

April 17, 1945.

B. F. KREHBIEL

2,373,762

WINDOW UNIT

Filed Sept. 4, 1944

3 Sheets-Sheet 1

Fig. 1

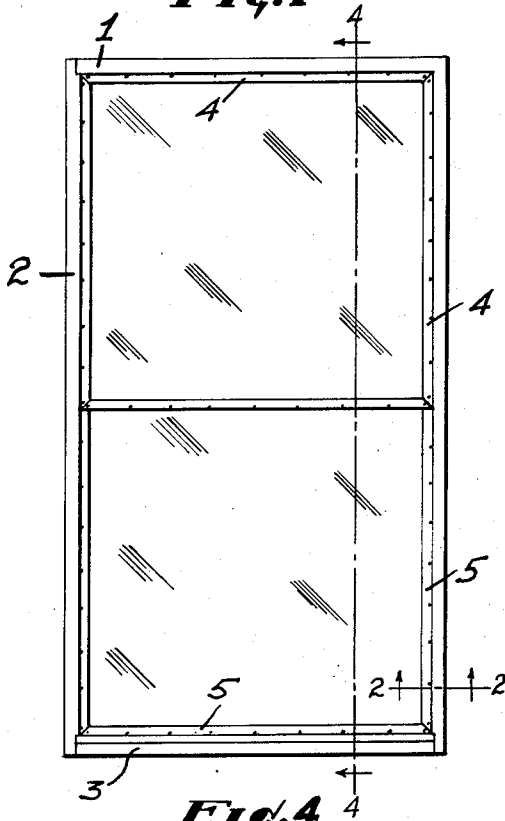


Fig. 2

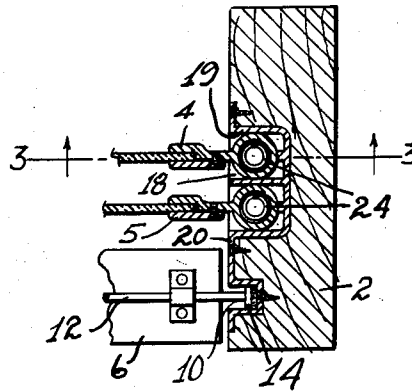


Fig. 3

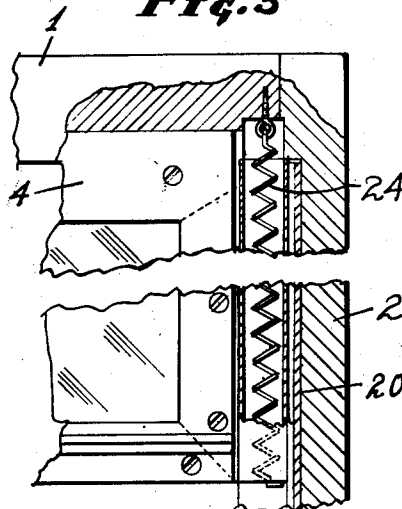


Fig. 4

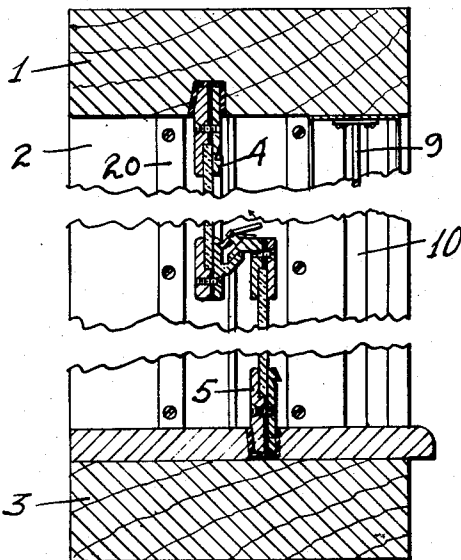
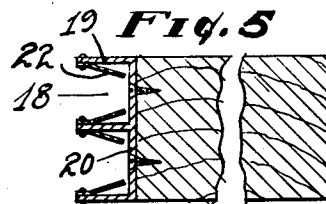


