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SLIDING AND SWINGING WINDOW SASH STRUCTURE

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FIG. 1.

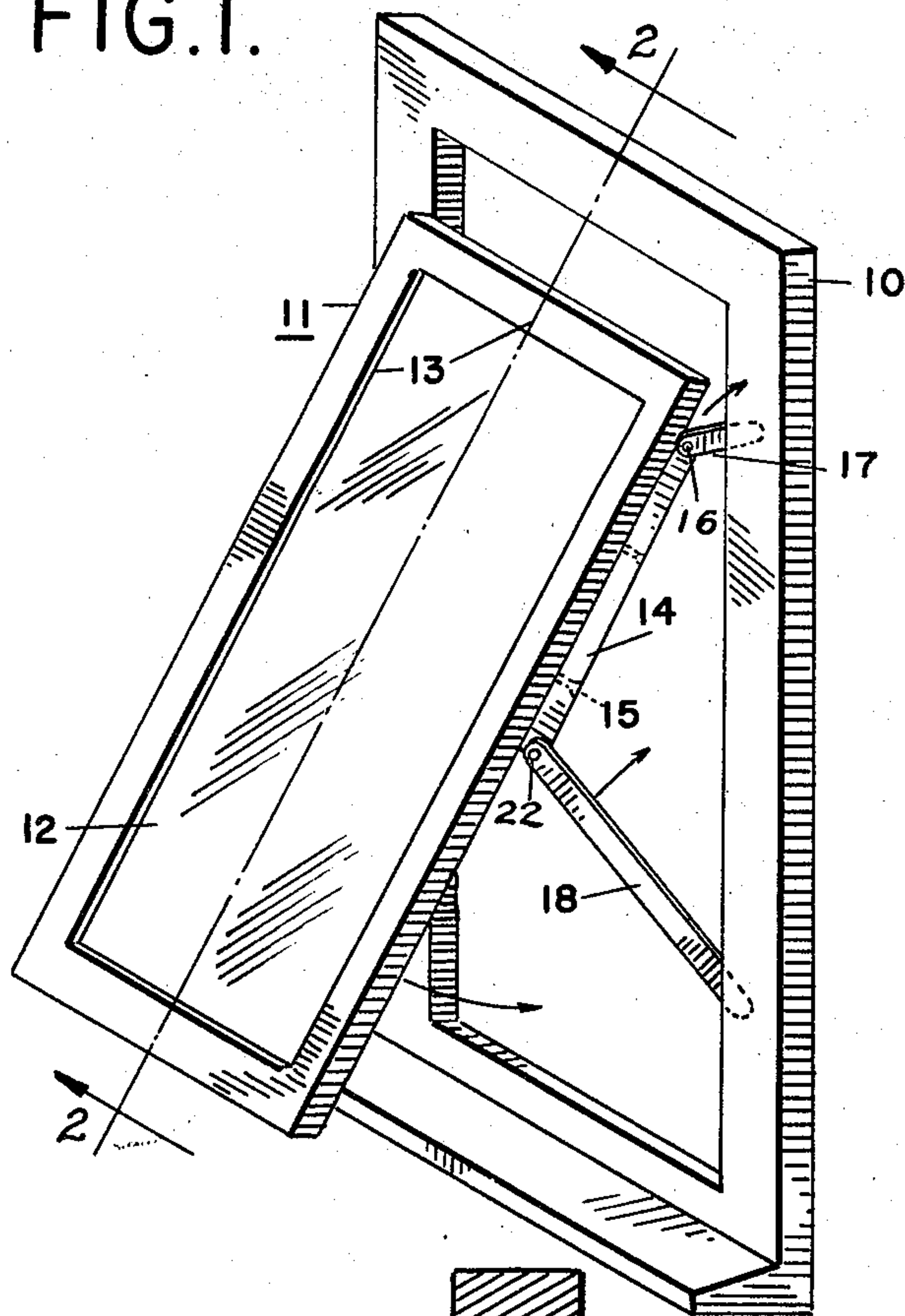


FIG. 3.

