

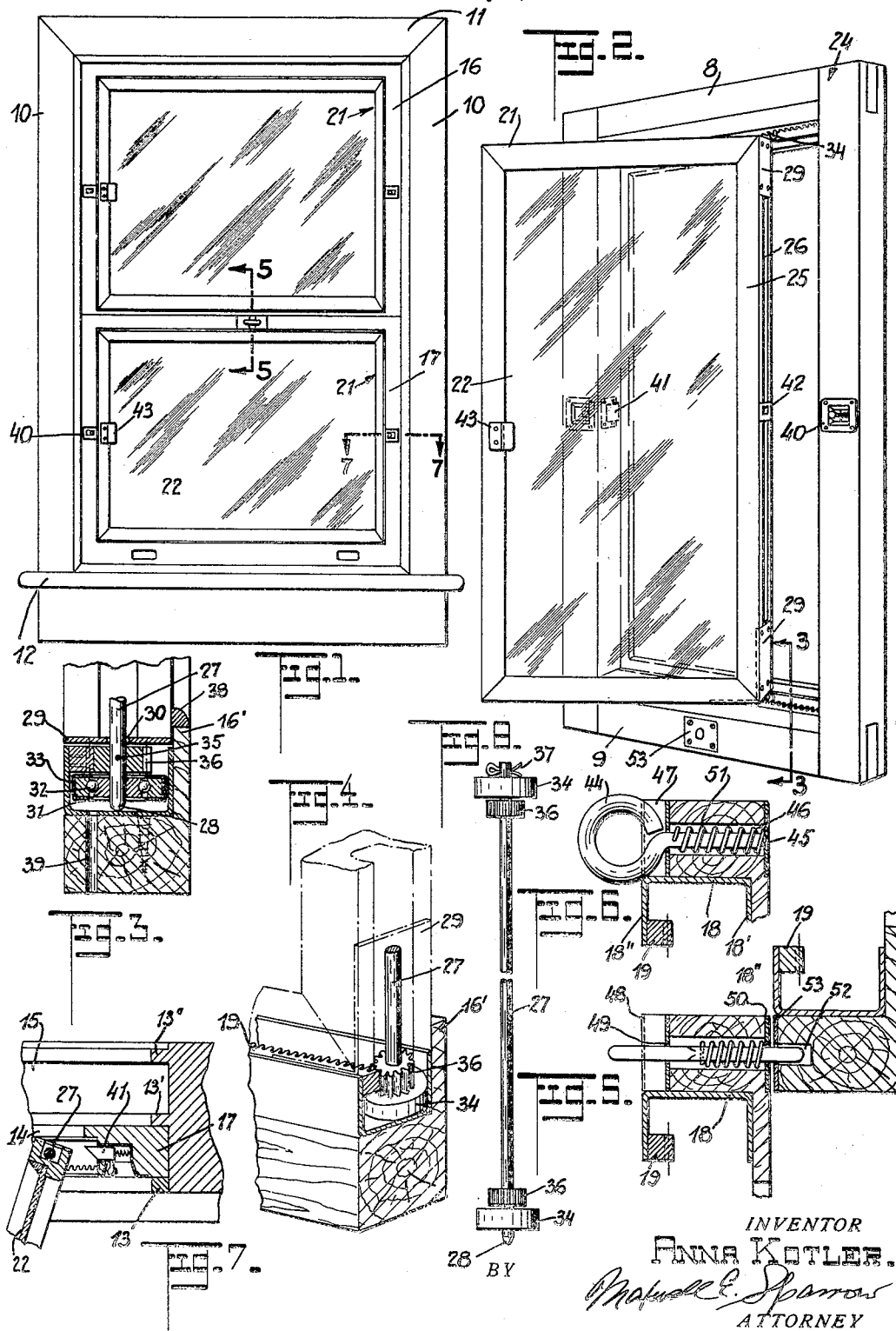
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A. KOTLER

1,910,344

WINDOW

Filed July 3, 1931



UNITED STATES PATENT OFFICE

ANNA KOTLER, OF NEW YORK, N. Y.

WINDOW

Application filed July 3, 1931. Serial No. 548,560.

This invention relates to improvements in the construction of windows as used in dwelling houses, office buildings and similar structures and is an improvement on my Patent #1,778,978, dated, October 21st, 1930, for window.

In my Patent, #1,778,978, I have provided a window sash having an outer and an inner frame and cooperative means in the outer and inner frames whereby the inner frame is adapted to be pivoted and slid with relation to the outer frame and which is so hung as to permit turning on a vertical axis whereby either side is rendered accessible.

My said Patent, #1,778,978, further provides for the construction of a window having an outer and an inner frame wherein the inner frame can be slid along channels in the upper and lower members in the outer frame from one end of the opening to the other end thereof and freely swing laterally at any point along the channels, and wherein the inner frame may be completely reversed or turned inside out and completely confined in reversed position within the outer frame.

It is an object of the present invention to provide means to facilitate sliding of the auxiliary or inner frame with respect to the outer frame along channels in the upper and lower members of the outer frame, and to facilitate the inner frame being swung laterally at any point along the channels, and for this purpose I employ a rack and pinion arrangement cooperatively associated with revoluble means.

