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SLIDING BOLT FASTENER

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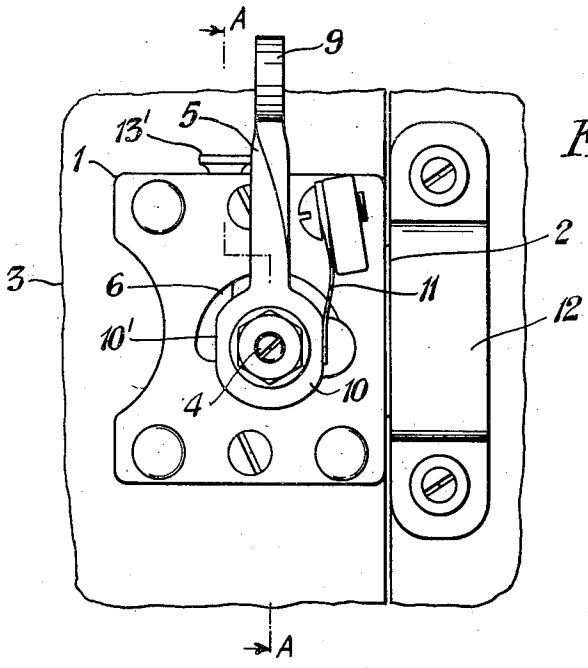


FIG. 1.

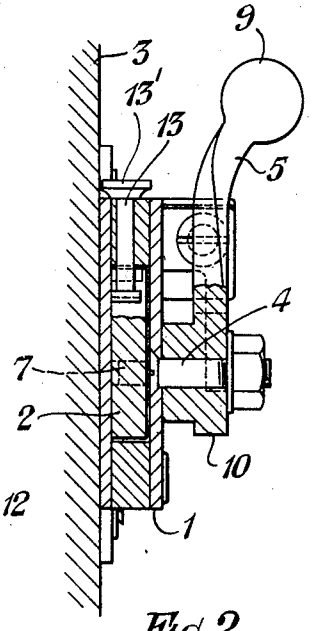


FIG. 2.

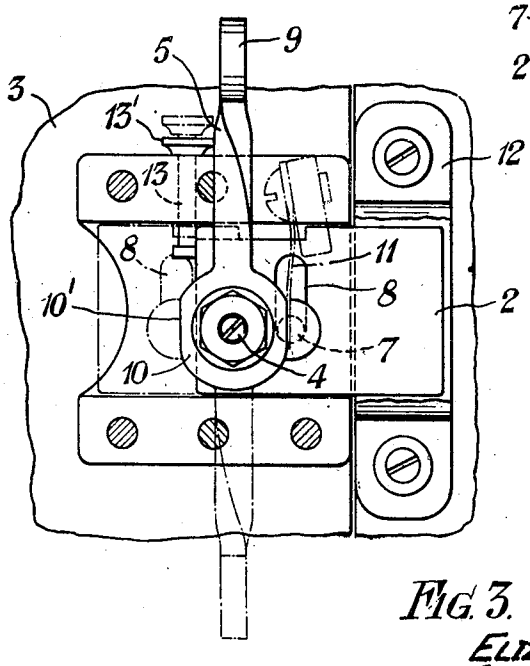


FIG. 3.

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SLIDING BOLT FASTENER

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1 Claim. (Cl. 292—140)

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This invention relates to fastening or locking devices for windows, doors or like structures.

Up to the present, window fasteners have commonly consisted of a simple pivoted lever secured upon the window frame and adapted to enter a slot formed in the stationary framing with the window frame itself. The entry of the finger-like end of the lever into the slot is the only form of locking normally provided upon windows, and it is well known that the finger-like end of the lever can be disengaged from its co-operating slot with the aid of a knife blade thrust between the window frame and the surrounding framing, from the outside. This known method of fastening windows has therefore the primary disadvantage that the fastened window may be relatively easily opened from the outside. It is an object of the present invention to provide a device employable in connection with windows and like hinged structures, for locking them positively in a closed position, without the disadvantage in the cases above.

In accordance with the invention a fastening or locking device consists of a tongue carried slidably in a member or casing and formed with a slot or groove lying substantially at right angles to the direction of the sliding movement of the tongue, the member having pivotally secured to it, a lever assembly bearing a pin for engagement with the slot in said tongue, whereby swinging of the lever assembly about its pivotal support may cause the tongue to be slidably displaced to a position where it may engage in or be disengaged from a staple or slot. In the engaging position of the tongue, the actuating pin upon the lever assembly lies on a line including the point of pivotal support thereof which line is perpendicular to the slot in the tongue. By virtue of this arrangement it will not generally be possible to force the tongue backwardly, since this would be positively prevented by the described lever assembly.

As a further security measure a locking pin may be arranged to be displaceable in the member described above, in such manner that the pin may be brought to a position where it lies behind the tongue when the latter is in the locking position, and positively prevents the tongue from being withdrawn from the locking position until the pin is displaced. The pin should preferably lie transversely to the general direction of travel of the tongue and abut against the inner end thereof when in its locked position thus preventing the tongue from being withdrawn from its locking position. To facilitate displacement

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of the locking pin away from its locking position, the outer end of the pin preferably has some form of handle permitting it to be readily grasped.

