

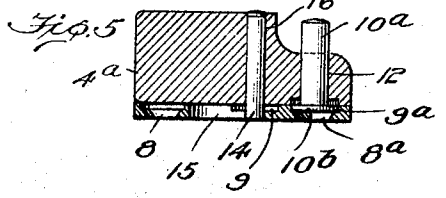
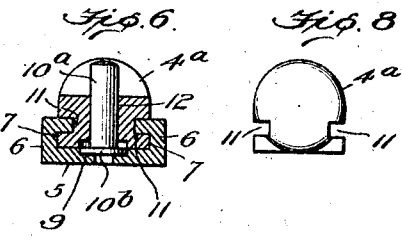
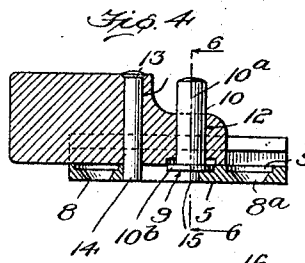
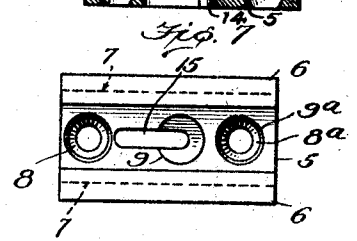
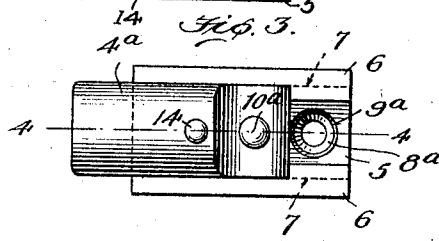
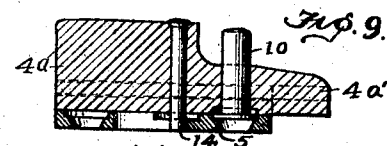
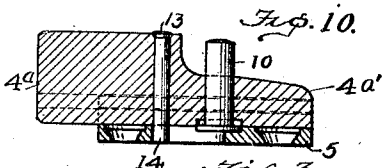
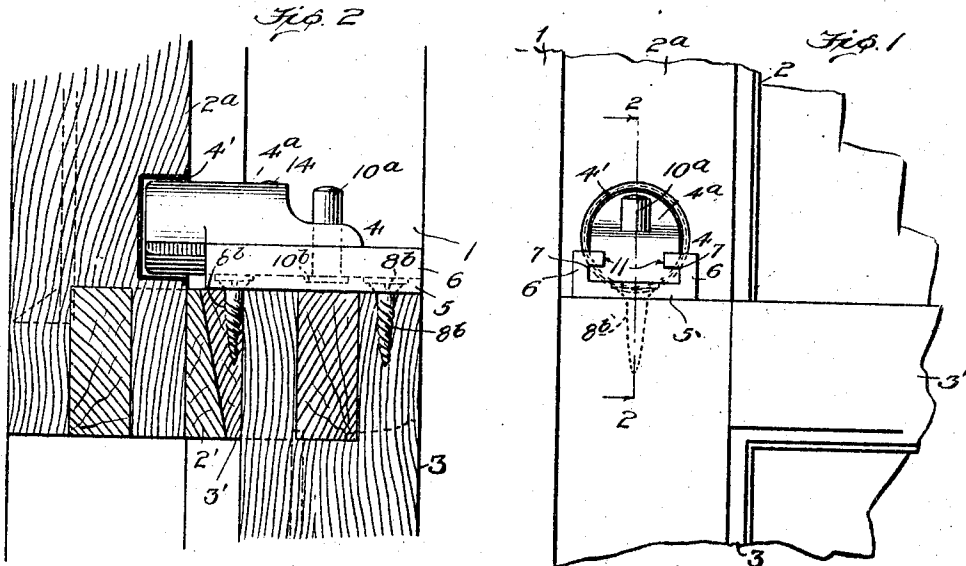
March 22, 1927.

1,621,934

A. E. KINTNER

LOCKING DEVICE

Filed Sept. 19, 1923



By

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Attorney

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# UNITED STATES PATENT OFFICE.

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## LOCKING DEVICE.

Application filed September 19, 1923. Serial No. 663,526.

This invention relates to a locking device, more particularly a device for locking a member against sliding movement or a pair of members either of which is capable of sliding relative to the other member.

In the preferred application of the invention I have adapted it to the locking of a pair of window sashes, whereby one may be locked to the other either in their closed position or with one adjusted relative to the other, in which latter arrangement opening of either sash beyond a predetermined position is prevented.

One object of the invention is to provide a locking device of this character of relatively simple construction.

Another object of the invention is to so construct the parts or elements constituting the locking device that the same cannot be opened or unlocked by ordinary tools or equivalent devices.

