

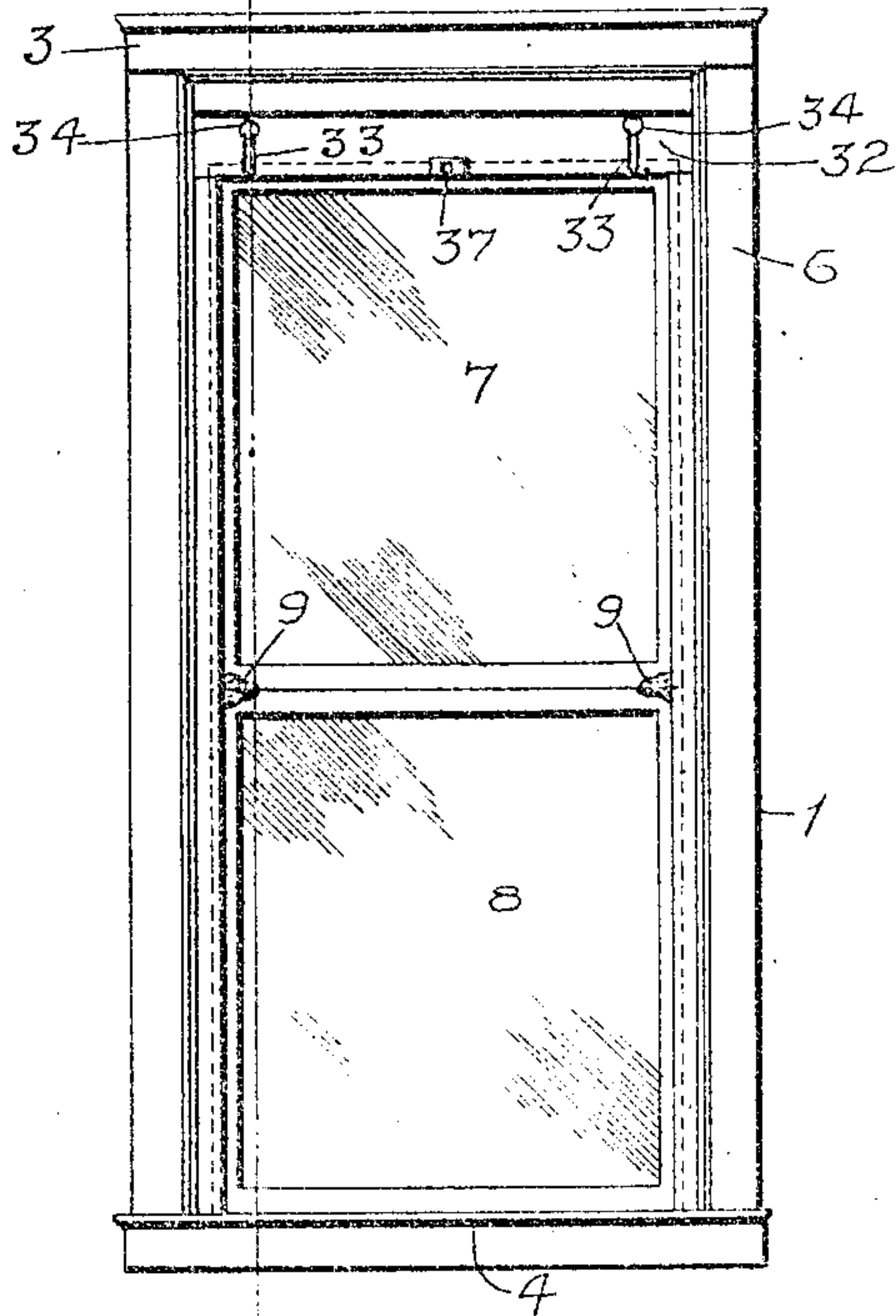
J. AUSTIN.
WINDOW.

APPLICATION FILED OCT. 18, 1907.

919,521.

Patented Apr. 27, 1909.