To provide yet another safety measure, the principal operating handle of the locking device may be made readily removable so that the handle does in a sense become a key. Alternatively the whole of the locking device described may be enclosed in a casing and operated with the aid of a key inserted in a suitable keyhole formed in the casing, the handle being then completely dispensed with.

In order that the invention may be clearly understood and readily carried into effect the same will now be described in detail with reference to the accompanying drawings, given by way of example, and wherein:

Figure 1 is a front elevation showing the lock in the closed position;

Figure 2 is a section on the line A—A of Figure 1; and

Figure 3 is a view similar to Figure 1 with the front portion removed and showing also the open position of the lock in chain dotted lines.

Referring to the drawings, a metal casing 1 serves to hold a slidable metal tongue 2. The casing 1 is adapted to be secured to a window frame 3 or to the stationary framing around a window frame, and carries a post 4 for the pivotal support of a lever assembly including a lever arm 5. The casing 1 is formed with a semi-circular slot 6 centred about the post 4 and permitting a pin 7 carried by the lever assembly to enter the casing 1. The tongue 2 within the casing has a slot 8 extending in a direction transverse to that in which the tongue may slide, and such a transverse slot 8 is engaged by the pin 7.

The free end of the lever arm 5 is formed in any convenient manner as at 9 for grasping by the hand of a user. Alternatively it may be provided with a pin supporting a porcelain ball. The lever assembly adjacent the point where it is pivotally carried by the post 4, preferably has a boss 10 formed with flats 10' engaged by a leaf spring 11, so that the arm 10 tends always to be held in particular positions of adjustment by the contact of the leaf spring 11 upon the flats 10'.

When the tongue 2 is fully within the casing 1, the pin 7 of the lever assembly is at one extremity of the semi-circular slot 6 in the casing, and is also at one extremity of the transverse slot 8 in the tongue. One of the flats 10' is then engaging the leaf spring 11 and tending to hold

the lever assembly in this position. By grasping the free end 9 of the lever arm 5 it may be swung to a position where the pin has travelled around the semi-circular groove 6 and has arrived at the other limit thereof. In this position the tongue 2 will have been carried forward out of the casing 1 and the pin 7 will have arrived at the other extremity of the transverse slot 8 of the tongue. In this extreme position, as best shown in Figure 1, the leaf spring engages another flat 10' of the lever assembly so as to tend to hold the latter in this position also.

A staple 12 is provided for engagement by the tongue 2 or alternatively the said staple may be replaced by a slot suitably formed to engage the same. Once the tongue 2 has been brought to the limit of its outward travel from the casing, i. e. the position shown in Figure 1, the pin 7 of the lever assembly and the pivot 4 thereof will be lying in a line at right angles to the transverse slot 8 of the tongue. Under these circumstances it will not be possible to force the tongue 2 back into the casing 1 without the use of considerable force such as would be necessary either to break the lever 5 from its pivotal support or to break the actuating pin.

As a further security against unauthorised opening, a locking pin 13 is displaceable in the casing 1 in such manner that the pin 13 may be brought to a position where it lies behind the tongue 2 when the latter is in the locking position, as shown more fully in Figures 2 and 3, and in this position the pin 13 positively prevents the tongue from being withdrawn from the locking position until the said pin is displaced. As illustrated the pin 13 should preferably lie transversely to the general direction of travel of the tongue 2 and abut against the inner end thereof when in its locked position. To facilitate displacement of the locking pin 13 away from its locking position, the outer end of the pin is preferably formed with a suitable knob 13' as shown to enable it to be rapidly grasped.

In the constructional example described and demonstrated the lever arm 5 has a movement of about 180°. It will be noted that when the tongue is in its fully retracted position, as shown in chain dotted lines in Figure 3, it is also positively held against displacement. This last feature is not necessarily advantageous as the movement of the lever arm may be reduced to 90° while still conforming with the condition that the pin 7 of the lever assembly and the pivot 4 thereof shall lie along a line substantially at right angles to the transverse slot 8 in the tongue 2 when the latter is fully displaced.

If desired, and as yet another safety measure, the operating handle 5 of the locking device may be made readily removable so that this handle does in effect become a key. Alternatively the whole of the locking device described may be enclosed in a casing and operated with the aid of a key inserted in a suitable keyhole formed in the casing, the handle 5 being then completely dispensed with.

The device described is useful not only in connection with the fastening of windows but also in the fastening of doors and like structures and the casing serving to house the tongue may be secured to the window frame or alternatively to the stationary framing about the window frame or may be used in a like manner for other purposes.

I claim:

A device for fastening hinged windows, doors and like structures comprising a casing having one wall formed with an arcuate slot, a bolt formed with a transverse slot and slidably carried in said casing so as to be horizontally displaceable to a position in which one end protrudes outside the casing for engagement with bolt retaining means, a lever assembly rotatably mounted externally of said casing on said slotted wall, a pin eccentrically carried by said lever assembly and engaging in the slot in said bolt through said arcuate slot in the wall of said casing so that rotation of said lever assembly about its point of pivotal support will displace said bolt with respect to said casing, said pin and said point of pivotal support being located on a line at right angles to said slot in the bolt when the bolt is in its fully protruding position and a spring arranged to locate and retain said lever assembly in a position of angular adjustment in which the bolt is in said fully protruding position.

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