I. A. BOYD.

WINDOW.

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959,989.

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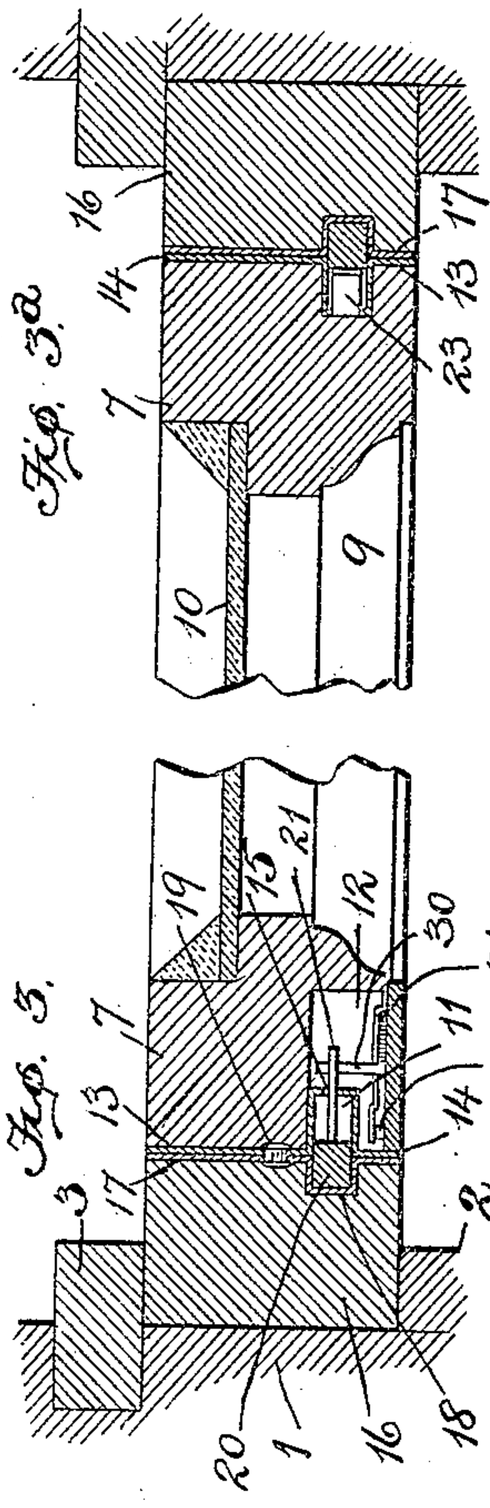

Fig. 3a.

Fig. 3.

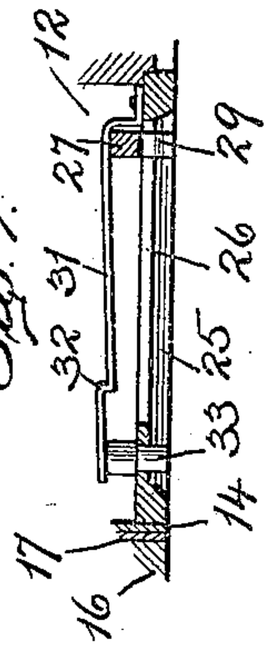

Fig. 7.

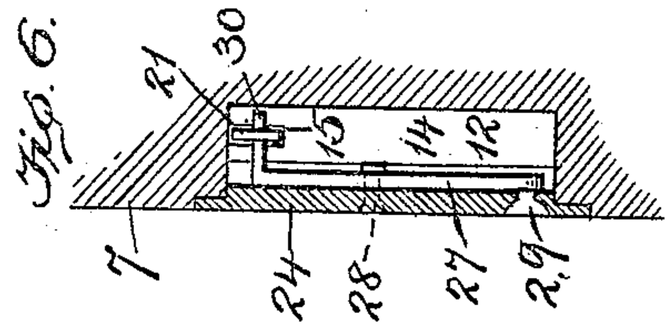

Fig. 6.