Another object of the invention is to so construct the parts or elements constituting the locking device that the locking element is disposed behind the lock member out of reach to prevent throwing of the lock member by a tool operated from the outside of the sash.

Other objects of the invention will be apparent to those skilled in the art to which my invention relates from the following description taken in connection with the accompanying drawings, wherein—

Fig. 1 is a fragmentary front view of a window having upper and lower sashes and a locking device, embodying my invention, applied thereto.

Fig. 2 is a section on the line 2—2 of Fig. 1.

Fig. 3 is a top plan view of the locking device showing the locking member and the position it occupies when the two sashes of a window are in locked relation.

Fig. 4 is a section on the line 4—4 of Fig. 3.

Fig. 5 is a section, similar to Fig. 4, but showing the lock member in unlocked position.

Fig. 6 is a section on the line 6—6 of Fig. 4.

Fig. 7 is a plan view of the base plate.

Fig. 8 is an end view of the lock member.

Figs. 9 and 10 illustrate a slightly modified form of construction embodying the invention.

In the drawings 1 indicates a window

frame having upper and lower sashes 2, 3, each slidably mounted in the frame 1 so as to move one relative to the other. The window frame 1 and sashes 2, 3, may be of any desired construction but preferably comprise transverse members 2', 3', at their inner edges which are adapted to come into aligned relationship as shown in Fig. 2, when the sashes 2, 3, are in their closed positions.

4 indicates as an entirety the locking device adapted to be secured to the upper surface of the cross member 3', and so arranged that the lock member 4<sup>a</sup> of the locking device 4 will project into any one of a series of recesses 4' formed in one of the vertical side members 2<sup>a</sup> of the upper sash 2. The side member 2<sup>a</sup> is formed with as many recesses 4' as desired and these recesses may be arranged relatively close together or in any desired spaced relationship, one being arranged in alignment with the lock member 4<sup>a</sup> when the sashes 2, 3, are closed to lock them in such position. By providing a plurality of recesses 4' from the lower end of the side member 2<sup>a</sup> toward its upper end, either sash may be adjusted relative to the other sash and locked in such position, and when so locked they may be moved in such relationship whether the sashes are moved upwardly or downwardly as the case may be. By locking the sashes to each other, either one may be opened to a predetermined extent and thereby prevent the opening of the other sash any greater distance.

Of the locking device 4, 5 indicates a base plate having side walls 6 extending along its opposite edges and projecting upwardly therefrom. The inner faces of these side walls 6 are under-cut or otherwise formed to provide guides 7.

8, 8<sup>a</sup>, indicate openings formed in the base plate substantially centrally between the guides 7 and near the opposite ends of the plate and adapted to receive screws 8<sup>b</sup> or equivalent devices to secure the base plate to the cross member 3'. 9, 9<sup>a</sup>, indicate recesses formed in the base plate, centrally of the guides 7, 7, and arranged to form seats for a locking element 10 to be later referred to. As is shown, the openings 8, 8<sup>a</sup>, are countersunk so as to receive the heads of the screws and therefore be disposed out of the path of movement of the lock member 4<sup>a</sup>. The opening forming the seat 9<sup>a</sup> is preferably disposed concentric to the opening 8<sup>a</sup>

for the adjacent screw 8<sup>b</sup>, so that when the locking element is seated in the seat 9<sup>a</sup> it covers the adjacent screw 8<sup>b</sup> and prevents access thereto.

5 The lock member 4<sup>a</sup> is arranged to slide endwise in the guides 7, being formed with grooves 11 extending longitudinally along its opposite sides and is shaped at its forward end to seat in each of the recesses 4'.  
 10 12 indicates an opening formed in the tail portion of the lock member 4<sup>a</sup> and extending vertically therethrough, and serving to movably support the locking element 10. The locking element comprises a rod 10<sup>a</sup>,  
 15 loosely fitting the opening 12 and movable endwise therein. At its lower end the rod 10<sup>a</sup> carries a head 10<sup>b</sup>, corresponding in size and shape to the recesses 9, 9<sup>a</sup>. The rod 10<sup>a</sup> is so arranged that it drops under the  
 20 influence of gravity, so that when the locking element 10 is raised and the lock member moved endwise it will drop or move downwardly under the influence of gravity, and the head 10<sup>b</sup> thereof seat itself in one of the  
 25 recesses 9, 9<sup>a</sup>. Fig. 4 shows the position of the lock member 4<sup>a</sup> in its locking position with the head 10<sup>b</sup> seated in the seat 9. By lifting the locking element 10 until the head 10<sup>b</sup> is disposed above the upper surface of  
 30 the base plate 5, the lock member may be moved endwise, or toward the right as viewed in Fig. 4 until the head is disposed above the seat 9<sup>a</sup>, in which position the lock element 10 will drop and the head 10<sup>b</sup> will  
 35 seat itself in the latter recess. The underside of the lock member 4<sup>a</sup> is preferably provided with a rabbeted portion surrounding the opening 12 to receive the head 10<sup>b</sup> when the locking element is elevated, the  
 40 wall of the rabbeted portion thereby serving as a stop to limit the raising of the locking element 10.