4 SHEETS—SHEET 1.



X
FIG. 1

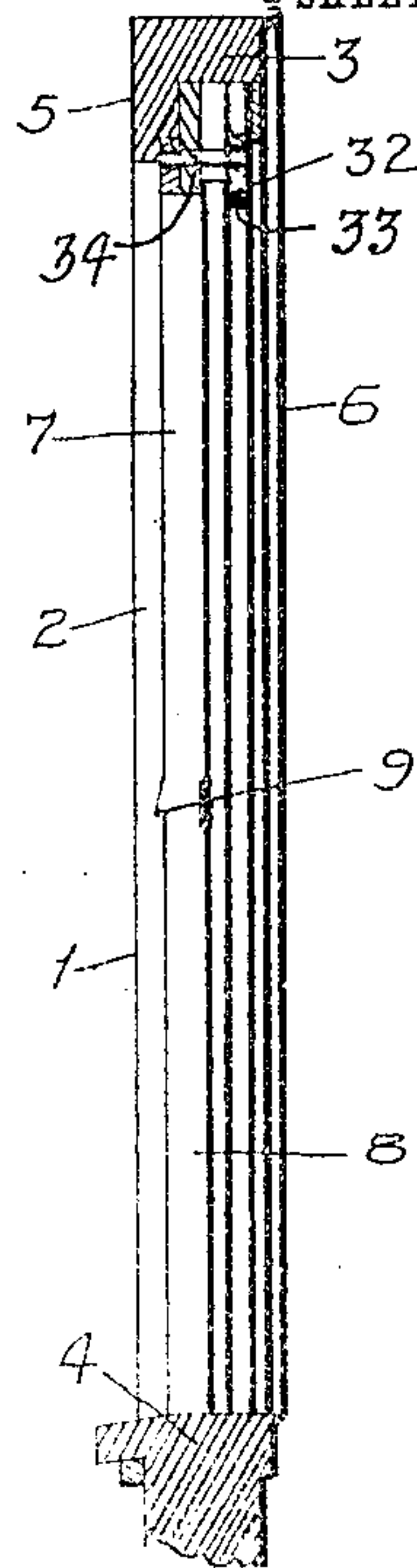


FIG. 2

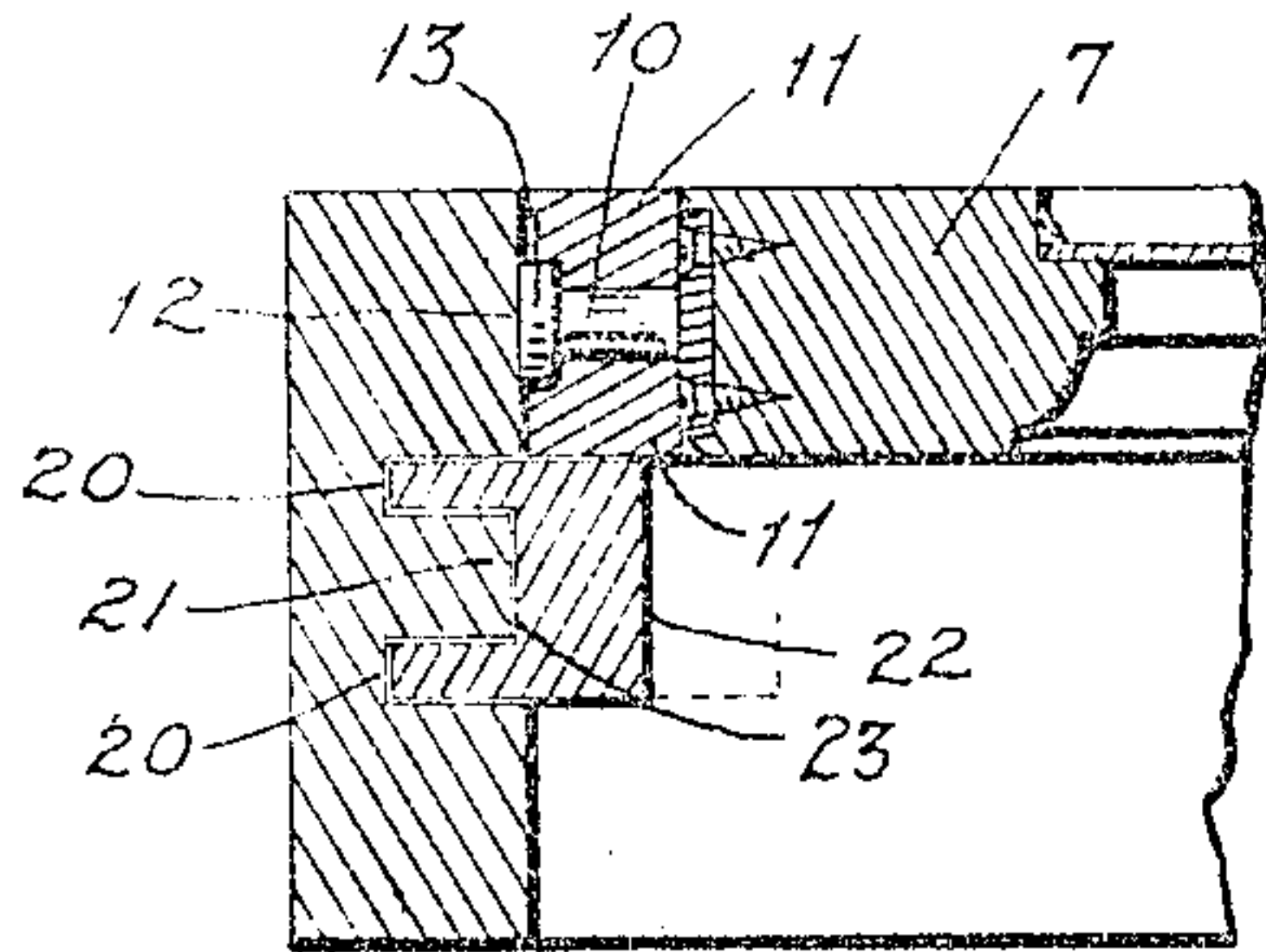


FIG. 3

WITNESSES

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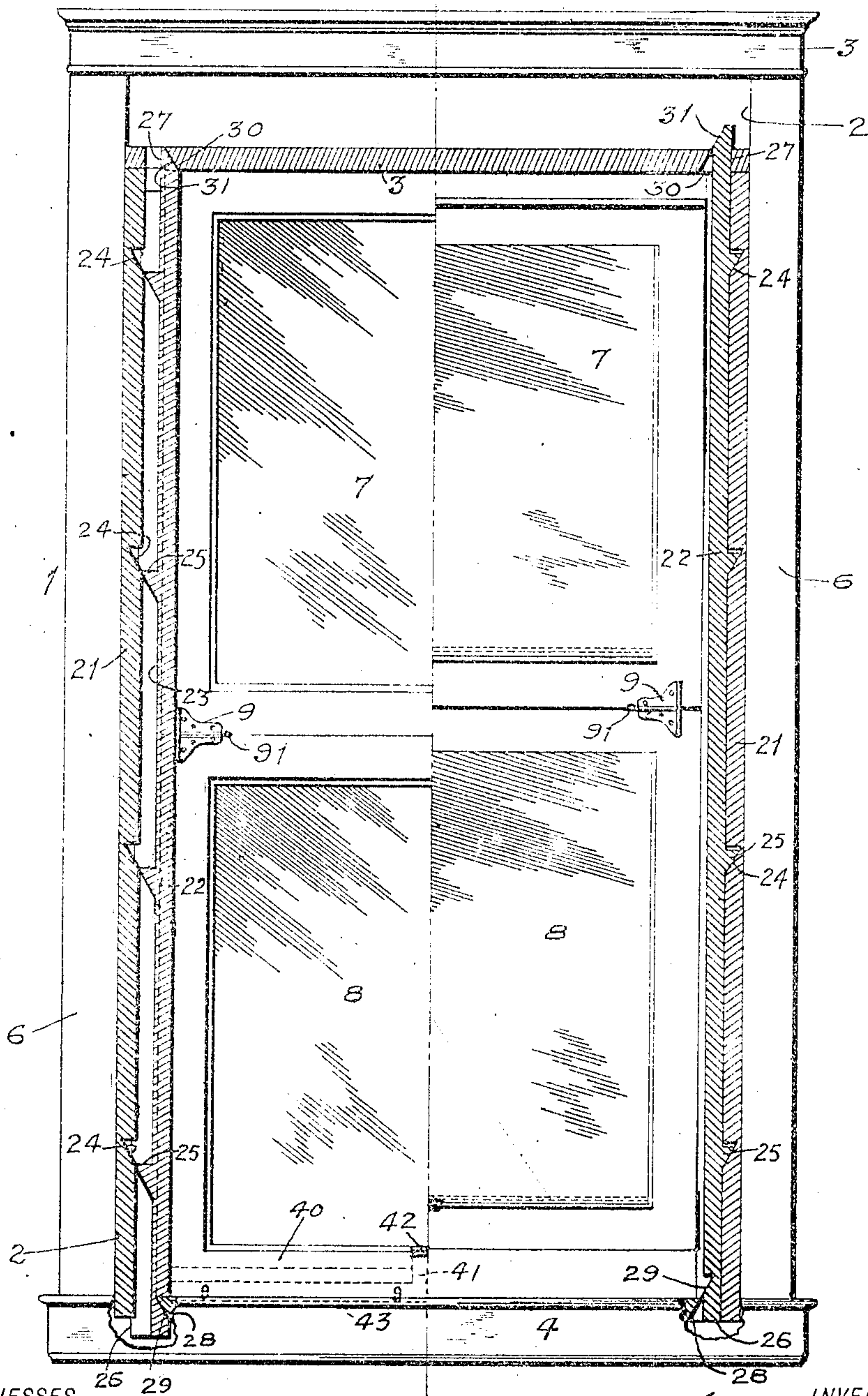
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FIG. 4