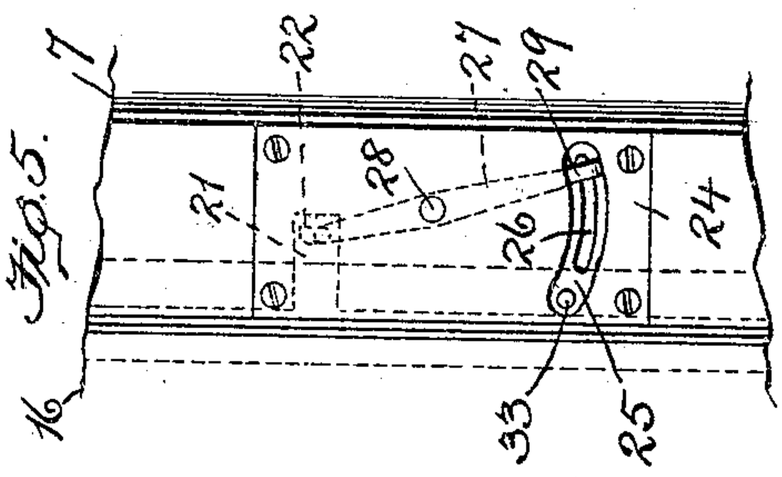

Fig. 5.

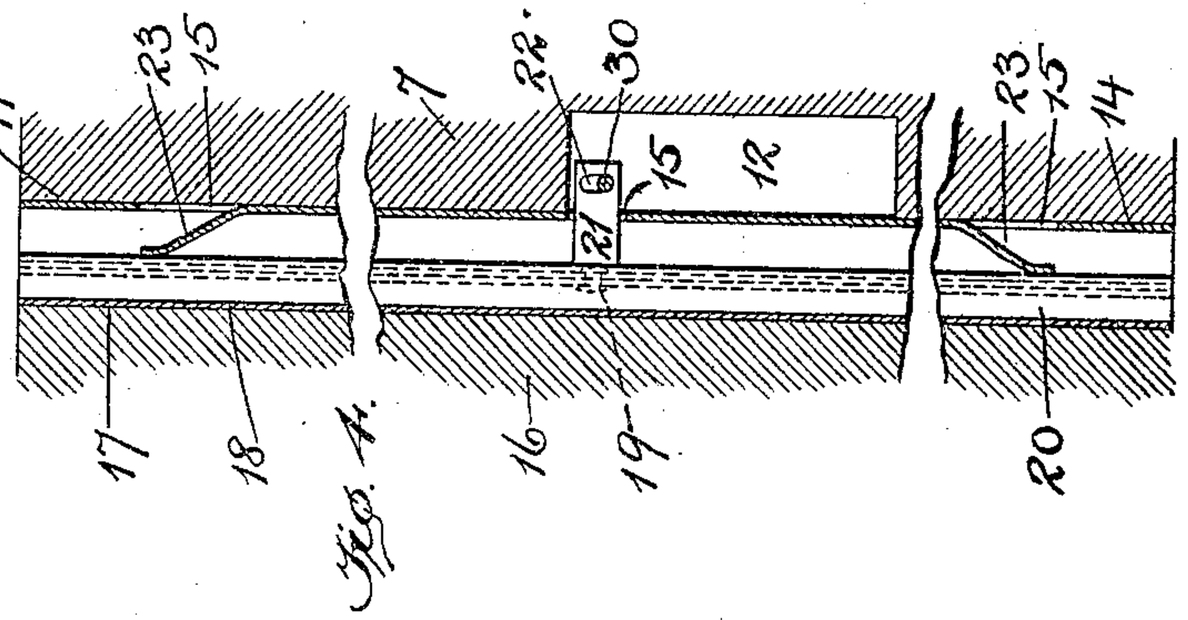

Fig. 4.