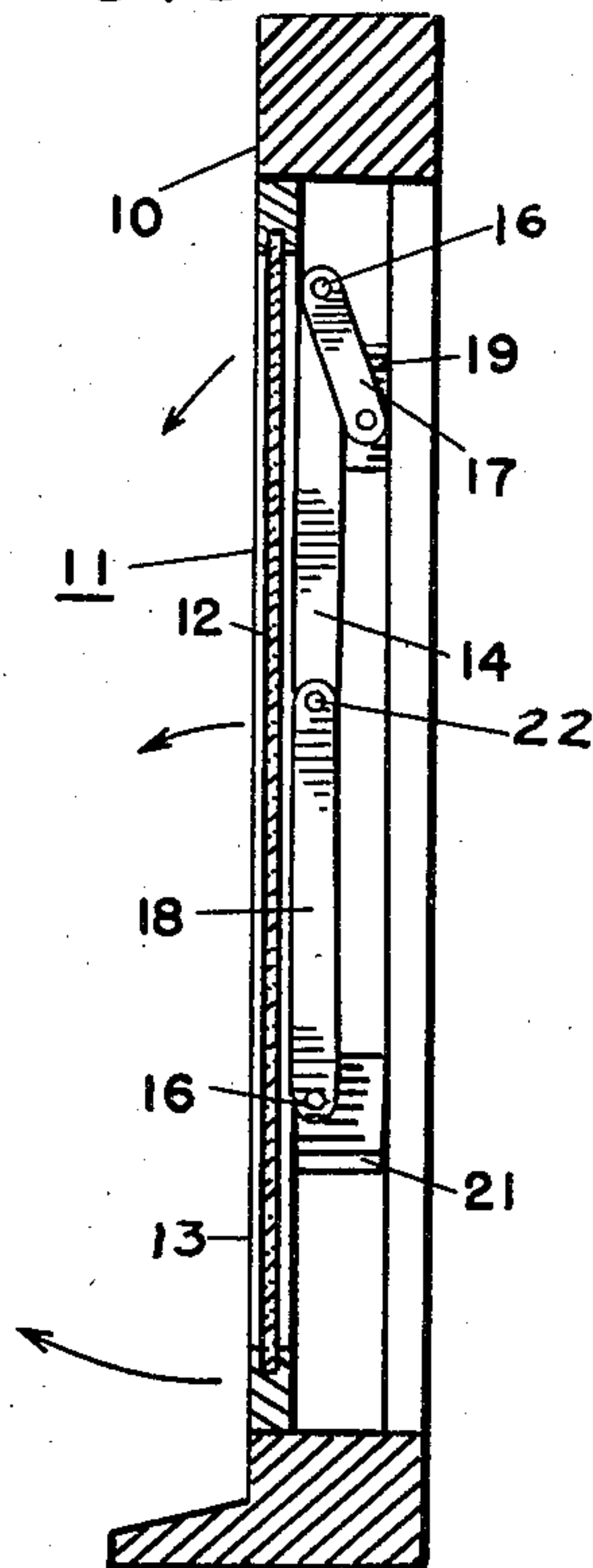


FIG. 2.

