

C. K. OLBERG.
SASH MOUNTING.

APPLICATION FILED DEC. 15, 1911.

Patented Oct. 29, 1912.

6 SHEETS—SHEET 1.

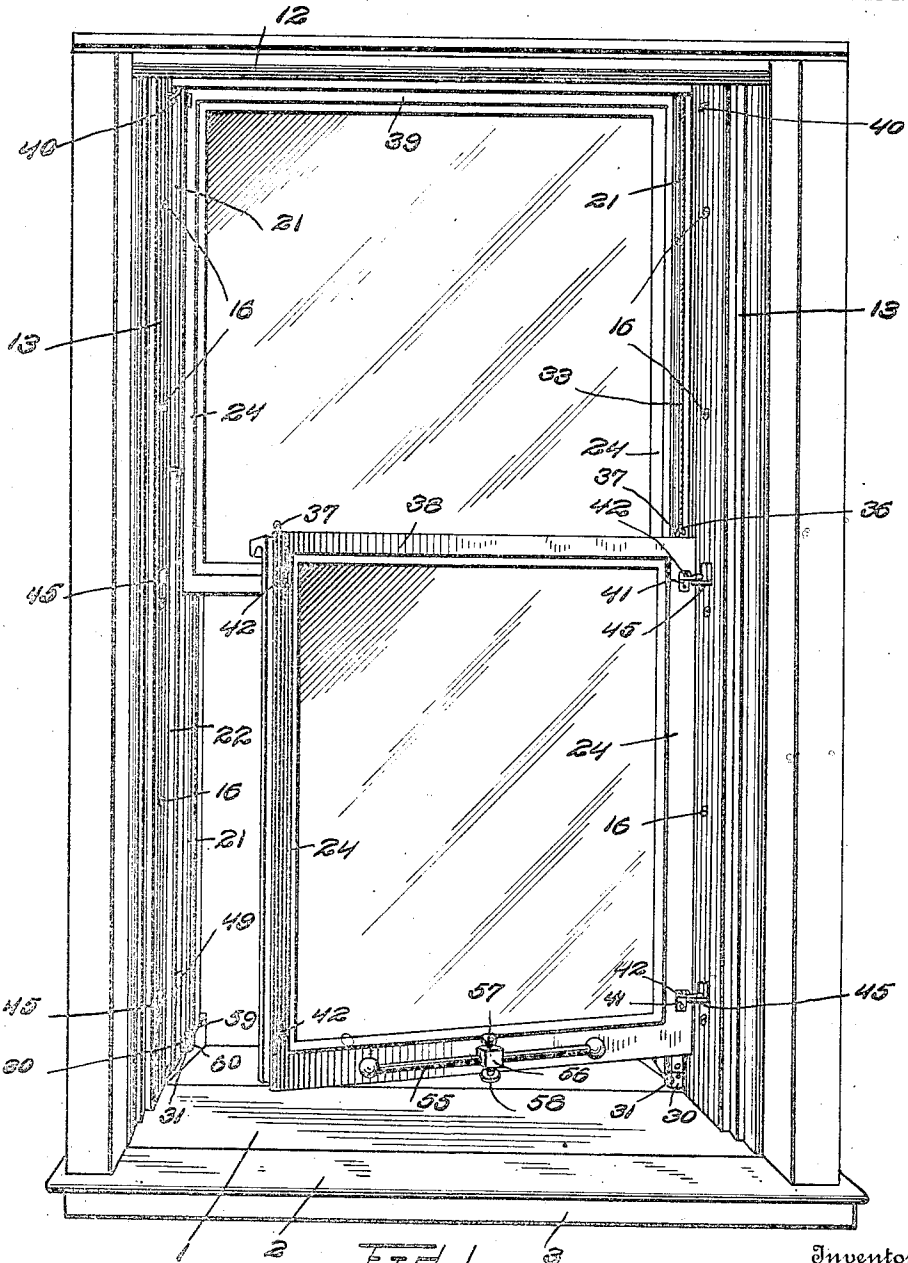


FIG. 1.