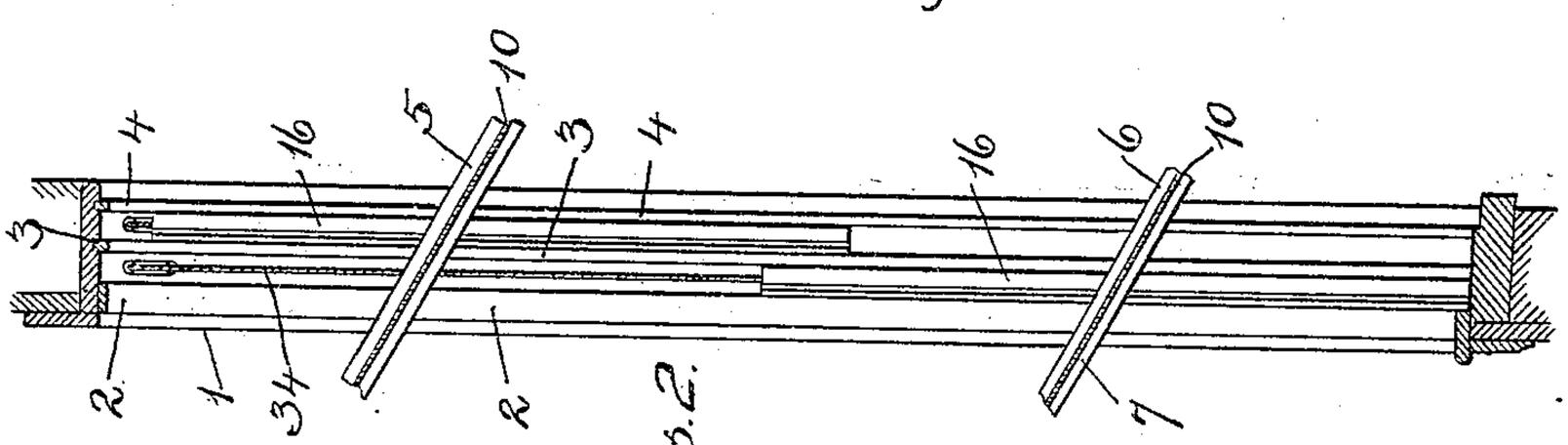

Fig. 2.

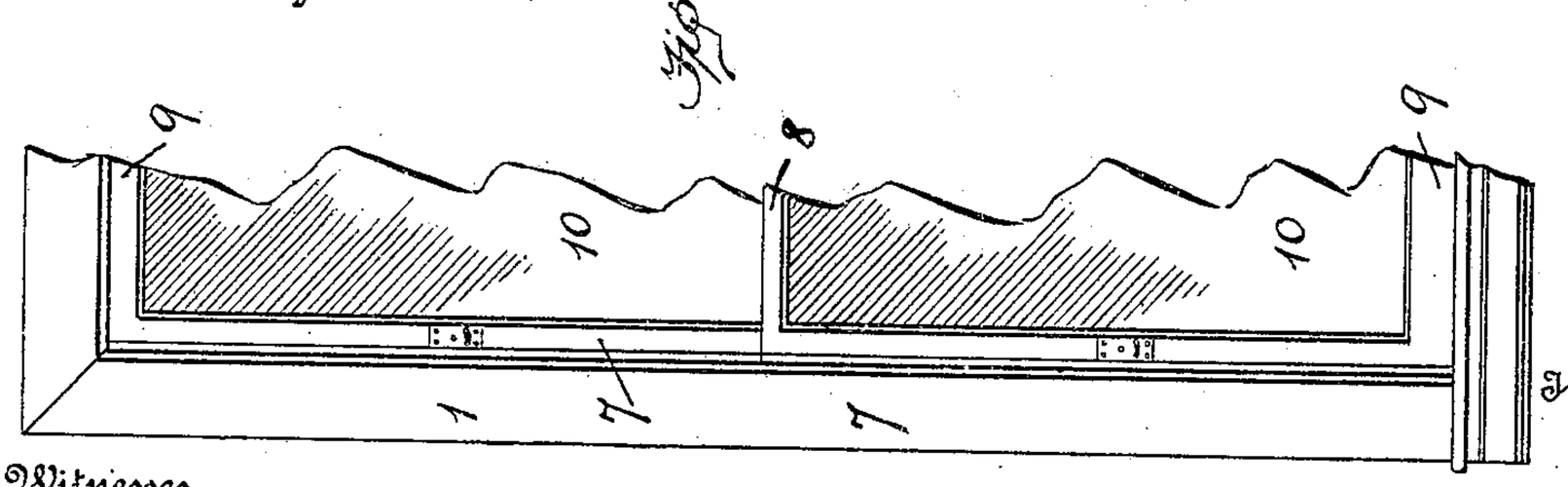

Fig. 1.