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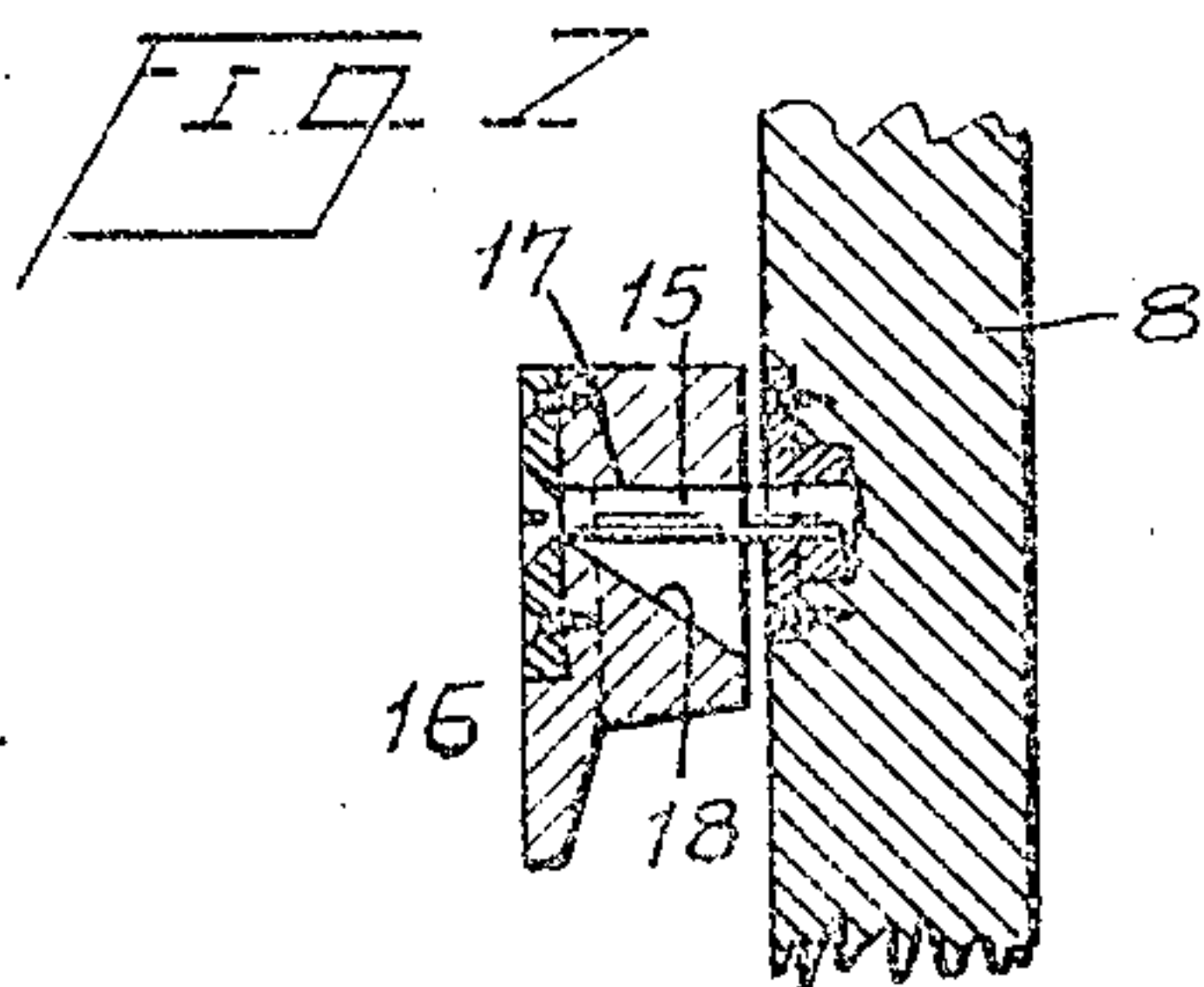
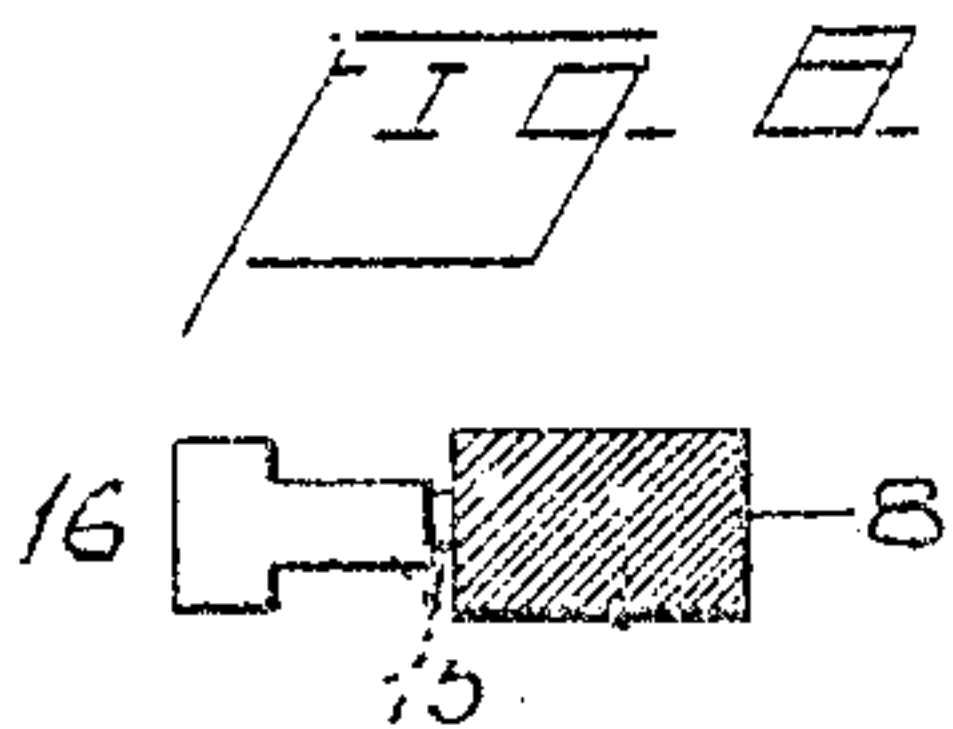
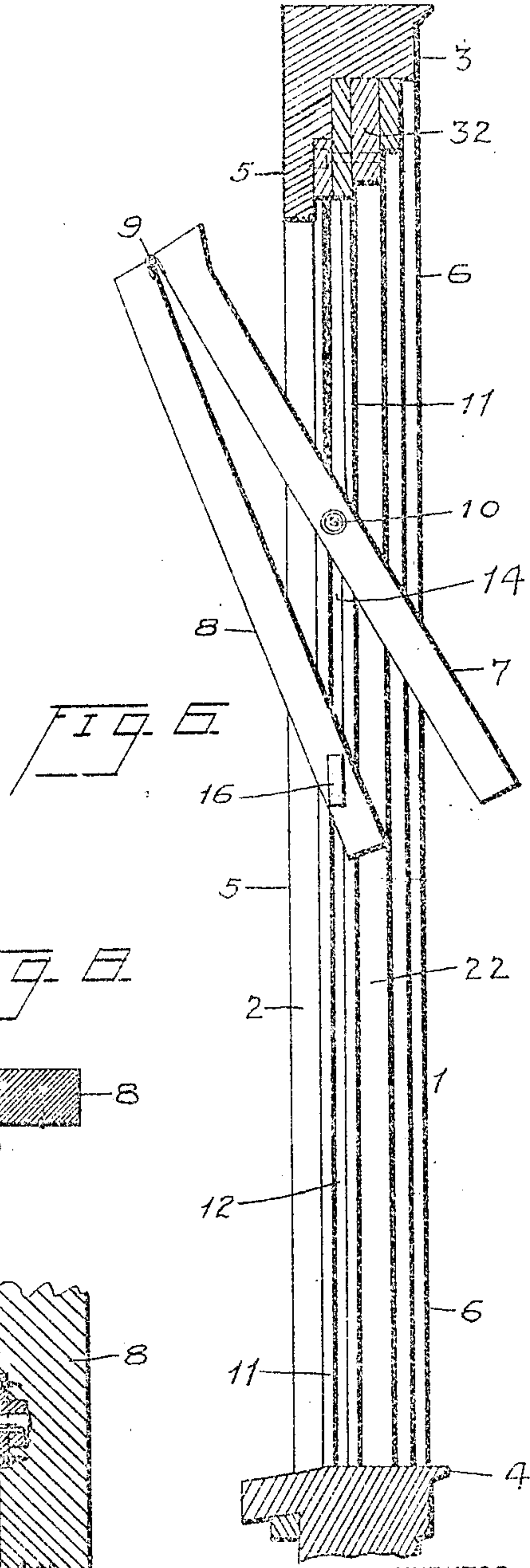
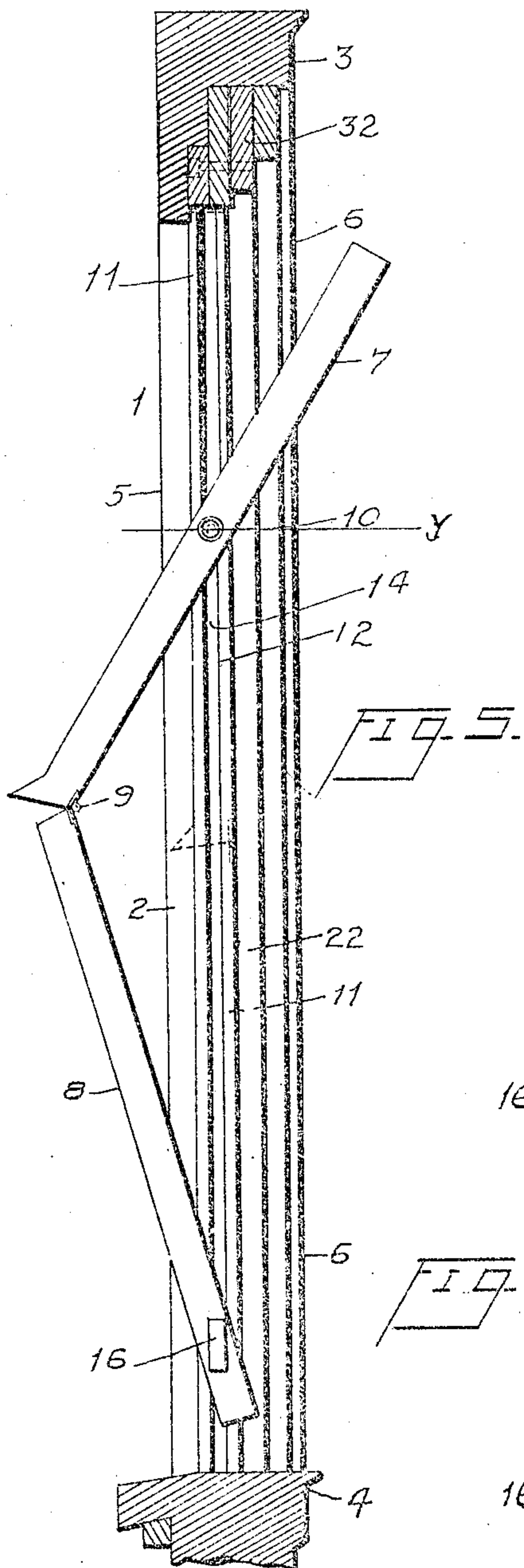
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4 SHEETS—SHEET 3.

