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J. E. LUNDHOLM

2,389,375

DEVICES FOR BOLTING UP DOUBLE WINDOWS CONNECTED WITH ONE ANOTHER

Filed Feb. 4, 1943

2 Sheets-Sheet 1

Fig. 1. Fig. 2.

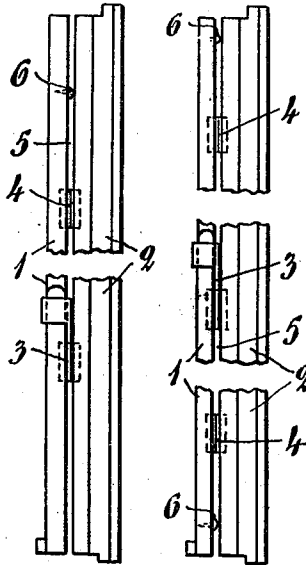


Fig. 6.

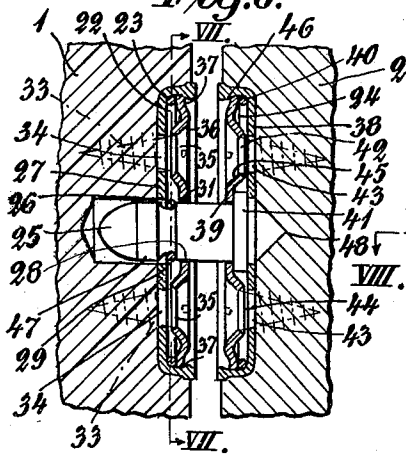


Fig. 7.

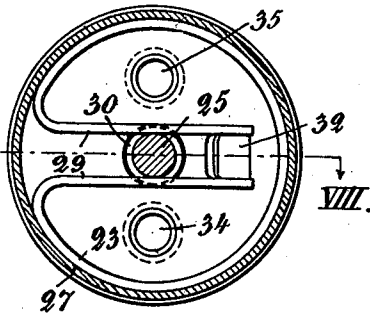
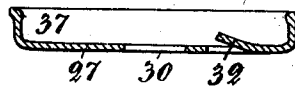


Fig. 8.



INVENTOR:
JOSEF ENAR LUNDHOLM
BY *Haseltine, Lake & Co.*
ATTORNEYS.

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Fig. 3.

Fig. 4.

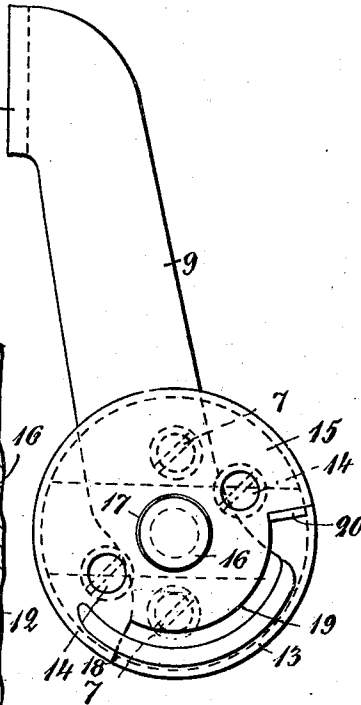
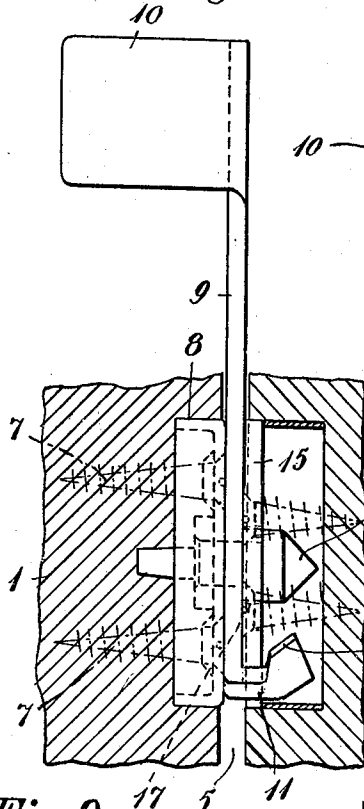
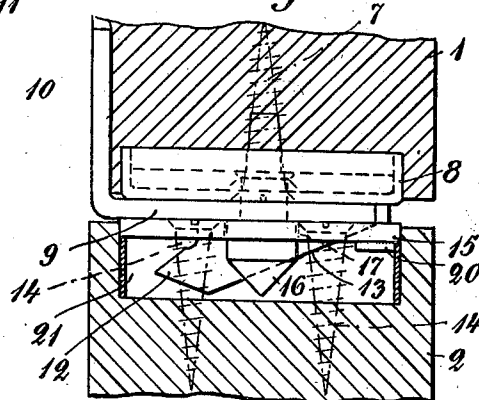
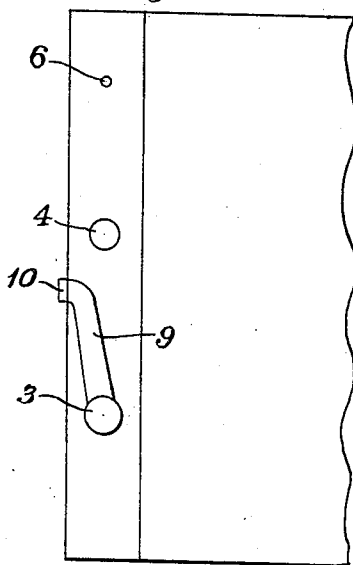


Fig. 5.