Inventor
Charles K. Olberg

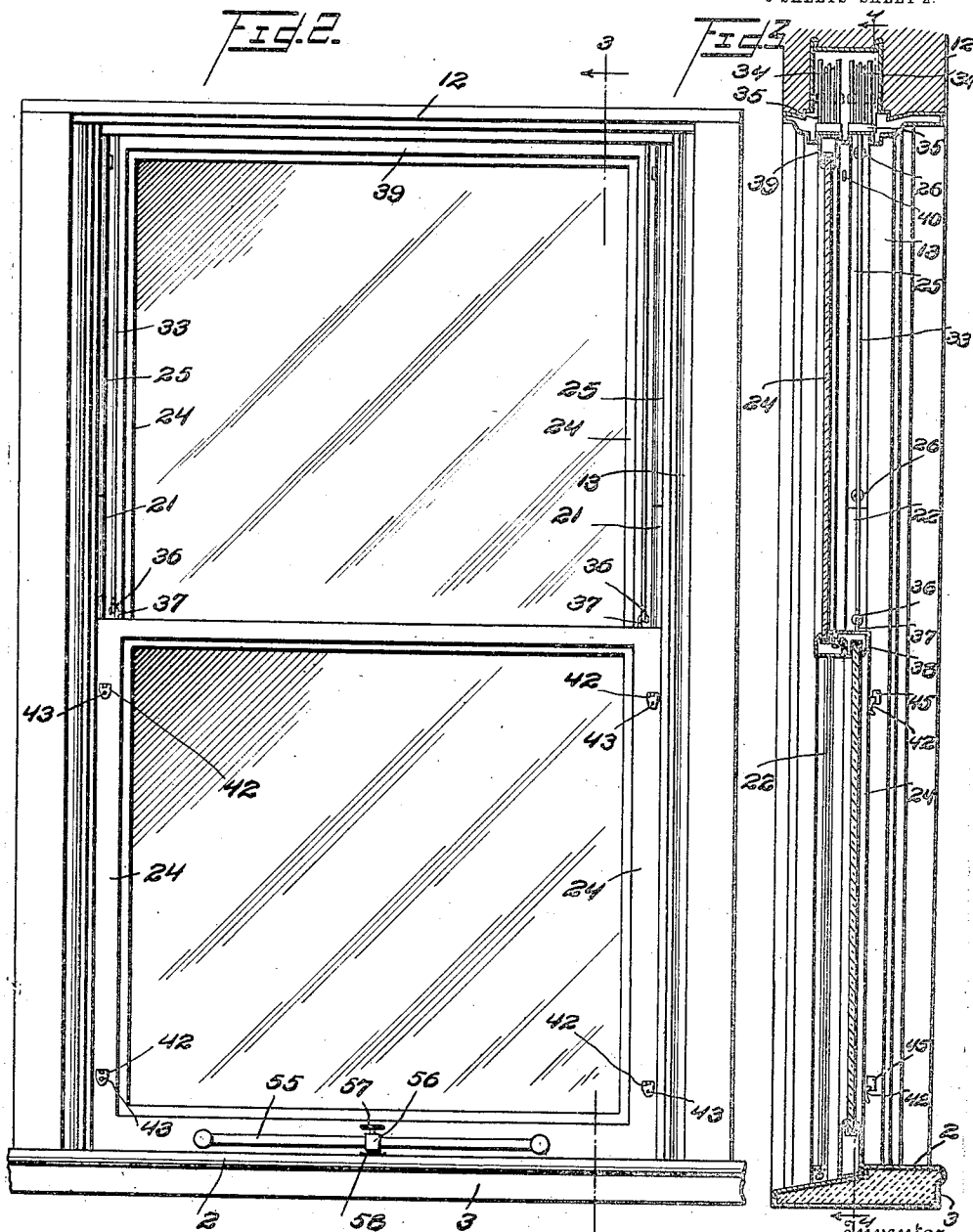
Witnesses
G. P. Thomas
R. H. Krenkel

By Joshua S. Potts
Attorney

1,042,591.

Patented Oct. 29, 1912.

6 SHEETS—SHEET 2.



Witnesses
H. Strauss
R. H. Krenkel

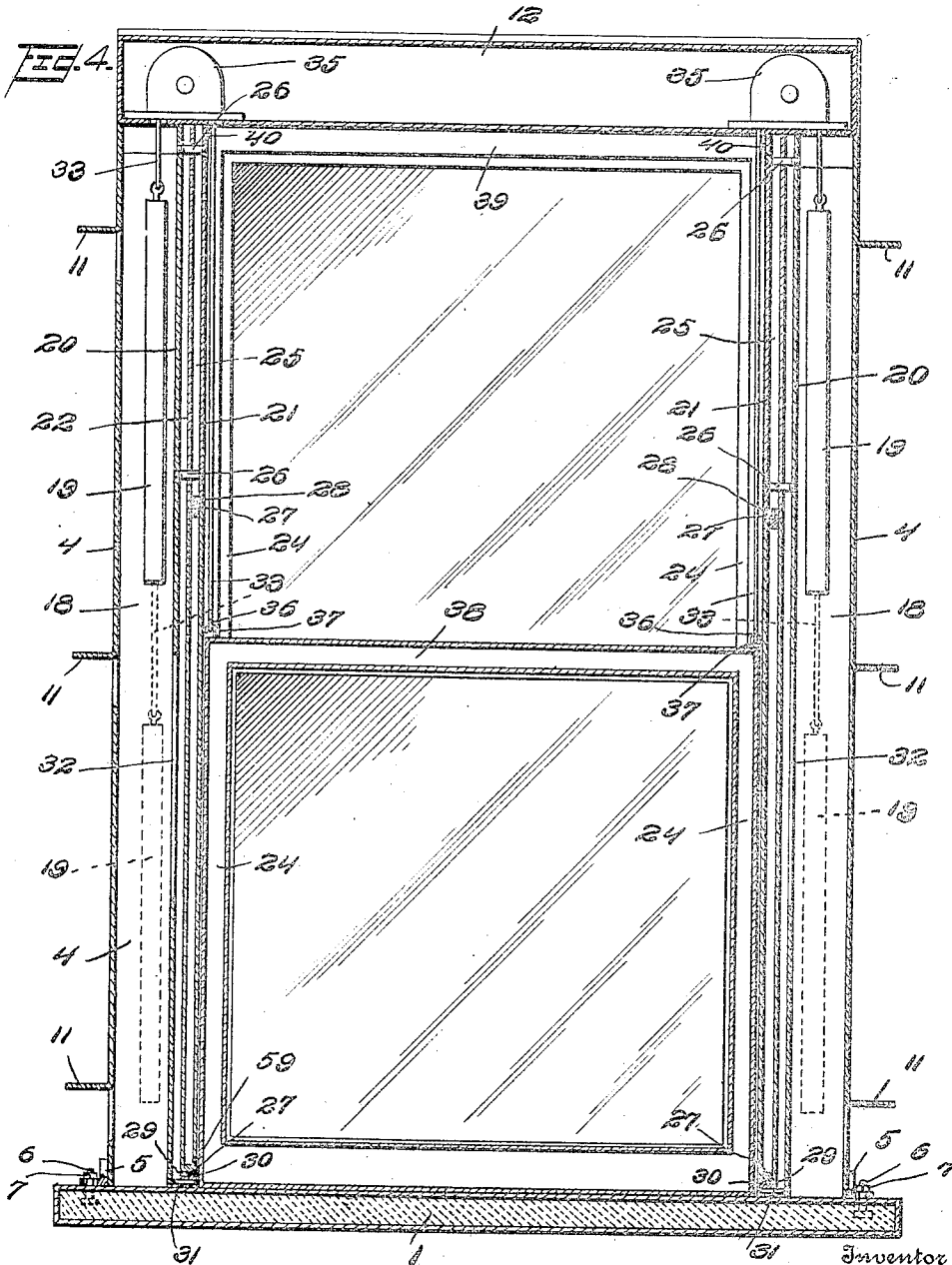
Inventor
Charles K. Olberg
 By *Joshua R. T. Potts*
 Attorney