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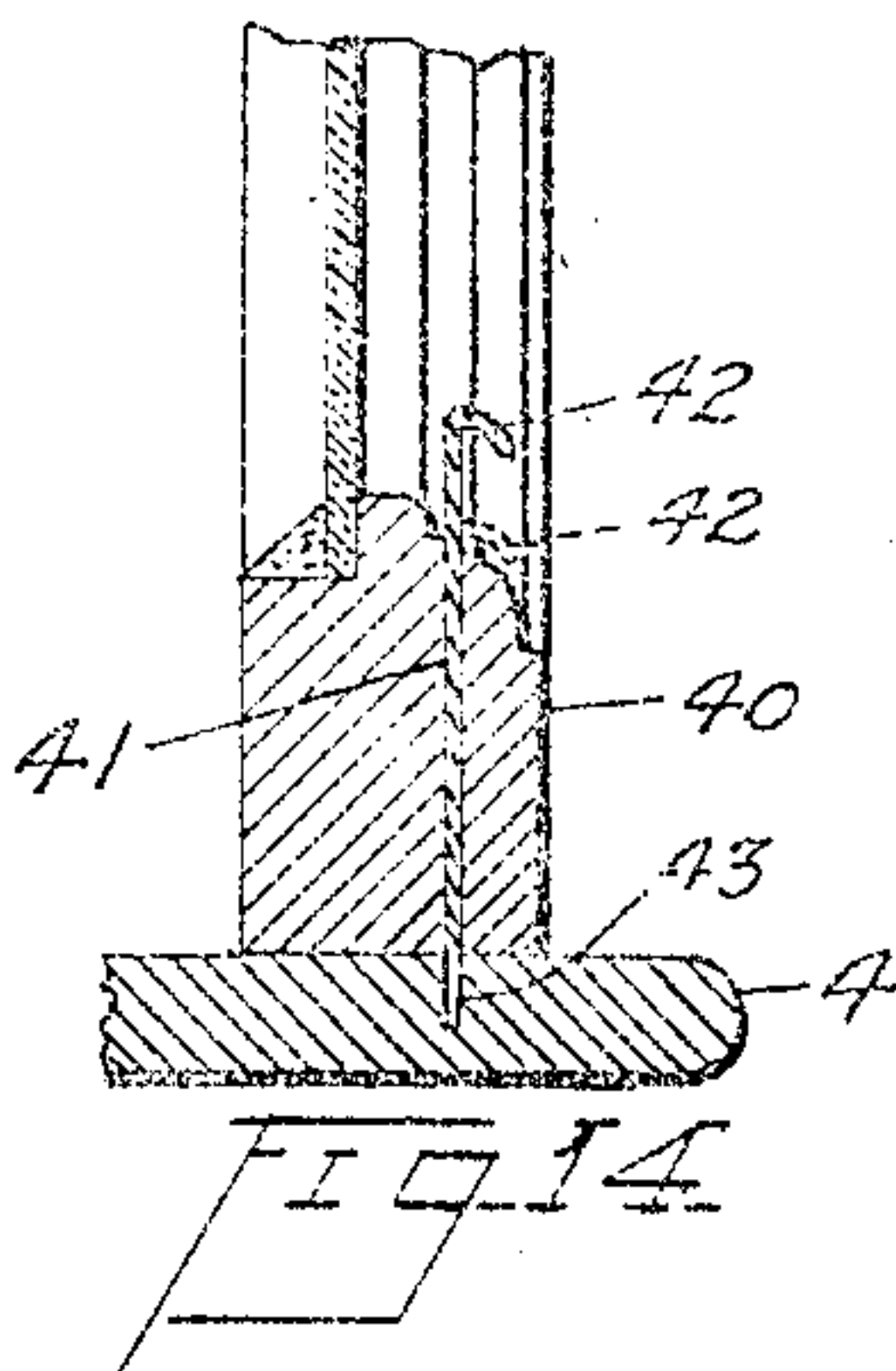