Fig. 5



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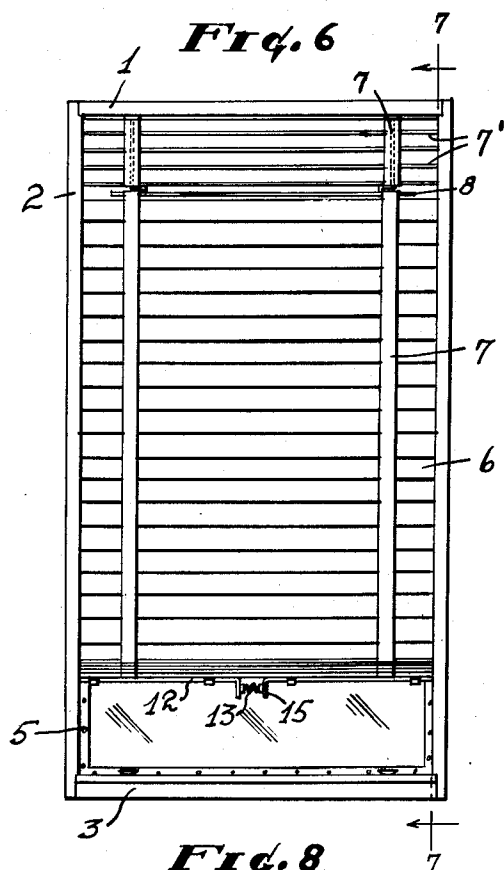
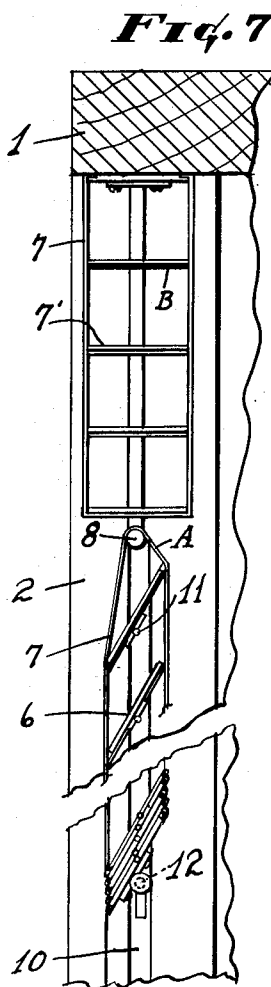
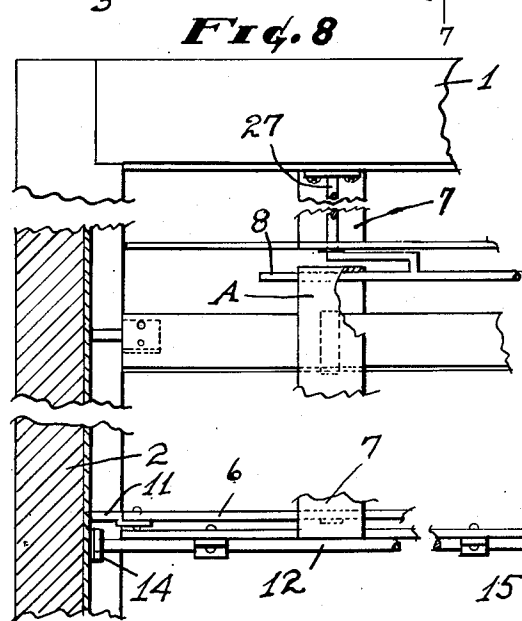
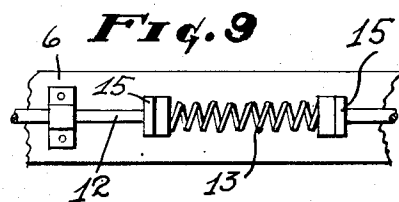
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3 Sheets-Sheet 2