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Charles K. Olberg
Inventor

Witnesses
H. Strauss
R. H. Krenkel.

By Joshua R. P. Potts.
Attorney

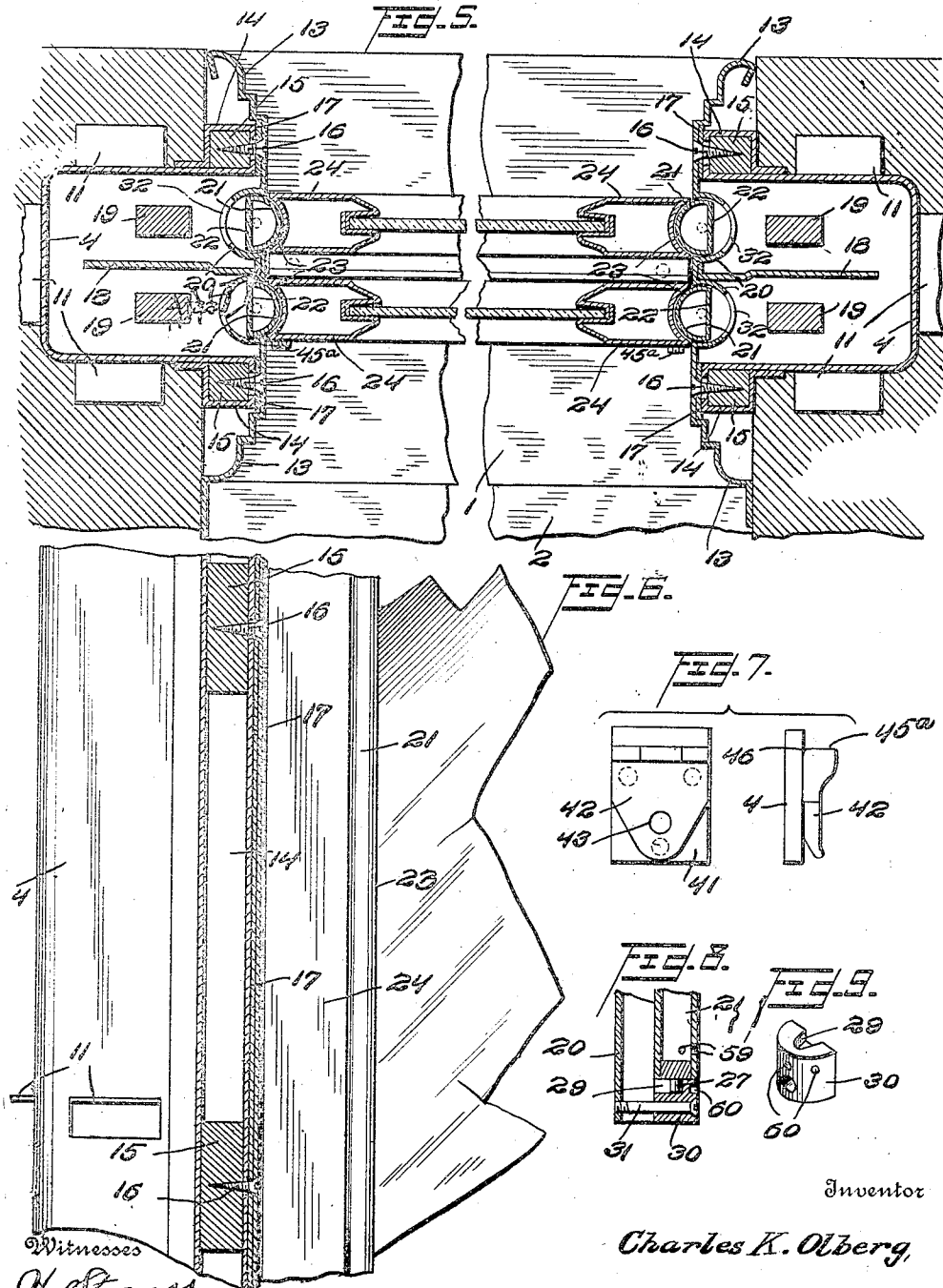
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R. H. Krenkel.