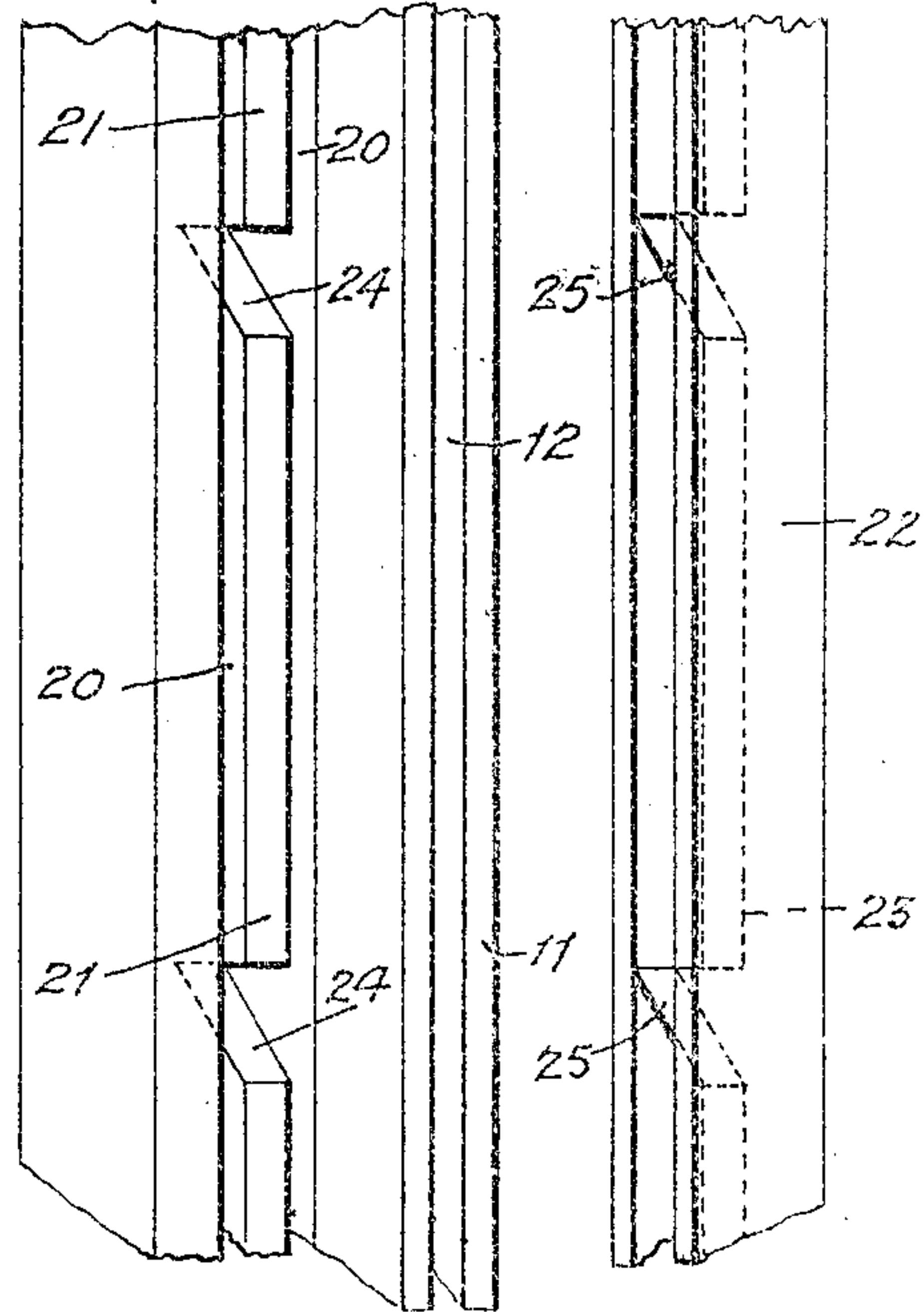
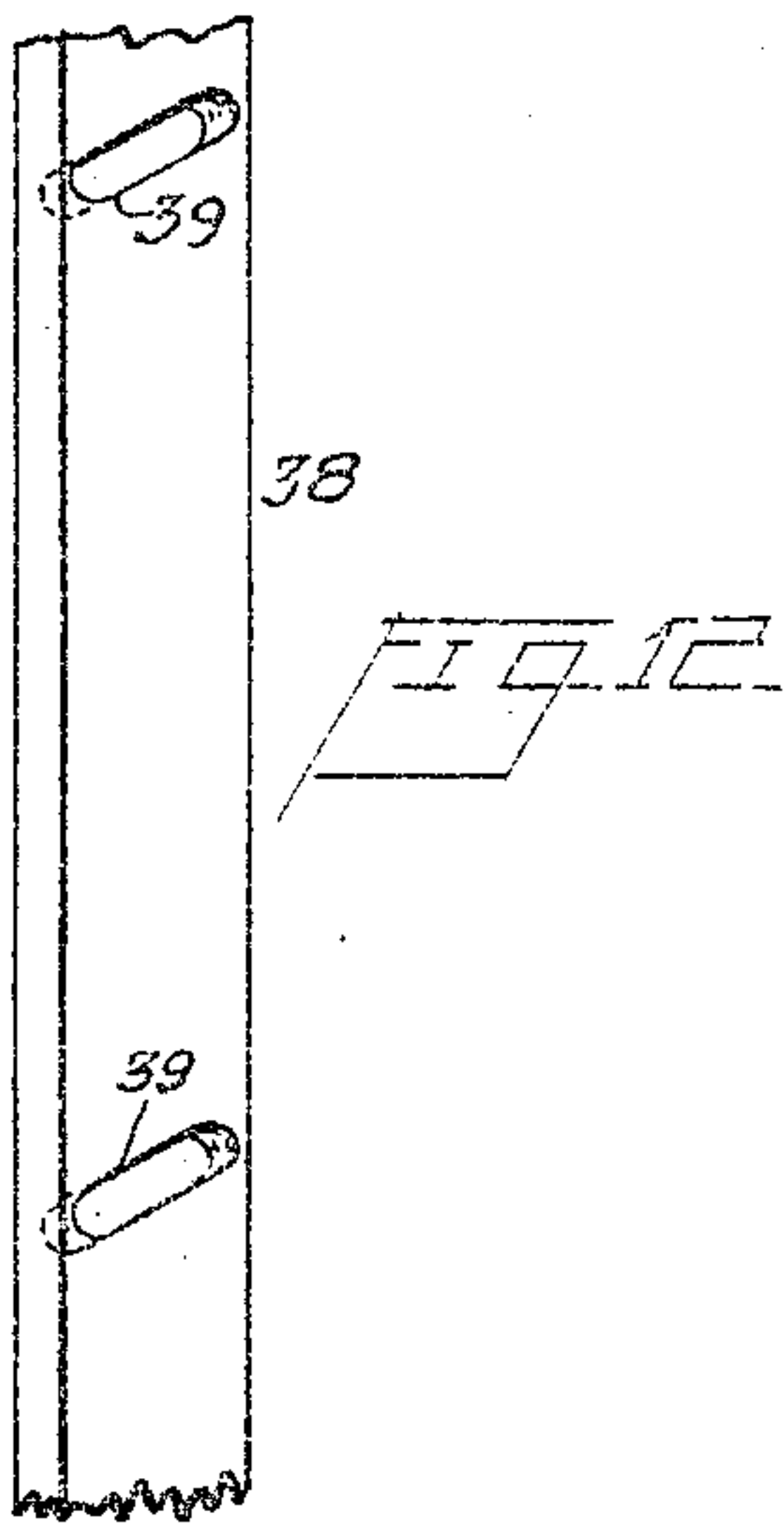
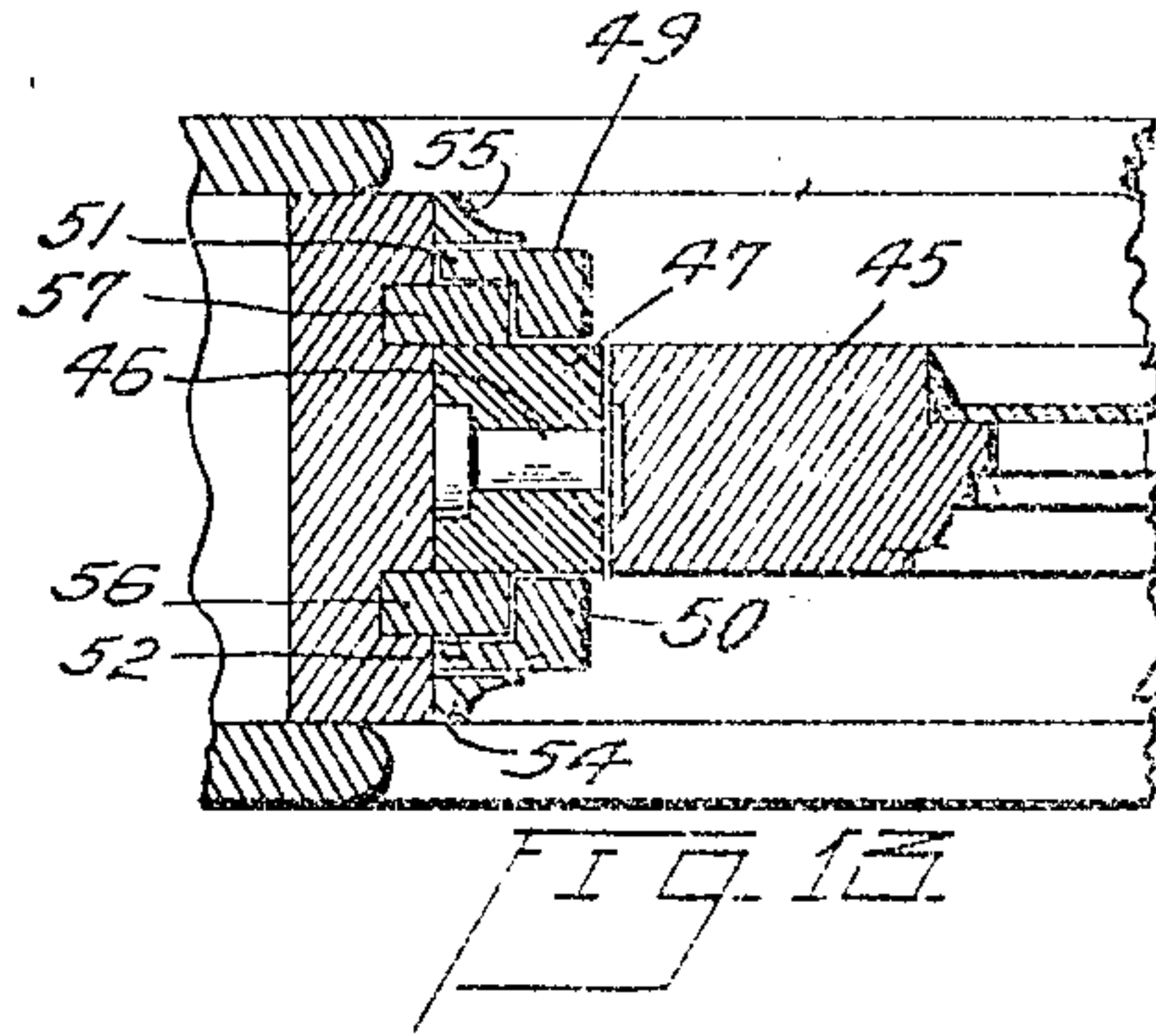
