assume a position in alinement with the upper sash and projections upon said lower sash and movably engaging the strips.

17. The combination with a window-casing having a longitudinally-movable upper sash therein and longitudinally-extending grooves partly overlapped by said sash; of combined guide and locking strips movably mounted within the grooves, an inwardly and upwardly movable lower sash adapted to aline with the upper sash, projections from the lower sash movably engaging the strips, and means for simultaneously projecting the strips from the casing to overlap the sashes.

18. The combination with a casing having a spring-supported longitudinally-movable upper sash, and longitudinally-extending grooves within the casing; of tubular guide and locking strips rotatably mounted within the grooves and having angular slots therein, an inwardly and upwardly movable lower sash adapted to aline with the upper sash, projections thereon movably mounted within the slots in the strips, and means for simultaneously rotating the strips.

19. The combination with a casing having a spring-supported longitudinally-movable upper sash, and longitudinally-extending grooves within the casing; of tubular guide and locking strips rotatably mounted within the grooves and having angular slots therein, an inwardly and upwardly movable lower sash adapted to aline with the upper sash, projections thereon movably mounted within the slots in the strips, and means for locking the strips against movement.

20. The combination with a casing having a spring-supported longitudinally-movable upper sash and longitudinally-extending grooves in the casing, of rotatable guide and locking strips within the grooves and having angular slots therein, an inwardly and upwardly movable spring-supported lower sash adapted to aline with the upper sash, projections thereon movably mounted in the slots in the guide-strips, means for simultaneously rotating the guide-strips, and a lock for said means.

21. The combination with a window-casing; of a rotatable sash-cord-receiving locking-strip mounted within the casing.

22. The combination with a window-casing having a sash therein; of sash-cord-receiving locking-strips movably mounted within the casing, and means for simultaneously placing said strips in engagement with the sash.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CARL J. WALLEN.

Witnesses:

KATHERINE CANNON,
GEO. J. CAREW