Fig. 9.



INVENTOR:
JOSEF ENAR LUNDHOLM
BY *Baseltine, Lake & Co.*
ATTORNEYS.

UNITED STATES PATENT OFFICE

2,389,375

DEVICE FOR BOLTING UP DOUBLE WINDOWS CONNECTED WITH ONE ANOTHER

Josef Enar Lundholm, Stockholm, Sweden

Application February 4, 1943, Serial No. 474,667
In Sweden June 13, 1941

5 Claims. (Cl. 20—56.5)

This invention relates to double windows and methods and devices for operating the same.

It is known to employ two or several devices of the same kind for bolting up double windows connected with one another of the type which when closed are in superimposed relationship and which are capable of being separated by being pressed apart horizontally, which devices consist usually either of press-studs containing two parts, which in the closed position interlock under the pressure of a spring, or of so-called eccentric locks containing essentially two parts, which interlock in the closed position and are moved from one another when they are opened so that in this way both windows are pressed from one another. Spring catches or fasteners having a cylindrical body and a headed projection provided with an annular groove behind said headed projection adapted to engage a spring, are often referred to as "press-studs" and the term "press-studs" will hereinafter be used to define such spring catches.

Press-studs are inexpensive and may be easily fitted; besides, it is possible to open and also to lock several press-studs simultaneously. However, they are not reliable, as it is possible under certain circumstances for them to become easily loosened. Eccentric locks are reliable, but the manufacture of these locks is complicated and their operation is troublesome, as, where windows are provided with a plurality of eccentric locks, these locks when not interconnected can only be opened and locked separately one after the other. This construction is especially undesirable in construction where the eccentric locks are fixed on the windows in high positions, or at such parts of a window which are not within reach.

According to the present invention, the disadvantages of both interlocking devices can be eliminated in a simple manner by combining an eccentric lock with one or several press-studs. In this way it is possible to produce a reliable and inexpensive interlocking system, which may be easily operated and for which, if the window is not too large, a single eccentric lock is adequate for the purposes intended and which may be fixed at an easily accessible part of the window.

In order to facilitate the opening of the press-studs by means of the eccentric lock it is possible to arrange a projection adjacent to the press-studs in a gap connecting the space between both windows with the atmosphere, which projection serves as fulcrum to both windows, when the windows are pressed from one another by means

of the eccentric lock. Thus, the eccentric lock need only exert a relatively small amount of force in order to open the press-studs. The eccentric lock may consist of a two-armed lever fixed at one window sash frame, which lever may be turned in the gap between both window sash frames. Said lever is provided at one end with a handle and at its other end with a catch, which when being turned into the closed position, its hook-shaped end takes hold under a plate fastened to the other window sash frame, and in this way draws together and bolts up both windows, whereas, when the lock is opened, the catch is lifted up from the plate by means of its edge rising in the direction of the hook-shaped end and thus presses the windows apart.

An example of the bolting-up device according to the invention is illustrated on the accompanying drawings, in which

Fig. 1 is a diagrammatic illustration of a side view of the sash frames of a double window provided with an eccentric lock and a single press-stud, and

Fig. 2 is a diagrammatic illustration of a side view of the sash frames of a double window provided with an eccentric lock in combination with two press-studs,

Figs. 3, 4 and 5 show in enlarged scale the eccentric lock in side, front and plan view,

Fig. 6 is a large section through both parts of the press-studs, whereas

Figs. 7 and 8 are sections along the lines VII—VII and VIII—VIII of Figs. 6 and 7 respectively.

Figure 9 is a face view of the sash shown in Fig. 1.

According to Fig. 1 the sash frames 1, 2 of the double window are bolted up by means of an eccentric lock 3 and a press-stud 4.

In order to facilitate the opening of the press-stud 4 a screw 6 is provided in the gap 5 between the two frames 1, 2 and adjacent the press-stud 4, which screw serves as fulcrum to the frames 1, 2, when the windows are pressed apart by means of the eccentric lock 3. According to Fig. 2, the eccentric lock 3 is disposed between two press-studs 4, adjacent each of which a screw 6 is fixed in the same manner as in Fig. 1.

It is also possible to provide more than one eccentric lock 3 if it should be found necessary, for instance on high or broad windows.