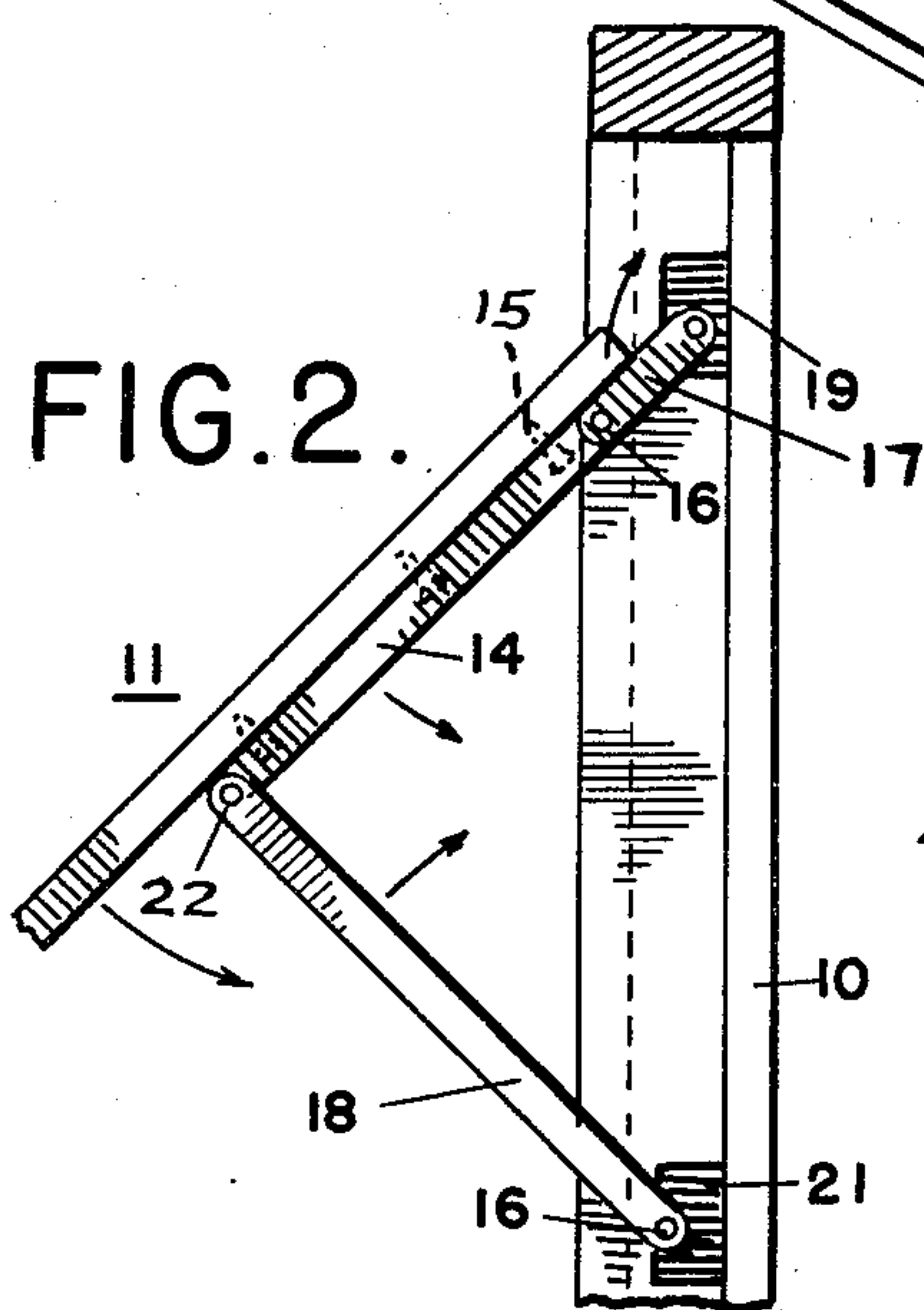