Inventor
Charles K. Olberg,
by *Joshua R. Potts*
Attorney

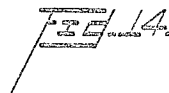
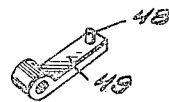
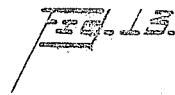
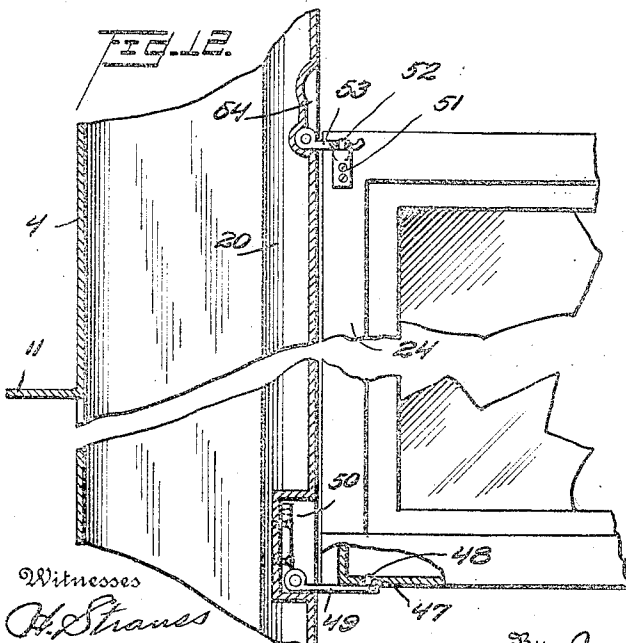
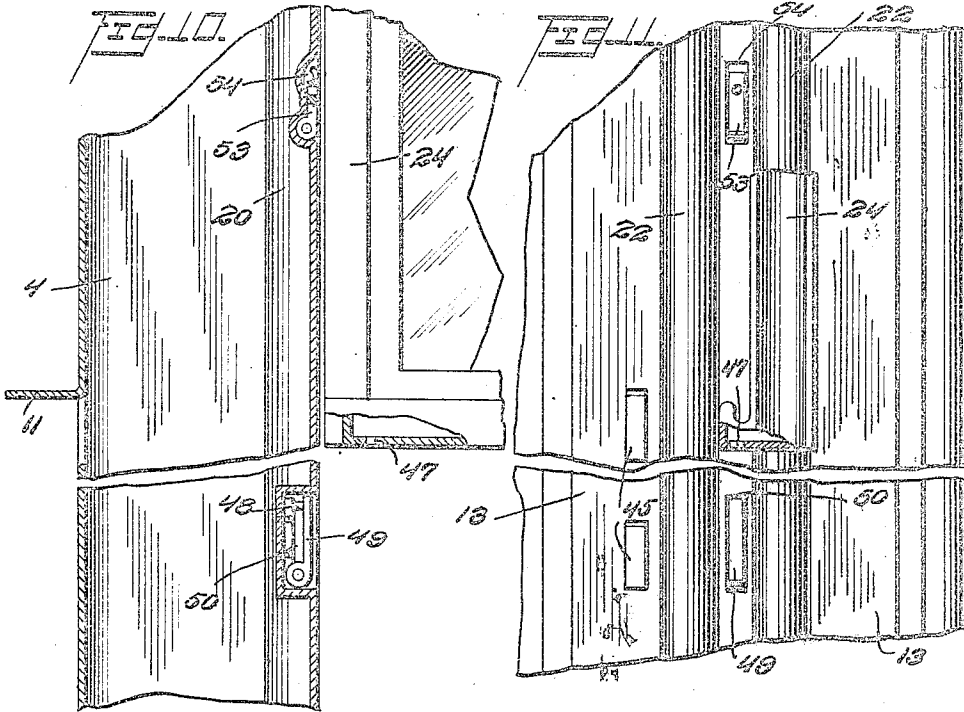
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6 SHEETS—SHEET 5.



Witnesses
H. Stranes
R. H. Krenkel.