According to Figs. 3-5 the eccentric lock consists of a plate 8 inserted in the window sash frame 1 and fastened thereto by means of screws 7. A double-armed lever 9 mounted on the plate

8 may be turned in the gap 5 and is provided at its one end with a handle 10, which is positioned in a lateral recess of the frame 1, when the window sash frames 1, 2 are closed and locked, and serves to turn the lever 9. In order that the handle 10 may be easily grasped, the recess is somewhat elongated in the upward direction. The other end of the lever 9 is provided with a catch 11 which ends in a hook-shaped member 12 the outer edge of which rises in the direction of the hook-shaped end 12. A plate 15 is fixed at the frame 2 by means of screws 14. The correct position of the plate 8 with respect to the plate 15 can be attained by means of a guiding and centering pin 16, which forms the fulcrum or turning point for the lever 9, and of a corresponding opening 17 in the plate 15.

The plate 15 is provided with an aperture, which is limited by the three edges 18, 19 and 20 and is so arranged that the hook-shaped part 12 of the catch 11, having passed from this aperture into an opening 21 in the frame 2, catches under the edge 18 and in this way draws together and bolts up both windows, whereas, when the lock is opened, the edge 13 of the catch 11 slides over the edge 20 bent downwards into the opening 21 and presses the windows apart.

One part of the press-studs 4 consists of a casing 22 which is formed as a dish-shaped body 27 provided with a cover-plate 28 and in which the catch-spring 23 is inserted whereas the other part is formed by a plate 24 supporting the pivot 25. The spring 23 may catch in a groove 26 surrounding the pivot 25. Said spring consists of a steel wire which extends along the greatest part of the internal periphery of the dish 27, and the free operative ends form two elastic shanks 29, which lie on both sides of the centre of the dish somewhat within the periphery of an opening 30 in the dish 27 and an opening 31 in the cover-plate 28. A tongue 32 is pressed out of the bottom of the dish 27, which tongue serves as a distance member for giving the correct position and a certain tension to the shanks 29 when the casing 22 is assembled. The cover-plate 28 is pressed inwards on its periphery so that the spring 23 is held fast, whereas its middle part is so formed that the shanks 29 have sufficient room for operation.

For fixing the casing 22 at the frame 1 by means of screws 33 holes 34 and 35 are provided in the dish 27 and the cover-plate 28 respectively, which is pressed inwards around the holes 35 in order to form seats 36 for the screw heads. For holding the cover-plate 28 fast on the dish 27 before fixing the casing 22 on the flange 1 the rim 37 of the dish 27 projects over the cover-plate 28 and is turned inwardly. The supporting plate 24 consists of a dish-shaped member 38 and a cover-plate 39, which are formed in the same manner as the dish 27 and the cover-plate 28. A wire 40 of circular form serves as distance member between the dish 38 and the cover-plate 39, which retains a shoulder 41 of the pivot 25, and suitably comprises the same material as the spring 23. For fastening the supporting plate 24 at the frame 2 by means of screws 42 holes 43 and 44 are provided in the dish 38 and the

cover-plate respectively, which is pressed inwards around the holes 44 in order to form seats 45 for the screw heads. For holding the cover-plate 39 fast in the dish 38 before fastening the supporting plate 24 at the flange 2 the rim 46 of the plate 34 projects over the cover-plate 39 and is turned inwardly. The pivot 25 is provided with a smooth and cylindrical part 47, which serves for guiding the pivot through the openings 30 and 31 of the casing 22 and is desirably longer than the distance between the bottom of the dish 27 and the cover-plate 28 so that the cylindrical part 47 enters the opening 30 before it leaves the opening 31. The pivot 25 is elongated below the bottom of the dish 38 and ends in a point 48 serving to mark the correct position of the recess for the supporting plate 24 in the frame 2.

Having now particularly described the nature of my invention and the manner of its operation what I claim is:

1. In combination, a pair of sashes connected with one another, an eccentric lock mounted between said sashes, a press-stud mounted between said sashes adjacent to said lock, said lock including means for locking said sashes and means for pressing said sashes and said press-studs apart when said sashes are opened.

2. In combination, a pair of sashes connected with one another, an eccentric lock mounted between said sashes, a plurality of press-studs mounted between said sashes, adjacent to said lock, said lock including means for locking said sashes and means for pressing said sashes and said press-studs apart when said sashes are opened.

3. In combination, a pair of sashes connected with one another, an eccentric lock mounted between said sashes, a plurality of press-studs mounted between said sashes, adjacent to said lock, said lock being positioned between at least two of said press-studs, said lock including means for locking said sashes and means for pressing said sashes and said press-studs apart when said sashes are opened.

4. In combination, a pair of sashes connected with one another, an eccentric lock mounted between said sashes, a press-stud mounted between said sashes adjacent to said lock, a projection mounted upon one of said sashes serving as a stop between said sashes, and said press-stud being positioned between said stop projection and said lock, said lock including means for locking said sashes and means for pressing said sashes and said press-studs apart when said sashes are opened.

5. In combination, a pair of sashes connected with one another, and having a gap therebetween, an eccentric lock mounted between said sashes, a press-stud mounted between said sashes adjacent to said lock, said lock consisting of a two-armed lever having a handle and anchor-like catch fastened to one sash, a plate having a recessed portion for engaging said anchor-like catch fastened to the other sash, whereby said eccentric lock serves to lock and unlock said sashes while at the same time fastening and unfastening said press-stud.

JOSEF ENAR LUNDHOLM.