

1,199,012.

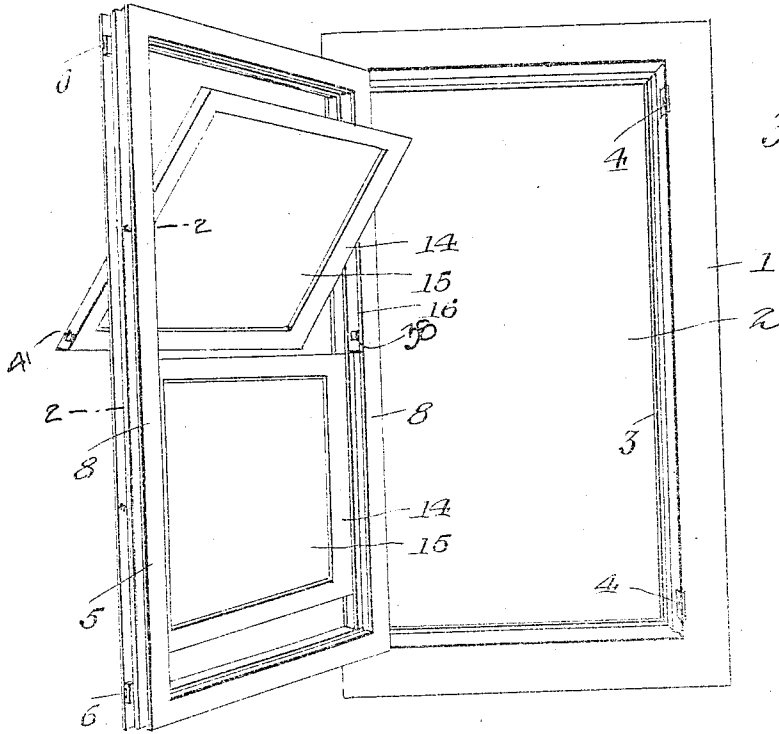


Fig. 1.

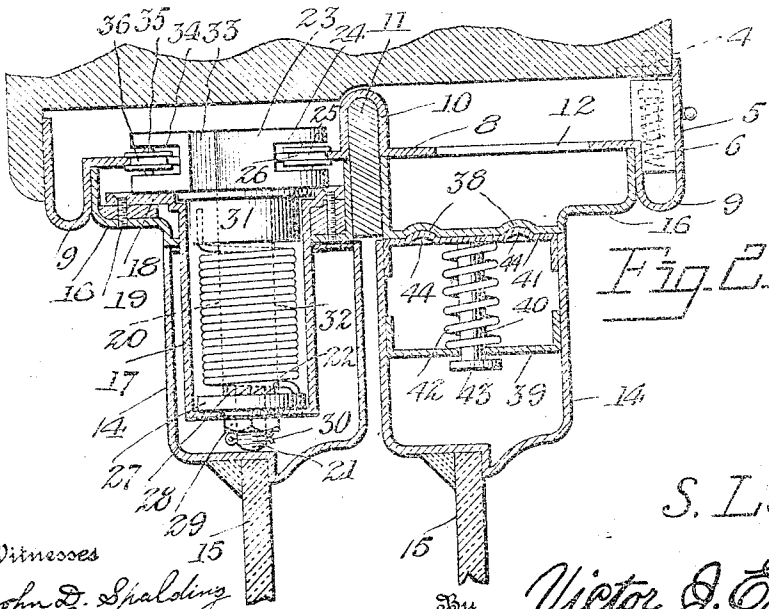


Fig. 2.

Witnesses

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# UNITED STATES PATENT OFFICE.

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METALLIC WINDOW.

1,199,012.

Specification of Letters Patent.

Patented Sept. 19, 1916.

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*To all whom it may concern:*

Be it known that I, SAMUEL LAMER, a citizen of the United States, residing at Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented new and useful Improvements in Metallic Windows, of which the following is a specification.

This invention relates to metallic windows and it consists in the novel features herein-after described and claimed.

An object of the invention is to provide a window composed of metallic sash, metallic sash frame and a metallic frame in which the sash frame may be hingedly mounted.

Another object of the invention is to provide in combination with a window of the character indicated means for lifting and holding the sash without requiring the use of sash weights. The sashes are pivotally mounted upon the means for lifting and holding the same whereby they may be swung with relation to the sash frame, and catch devices are provided at the side edges of the upper and lower portions of the sashes and are adapted to engage strips slidably mounted in the sash frames whereby the sashes may be frictionally held in closed position in the sash frame.

In the accompanying drawings:—Figure 1 is a perspective view of the metallic window. Fig. 2 is a transverse sectional view of parts of the metallic window showing the same in closed position in the frame, the said section being approximately taken on the line 2—2 of Fig. 1. Fig. 3 is a perspective view of one of the members of the sash frame used in the window. Fig. 4 is a side elevation of a plate and arms used upon the window. Fig. 5 is a perspective view of a stop member used upon the window. Fig. 6 is a similar view of a strip used upon the window. Figs. 7 and 8 are detailed perspective views of the arms used upon the windows and the parts which carry the said arms.