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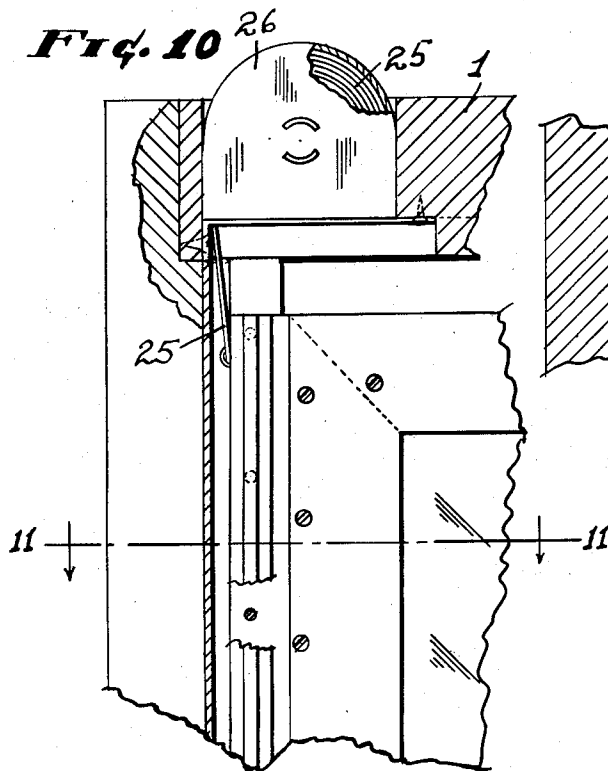
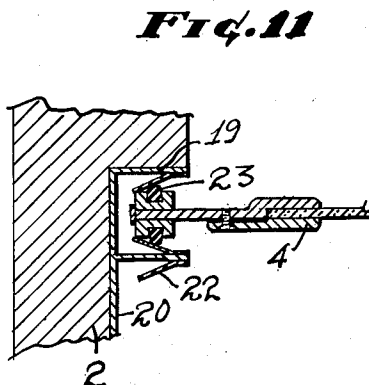
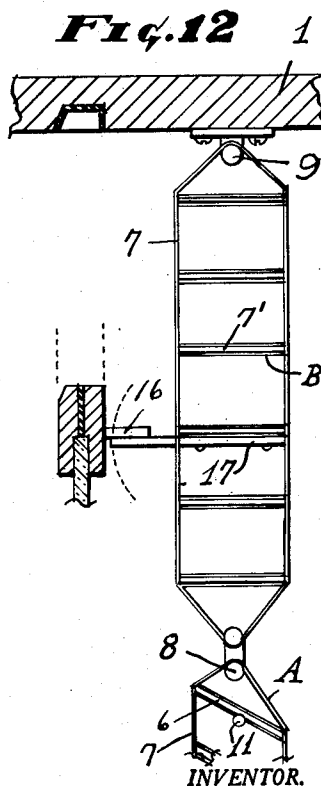
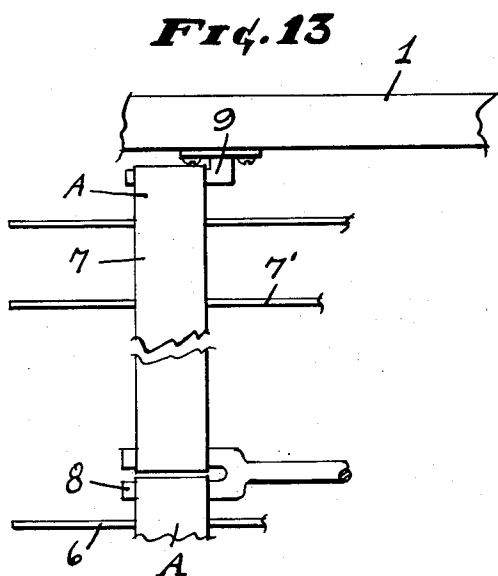
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WINDOW UNIT

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

2,373,762

WINDOW UNIT

Benjamin F. Krehbiel, Wichita, Kans.

Application September 4, 1944, Serial No. 552,641

5 Claims. (Cl. 160—107)

This invention relates to useful improvements in a window unit and has for its principal object the combination of window sash and blinds to control the light and ventilation for a room.

A further object of this invention is to construct a sash and its frame in such a way as to reduce the width of the side rails and thickness thereof and furthermore to eliminate the use of conventional weight, cords and pulleys by substituting springs in lieu thereof to counterbalance the sash; also the provision of blinds consisting of a plurality of louvers pendently carried to vertically align and carry the louvers in spaced relation, said blind structure having a portion of its louvers from the head jamb of the window downward arranged to rock to a desired open slant to permit air circulation therethrough when the upper sash of a window is lowered a short distance for ventilating purposes, and the said upper portion of the louvers being rocked by the said upper sash at the time of moving the same vertically in either direction whereby the said portion of blind slats or louvers are correspondingly opened and closed by the sash, while the lower portion of the blind louvers are unaffected by the rocking movement of the upper portion, but may be independently rocked to control the light as desired and the louvers thereof may be stacked and upwardly carried to a position selectively.