A further object of the invention is to provide a sash having an outer frame and a slidable reversible inner frame and cooperative means in the frames whereby the inner frame is prevented from canting by being held parallel with relation to the sides of the outer frame and in vertical alinement, during the sliding operation.

A further object of the invention is to provide a window sash having an outer frame and a swingable and reversible inner frame and which is simple in construction, efficient in purpose and use and economical in cost.

A further object of the invention is to provide a window sash having an auxiliary sash

pivotally arranged within and adapted to swing with relation to an outer sash, and in which the pivotal means is supported in bearings which also provide means to reinforce the inner corners of the auxiliary frame.

These and other such objects, as neatness in appearance, ease in manipulation and ready substitution for the common type of sash, are accomplished by the novel construction, combination and arrangement of parts hereinafter described and shown in the accompanying drawing, constituting a material part of this disclosure, and in which:

Fig. 1 is a front elevational view of a conventional type of window casing showing a pair of sashes made in accordance with the invention installed therein.

Fig. 2 is a perspective view of a conventional type of window casing showing a sash made in accordance with the invention, the inner or auxiliary frame being shown swung open and slid partially along the channels in the outer frame.

Fig. 3 is a view taken along line 3—3 of Figure 4.

Fig. 4 is a view in perspective, partially in cross-section, showing a modified form of Figure 3.

Fig. 5 is a cross-sectional view taken along line 5—5 of Figure 1 and showing the window lock in locked position.

Fig. 6 is a view showing a portion in cross-section of one of the sashes, the locking member being shown in unlocked position.

Fig. 7 is a sectional view taken on line 7—7 of Figure 1.

Fig. 8 is a view of part of the sliding and pivoting mechanism.

The casing shown is in all respects of the usual type of construction, comprising a pair of spaced jambs 10 connected by a lintel 11 at their top and a sill 12 at the bottom.

Both jambs are channelled at their approximate inner surfaces and provided with parting strips 13—13'—13'' to produce grooves 14—15, in which are slidably received sash frames 16—17, respectively, top and bottom.

Each sash comprises an outer and an inner

or auxiliary frame which are, in the embodiment shown, regular rectangles adapted to take the place of common sashes for which they may be substituted. The outer frames have at their inner edges inreaching flanges, as at 16'. As the construction of both sashes 16—17, are identical, only one will be described.

The inner surfaces of the upper and lower elements 8 and 9, respectively, of each outer frame 24, are grooved or rabbeted longitudinally to receive channel guides 18, preferably metallic, having vertical walls 18' and 18'', the said guides 18 being held by fastenings in fixed positions on the frame. Provided on the upper end of wall 18'', of each channel 18, is a rack 19, preferably metallic. The rack 19 may form an integral part of the channel 18 or may comprise a separate element secured thereto in any suitable manner.

The inner frame 21, in which is fixed a transparent plate 22, as glass, is arranged, in a manner hereinafter provided, to slide along channels 18, and pivot or swing with relation to the outer frame 24.

A side 25 of the inner frame is grooved its entire length as shown at 26 to loosely receive a rod 27 having its ends projecting beyond the said side of the inner frame, the ends of the rod projecting within the channels 18, the bottom end of the rod being rounded as shown at 28 and touching the base of the bottom channel.

The side 25 of the inner frame is secured to the top and bottom elements of the frame by the corner bracket straps 29 which are perforated as shown at 30 (Fig. 3), to provide bearings for the rod 27. Secured to and proximate each end of the rod is the inner race 31 of a ball bearing to which is revolvably mounted, through the instrumentality of the balls 32, the outer race 33, the said ball bearing being adapted to fit between the walls 18' and 18'', and to revolvably engage with either wall when the inner frame is slid along the channels, the said walls providing tracks for the ball bearing. In lieu of ball bearings, rollers 34, as shown in Figure 4, may be provided.

Interposed between one ball bearing or roller and the top end and between the other ball bearing or roller and the bottom end of the side 25 of the inner frame and mounted on the rod 27 are pinions 36 for engagement with the racks 19. The pinions are fixed to the rod by pins 35 so that the rod rotates with the pinions. A cotter collar pin 37 to engage a hole in the top of the rod may be provided to facilitate removal of the inner frame in the event of repairs becoming necessary.

In the construction just stated, the rollers or ball bearings are free to revolve with relation to the rod and therefor with relation

to the pinions fixed on the rod. The rod being mounted for rotation in the bearing brackets 29 revolves with relation to the inner frame and permits the inner frame being swung about the rod as a pivot.

I have thus provided means for sliding with ease the inner frame along tracks in the top and bottom members of the outer frame without canting, the inner frame by this construction being constantly held in vertical alinement, and parallel with the sides of the opening of the outer frame during the sliding operation, and capable of being completely reversed.

Secured to the bottom of the inner frame at the face which normally is on the outside of the window is a weather strip 38 for the purpose of deflecting the rain to prevent the same from entering the bottom channel and to prevent accumulation of water in rainy weather within the bottom channel, there are provided a plurality of drain holes or openings 39 as passages therefor.