Witnesses

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UNITED STATES PATENT OFFICE.

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WINDOW.

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To all whom it may concern:

Be it known that I, ISREAL A. BOYD, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Windows, of which the following is a specification.

This invention relates to improvements in windows and has particular reference to that class of windows in which the sashes slide vertically and are also pivotally mounted so as to be swung more or less, from the vertical to a horizontal position.

One object of the invention is to simplify and improve the construction of sashes of the combined sliding and pivoted type whereby the necessity for altering the frame construction is avoided and by which the ordinary sliding sashes may be readily converted into a pivoted as well as a sliding sash.

The invention consists in the novel construction, combination and arrangement of elements hereinafter described and particularly pointed out in the claims.

The invention is illustrated in the accompanying drawing in which,—

Figure 1, is a front elevation of a portion of a window frame and the upper and lower sashes thereof which are provided with my improvement. Fig. 2, is a vertical longitudinal section through the upper and lower horizontal portions of the frame and also through the sashes,—the latter however, being shown in the tilted position. Fig. 3, is a cross-section on an enlarged scale through the sash and a portion of the frame,—the section being taken through the pivots on which the sash turns. Fig. 3ª, is another horizontal cross-section through the sash and frame and shows the locking bar and the yielding spring finger for pressing the same laterally,—the section being taken immediately above the upper spring finger. Fig. 4 is a vertical longitudinal section through the sash and shows the vertical locking bar and the means for pressing it in the locked position. Fig. 5, is an enlarged front view of the vertical side bar of the sash and shows the operating lever carried thereby. Fig. 6 is a vertical section through the same, and Fig. 7, is a horizontal cross-section through the slotted plate that carries the operating lever and shows the spring arm to engage and hold the lever in the operated position.

Referring to the drawing the numeral, 1, designates the window frame having the usual vertical guide strips, 2, 3, and, 4, between which the upper and lower sashes, 5, and, 6, respectively may slide. The construction of the two sashes and in fact the opposite side rails of each sash are alike in so far as the present invention is concerned, and a description of one will therefore be sufficient. The vertical side rails, 7, of the sash are connected by the usual meeting rail, 8, and horizontal cross-rail, 9, and the glass, 10, is mounted between the said rails in any well known or preferred manner. Each vertical side rail, 7, has a longitudinal groove or channel, 11, which extends vertically from end to end of the sash, and to one side of said channel and between the ends said rails are provided with a lateral recess, 12. The vertical ends, 13, of said rails, 7, are incased by a metal plate, 14, which casing enters the channels, 11, as clearly shown in Fig. 3, and said casing or plate is provided with a slot or opening, 15, which opens into the lateral recess, 12, of the rail.

Between the side rails and the frame I provide a slidable vertical strip, 16, which is also provided with a casing or plate, 17, having a vertical channel, 18, therein and this latter channel registers with the channel, 11, in the side rail. A rivet, 19, passes through the casing plates, 14, and, 17, and pivotally connects the two and as one of these plates is rigid with the side rail and the other rigid with the movable strip, the rivet serves to pivotally connect the said rail and strip.

A locking bar, 20, extends vertically in the channels, 11, and, 18, and is provided with a laterally or horizontally-projecting arm, 21, that extends through the slot or opening, 15, and enters the recess, 12, of the rail, 7. The projecting end of this arm is provided with a short vertical slot, 22, for a purpose presently to be described.

It is desirable that the locking bar, 20, shall normally have position in the channel, 18, of the movable strip and as it is wider than the channel is deep it will project slightly into the channel, 11, of the rail plate. In order to hold the bar in this position a spring, 23, is utilized and while the spring may be arranged in any desired manner I have in the present instance formed it by punching a tang from the metal of the

plate, 14, and projecting it laterally against the vertical edge of the bar, as clearly shown in Fig. 4.