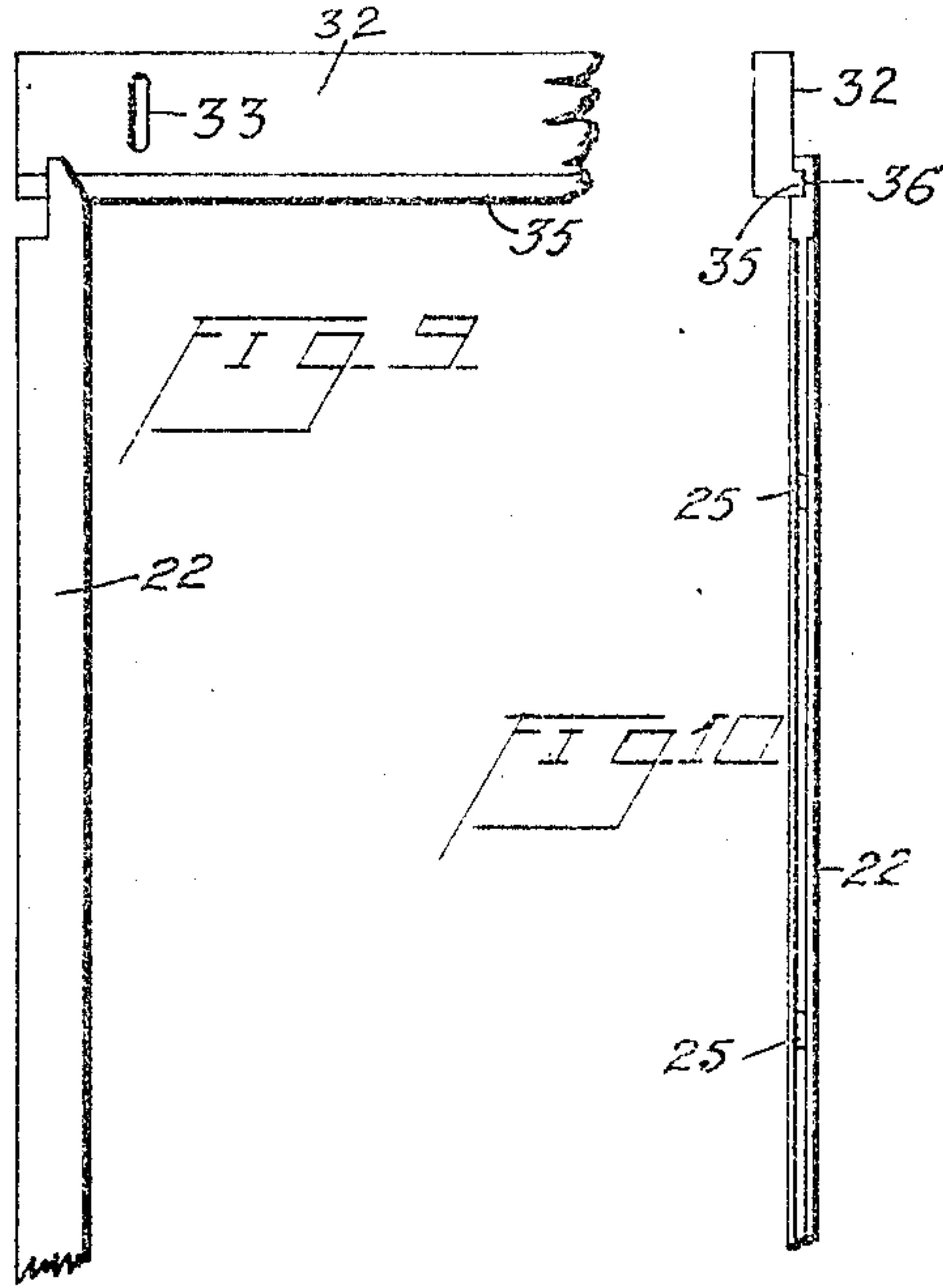
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4 SHEETS—SHEET 4.