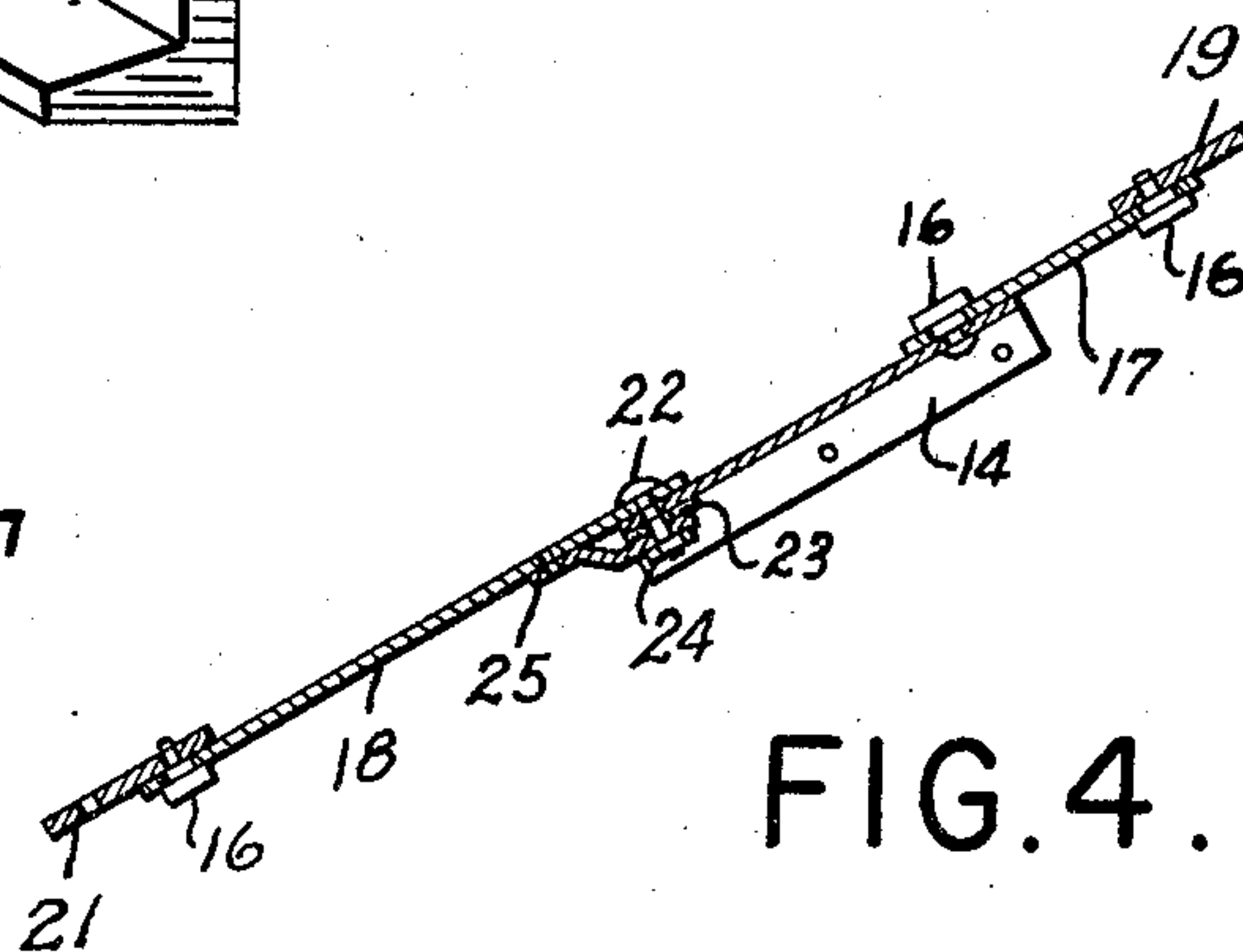