It will be noted that the depth of the channel, 11, is greater than that of the channel, 18, and that in cross-section the bar, 20, is too large to be entered entirely in the channel, 18, while it may be moved wholly within the channel, 11. This is important because as long as the bar overlaps and projects partly into both channels, there can be no tilting of the sash because the bar locks the sash and strip together. This overlapping also enables the said bar, 20, to be utilized as a weather strip to prevent moisture or drafts of air passing between the strip and side rail.

In order to conveniently operate the locking bar I have provided an operating device at the inner side of each side rail which will now be described.

A plate, 24, is fitted over the lateral recess, 12, and flush with the inner face of the side rail, see Fig. 6, and a segmental recess, 25, is provided in the face of said plate and has a segment slot, 26, therein. A lever, 27, is pivotally mounted at, 28, on the inner side of the plate, 24, and the lower end of said lever is provided with a lug or button, 29, that seats and slides in said recess. The upper end of the lever has a laterally or outwardly-projecting arm, 30, which projects through the slot, 22, in the arm of the locking-bar. It is obvious, by reference to Figs. 4, 5 and 6 that by pushing the button or lug, 29, toward the movable strip, 16, that the locking bar, 20, will be drawn laterally into the channel, 11, against the action of the springs, 23, and until it is entirely free of the channel, 18. When in this position the sash may be turned on the pivot and swung from a vertical toward a horizontal position to any degree desired, as for example as seen in Fig. 2.

In case it is desired to retain the lever, 27, in the operated position and thereby keep the locking-bar retracted I have provided a spring bar, 31, at the inner side of the plate, 24, see Figs. 3 and 7, which has a shoulder, 32, adjacent to one end to project behind the lever and hold it in place, and when it is desired to release the lever a button, 33, may be depressed and the spring-bar pushed inwardly so as to be disengaged from the lever.

The vertical strips and sashes carried thereby are suspended from the usual ropes or sash balances, 34.

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

1. The combination with the frame having vertical guide strips, of a vertical strip movable longitudinally between the guide-strips and having at its side edge a metal plate with a longitudinal channel at one side of its vertical center; a sash having a side rail and also provided at its side edge with a metal plate which also has a longitudinal channel at one side of its vertical center and the two plates confronting each other; a rivet pivotally connecting the said two plates; a locking bar extending vertically in the registering channels of the pivotally-connected plates, and means for operating said bar.

2. The combination with the frame having vertical guide strips, of a vertical strip movable longitudinally between the guide-strips and having at its vertical side edge a metal plate with a longitudinal channel at one side of its vertical center; a sash having a side rail and also provided at its side edge with a metal plate which latter has a vertical channel at one side of its vertical center and the two plates confronting each other,— said sash-rail having a recess extending inwardly from its front face and communicating with the channels of the confronting plates and the channeled plate of the sash rail having spring tongues punched therefrom and projecting into the channel thereof; a rivet pivotally connecting the two channeled plates; a locking bar extending vertically in the two channels of the plates and seated against the spring tongues of the latter and having an arm that enters the recess of the sash rail; a plate secured to the front face of the sash rail and covering said sash-rail recess, and a lever pivotally mounted with respect to said plate and having one end connected with the arm of the locking bar in said sash-rail recess.

3. The combination with the frame having vertical guide strips, of a vertical strip movable longitudinally between the guide-strips and having a channeled metal plate at its vertical side; a sash having a side rail with a channeled metal plate at its vertical side which confronts the plate on the strip,— said two channeled plates being pivotally connected at one side of their registering channels; a locking bar extending vertically in the registering channels of the pivotally-connected plates and having a laterally-projecting arm; springs operating on one side of the locking bar in said sash-rail channel; a lever pivotally sustained on the sash rail and having one end connected with the arm of the locking bar and the other end exposed for operation; a spring bar at one side of the pivoted lever for engaging the latter to hold it in its operated position and a push button exposed on the outer side of the sash rail for releasing said spring bar.

In testimony whereof I affix my signature in presence of two witnesses.

ISREAL A. BOYD.

Witnesses:

CHARLES B. MANN, Jr.,

G. FERDINAND VOGT.