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WINDOW.

No. 919,521.

Specification of Letters Patent.

Patented April 27, 1909.

Application filed October 18, 1907. Serial No. 397,966.

To all whom it may concern:

Be it known that I, JOHN AUSTIN, a citizen of the United States, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Windows, of which the following is a specification.

The objects of this invention are to provide a window in which no sash cords or weights are necessary; to enable the sashes to be opened to the maximum capacity of the window; to render both surfaces of the sashes accessible from inside the window, for cleaning and the like; to secure a tight impervious joint around the margins of the sashes when closed and thus afford complete protection from drafts and storms; to lock the said sashes firmly and positively in closed position along their entire margins; to enable the sashes to be opened and left stationary at any desired point; to secure a simple efficient construction of window which shall be durable and not likely to get out of order, and to obtain other advantages and results as may be brought out in the following description.

Referring to the accompanying drawings, in which like numerals of reference indicate corresponding parts in each of the several figures, Figure 1 is an elevation of my improved window from the inside, showing it in closed position; Fig. 2 is a vertical section of the window taken on line *a*, Fig. 1, and looking at the edge of the sashes or in the direction indicated by the arrow; Fig. 3 is a horizontal section through the pivot of the upper sash of the window, taken on line *y*, Fig. 5, and showing the locking bar in unlocked position; Fig. 4 is an elevation of my improved window with the head piece removed and the locking bars in section, showing the right-hand half of the window with the locking bar withdrawn in unlocked relation to the sashes and said sashes at an angle as in Fig. 5, while the left-hand half of the window is shown in closed position with the locking bar in locking relation to the sashes; Fig. 5 is a vertical section, looking edgewise at the sashes and showing them swung into partially open position; Fig. 6 is a view similar to Fig. 5, but showing the upper and lower sashes of the window swung farther open, so that the lower sash is drawn farther up within the window frame by the operation of the turning of the upper sash upon its pivot; Fig. 7 is a detail side view

of the sliding pivot of the lower sash, and Fig. 8 is an upper end view or plan of the same; Fig. 9 is a view of a portion of one locking bar and the head piece for the locking bars from the outside of the window, and Fig. 10 is an edge view of the same; Fig. 11 is a perspective view of a portion of the window frame and locking bar separated or laid apart and showing the inclined notches in the window frame and the inclined projections on the locking bar which fit therein when the locking bar is in unlocked relation to the sashes; Fig. 12 is a perspective view showing a section of a locking bar provided with slanting slots instead of inclines, for moving it laterally; Fig. 13 is a horizontal section taken through a pivot of a sash, showing a modification of my improved window illustrating the use of two locking bars, one on the inside and the other on the outside of the sashes, and Fig. 14 is a central vertical transverse section through the sill and bottom rail of the lower sash in closed position.

In said drawings, 1 indicates the frame of a window of my improved construction, said frame comprising opposite jambs 2, 2, head 3, sill 4, outer casing 5 and inner lining 6. Upper and lower sashes, 7 and 8 respectively, are shown mounted in said frame, and hinged together at their meeting ends, as at 9, 9, to bend outward, said sashes normally lying in the same vertical plane.

The upper sash 7 is pivoted at its opposite edges by means of pins 10, 10, which project into the grooves 12, 12 of slotted strips 11, 11 mounted upon the jambs 2, 2 of the window in fixed vertical position. The said strips by their grooves 12 thus provide slideways for the sash pivots 10, 10 and preferably said pivots have headed extremities 13 lying in the laterally enlarged portion of the slideways to prevent escape. Below the normal location of the pivots 10, 10, which enables the upper sash to be swung into closed position, as shown in Fig. 6, the slot of the strip 11 is of narrower width, as at 14, so as to limit downward movement of the said pivots 10, 10, to the said position, while enabling them to be slid freely upward to the top of the window. The lower sash 8 is also provided at its opposite edges with screws 15, 15 which project into the grooves 14, 14, and upon which are loosely pivoted shoes 16, 16.

also within the said grooves and adapted to slide therein without affecting the pivotal or swinging action of the sash. Each shoe 16 is T-shaped in plan, as shown in Fig. 8, to fit the groove 14 and is elongated lengthwise of the said groove as shown in Fig. 7; furthermore, the hole 17 in said shoe to receive the screw 15 of the sash has its lower wall beveled downwardly toward the sash, as at 18 in Fig. 7, whereby the shoe is enabled to move out of parallel relation to the sash and cramp or bind against the bottom of the groove and the opposite walls of the undercut portion of the same. This cramping action occurs only when the sash is allowed to drop or fall downward with considerable velocity, and thus serves automatically as a brake to arrest such undue velocity of movement.

I have shown the upper sash pivoted at or near the middle of its opposite edges and the lower sash pivoted near its lower end, but obviously this relative arrangement of pivots could be exactly reversed if desired, or the pivots otherwise disposed with relation to each other.

It will be understood that when the upper and lower sashes are closed they lie in the same vertical plane, forming at their opposite edges joints with the slotted strips 11, 11, which must necessarily be more or less loose and open to permit swinging of the sashes with freedom, and an important feature of my invention consists in the means which I have provided for imperviously closing this joint when the window is shut and locking the sashes in closed position. These means will next be described.

Adjacent to the slotted strips 11, 11, the jambs 2, 2 of the window frame are each longitudinally slotted, as at 20 in Figs. 3 and 11 more particularly, each of the said grooves having on its bottom an outwardly projecting median tongue 21. A locking bar 22 is adapted to lie in each of said grooves 20, being itself grooved at its inner edge as at 23 to receive the said tongue 21, and said locking bar when in its inner position in the groove 20 of the jamb clears the joint between the adjacent slotted strip 11 and edges of the sashes, as shown in full lines in Fig. 3. In the edge of the tongue 21 are formed downwardly and outwardly (with respect to the groove) beveled notches or inclines 24, and on the bottom of the groove 23 of the locking bar are correspondingly beveled projections 25 which when the locking bar is seated as shown in Fig. 3 fit into the notches 24 and present no obstacle to such proceeding. Downward sliding of the locking bars, however, would obviously cause the inclined projections 25 to engage the inclines 24, and force the two locking bars at opposite sides of the window toward each other to overlap and cover the open

joints between the opposite edges of the sashes and slotted strips 11, 11, as indicated by dotted lines in Fig. 3 and shown full in section at the left hand side of Fig. 4. The said locking bars 22, 22, project at their lower ends through the sill 4, and at their upper ends through the head 3, of the window, as at 26 and 27 respectively. The walls of said opening 26, 26 in the sill, which are next to each other, are beveled downwardly inward or away from the window frame as at 28, 28, and these beveled surfaces are adapted to engage cooperating surfaces 29, 29 on the locking bars which are beveled upwardly and toward the window frame. Similarly the openings 27, 27, in the head 3 of the window have adjacent beveled walls 30, 30, inclined downwardly away from the window frame, which are adapted to engage bevels 31, 31 on the locking strips which are inclined upwardly toward the sides of the window frame, as clearly shown in Fig. 4.