A still further object of this invention is, that the structure of the unit may be produced from plastic material.

These and other objects will hereinafter be more fully explained, reference being had to the accompanying drawings forming a part of this specification, wherein like characters will apply to like parts in the different views.

Referring to the drawings:

Fig. 1 is an outside elevation of a window structure.

Fig. 2 is an enlarged cross section through the side jamb and sash, taken on line 2—2 in Fig. 1.

Fig. 3 is a sectional view taken on line 3—3 in Fig. 2.

Fig. 4 is an enlarged sectional view taken on line 4—4 in Fig. 1, parts removed from the upper and lower sash, and side jamb for convenience of illustration.

Fig. 5 is a cross section through a jamb as modified for a thin wall.

Fig. 6 is an inside elevation of a window showing the blinds partly raised from the bottom of the window.

Fig. 7 is an enlarged vertical section taken on line 7—7 in Fig. 6 to illustrate the pendant supporting means for a minor portion of the blind louvers on a horizontal plane transversely thereof while a major portion downward of the blind is rockably carried by the pendant support of the minor portion.

Fig. 8 is an enlarged elevation fragmentarily of Fig. 6 to further illustrate the pendant carrying means, also to illustrate the frictional lock to retain the major portion at a desired open position, said lock to function as raising and lowering means for the said major portion when released from its engagement with the side jambs.

Fig. 9 is a fragmentary plan view of the friction lock controlling means at the center of the blinds.

Fig. 10 is an enlarged elevation of the upper left hand corner of the window frame, parts removed to show a spring casing, the spring to counterbalance its side of the sash, there being one also for the other upper corner of the sash.

Fig. 11 is a cross section through the side jamb of Fig. 10 to illustrate weather stripping for the sash and structure of the side jambs.

Fig. 12 is a modification of the minor portion of the blind structure.

Fig. 13 is transverse view of Fig. 12.

As a more concise description of the invention it will be seen that the window frame consists of head and side jambs 1 and 2 respectively, and a sill 3 to secure the lower ends of the side jambs together. Slidably arranged within the jambs is an upper and a lower sash 4 and 5, respectively, said sash being carried by counterbalancing springs later described. Positioned in the frame inward of the sash is blind structure consisting of a plurality of comparatively thin louvers 6 that are pendently carried by flexible woven fabric strips 7 that are secured to the edges of the louvers, said strips to extend a short distance above the uppermost louver to form loops A through which a finger 8 will engage as carrying means for said plurality of louvers and furthermore the looped portions are adapted to slidably engage reciprocatingly to slantingly position the louvers in either direction as controlling means against visibility and sun rays passing through between the slats or louver elements. It will also be seen that a minor portion of the louvers 7' are pendently carried from the head jamb 1 of the window frame through the medium of fingers 9 secured to the jamb and over which similar loops A and strips to that of the first named louvers, which are carried by strips B secured to strips 7, and likewise for a similar function, but independently controlled as later described.

To guide the major portion of the louvers in their vertical movement is through the medium of a groove 10 positioned in each side jamb and in which pins 11 axially extending from both ends of each louver will slidably engage as said louvers are stacked on each other at the time of raising the same. When the louvers are raised to a desired position, the same are secured by an expansion rod 12 slidably carried by the bottom louver and being divided centrally of its length

and having a coil spring 13 to expand the rod, the outer ends of which have friction plates 14 to engage in the groove of the jambs to secure the blind in a fixed position while the confronting ends of the rod have lips 15 to be gripped toward each other to contract the rod for sliding movement.

It will be seen in Figs. 12 and 13 that an upper or minor portion of the louvers is pendantly carried from the head jamb of the window frame. The louvers of said minor portion hang independently of the side jambs as they have no spindles for their ends and consequently they are free to flex outward for tilting engagement but free to retract as the major portion of the blind is carried thereby, the principle of which is, that by raising and lowering the upper sash of the window the louvers of the minor portion are rocked to and from horizontal planes to admit fresh air from the open sash to pass freely between the louvers as ventilating means for a room and furthermore light is admitted independently of the major blind portion therebelow. To rock the minor or upper louvers, there is provided a plate 16 secured to the upper rail of said upper sash that extends toward the louvers to engage a finger 17 secured to one of the louvers and extending toward the sash all as shown in Fig. 12, whereby as the sash is lowered to a desired distance for ventilation the lips will slide from the pin when the louvers are opened at which instant the minor section will flex outward and then retract to be engaged by the lip as the sash is raised to close the louvers before disengaging the finger and vice versa for repeated action, opening and closing the louvers of said minor section of the blind.

