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SLIDING WINDOW.

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To all whom it may concern:

Be it known that I, JOHANNES STUMPF, a subject of the German Emperor, and resident of Balz, near Vietz, near Landsberg-on-the-Warthe, Germany, have invented new and useful Improvements with regard to Sliding Windows, of which the following is a specification.

My invention relates to sliding windows, which are guided by pins in grooves in the window frame, and are raised by counter weights. These windows can also be tilted into the room and are prevented from being raised by the counter poises, when tilted by pins fixed to the window frame under which a plate fixed to the sash passes, or by pins which slide in a circular groove in a plate fixed to the sash.

Figure 1 is a part sectional view of the right hand frame Z with the guide grooves and the guide bars 3^a and 7. Fig. 2 is a horizontal section through the tight double window frame. Fig. 3 is a side view of a top and bottom pair of double-sashes in locked position. Fig. 4 shows a part sectional, vertical front view of the right hand frame with the top sashes in the lower position. Fig. 5 is a top view of the locking arrangement of each pair of sashes. Fig. 6 is a vertical section through the bolt in the wood. Fig. 7 is a section showing the mechanism of same. Fig. 8 shows the side view of a fastening and securing arrangement with hook and pin. Fig. 9 same arrangement with pin in the plate circle. Fig. 10 is a bolt 9 with partly cut up frame work and securing key. Fig. 11 is a top view of the bolt sleeve 9^a with spring 9^b beneath.

The double sash consists of the upper pair of sashes O, O' and the lower pair of sashes U, U'. Each pair is connected by two hinges 17, which are screwed on to the lower ends of the sash frames, as well as by two locking in pieces, both of which consists of sleeves 20 and 20^a, the first sleeve being inserted into the surface of the top frame of the sashes O, U respectively, while the second sleeve is inserted in the face of the frame O' U' respectively in such a manner, that a squarely bent bolt 21 can be pushed in, and which in consequence of the recess 22 can also be drawn back again. When pushed in, the respective pairs of sashes are kept against one another.

In the locked position both pairs of sashes are in the position as illustrated in Fig. 3, namely, vertically placed to each other against the weather frame W, Figs. 1 and 2, and are closed in such a way that a turning bolt 8, which is secured to both vertical frames of the sash U, catches into a plate 8^a having a slot therein, whereby not only the lower but also the upper pair of sashes which are pressed against the top cross bead of the window frame by means of the cross bead 1, while the rail of the lower sash U presses the bottom of the two said sashes O', U' against W.

Into the surface of the right and left hand frame work Z, are cut vertical grooves 5, 6, the latter below running at a slanting line into 5.

The groove 5 serves as a guide to the horizontally projecting cylindrical guide pins 2 in the lower corners of O, while the horizontally projecting round pins 4, situated in the lower corners of the sash U, are guided in the groove 6. The windows O, O' are balanced by means of wire ropes 11^a, which fastened on pins 2, are conveyed over small pulleys 10^a to the counterpoises C, similar counter poises C' in the same manner balancing the windows U, U' by means of wire ropes 11, which are fastened on pins 4 and conveyed over pulleys 10.

A vertical bead 7 is screwed to the center of the window frame Z, the said bead having an inclined bottom and reaching about half way down the window frame, and to the window frame is also attached a bead 3 with a rail 3^a. On elevating the pair U, U', which has been previously tilted somewhat, the same fits with its top end between the strips 7 and 3 on account of the latter having slanting bottom ends, and slides up in said strips, while below the sash pair, is guided by the pins 4 in the grooves 6.

When pulling down the upper pair of sashes, they next slide between the strip 7 and the projecting weather frame W, Fig. 2, while below the pair O, O' is guided by the pins 2 in the grooves 5.

On the frame Z or on the strip 3 is arranged a box like portion 9^a with a horizontally protruding round bolt 9, possessing a slot; said bolt 9 is kept in its supporting position by means of a coil spring 9^e and guided by a rivet 9^b, in the slot in the bolt, while a

sliding piece 9^c, which can be put through a slot 9^a in the box 9^a, and screwed into 9 forms an operating knob.

The pushing backwards of the lock bolt 9 can be prevented by means of a tightly screwed plate spring 9^b, arranged in the frame work so that the flange 9^c formed by bending the end of spring 9^b at a right angle, will project behind the rear end of bolt 9 when the lock bolt is drawn forward. To be able to push 9 backwards, a securing key 9ⁿ Fig. 10, provided with a cross pin 9ⁱ is inserted into the suitably shaped hole 9^k of the plate 9^a, Fig. 11, pressing back the spring out of engagement with the bolt and enabling it to be slid back.

For the purpose of cleaning the outsides of the sash pairs U, U' O, O' respectively, the latter are from their lowest position tipped over against bolt 9, and after drawing back the same, the sash pairs are tilted in a horizontal position into the room.

To make the cleaning of the sash surfaces possible, which are defining the inner air space of each sash pair, the bolts 21 of every window pair are drawn out of the sleeves 20, after which the window U', O' is lifted up on the hinges 17.

In the case of tilting back, the edge of the respective pair of sashes pushes back the lock bolt 9 in consequence of the slanting portion 9^f, after which 9 jumps forward again and prevents unintentional tilting over of the sashes towards the room.