In the preferred form the window includes a frame 1 having an opening 2, the edge of which is bounded at the outer side of the frame by an inwardly disposed bead 3. Keepers 4 are positioned at the inner side of the frame 1 and in the vicinity of the upper and lower ends thereof, and are disposed at one side of the opening 2. The frame 1 may be positioned in a wall in any suitable manner and the frame 1 may be

constructed of wood or metal as desired. A sash frame 5 is hingedly connected with the frame 1 at one side of the opening 2 therein, and is provided at its free edge with spring pressed bolts 6 adapted to engage in the keepers 4 when the frame 5 is in a closed position in relation to the frame 1 whereby the said frames are held in stationary position with relation to each other.

The sash frame 5 includes side members 8 formed from sheet metal and bounded along their edges by outstanding beads 9. The said members are provided along lines between the beads 9 with longitudinally disposed grooves 10 adapted to receive and frictionally hold parting strips 11. The said strips 11 are preferably of wood. The side members 8 are provided between the beads 9 and the grooves 10 with longitudinally disposed slots 12, the side edges of which converge downwardly toward each other and the said slots 12 merge at their upper end into an enlarged opening 13, the object of which will be explained hereinafter. The slots 12 adapted to cooperate with the upper sash of the window are located at the upper portions of the side members 8 and between the grooves 10 and the outermost beads 9 and the slots 12 which cooperate with the lower sash of the windows extend from a point approximately midway between the members 8 to a point in proximity with the lower ends thereof and between the grooves 8 and the inner beads 9.

The window sashes 14 are made of sheet metal and are adapted to receive and hold panes of glass 15 in the usual manner. Strips 16 of sheet metal are slidably mounted between the parting strip 11 and the beads 9 and the said strips are arranged in pairs, the members of which are located at the opposite sides of the frame 5 and each pair of strips 16 is adapted to cooperate with one of the sashes of the window. The inner edges of the parting strips 11 are substantially flush with the inner surfaces of the strips 16.

Barrels 17 are journaled in the sides of the sashes 14 at points midway between the upper and lower ends thereof, and the said barrels are provided at their outer ends with plates 18 which are secured to the strips 16 by means of screws 19 or other suitable securing devices. Inasmuch as the barrels 17 and their contents for attachments are all alike, a description of one will answer.

A shaft 20 traverses the length of the barrels 17 and is provided at one end with a reduced extremity 21 which passes through the end of the barrel. The said shaft is also provided at the inner end of the reduced extremity 21 with a set of ratchet teeth 22. The shaft 20 is provided at its outer end with a laterally disposed arm 23 having at its outer end a recess 24 in which is journaled a roller 25 having at its periphery an annular groove 26. A disk 27 is rotatably mounted upon the reduced extremity 21 of the shaft 20 and is provided at its inner side with ratchet teeth 28 which engage the teeth 22 upon the shaft 20. The said disk is provided at one side with a squared head or nut 29 which passes through the end of the barrel 17. A pin 30 passes transversely through the reduced extremity 21 of the shaft 20 and serves to hold the shaft 20 in position with relation to the disk 27. A collar 31 is located in the outer portion of the barrel 17 and is turnably mounted upon the shaft 20. Said collar is also turnably mounted in the plate 18. One end of a spring 32 is attached to the collar 31 and the other end of the said spring is attached to the disk 27. The intermediate portion of the spring 32 is coiled around the shaft 20. An arm 33 is fixed to the outer side of the collar 31 and is disposed in the same plane as the arm 23. The arm 33 is provided at its outer end with a recess 34 in which is journaled a roller 35 provided at its periphery with an annular groove 36. The arm 33 is provided at its outer side with a shoulder 37 which lies in the path of movement of the arm 23 and is adapted to limit the swinging movement of the arm 23 with relation to the arm 33. With the exception of the said shoulder the arms 23 and 33 are substantially alike. The grooves 26 and 36 in the rollers 25 and 35 respectively are adapted to receive the material of the side members 8 at the edges of the slots 12 therein, and the said rollers lie in the said slots. The arms 23 and 33 normally lie at acute angles with relation to each other and the rollers carried by the said arms are held tightly against the edges of the material constituting the side member 8 at the edges of the slots 12 under the influence of the spring 32. During the swinging movement of the arms 23 and 33 they pass along the outer surface of the plate 18. It is apparent that by removing the barrel 17 from the sash and turning the disk 27 with relation to the shaft 20, the spring 32 might be tightened or loosened and when the spring is at a desired tension the teeth 28 upon the disk are permitted to engage the teeth 22 upon the shaft 20 whereby the disk 27 is held with relation to the shaft 20, and the opposite ends of the springs 32 exert their influence upon the arms 23 and 33 to hold the rollers 25 and 35

against the edges of the slots 12 with sufficient firmness. In view of the fact that the slots 12 have converging side edges as the sashes move in an upward direction along the side members 8 the rollers acting under the influence of the springs 20 will have a tendency to assist in the upward movement of the sash; consequently it is not necessary to apply weights to the sash to cause the same to move freely in an upward direction. When the rollers 25 and 35 arrive at the enlarged openings 13 at the upper ends of the slots 12, the said rollers enter the openings and engage the lower edges of the same, whereby the sash is held in its uppermost position in the sash frame of which the side members 8 are component parts. However, when a downward pull is exerted upon the sash the free ends of the arms 23 and 33 swing toward each other whereby the rollers 25 and 35 pass out of the enlarged openings 13 at the upper ends of the slots 12 and the said rollers engage the inclined edges of the said slots. When the sash is removed from between the beads 9 and 10 and the arms 23 and 33 are out of the slots 12 the said arms assume the positions shown in dotted lines in Fig. 4. When the arms are in the lower portions of the said slots they assume the positions shown in full lines in the said figure. The plates 18 serve as guides and supports for the arms as indicated at the left in Fig. 2.