Inventor
Charles K. Olberg

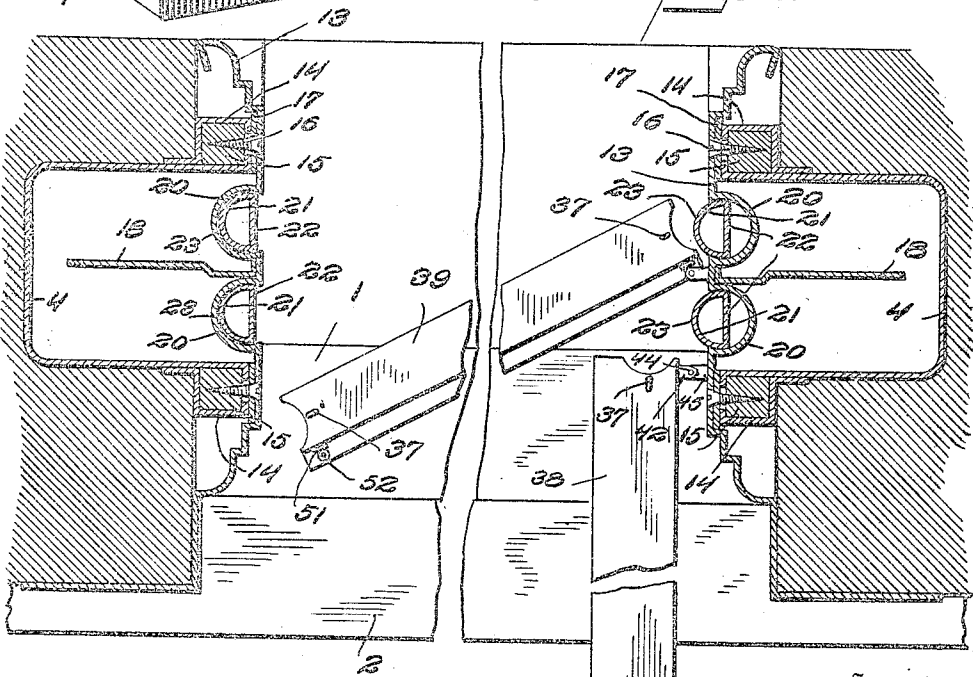
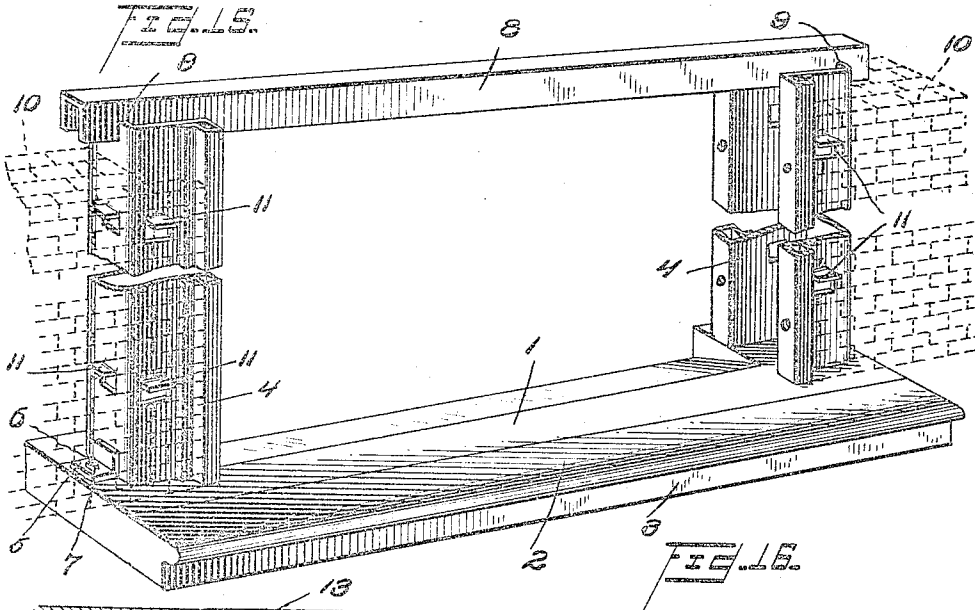
By Joshua R. Post
Attorney

C. K. OLBERG.
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Patented Oct. 29, 1912.

6 SHEETS—SHEET 6.



Witnesses
H. P. Stranes
R. M. Krenkel

Inventor
Charles K. Olberg
By Joshua R. W. Potts
Attorney

UNITED STATES PATENT OFFICE.

CHARLES K. OLBERG, OF PHILADELPHIA, PENNSYLVANIA.

SASH-MOUNTING.

1,042,591.

Specification of Letters Patent.

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Application filed December 15, 1911. Serial No. 665,933.

To all whom it may concern:

Be it known that I, CHARLES K. OLBERG, a subject of the King of Norway, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Sash-Mountings, of which the following is a specification.

My invention relates to improvements in sash mountings, and more particularly to an improved construction of metal sash and frame or casement which enables both the upper and lower sashes to be swung inward, hinged at either edge, so as to permit both sides of the glass to be washed from the inside of the room, and also to permit the sashes to be swung inwardly for purposes of ventilation.

A further object is to provide an improved construction of knockdown metal frame or casement having improved means for holding the same in rectangular form as the wall is built, and anchoring the weight boxes in the wall as well as securing them to the sill.

A further object is to provide improved guides for the sashes, said guides partly curved in cross section and partly straight, and adapted to be turned so as to present either the curved or the straight face to the sash, so as to enable the sash to be removed or securely hold the same, allowing the sash its normal sliding movement.

A further object is to provide a sash of this character with improved hinge mounting which enables the sash to be swung inward with either edge free so as to allow the sash to be swung in either direction into the room for purposes of cleaning the sash or for ventilation.

A further object is to provide an improved construction of frame which enables the trim to be secured to blocks of fireproof wood or other material carried by the weight boxes, and permitted a certain amount of adjustment so as to properly position the trim.

A further object is to provide an improved construction of this character which enables an inspection of the weights, and a connection of the flexible connecting device with the weights by the removal simply of a portion of the sash guide. This also enables the weights to be removed and inserted through these openings.

A further object in my invention is the

recessing of the weight boxes into the masonry as shown, thereby gaining considerably more light opening than with the constructions in general to-day, by keeping the weight boxes inside of the masonry in the opening in the wall.

With these and other objects in view, the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter described and pointed out in the claims.