Fixed in the front surface of the outer frame 16 in both of its upright elements, are metal casings 40, carrying cupboard latches 41 provided with knobs accessible from the front of the casings and urged into engagement with the sockets 42, on the inner frames by coiled compression springs as shown.

Fixed in each side of the front member of each inner frame are hand grips 43 by which the glasspanels or inner frames may be conveniently manipulated.

Figures 5 and 6, show a locking arrangement which may be used in conjunction with the device, the purpose being to lock one window against the other. For this purpose there is provided an eye bolt 44 having a shank 45 disposed within an opening 46 formed in the top element of the bottom window. Adjacent the opening 46 is a member 47 having a vertical slot or depression 48 and a deeper horizontal slot or depression 49, the depressed portions of the member 47 being fitted in complementary grooves formed in the top element of the bottom window.

A plate 50 having a hole registering with the opening 46 is provided on the outer surface of the top element. Encircling the shank 45 of bolt 44 and confined within the opening 46 is a helical spring 51, one end thereof being fixed to the plate 50 and its other end being fixed to the shank proximate the eye portion of the bolt.

In alinement with the opening 46 and formed in the bottom element of the top window is a recess 52. A plate 53 is secured to the said bottom element adjacent the plate 50 and having a similar hole through which the free end of the shank may pass to project within the recess 52 when the bolt is in locked position. When the bolt is in unlocked

position the eye of the bolt partially recedes within the vertical slot or depression 48 and is thereby fixed in unlocked position as shown in Figure 6; when the bolt is in locked position the eye of the bolt recedes to a greater extent within the horizontal deeper slot or depression 49 thereby permitting the extension of the shank within the recess 52 of the top window, as shown in Figure 5.

In constructing a window in accordance with my invention, the inner frame is moved or slid by means of roller elements along the channels from one end of the opening in the outer frame to the other end and freely swung laterally at any point along the channels. This construction also permits the inner frame to be completely reversed or turned inside out in a very easy manner and completely confined within the outer frame.

It will thus be seen that there is herein described apparatus in which the several features of this invention are embodied, and which apparatus in its action attains the various objects of the invention and is well suited to meet the requirements of practical use.

As many changes could be made in the above construction, and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

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

1. A window sash comprising an outer frame, channels secured in the top and bottom thereof and provided with racks, an inner frame, pinions rotatably mounted on the inner frame at the top and bottom adjacent one side thereof for engagement with the racks, and members revoluble independently of said pinions adapted for engagement with the channels.

2. A window sash comprising an outer frame having an opening and channels at the top and bottom thereof facing the opening, racks arranged in the channels, an inner frame having one of its sides grooved its entire length, a vertical shaft disposed in said groove and rotatably mounted on the inner frame, pinions fixed to the shaft and engaging the racks, and a member revoluble independently of said pinions and adapted for engagement with the bottom channel.

3. A window sash comprising an outer frame having an opening and channels at the top and bottom thereof facing the opening, racks arranged in the channels, an inner frame, a vertical shaft disposed at a side of the inner frame and rotatably mounted thereon, pinions fixed to the shaft and engaging the

racks, and members rotatably mounted on the shaft adapted for engagement with the channels.

4. A window sash comprising an outer frame having an opening and channels at the top and bottom thereof facing the opening, an inner frame, a vertical shaft arranged in a side of the inner frame, perforated straps reinforcing the corners formed by the side and top and bottom of the inner frame, said shaft extending through the perforations and being rotatably mounted in the brackets, and rotatable means on the shaft for engagement with the channels.

5. A window sash comprising an outer frame having an opening and channels at the top and bottom thereof facing the opening, racks arranged in the channels, an inner frame, a vertical shaft arranged in a side of the inner frame, perforated brackets reinforcing the corners formed by the side and top and bottom of the inner frame, said shaft extending through the perforations and being rotatably mounted in the brackets, pinions fixed to the shaft and engaging the racks, and members rotatably mounted on the shaft adapted for engagement with the channels.

6. A window sash comprising an outer frame having an opening and channels at the top and bottom thereof facing the opening, an inner frame, a vertical shaft disposed at a side of the inner frame and rotatably mounted thereon, the lower end of said shaft being in direct contact with the bottom channel, and revoluble members mounted on the shaft adapted to be engaged with a side of the channels.

7. A window sash comprising an outer frame having an opening and channels at the top and bottom thereof facing the opening, an inner frame, a vertical shaft disposed at a side of the inner frame and rotatably mounted thereon, the lower end of said shaft being in direct contact with the bottom channel, revoluble members mounted on the shaft adapted to be engaged with a side of the channels, and means associated with the shaft whereby the inner frame may be removed from the outer frame.

8. A window sash comprising an outer frame having an opening and channels at the top and bottom thereof facing the opening, racks arranged in the channels, an inner frame having one of its sides grooved its entire length, a vertical shaft disposed in said groove and rotatably mounted on the inner frame, pinions fixed to the shaft and engaging the racks, the lower end of said shaft extending beyond the bottom pinion for engagement with the bottom channel.

Signed, at New York, in the county of Bronx and State of New York, this 12th day of June, 1931.

ANNA KOTLER.