The sash side rails of the window are adapted to slidably engage in runways 18 that are formed by parting strips 19 that are integral with a jamb plate 20 whereby channels are formed and being secured to jamb member 2 as shown in Figs. 2, 5 and 11. In Figs. 5 and 11 are also shown strips broken in the center with respect to cross section to form resilient legs 22 that outwardly slant from each other to weather strip the sash as their edge extremities are in contact with the sides of the sash rails and intermediately bearing in contact with rubber strips 23 seated in channels formed in the side of said sash rails.

It will be understood that this invention does not provide for conventional weights and pulleys but in lieu thereof provision is made to counterbalance the sash consisting of spring elements 24 and 25, either of which may be secured to the head jamb of the window frame and to the side rails of the upper and lower sash. It will be seen that spring element 24 is a coil structure that engages in the tubes 26 formed on the sides of the sash, see Figs. 2 and 3, while in Fig. 10, the spring element consists of a leaf coil, wound in a casing 26 that is carried by the head jamb, there being a spring for each side rail of each sash to equally balance both upper and lower sash.

In Fig. 7 is shown another method for supporting the minor portion of the blind louvers in which the louvers are set at an open position to introduce light and ventilation, the latter being accomplished when the sash is lowered. Said modification does not alter the pendant carrying means for the major portion of the blinds, however, a rod 27 is secured to the head jamb to carry finger 8, and such other modifications may be employed as lie within the scope of the appending claims.

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

1. In a window unit of the class described, comprising a frame having channel guides for sash, spring means to counterbalance the sash, louvers and means to rock the louvers to an open and closed position by sliding movement of the sash.

2. In a window unit of the class described comprising a frame having a sill, head and side jambs, channeled runs secured to the side jambs and sash slidable in the runs, louvered blinds slidably and rockably carried in the frame in working relation to the sash, a pair of coacting elements, one of which being carried by the sash, the other being carried by a louver of the blind to rock the same to an open or closed position by sliding movements of the sash.

3. In a window unit, a frame and sash carried in the frame, channel runs for the sash to slidably engage the sash, a lip on one of the sash to outwardly extend therefrom, louvered blinds carried in the frame in working relation to the sash, a finger crossing one of the louvers, secured thereto and extending outward to be engaged by the lip as rocking means for the louver, and a fabric band extending around the louvers and being secured to both edges of the louvers to rock the louvers simultaneously when the finger is rocked by the lip.

4. In a window unit of the class described, as recited in claim 3, the other louvers having pins on their respective ends, the side jamb of the frame being grooved to slidably engage pins on the ends of the louvers, an expansion rod secured to the bottom louver of the blind, said expansion rod being centrally divided and having lips on the abutting ends to move the rod sections toward each other, and a coil spring to move said rod sections from each other and the said rod member having plates on their outer ends to engage in the grooves as retaining means for the louvers stacked on the bottom louver as the same is moved upward and secured successively by the expansion rod.

5. In a window unit, a frame comprising head, side jambs and a sill, a pair of sash slidably mounted in the frame to close the opening surrounded by its jambs and sill, channel runways for the sash, said channel being sub-divided by legs as separating means for the sash, weather stripping carried by the legs to engage inner and outer surfaces of the sash to render the same weather tight, the side jambs inward thereof being grooved, a plurality of louvers having pins on each end thereof axially extending from the louvers and to engage in the grooves, fabric strips secured to the edges of the louvers to carry the same in spaced relation therealong whereby when the louvers are raised from their lower extremities, the same will stack vertically as guided by the grooves, a minor portion of the louvers thus connected and being secured to the head jamb of the frame and pendant carrying means secured to the minor portion to pendantly carry the major portion of the louvers, and means carried by one of the sash to engage another means carried by the minor portion of said louvers to rock the same to a slanting position as one sash is raised or lowered whereby ventilation and light control is accomplished.

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