To all whom it may concern:

Be it known that I, JOHN WRIGLEY, a subject of King George V of Great Britain, residing at Everett, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Convertible Window-Sashes, of which the following is a specification.

This invention relates to window-sashes of the type in which the sash is pivotally mounted to swing upon horizontal pivots as well as to be moved upwardly and downwardly on the window-casing in the usual manner.

In window-sashes of this type which have heretofore been constructed, the sash has been insecurely mounted upon the sliding stiles to which it was pivoted, resulting in danger to the person manipulating the window and also in danger of breaking the glass due to the fact that the sash was liable to become disconnected from the sliding stiles upon which it was pivotally mounted.

The object of this invention is to securely mount the sash upon a pair of sliding stiles so that it may be tilted at different angles and firmly locked in position at any desired angle.

One of the advantages of my invention is that not only may new window-sashes be constructed in accordance with it, but old window-sashes already constructed, or in place, may be easily fitted with parts so that the same will then be constructed in accordance with the principles of my invention.

To these ends the invention primarily resides in the construction of the pivot and the means for attaching said pivot to the window stile.

The invention further consists in the combination and arrangement of parts set forth in the following specification, and particularly pointed out in the claims thereof.

Referring to the drawings:—

Fig. 1 is an elevation of a window-sash embodying my invention, shown partly in section and broken away to save space in the drawing.

Fig. 2 is a vertical sectional elevation of the same illustrating two window-sashes with the parts of the window frame contiguous thereto.

Fig. 3 is a detail sectional plan taken on line 3—3 of Fig. 1 looking in the direction of the arrows.

Fig. 4 is a detail side elevation of the pivot and its reinforcing plate.

Like numerals refer to like parts throughout the several views of the drawings.

In the drawings 10—10 are window-sashes of the usual general construction each having a pair of stiles 11, one only of which stiles, for the purpose of saving space and for convenience, is shown in the drawing. Each of the stiles 11 is formed of two separate parts, the outer stile 12 and the inner stile 13. The inner stile 13 is rigidly fixed to the upper and lower cross pieces 14 and 15 of the sash and to it is attached the window glass 16. The outer stile 12 is designed to slide upwardly and downwardly in the usual manner in the window frame 17. The outer stile 12 is pivotally connected to the inner stile 13 by the horizontal pivot 18, seen most clearly in Figs. 1, 3 and 4 and comprising a pin portion 20, an enlarged portion 21 and a hemispherical shaped flange 22 located between said pin portion and said enlarged portion.

The pivot 18 is firmly fixed in any proper manner at the outer extremity of the enlarged portion 21 to a reinforcing plate 19. The reinforcing plate 19 is firmly fixed by screws 23 to the outer edge of the outer stile 12. The enlarged portion 21 projects through an aperture made for that purpose in the outer stile 12 and the flange 22 projects entirely from the inner edge of the outer stile 12. The pin portion 20 projects through the inner stile 13 in a recess therein formed for that purpose. Said recess is enlarged at the outer edge of the inner stile 13 so as to receive the flange 22.

The outer stile 12 is provided with a longitudinal slot 24 which runs the entire length thereof, the opening of which is toward the inner face thereof. The walls of the slot 24 are preferably lined for at least a portion of their length with metal. The inner stile 13 is provided with a slot 25. This slot is preferably formed in a metal member 26 and the opening of the slot is located exactly opposite to the opening of the slot 24 when the outer stile 12 and the inner stile 13 are in their normal or closed positions. The metal part 26, which is located entirely within the inner stile 13, has an enlarged portion 27 which
projects toward the inner side of the inner stile 13. The recesses adapted to receive the pin portion 20 and the flange 22 of the pivot 18 are preferably located in the enlarged portion 27 of the metal member 26. The enlarged portion 27 is also provided with a cylindrical aperture 28 passing from its outer surface and at right angles to the pin portion 20 of the pivot 18 and intersecting said pin portion in the manner hereinafter described. The aperture 28 is adapted to receive a screw 29, which is threaded at one end and provided with a head 30 to enable the same to be turned. The top of the head 30 is preferably flush with the surface of the inner stile 13 located on the inside of the room. The lower end of the screw 29 is smooth and tapered downwardly and this portion 31 is adapted to engage a peripheral groove 32 in the pin portion 20.

Slidable within the slots 24 and 25 is a locking slide 33 preferably made of metal. The locking slide 33 is provided with two slots 34 shaped as shown in the drawing, pins 35 project through the inner stile 13 of the metal member 26 and the slots 34. When the window-sash is in its normal or closed position the locking slide 33 is in its lowermost position and projects partly within the slot 24 in the outer stile 12 and partly within in the slot 25 in the inner stile 13. When thus positioned it locks the two stiles against rotation relatively to each other on the pivots 18. The upper end of the locking slide 33 is provided with a head 36 by which the same may be grasped. When it is desired to revolve the window-sash on the pivot 18 the operator grasps the head 36, lifts the locking slide 33 so far as the pins 35 will permit, and said locking slide 33 traveling the path prescribed by said pins 35 and slots 34 moves upwardly and inwardly and is lightly held in its uppermost position by the pins 35 due to the shape of the lower portion of the slots 34. When in said uppermost position the locking slide 33 is entirely within the slot 25 of the inner stile 13, and said inner stile 13 with the portions of the window-sash thereto attached is free to revolve upon the pivot 18. When it has been so revolved to any desired position it is locked in said position by turning the locking screws 29 so that the tapered portion 31 engages tightly against the walls of the peripheral groove 32 of the pin portion 20 of the pivot 18. When the window is so locked in a revolved position and it is desired to again place the sashes in the normal or closed position the locking screw 29 is unscrewed so that the tapered portion 31 shall be disengaged from the walls of the peripheral groove 32. The window can then be turned back to its normal position and the locking slide 33 dropped by the operator grasping the head 36 and lowering the locking slide to its lowermost position. It will be borne in mind that in the foregoing description reference has been made to one stile only. Every window has a pair of stiles. The construction and operation of the parts of the remaining stile is exactly the same as those of the one stile described.