The sets of bevels at the inner or exposed edges of the locking bars, just described, are so located with respect to the other sets of bevels above described on the bottoms of said bars and their grooves, as that when the former are in engagement the latter are out of engagement. In other words, the bevels 24, 25 at the bottom of one of the locking bar grooves 20, serve to throw said bar into locking relation with respect to the sashes when it is moved downward, and also into such position that a reverse upward movement of the bar will cause its bevels or inclines 29 and 31 to engage those on the sill and head to shift the locking bar back again into its groove 20 and clear or expose the joints between the sash edges and strip 11 again. Longitudinal movement of the locking strips thus serves to shift them horizontally to cover and uncover the joints at the edges of the sashes. This longitudinal movement of the locking bars is effected by means of a head-piece 32 arranged at the top of the window at the inside thereof, and slotted as at 33 to receive studs 34 on which it may slide vertically. The ends of this head piece 32 are connected to the upper ends of the locking bars in any suitable manner that will cause the locking bars to move vertically with the head piece while permitting their independent movement in a horizontal direction. In the drawings, particularly Figs. 9 and 10 thereof, I have shown the head piece 32 provided at its lower edge with a rib 35 which enters transverse recesses or slots 36 in the upper ends of the locking bars, but obviously any other equivalent connection may be employed. The said head piece is provided with means 37 for receiving the hook of a window pole, to slide the head piece up and down, and it will be noted that the head piece itself overlaps in

its lowest position the upper edge of the top sash, so as to close the joint made thereby with the head of the window.

I do not wish to be understood as confining myself to the particular construction of inclines above described for obtaining the opening and closing horizontal movement of the locking strips, since other forms embodying the same principle may be employed equally well, as for example the one shown in Fig. 12. Here 38 indicates a locking bar which is provided with transverse slots 39 which are oblique or inclined with respect to the length of the locking bar, and adapted to receive fixed pins (not shown) on the window frame. Obviously longitudinal movement of such locking bars as these would cause also lateral shifting of the bar such as has been above described.

In order to secure a tight joint of the lower edge of the bottom sash with the sill of the window, corresponding to those which I have described at the sides and top of the window, I have shown the bottom rail 40 of the lower sash longitudinally slotted or grooved at its lower edge and provided with a strip 41 slidably mounted in said groove and adapted to be pushed downward when the window is closed, by means of a finger piece 42 projecting through the top of the rail, to enter a corresponding groove or recess 43 in the sill.

Obviously, instead of using a single locking bar at the inside of the edge of the sashes, as I have described, two such locking strips might be employed, one on the outside and the other on the inside. In Fig. 13 I have illustrated such a construction, 45 indicating a sash with its pivot 46 sliding in a strip 47 mounted on the jamb of the window frame. On both sides of the said strip 47 are shown locking bars 49, 50, each having a tongue 51 (or 52) which slides between a piece of molding 54 (or 55) and a fixed strip 56 (or 57) upon which may be formed the bevels or inclines to engage those on the locking bar, none of said bevels or inclines being shown in Fig. 13, which is a cross-sectional view, but their construction has been already above described.

My improved locking bars enable sashes hinged as I have shown and described to be employed and still the window be made tight and impervious to cold and inclement weather. The advantages of the sash construction are that there are no weights, cords or pulleys, the window frame occupies less space, and the sashes can be opened to the full capacity of the window, as well as to render both their surfaces accessible for cleaning or the like. At the same time, the entire construction is simple, durable, easy to operate, and not liable to get out of order.

The hinges 9 which connect the upper and lower sashes 7 and 8 are preferably pro-

vided with removable hinge pins 91, which can be withdrawn when desired and the two sashes enabled to swing and otherwise act each independently of the other. This enables one half of the window to remain closed while the other half is opened more or less, as desired. Furthermore, when the sashes have been brought to any desired open or angular position, they may be bound or locked in such position with considerable firmness and rigidity by operating the locking bars as if to close them over the edges of the sashes when completely closed. This will cause the locking bars to engage the edges of the sashes and bind the latter in their position to hold them against inadvertent displacement.

Having thus described the invention, what I claim as new is.

1. In a window, the combination of sashes normally lying in the same plane and hinged together at their meeting end edges, pivots at the side edges of said sashes, the pivots of one sash being located intermediate of the ends thereof, a frame providing slideways for said pivots, and means for holding said sashes in any position.

2. In a window, the combination of a frame having at its opposite jambs slide-ways which are wider for their upper portion than at the lower part of the window, sashes normally lying in the same plane and hinged together at their meeting edges, pivots projecting from the said sashes into the said slideways, the pivots on the upper sash entering the larger portion of the slide-ways and being too wide to enter the lower narrower portion, and means for locking said sashes.

3. In a window, the combination of a window frame, a sash pivoted at its side edges and intermediate of its ends in said frame and adapted to swing out of the plane of the frame, locking bars at the inner sides of said window frame adapted to move in a direction perpendicular to said inner sides, and means for operating said locking bars at both edges of the sash simultaneously.

4. In a window, the combination of a window frame, a sash pivoted at its side edges and intermediate of its ends in said frame and adapted to swing out of the plane of the frame, locking bars at the inner sides of said window frame adapted to move in a direction perpendicular to said inner sides, a locking bar at one end of the window frame adapted to move perpendicularly to said end, and means for transmitting movement of said end locking bar to both side bars to move them simultaneously.

5. In a window, the combination of a frame having fixed bearings on its jambs and at its top and bottom between said jambs, a sash pivoted in said frame, and a

locking bar having at opposite edges of itself inclined bearings adapted to engage the said bearings upon the jamb and top and bottom of the window frame, respectively.

5 6. In a window, the combination of a frame having fixed bearings on its jambs and at its top and bottom between said jambs, a sash pivoted in said frame, locking
10 bars each having at opposite edges of itself inclined bearings adapted to engage said bearings upon the jamb and top and bottom of the window frame, respectively, and means for simultaneously sliding said lock-
15 ing bars longitudinally.

7. In a window, the combination of a frame, a sash mounted in said frame, locking bars at the opposite edges of said sash each having inclined or oblique bearings

adapted to engage fixed bearings upon the 20 frame, and a head piece slidably mounted in the frame and connected to the locking bars and adapted to overlap the edge of the sash.

8. In a window, the combination of a 25 frame, a sash mounted in said frame, locking bars at the opposite edges of said sash each having inclined or oblique bearings adapted to engage fixed bearings upon the frame, and a cross piece slidably mounted 30 in said frame and connected to the locking bars to move them longitudinally while permitting their lateral movement.

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In presence of—

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