In the accompanying drawings: Figure 1, is a perspective view illustrating my improvements, showing the lower sash swung inwardly. Fig. 2, is a view in elevation showing the sash in normal closed position. Fig. 3, is a view in vertical section on the line 3—3 of Fig. 2. Fig. 4, is a view in section on the line 4—4 of Fig. 3. Fig. 5, is a broken view on an enlarged scale in horizontal section showing the sashes beside each other. Fig. 6, is a fragmentary view partly in longitudinal section and partly in elevation illustrating the manner of securing the trim to the weight box. Fig. 7, illustrates in front and side elevation one of the hinges on the lower sash. Fig. 8, is a view in longitudinal section on an enlarged scale illustrating the mounting for the lower end of one of the sash guides. Fig. 9, is a detail perspective view of the block 30. Fig. 10, is a broken view in vertical section illustrating the hinge mounting for the upper sash. Fig. 11, is a view partly in elevation and partly broken away illustrating the mounting shown in Fig. 10. Fig. 12, is a view similar to Fig. 10, showing the upper sash supported in its hinged mounting. Fig. 13, is a detail perspective view of the arm 49. Fig. 14, is a detail perspective view of the arm 53. Fig. 15, is a broken perspective view illustrating the manner of holding the weight boxes in parallelism and at right angles to the sill, while the wall is being constructed, and Fig. 16, is a view similar to Fig. 5 showing the upper and lower sashes swung inwardly.

1, represents the window sill which is preferably of sheet metal filled with concrete, and to which the window stool 2 is secured, and has an integral apron 3.

The sill and the apron are laid in the wall as the wall is built, and on top of the sill, the weight boxes 4 are secured by means of angle brackets 5 welded to the back of

the weight boxes, and having relatively large openings in their horizontal members through which bolts 6 embedded in the sill project, and nuts 7 are screwed onto these bolts against the brackets and securely clamp the weight boxes in vertical position. To hold these boxes against movement, while the wall is being built around them, a channel bar 8 having notches 9 is positioned on the upper ends of the boxes, and holds them perpendicular to the sill, while the bricks illustrated at 10 in dotted lines in Fig. 15, are built up around the weight boxes. To securely anchor the weight boxes in the wall, anchors or tongues 11 are stamped out from the weight boxes at both sides, and at the rear, as clearly shown, and they are located between the bricks. After the wall is built up far enough to secure the weight boxes, the channel bar 8 is removed, and the head 12 of the frame is secured in place, as is also the pulley stile or trim 13 at any future time. The weight boxes are of sheet metal of general U-shape in cross section with their outer edges bent back upon themselves in general rectangular form as shown at 14, and in which blocks 15 of wood or other suitable material properly treated so as to render them fire-proof are driven. By making these blocks of a material to receive screws, I eliminate all tapping and drilling at erection. By reference particularly to Fig. 6, it will be noted that these blocks are of a length to allow of ample accommodation for screws 16 which are projected through the trim and through the filler strips 17, and screwed into the wood. It will be noted that the openings in the weight boxes are of appreciably greater diameter than the diameter of the screw. This allows the trim to be adjusted slightly so as to properly position it in the window opening.

Fixed to the pulley stile, and extending into the weight boxes are partitions 18 which serve to separate the sash weights 19 for the upper and lower sashes respectively, and these partitions are preferably secured against the inner faces of that portion of the pulley stile which lies between the two sashes, and which for convenience of description, I shall call a parting strip, although, as a matter of fact, this portion is integral with the rest of the pulley stile or trim, and its outer face is flat.

The pulley stiles, at both sides of the parting strip, are made with inwardly curved portions 20 which extend throughout the length of the pulley stiles, and are curved in the arc of a circle greater than a semi-circle, and receive therein sash guides 21. These sash guides are also curved in cross section in the arc of a circle greater than a semi-circle, and have flat faces 22 which are normally innermost, so that the

curved or rounded portion of the guides project outwardly and into the grooved or curved outer edges 23 of the sash stiles 24, which are curved concentrically with the curvature of the guides, and form a snug, yet sliding juncture therewith. The sash guides 21 are made in two pieces, the upper piece 25 being held stationary by screws 26 which are screwed into the curved portions 20 of the pulley stile, and hold said upper pieces 25 against rotary movement.

The lower portions or rotary members of the guides have trunnions 27 at their ends. The upper trunnions project into bearings 28 in the lower ends of the upper pieces 25, while the lower trunnions project into recesses 29 in the upper faces of bearing blocks 30. These bearing blocks 30 are curved in cross section the same as are the sash guides, and fit within the lower ends of the curved portions 22, and are normally held against rotary movement by screws 31 which are screwed into the curved portions 21.

Particular attention is called to the recess 29 which is somewhat Y-shape or flaring to allow the lower member of the guide to be removed as will hereinafter appear.

The curved portions 20 back of the rotary parts of the sash guides are made with longitudinal slots 32, through which access may be had to the weights, and it will be noted that these openings are of such length and size that the connection between the flexible connecting devices 33, and the weights may be manipulated when the sashes are elevated, and the sash weights lowered. These flexible connecting devices 33 are preferably chains, and they are passed over pulleys 34 in pulley boxes 35 secured in the head 12, and at their free ends are provided with eyes 36 adapted to engage hooks 37 on the meeting rail 38 of the lower sash, and on the top rail 39 of the upper sash, or engage hooks 40 fixed to the parting rail near its upper end when said flexible connecting devices are disconnected from the sashes to allow the latter to be hinged.

To permit the lower sash to swing, when one of the rotary guides 22 is turned with its flat face outwardly, brackets 41 are secured to the sash stiles near their upper and lower ends, and have hinged arms 42 made with openings 43 to engage over pins 44 on hinged brackets 45 secured to the pulley stile, and similar in construction to brackets 49 hereinafter described.

