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PIVOTED AND SLIDING WINDOW
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To all whom it may concern:

Be it known that I, CHARLES A. SEMBOWER, a citizen of the United States, residing at Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Pivoted and Sliding Windows; and I do 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 windows of the type in which a sash is horizontally pivoted between a pair of vertical stiles which are slidably engaged with the usual vertical guideways of the window frame. Windows of this character have been provided in numerous forms, both with and without weather strips and with and without means for holding the sash in the different angular positions to which it may be swung, but the majority of structures have been rather complicated and have often required excessive recessing of the opposite edges of the sash, to receive pivotal mountings, co-acting toothed plates, and spring devices for moving the stiles normally toward the sash. Hence, such prior devices have been more or less objectionable.

It is the object of my invention to greatly improve and simplify the construction of windows of the type above set forth, the principal aim being to provide a structure in which spring metal weather strips interposed between the sliding stiles and the sides of the frame, act not only as weather strips, but force said stiles into tight contact with the edges of the sash and serve as the sole means for holding in operative relation the members of the construction provided for holding the sash in normal and angular positions.

A further aim is to provide improved means for holding the sash in different positions with respect to the stiles.

With the foregoing in view, the invention resides in the novel subject matter hereinafter described and claimed, the description being supplemented by the accompanying drawing.

Figure 1 is a side elevation of a window constructed in accordance with my invention.

Figure 2 is a horizontal section taken on line 2—2 of Fig. 1, with the lower sash raised to dispose the pivots of the two sashes near the same plane.

Figure 3 is a perspective view of a portion of one of the stiles and the spring metal weather strip attached thereto.

Figure 4 is a perspective view of a portion of the sash, showing a grooved plate inset in its edge for co-action with a rib on the adjacent stile, to hold the sash in different positions.

Figure 5 is an elevation of the grooved plate illustrated in Fig. 4.

Figure 6 is a sectional view thereof on line 6—6 of Fig. 5.

Figure 7 is a detail horizontal section showing the manner of adapting the invention to a window having a single sash.

In the drawing above briefly described, the numeral 1 designates a window frame which, in Figs. 1 and 2, is shown as provided with two vertical guideways 2 and 3, defined by a parting bead 4 and a pair of stop strips 5. The guideway 2 is instrumental in mounting an upper sash 6, while a lower sash 7 is mounted in connection with the guideway 3. In Fig. 7, a single sash is shown, designated by the numeral 8, said sash being mounted in connection with guideways at the sides of a frame 9, one of these guideways being indicated at 10, defined by a pair of parallel stop strips 11.

I have shown the opposed sides of the guideways 2, 3 and 10, formed with grooves extending throughout their lengths, into which metal channels 12 are secured. The vertical edge portions 13 of a spring metal weather strip 14 are slidably received in the channels 12 of each of the guideways 2, 3 and 10, and the central longitudinal portion of each of said weather strips, is inwardly offset from said edge portions. Vertical stiles 15 are slidably received in the guideways 2, 3 and 10 and are secured to the weather strips 14 by screws or the like 16, so that each stile 15 and its weather strip 14, may slide vertically as a single unit.

The sashes 6, 7 and 8 are each disposed
between a pair of the stiles 15 and the vertical edges of these sashes are formed with longitudinal grooves 17 which receive beads 18 on said stiles. Horizontal pivot pins 19 are received in aligned openings in the sashes and stiles to pivotally mount the former upon the latter, and these openings are preferably provided with metal linings 20.

It will be seen from the foregoing, that in addition to performing the functions of weather strips, the strips 14 press inwardly upon the stiles 15, in the direction of the pivotal axis of any of the sashes, and consequently that the stiles 15 are held tightly against the edges of the sash, with their beads 18 snugly received in the grooves 17. When the sash is tilted upon the pins 19 however, the stiles 15 yield outwardly against the action of the strips 14. As soon as the sash is returned to its normal position, the beads 18 again snap into the grooves 17 and yieldably hold said sash in operative relation with the stiles 15.

I prefer to make provision for utilizing the action of the strips 14, to hold any of the sashes in angularly adjusted position with respect to the stiles 15. In the preferred form of construction, I inset a metal plate 21 in each vertical edge of the sash, said plate being formed with a central opening 22 through which the adjacent pivot pin 19 passes. Each plate is provided in its outer side with a plurality of shallow grooves 23, one of which extends longitudinally of the sash and registers with the groove 17, while the other grooves are transverse to the sash at different angles.

These grooves are adapted to receive the adjacent bead 18, regardless of the position to which the sash is swung, and hence the latter will be yieldably held either in adjusted position, or in its normally closed position.

It will be seen from the foregoing, that a very simple structure has been provided to permit vertical sliding of a sash, to form a weather-tight seal at the edges of said sash, and to permit pivotal adjustment of the sash, particular emphasis being laid upon the facts that the weather strips 14 act not only as weather strips, but as springs to force the stiles 15 into tight contact with the sash; the beads 18 act not only to form tight connections between the sash and the stiles when the former is closed, but assist in holding the sash in any open position; and neither the sash nor the stiles are excessively recessed to accommodate springs, locking plates, etc.

As excellent results are obtainable from the details described, they are preferably followed, but within the scope of the invention as claimed, numerous minor changes may be made.

I claim:

1. A window comprising a pair of stiles adapted to be slidably engaged with guideways of a frame, a sash pivoted between and contacting with said stiles, and spring metal weather strips at the outer sides of said stiles yieldable in the direction taken by the axis of the sash pivots and adapted to engage the frame guideways to thrust said stiles inwardly into yielding contact with said sash.

2. A window comprising a pair of stiles adapted to be slidably engaged with guideways of a frame, a sash pivoted between and contacting with said stiles, spring metal weather strips at the outer sides of said stiles yieldable in the direction taken by the axis of the sash pivots and adapted to engage the frame guideways to thrust said stiles inwardly into yielding contact with said sash, and co-acting means on the said sash and stiles held in engagement with each other solely by the resiliency of said weather strips.

3. A window comprising a pair of stiles adapted to be slidably engaged with guideways of a frame, a sash pivoted between and contacting with said stiles, spring metal weather strips at the outer sides of said stiles yieldable in the direction taken by the axis of the sash pivots and adapted to engage the frame guideways to thrust said stiles inwardly into yielding contact with said sash, the contacting surfaces of said stiles and sash having co-acting beads and grooves held yieldably in engagement with each other solely by the resiliency of said weather strips.

4. A structure as specified in claim 3; together with transverse grooves intersecting the other grooves to receive said ribs when the sash is swung from its normal position.

5. A window comprising a frame having opposed guideways and metal channels inset in the inner corners thereof, a pair of spring metal weather strips having their edge portions slidably received in said metal channels and having their longitudinal central portions offset from the plane of said edge portions, a pair of stiles secured to said offset central portions of said weather strips and received slidably in said guideways, and a sash between and pivoted to said stiles, the resiliency of said weather strips serving to hold said stiles and sash in tight contact with each other.

6. A window comprising a pair of stiles adapted to be slidably engaged with the guide ways of a frame, a sash between and pivoted to said stiles, said sash having longitudinal grooves, metal plates inset in the edges of the sash and having longitudinal grooves in line with the grooves in the
edges of the sash and transverse grooves, beads on said stiles receivable normally in said longitudinal grooves and receivable in said transverse grooves when the sash is swung on its pivots, and spring metal plates secured to and extending the full length of said stiles and having a snug sliding engagement with the guide ways of said frame for yieldably forcing said stiles toward the sash, and forming weather strips.

In testimony whereof I have hereunto affixed my signature.

CHAS. A. SEMBOWER.