13 indicates as an entirety means for limiting the movement of the lock member 4<sup>a</sup>  
 45 in either direction. These means preferably comprise a stud 14 carried by and projecting downwardly below the lock member 4<sup>a</sup> and an elongated groove or recess 15 formed  
 50 in the base plate 5, the end walls of the elongated slot or recess serving as abutments to engage the stud 14 when the lock member is moved in either direction. The elongated slot 15 is so arranged that when the stud 14  
 55 engages with the end walls thereof it will arrest the lock member 4<sup>a</sup> in those positions wherein the head 10<sup>b</sup> of the locking element 10 is above or in alignment with one or the other of the seats 9, 9<sup>a</sup>, thereby permitting the latter to enter or seat itself in such recess  
 60 and lock the lock member in such position. The stud 14 is seated in an opening 16 formed in the body portion of the lock member 4<sup>a</sup>, being positioned therein after the lock member 4<sup>a</sup> is assembled in sliding relationship between the guides 7. The upper end of the

stud is preferably riveted over the face of the lock member 14, so that once the base plate is secured in position and the lock member assembled thereon, it cannot be readily removed and access to the outer  
 70 screw 8<sup>b</sup> obtained.

From the foregoing description it will be seen that the lock member when in locking position is superposed above the inner screw 8<sup>b</sup> which secures the base plate 5 to  
 75 the cross member 3' and that when the lock member is out of locking relationship with the sash 2 it is superposed above both screws 8<sup>b</sup> so that access thereto is prevented. By arranging the screw openings 8, 8<sup>a</sup>, in  
 80 this manner, access to the securing screws is prevented and furthermore the projection of flanges or lugs at either side of the base plate as a means of securing the latter in place, are eliminated thereby simplifying the  
 85 construction and at the same time increasing the difficulties of removing the locking device from the sash and to that extent making it impossible for an unauthorized person to gain admittance by bodily removing the  
 90 device. By providing the tail portion 4<sup>a</sup> with an extension 4'<sup>a</sup>, access to the outer screw 8<sup>b</sup> is also prevented even when the locking device 4<sup>a</sup> is in its locking position, (see Fig. 10).  
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In my construction the locking element is operated into its locking position, to lock the lock member and base plate, by gravity, thereby making it necessary to raise the same  
 100 vertically. Due to this arrangement and operation and the further fact that such locking element is disposed behind, or at the rear end of the lock member, it is at a point which is inaccessible to any sort of tool or  
 105 device that may be thrust or wedged in between the cross members 2', 3', so that danger of an unauthorized person spreading the sashes relative to each other and unlocking them, is prevented.

To those skilled in the art to which my  
 110 invention relates, many alterations in construction and widely differing embodiments and applications thereof will suggest themselves without departing from the spirit and  
 115 scope of the invention. My description and the disclosures herein are purely illustrative and are not intended to be in any sense limiting.

What I claim is:

1. In a locking device, the combination  
 120 of a pair of members supported in sliding relationship, of a plate having guide means and formed with an opening and seats, means extending through said opening to secure said plate to one of said members,  
 125 a lock member slidably engaging said guide means arranged to project into a recess formed in the other sliding member and having a tail member extending rearwardly from its lower portion, and a locking element 130

movably carried by said tail member and arranged to be seated in one of said seats when said lock member is operated to its locking position and to engage the other seat when said lock member is in its unlocked position.

2. In a locking device, the combination with a pair of members supported in sliding relationship, of a plate having guide means and formed with an opening and seats, means extending through said opening to secure said plate to one of said members, a lock member slidably engaging said guide means arranged to project into a recess formed in the other sliding member and having a tail member extending rearwardly from its lower portion, and a locking element movably carried by said tail member and arranged to be seated in one of said seats when said lock member is operated to its locking position and to engage the other seat when said lock member is in its unlocked position, the upper end of said locking element being below the plane of the top surface of said lock member when seated in one of said seats.

3. In a locking device, the combination with a pair of members supported in sliding relationship, of a plate having guides and formed with openings and seats between said guides, means extending through said openings to secure said plate to one of said members, a lock member slidably engaging said guides and arranged to project into a recess formed in the other member, and a locking element carried by said lock member and arranged to be seated in one of said seats when said lock member is operated to its locking position and to be seated in the other seat when said lock member is operated to its unlocked position, one of said seats being aligned with one of said openings, whereby the locking element prevents access to the securing means in said opening.