When the arms 42 are positioned flat against the sash, the sash may freely slide up and down without said arms engaging the pins 44. When, however, said arms 42 are in a higher plane than the pins 44, and are then swung outwardly when the sash is lowered, the openings 43 will align with the

pins 44, and the latter will become journal pins or hinge pins for the sash. The arms 42 have relatively strong shoulders 45 which prevent any hinging of the arms greater than a right angle so as to support the sash, and they have a friction bearing 46 which prevents accidental pivotal movement of the arms. Both stiles of the lower sash are provided with this hinge mounting, so that the lower sash may be swung in either direction when permitted by the movement of the sash guide. The upper sash has hinged mounting at both sides as shown in detail in Figs. 10 to 14 inclusive.

The inwardly projecting portion of the meeting rail of the upper sash, adjacent its ends, is provided with openings or bearings 47 which are adapted to receive hinge pins 48 on pivoted arms 49. These arms 49 are pivotally secured in the parting rails, and when in normal position lie in pockets 50 provided for their reception, so that they lie flush with the parting rail, and do not interfere with the movement of the sash.

On the upper sash, near its upper end, brackets 51 are secured and have pins 52 thereon which are adapted to project into openings in pivoted arms 53 secured to the parting strip and normally located in pockets 54 provided for their reception, so as to lie flush with the parting strip. These arms 53 and 49 are located in the lower portion of the frame, so that when it is desired to swing the upper sash outwardly, it must be lowered, and as seen most clearly in Fig. 16, both the lower and the upper sash may be swung into the room at the same time, and both sides of both sashes may be washed from inside the room without the necessity of climbing on the outside of the building or hanging on the outside of the window.

I have illustrated the lower sash provided with an ordinary bar lift 55, which has a bracket 56 secured thereto in which a thumb screw 57 is mounted, and has a friction disk 58 in its lower end adapted to engage the window stool, and hold the lower sash at any angle of opening, thus permitting the lower sash to be opened and held, such as an ordinary casement window. The sashes, while they are free to slide vertically on the sash holders 22, they engage such sash holders sufficiently snug to exclude the air and render the sashes tight, and said sash are balanced by the ordinary sash weights 19, so as to slide up and down and remain at any position to which they are moved. To facilitate the turning movement of the lower sections of the sash guide, I illustrate a simple expedient which consists in providing a circular series of openings 59 to receive a wire nail or other suitable device which allows the said guides to be readily turned either to bring the curved or the flat faces of said guides outwardly. The lower bearing

blocks 30 are provided with a circular series of notches 60 to receive a nail to turn them when it is desired to remove the lower sections of said guides.

The operation is as follows: To hinge the lower sash, it is necessary to raise the same until the arms 42 are above the pins 44, when said arms 42 are swung outward at right angles to the sash, and the sash lowered so that the pins 44 will project through the openings 43. The sash cord or chain 33 at the edge of the window to be swung inwardly is disconnected from the hook 37 on the sash, and caught over the hook 40. Before this operation, however, the lower section of the strip 42 is turned to bring its flat side outward, thus moving the curved side of said strip out of the groove in the sash, so that this edge of the sash is free to swing, and it may be locked at any angle by means of the thumb screw 57, or it may be swung far into the room to enable the sash to be washed on both sides. To swing the lower sash inwardly, it is lowered and is connected to the arms 53 and 49 as above set forth, and as clearly shown in Figs. 10, 11, and 12, and its guide 22 is turned to allow it to swing inwardly. If it is desired to get at the weights, it is simply necessary to turn the block 30 until its flat side is outward, when the lower trunnion of the sash guide may be drawn out of the recess 29, and then the upper trunnion drawn out of the bearing 28. This removal of the sash guide exposes the opening 32 through which the hand may be projected to manipulate the weight, or the flexible connecting device secured thereto. These blocks 30 are normally held by means of their screws 31, which must be removed to allow the blocks to be turned and replaced to hold the blocks.

The sashes are provided with hinge couplings at both sides, so that they may be swung in either direction, but of course, they may be provided with these hinge couplings at one side only if desired, and the other features of construction might be varied in accordance with the desires of the trade. For example, I do not limit myself to the particular manner of mounting the pulleys, nor to any of the other structural details which may be varied to suit conditions and for purposes of ornamentation.

Various slight changes might be made in the general form and arrangement of parts described without departing from my invention, and hence I do not limit myself to the precise details set forth, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of the appended claims.

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

1. In combination, a sash having grooved

stiles, and sash guides having rotary mounting normally engaging and fitting in the grooves of the sash and adapted to be turned completely out of the grooves in the stiles to release the sash, substantially as described.

2. In combination, a window frame, sash guides having rotary mounting in the frame, said guides each consisting of more than half of a cylinder and having flat portions, and sash having curved grooves in their stiles normally engaging the said guides, substantially as described.

3. In combination, a window frame, sash guides having rotary mounting in the frame said guides each consisting of more than half of a cylinder and having flat portions, and sash having curved grooves in their stiles normally engaging the said guides, said guides constructed to be turned to present their flat sides to the sash and release the sash, substantially as described.

4. In combination, a sash having grooved stiles, and sash guides having rotary mounting normally engaging in the grooves of the sash and adapted to be turned to release the sash, separable hinge members on the sash and the frame adjacent the edges of the sash, substantially as described.

5. In combination, a window frame, sash guides having rotary mounting in the frame, said guides having flat portions, and sash having curved grooves in their stiles normally engaging the said guides, separable hinge members on the sash and the frame adjacent the edges of the sash, substantially as described.