FIG. 4.



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SLIDING AND SWINGING WINDOW SASH STRUCTURE

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1 Claim. (Cl. 20—42)

This invention relates to the components of buildings and more particularly to windows for same. Further the windows herein presented belong to the class known as outwardly swinging windows extendable in a horizontal plane.

The invention has in its objects the provision of a new and improved window friction hinge assembly including its mechanism, that will avoid one or more of the disadvantages and limitations of the prior art.

Another object of this invention is to provide a new and improved friction hinge assembly for a swinging window that will be simple in construction, effective in operation, and economical to manufacture.

Other objects of the invention will become apparent as its details are more fully explained.

To explain the invention more clearly, reference is made to the accompanying drawings. These drawings when used in conjunction with the following description portray a particular type of the invention by way of example, while the claim emphasizes its scope.

In the drawings:

Figure 1 is a view in perspective of a window sash and mechanism embodying this invention, in open position;

Figure 2 is a partial sectional view in elevation of Figure 1 on line 2—2 thereof;

Figure 3 is a sectional elevation through the window sash and mechanism in its closed position; and

Figure 4 is a longitudinal sectional detail of the sash supporting member employed in this embodiment.

Similar reference numerals pertain to the same parts throughout the drawings.

The structure shown in the drawings comprises a conventional window frame 10 adaptable for installation in the wall opening of a building. A sash 11 with glass 12 in its sides 13 is of rectangular form and is supported on an angular member 14 attached to the underside of each vertical side of the sash, by screws 15. This member has holes adjacent its ends in which bolts, rivets or other suitable fasteners 16 and 22 are inserted to secure and pivot them to an upper or short set of links 17 and a set of brace or long links 18. The links 17 and 18 are pivotally attached to mounting plates or brackets 19 and 21, preferably screwed to the wall of the frame 10 near the lintel and sill respectively. The links 17 are relatively short and serve to guide the upper portion of the sash into the frame 10 so it will fit tightly therein. The brace bars or long links 18 are pivotally secured to the bottom portions of each member 14 at one end, while the opposite end portion of the bars 18 are pivotally attached to a mounting plate or bracket 21 attachably screwed to the inner surface of the wall of the frame. The members 14 are attached to the window sash at a location reaching from the proximate middle area of the sash sides to the upper horizontal side of the sash. This positions the pivoting points of

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the bars 18 in close alignment with a line passing horizontally through the center of gravity of the sash. When the bars 18 are arranged in the window frame 10 as the window is in closed position, it brings the links 17 and 18 into vertical alignment behind the sash and parallel thereto. This prevents the mechanism from interfering with the tight closure of the sash in the frame. The fasteners 22 used at the junctures between the bars 18 and the lower end portions of the supporting members 14 are reinforced with friction washers 23 in between, to adjustably create sufficient frictional resistance to hold the sash in any open position that it may be swung to. This is accomplished by tightening the nut 24 on the fastener bolt 22. An arm 25 is affixed to the long link 18 and assists in supporting the bolt 22.

The mechanism used in the manipulation of the sash is especially simple, since it requires only three sets of principal elements, the links 17, the members 14 and the long links or brace bars 18. The brackets or mounting plates 19 and 21 are stationary and provide for stable attachments placed so that the possibilities of the user having his hands caught and injured by them is very remote. The swing of the sash is graceful and provides for adequate opening for ventilation or cleaning, and the closing operation is simple and brings about full tightness against the weather, and a dead center locking of the mechanism. The mechanism is protectably closed in behind the sash, when the window is in closed position.

While but one general form of the invention is shown in the drawings and described in the specifications, it is not desired to limit this application for patent to this particular form as it is appreciated that other forms of construction could be made that would use the principles and come within the scope of the appended claim.

Having thus described the invention, what is claimed is:

The combination, with a window frame, of a sash and linkage pivotally connecting said sash to said frame for movement from a position in which said sash is housed within said frame to any one of a plurality of positions in which the sash is located outside of the frame and extends obliquely with respect thereto; said linkage comprising a pair of mounting plates secured to the side rails of the window frame near the upper ends thereof, a second pair of mounting plates secured to said side rails and located below the first mentioned mounting plates, members secured one each to the opposite side rails of the sash, a pair of links connecting the upper ends of said members to the upper mounting plates, a second pair of links connecting the lower ends of said members to the lower mounting plates, the lower pair of links being longer than the upper pair, locking means forming part of said linkage for holding the sash in selected oblique position with respect to the window frame, said locking means comprises a pair of bolts pivotally connecting one of the pairs of links to the members on the side rails of the sash and a nut on each bolt, said members secured to the side rails of the sash are angular in cross section, and an arm is secured to each of the links of said one pair and overlies a flange of the adjacent member and is adapted to be clamped against said flange by the adjacent nut.

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