4. In a locking device, the combination with a pair of members supported in sliding relationship, of a plate having guides and formed with an opening and seats between said guides, means extending through said opening to secure said plate to one of said members, a lock member slidably engaging said guides and arranged to project into a recess formed in the other member, a gravity operated locking element carried by said lock member and arranged to be seated in one of said seats when said lock member is operated to its locking position and to be seated in the other seat when said lock member is operated to its unlocked position, and means for limiting the movement of the lock member in either direction, said limiting means comprising an elongated slot formed in said plate between said guides and a stud carried by and projecting downwardly from said lock member and engaging the end walls of said slot.

5. In a locking device, the combination with a pair of members supported in sliding relationship, of a plate having guides and formed with an opening and seats between said guides, means extending through said opening to secure said plate to one of said members, a lock member slidably engaging said guides and arranged to project into a recess formed in the other member, a gravity operated locking element carried by said lock member and arranged to be seated in one of said seats when said lock member is operated to its locking position and to be seated in the other seat when said lock member is operated to its unlocked position, and means for limiting the movement of the lock member in either direction, said limiting means comprising an elongated slot formed in said plate and a stud depending from the body portion of said lock member and depending from its lower surface to engage the end walls of said slot.

6. In a locking device, the combination with a pair of members supported in sliding relationship, one of said members having a cross member, of a plate having guides extending at right angles to the plane of movement of said members and formed intermediate the ends of said guides and therebetween with an opening and a recess, means extending through said opening for securing said plate to said cross member, a lock member slidably engaging said guides and arranged to be projected into a recess in the other member for locking said members against relative sliding movement, the rear end of said lock member being formed with an opening extending vertically, and a locking element slidably mounted in said last mentioned opening tending, under the influence of gravity, to engage said recess when said lock member is in one position and to engage one of said openings when said lock member is in its other position, the upper end of said locking element, when in locking position, being below the upper surface of said lock member.

7. In a locking device, the combination with a pair of members supported in sliding relationship, one of said members having a cross member, of a plate having guides extending at right angles to the plane of movement of said members and formed intermediate the ends of said guides and therebetween with an opening and a recess, means extending through said opening for securing said plate to said cross member, a lock member slidably engaging said guides and arranged to be projected into a recess in the other member for locking said members against relative sliding movement, the rear end of said lock member being formed with an opening extending vertically, a locking element slidably mounted in said last mentioned opening tending, under the influence

of gravity, to engage said recess when said lock member is in one position and to engage one of said openings when said lock member is in its other position, and separate  
 5 means for limiting the movement of said lock member in either direction with said locking element in alignment with said recess or opening.

8. In a locking device, the combination  
 10 with a pair of members supported in sliding relationship, of a plate having guide means and formed with an opening and seats, means extending through said opening to secure said plate to one of said members,  
 15 a lock member slidably engaging said guide means arranged to project into a recess formed in the other member and having a tail member extending from its lower rear  
 20 end, said tail member being formed with a vertical opening, and a locking element slidably fitting said vertical opening and arranged to be seated in one of said seats when  
 said lock member is operated to its locking position and to be seated in the other seat  
 25 when said lock member is in its unlocking position, the upper end of said locking element, when seated in either of said seats, being below the upper surface of the body portion of said lock member.

9. In a locking device, the combination  
 30 with a pair of members supported in sliding relationship, of a plate having guide means and formed with an opening and seats, means extending through said opening to  
 35 secure said plate to one of said members, a

lock member slidably engaging said guide means arranged to project into a recess formed in the other member and having a tail member extending from its lower rear  
 40 end, said tail member being formed with a vertical opening, and a locking element slidably fitting said vertical opening and arranged to be seated in one of said seats when  
 said lock member is operated to its locking position and to be seated in the other seat  
 45 when said lock member is in its unlocking position, the upper end of said locking element, when seated in either of said seats, being below the upper surface of the body portion of said lock member, said locking  
 50 element being provided with a head to limit its raising movement.

10. In a locking device, the combination  
 of a pair of relatively movable members, of a plate having guide means, means disposed  
 55 between said guide means for securing said plate to one of said relatively movable members, said plate being formed with a recess, a locking element slidably engaging  
 said guide means and arranged to engage  
 60 and disengage the other of said members, and disposed above and covering said securing means when in either of its positions, and an operating member slidably fitting an  
 opening in said element and arranged to en-  
 65 gage the walls of said recess to lock said element against movement.

In testimony whereof, I have hereunto subscribed my name.

ALCUIN E. KINTNER.