The strips 16 are provided in the vicinity of their upper and lower ends with depressions 38, and the said strips are substantially the same length as the length of the sash adjacent which they are positioned. The strips 16 move vertically with the sash 14; consequently the barrels 17 pass transversely through the said strips 16.

Bridge members 39 are located in the sides of the sash 14 in the vicinity of the lower and upper ends thereof, and pins 40 are slidably mounted in the said bridge members. Stop members 41 are movably mounted in the sides of the sash 14 opposite the bridge members 39, and coil springs 42 are interposed between the said bridge members and the said stop members. The springs 42 are under tension with a tendency to hold the stop members 41 away from the bridge members 39 and in contact with the inner surfaces of the strips 16. The outward movement of the stop members 41 is limited by means of heads 43 applied to the inner ends of the pins 40 and adapted to encounter the bridge members 39. The stop members 40 are provided with humps 44 adapted to engage in the depressions 38 and hold the sash 14 in proper alignment with relation to the strips 16.

When it is desired to swing either the lower or upper sash with relation to the sash frame, this may be readily accomplished by

pushing in an inward direction against the upper portion of the sash whereby the humps 44 move out of engagement with the depressions 38 and the sash swings at its upper edge in an inward direction upon the barrels 17 upon which the said sash is journaled or pivoted. Therefore, the sash may be turned or swung in order to permit the outer surface of the pane of glass carried thereby to be accessible for cleaning or other purposes. It will also be apparent that when the sash frame 5 is swung to an open position in relation to the frame 1, that the entire opening 2 in the frame 1 is unobstructed and the sash may be swung within the side wall of a building to gain access to the outer sides of the glass and also to permit a maximum volume of air to pass through the opening in the frame 1 for ventilation or other purposes. If desired, the frame 1 may be dispensed with and the sash frame 5 may be positioned in the wall of a building and in this event the sash may be swung as hereinbefore described when it is desired to clean the outer surfaces of the glass carried thereby, or when it is desired to permit a maximum volume of air to pass through the sash frame 5 for the purpose of ventilating the building.

From the above description taken in conjunction with the accompanying drawings, it will be seen that a metallic window of simple and durable structure is provided and that the same may be easily and quickly manipulated without the assistance of sash weights for the purpose of raising or lowering the sash and for sustaining the sash at desired positions in the sash frame. Also the sash may be swung with relation to the sash frame to render the exterior surfaces of the glass accessible, and when the sash frame and the sash are in closed position, a tight window structure is effected.

Having described the invention what is claimed is:—

1. A window comprising a sash frame including side members provided at their opposite edges with inwardly disposed beads and having between the beads a longitudinally disposed groove, a parting strip frictionally held in the groove, said side members being provided between the beads and parting strip with longitudinally disposed slots, strips slidably mounted in the mem-

bers between the beads and the parting strip, a sash pivotally connected with the last mentioned strip and having means for frictionally engaging the same, spring pressed arms carried by the sash and rollers mounted upon the arms and located in the slots and engaging the material at the edges thereof.

2. A window comprising a sash frame including side members having at their opposite edges inwardly disposed beads and between the beads a longitudinally disposed groove, a parting strip frictionally held in the groove, said side members having between the parting strip and the bead longitudinally disposed slots the side edges of which converge toward each other in a downward direction, strips slidably mounted in the side members of the frame and between the parting strip and the bead, a sash pivotally connected with the last mentioned strip, means carried by the sash for frictionally engaging the last mentioned strip, spring pressed arms pivotally mounted upon the sash and having rollers which engage the material of the side members of the frame at the edges of the said slots.

3. A window comprising a sash frame including side members having at their opposite edges inwardly disposed beads and having lying between the beads a longitudinally disposed groove, a parting strip located in the groove, the side members being provided between the parting strip and the beads with longitudinally disposed slots the side edges of which converge toward each other in a downward direction, the said side members being provided at the upper ends of the said slots with enlarged openings, strips slidably mounted in the side members between the parting strip and the beads, a sash pivotally connected with the last mentioned strip, spring pressed means carried by the sash for frictionally engaging the last mentioned strip, spring pressed arms carried by the sash and rollers journaled upon the arms and engaging the material of the side members at the edges of the slots therein.

In testimony whereof I affix my signature in presence of two witnesses.

SAMUEL LAMER.

Witnesses:

VICTOR R. SALAMON,  
STEPHEN LAMER.