In order to prevent the tilting pair of sashes during their swinging, from being drawn up by the counterpoises the guide pin 2 as well as 4 possesses cross pins 4^a, Figs. 3, 4 and 9, which on the oscillation of the window fix themselves in the above described open sector of a plate 12, which is screwed into both frames Z. In consequence however of the unavoidable gradual wearing off of the metal pieces 2, 4, and the plate sector, the said fastening device might get defective in the bearings, so that I arranged for a special securing device. The corner plates 14 with guide pins 2, 4, possess circularly shaped projecting corners 14^a, which at the instant, when the top part of each pair of sashes passes the bolt 9, slide under the round pin 13, projecting from under the plates 12, and prevent thereby the drawing up of the sash.

This necessary securing device, can besides be arranged in such a way that the corner plates 23 are made with hooks 23^a, which on turning the sash, reach under a round pin 16^b arranged on the plates 16, while on swinging the pair of sashes further, the corner plates 23^b reach under a round pin 16^a which is projecting from 15.

While each bottom sash U is as much as the width of the strip piece 25 longer than the top sash O, the tops of O have pins 19 fixed to them, which on O, O' standing be-

low, lean gently against the strips 7 and prevent by this means the pair of sashes from tilting towards the bolt 9. For 19, there are recesses 19^a provided in the head strip 26. By this it appears that this double sash only requires the handles in order to open and clean it like an ordinary sash, and it makes nevertheless the inner as well as the outer sash air tight on all sides.

When using single sash, the outer sashes U' and O' and the locking pieces 20, 20^a and 21, as also the hinges 17 are simply omitted, while everything else remains the same.

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

1. The combination with a sash frame provided with grooves 5 and 6, converging into one near their lower ends, upper and lower sashes, weights for balancing the sashes, studs located only near the lower ends of each sash, said studs operating in the grooves, beads against which the outer sides of the two sashes abut when in closed position, beads parallel with the upper portions of grooves 5 and 6, and terminating above the lower sash to form guides for said lower sash when raised from normal position, a movable device below the guiding beads and adjacent the upper end of the lower sash for directing the lower sash when tilted in the guides, said device when withdrawn permitting of either the upper or lower sash being turned horizontally on the studs in the sash frame, and means for preventing the weights raising the sashes when their upper ends are tilted past the movable device.

2. In combination, a window frame, inwardly extending beads on the outside of the frame, inwardly extending beads on the inside of the frame, said latter beads extending downwardly to a point substantially above the upper rail of the lower sash, beads on the upper portions of the frame intermediate the outer and inner beads to provide sash guides, the sides of the frame in the guides having grooves 5 and 6, grooves 6 communicating near the bottom with grooves 5, the beads on the inside of the frame and the intermediate beads being parallel with the upper portions of the grooves 5 and 6, upper and lower sashes, weights for balancing the sashes, the upper sash adapted to fit in the guides adjacent the outside beads and the intermediate beads when in closed position, studs near the lower ends of the sashes and operating in the grooves 5 and 6, the studs and the guides serving to direct the sashes in the proper path of movement, an extension on the lower sash for holding the upper sash against the outside bead, a locking device for holding the lower sash in closed position, a sliding bolt located below the inside and intermediate beads to guide the upper end of the lower sash when tilted in

the guides formed between the intermediate beads and the inside beads to direct the studs on said sash in grooves 6, when raising it, said bolt when withdrawn also permitting of horizontal turning of either sash in the frame, and means preventing the weights raising either sash when its upper end is tilted past the withdrawn bolt.

3. The combination with a sash frame provided with grooves 5 and 6, converging into one near their lower ends, an upper sash, a lower sash, weights to balance the sashes, studs near the lower ends of the upper and lower sashes adapted to slide in said grooves, outer and intermediate beads on the frame above the lower sash for forming a guide for the upper sash, said latter beads being parallel with the upper portions of the grooves 5 and 6, the intermediate beads terminating above the upper end of the lower sash, inner beads forming with the intermediate beads guides for the lower sash when raised in grooves 6, the inner beads extending from the top of the frame to a point above the upper end of the lower sash, a sliding bolt to direct the lower sash when tilted in the latter guides, said bolt being located so that when withdrawn the lower sash may be turned outwardly on its studs, and

means for preventing the weights raising the sashes when their upper ends are tilted past the withdrawn sliding bolt.

4. The combination with a sash frame provided with grooves 5 and 6, converging into one at their lower ends, an upper sash having a seat and comprising two hinged members, means for locking the two members together, a lower sash having an extension to fit in the seat of the upper sash and comprising two hinged members, weights for balancing the sashes, means for locking said two members together, studs located near the ends of the upper and lower sashes which fit in the grooves, a guide parallel with the grooves 6 above the normal position of the lower sash and in which said sash is adapted to slide, a bolt in alinement with the guides to direct the lower sash thereto when it is tilted, said bolt when withdrawn permitting of the sashes being turned horizontally in the frame, and means for preventing the weights raising the sashes when their upper ends are tilted past the withdrawn bolt.

JOHANNES STUMPF.

Witnesses:

WILHELM STUMPF,
ANNA UNVERDRUSS.