6. In combination, a window frame, sash guides having rotary mounting in the frame, said guides having flat portions, and sash having curved grooves in their stiles normally engaging the said guides, said guides constructed to be turned to present their flat sides to the sash and release the sash, separable hinge members on the sash and the frame adjacent the edges of the sash, substantially as described.

7. In combination, a sash having grooved stiles, a window frame, and sash guides having rotary mounting in the frame normally engaging in the grooves of the sash and adapted to be turned to release the sash, said rotary guide members having rotary mounting at their ends, rotary blocks supporting the lower ends of said guide bars and adapted when turned to permit the release and removal of the guides, and said frame having openings therein back of the guides, substantially as described.

8. In combination, a window frame, sash guides having rotary mounting in the frame, said guides having flat portions, and sash having curved grooves in their stiles normally engaging the said guides, said rotary guide members having rotary mounting at their ends, rotary blocks supporting the

lower ends of said guide bars and adapted when turned to permit the release and removal of the guides, and said frame having openings therein back of the guides, substantially as described.

9. In combination, a window frame, sash guides having rotary mounting in the frame, said guides having flat portions, and sash having curved grooves in their stiles normally engaging the said guides, said guides constructed to be turned to present their flat sides to the sash and release the sash, said rotary guide members having rotary mounting at their ends, rotary blocks supporting the lower ends of said guide bars and adapted when turned to permit the release and removal of the guides, and said frame having openings therein back of the guides, substantially as described.

10. In combination, a sash having grooved stiles, a window frame, and sash guides having rotary mounting in the frame normally engaging in the grooves of the sash and adapted to be turned to release the sash, separable hinge members on the sash and the frame adjacent the edges of the sash, said rotary guide members having rotary mounting at their ends, rotary blocks supporting the lower ends of said guide bars and adapted when turned to permit the release and removal of the guides, and said frame having openings therein back of the guides, substantially as described.

11. In combination, a window frame, sash guides having rotary mounting in the frame, said guides having flat portions, and sash having curved grooves in their stiles normally engaging the said guides, separable hinge members on the sash and the frame adjacent the edges of the sash, said rotary guide members having rotary mounting at their ends, rotary blocks supporting the lower ends of said guide bars and adapted when turned to permit the release and removal of the guides, and said frame having openings therein back of the guides, substantially as described.

12. In combination, a window frame, sash guides having rotary mounting in the frame, said guides having flat portions, and sash having curved grooves in their stiles normally engaging the said guides, said guides constructed to be turned to present their flat sides to the sash and release the sash, separable hinge members on the sash and the frame adjacent the edges of the sash, said rotary guide members having rotary mounting at their ends, rotary blocks supporting the lower ends of said guide bars and adapted when turned to permit the release and removal of the guides, and said frame having openings therein back of the guides, substantially as described.

13. The combination with weight boxes, of pulley stiles secured to said weight boxes

and having parallel curved recesses in their outer faces curved in cross section in the arc of a circle, greater than a semi-circle, rotatable sash guides mounted concentrically in said recesses and in cross section greater than a semi-circle, said guides having flattened faces normally positioned with their curved faces outward, sashes, stiles on said sashes having grooves in their outer faces receiving the curved guides, whereby the sash is mounted to slide on the guides, substantially as described.

14. The combination with weight boxes, of pulley stiles secured to said weight boxes and having parallel curved recesses in their outer faces curved in cross section in the arc of a circle, greater than a semi-circle, sash guides mounted concentrically in said recesses and in cross section greater than a semi-circle, said guides having flattened faces normally positioned with their curved faces outward, sashes, stiles on said sashes having grooves in their outer faces receiving the curved guides, whereby the sash is mounted to slide on the guides, pins fixed to the pulley stiles, and hinged arms on the lower sash adapted when swung outward to engage the pins and permit the hinge movement of the lower sash, substantially as described.

15. In combination, a sash having grooved stiles, a window frame, and sash guides having rotary mounting in the frame normally engaging in the grooves of the sashes and adapted to be turned to release the sashes, separable-hinge members on the sashes and the frame adjacent the edges of the sashes, weights mounted to move in the frame, pulleys in said frame, flexible connecting devices secured to the weights passed over the pulleys and adapted to be removably connected to the sashes, and means on the frame for receiving the flexible connecting devices when the latter are released from

the sashes, whereby the sashes are free to swing, substantially as described.

16. In combination, a window frame, sash guides having rotary mounting in the frame, said guides having flat portions, and sashes having curved grooves in their stiles normally engaging the said guides, separable hinge members on the sashes and the frame adjacent the edges of the sashes, weights mounted to move in the frame, pulleys in said frame, flexible connecting devices secured to the weights passed over the pulleys and adapted to be removably connected to the sashes, and means on the frame for receiving the flexible connecting devices when the latter are released from the sashes, whereby the sashes are free to swing, substantially as described.

17. In combination, a window frame, sash guides having rotary mounting in the frame, said guides having flat portions, and sashes having curved grooves in their stiles normally engaging the said guides, said guides constructed to be turned to present their flat sides to the sashes and release the sashes, separable hinge members on the sashes and the frame adjacent the edges of the sashes, weights mounted to move in the frame, pulleys in said frame, flexible connecting devices secured to the weights passed over the pulleys and adapted to be removably connected to the sashes, and means on the frame for receiving the flexible connecting devices when the latter are released from the sashes, whereby the sashes are free to swing, substantially as described.

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

CHARLES K. OLBERG.

Witnesses:

R. H. KRENKEL,
CHARLES E. POTTS.