If the outside of the window frame is provided with fixed bars the pivot 18 should be located near the bottom of the window-sash instead of near the weather thereof so that the window may be swung inwardly in spite of the outside bars. When so desired the window may be revolved on its pivots to allow ventilation. This will enable a person to sit in front of the window and secure fresh air without the disadvantages of a direct draft. When the window is tipped for the purposes of ventilation it may be desirable to place a weather strip of the necessary thickness on the window sill in such position that when tipped the lower cross piece of the window-sash will be snug against said weather strip. At this point I wish to call particular attention to the pivot 18 and the advantages which accrue from my construction. As before stated, the pivot has been the weak point in all previous convertible windows. Prior to my invention the pivot has consisted of a simple pin projecting into opposed recesses in the outer and inner stiles. In nearly all windows and more especially in broad windows, if the window was lifted, as was often the case, by lifting on only one side thereof, such side tended to lift faster than the opposite side and the pivot on said outside side, having but slight hold in its recesses as must necessarily be the case, became disengaged. This was noticeable so when said recesses had become enlarged through use. This caused the two stiles at that point to separate and when so separated the stiles on the opposing side of the window-sash separated, the pivot fell out, the parts of the window became separated and the person operating the window was placed in danger. This weakness of the pivotal connection also caused the window to be rattled by the wind and was of generally weak and poor construction. The construction of my pivot 18 does away with all of the weaknesses, disadvantages and objections above mentioned. The outer end of the pivot 18 being fast to long reinforcing strip 19, which in turn is firmly fixed to the outer edge of the outer stile 12 throughout its entire length, if so desired, makes it absolutely impossible for the pivot 18 to become separated from the outer stile 12. Neither can the pivot 18 become separated from the inner stile 13 because of the fact that the locking screw 29, whether it is being disengaged against the walls of the peripheral groove 32 or not, is so constructed and located that the pin por-
tion 20 of the pivot 18 cannot be withdrawn from the recess in the inner stile 13 any further than the walls of said peripheral groove 22 will permit. The flange 22 also tends to make the pivotal connection rigid and tight in that it prevents any lateral play between the outer and inner stiles. Attention is also drawn to the fact that the pin portion 20 might be broken from the pivot and yet the outer and inner stiles would be properly connected because of the bearing of said flange 22 in its recess. My construction of the pivot and its connecting parts as above set forth, produces a rigidity and secureness of connection never before obtained in convertible windows.

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

1. A window-sash, having two oppositely disposed stiles, each stile being divided longitudinally thereof into an inner and an outer stile portion, a reinforcing strip fast to one of said stile portions, a pivot fast to said strip and projecting into the other of said stile portions transversely thereof, and a locking screw on said inner stile portion adapted to engage the walls of a circumferential groove provided on said pivot.

2. A window-sash, having two oppositely disposed stiles, each stile being divided longitudinally thereof into an inner and an outer stile portion, a reinforcing strip fast to the outer edge of said outer stile portion, a pivot fast to said strip projecting through said outer stile portion and into said inner stile portion transversely thereof, and a flange on said pivot located in a recess provided in the edge of said inner stile portion adjacent to said outer stile portion, whereby said sash is pivotally mounted on said outer stile portions.

3. A window-sash, having two oppositely disposed stiles, each stile being divided longitudinally thereof into an inner and an outer stile portion, a reinforcing strip fast to the outer edge of said outer stile portion, a pivot fast to said strip projecting through said outer stile portion and into said inner stile portion transversely thereof, and a flange on said pivot located in a recess provided in the edge of said inner stile portion adjacent to said outer stile portion, whereby said sash is pivotally mounted on said outer stile portions, and a locking screw having a screw-threaded engagement with said inner stile portion and a tapered end adapted to project into and engage the walls of a circumferential groove provided in the periphery of said pivot.

4. A window-sash, having two oppositely disposed stiles, each stile being divided longitudinally thereof into an inner and an outer stile portion, a reinforcing strip fast to the outer edge of said outer stile portion, a pivot fast to said strip projecting through said outer stile portion and into said inner stile portion transversely thereof, and a hemispherical shaped flange on said pivot located in a recess provided in the edge of said inner stile portion adjacent to said outer stile portion, whereby said sash is pivotally mounted on said outer stile portions.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN WRIGLEY.

Witnesses:

DANIEL A. ROLLINS,
ZELLA M. CLEMENTS.