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LOCKING DEVICE FOR WINDOWS

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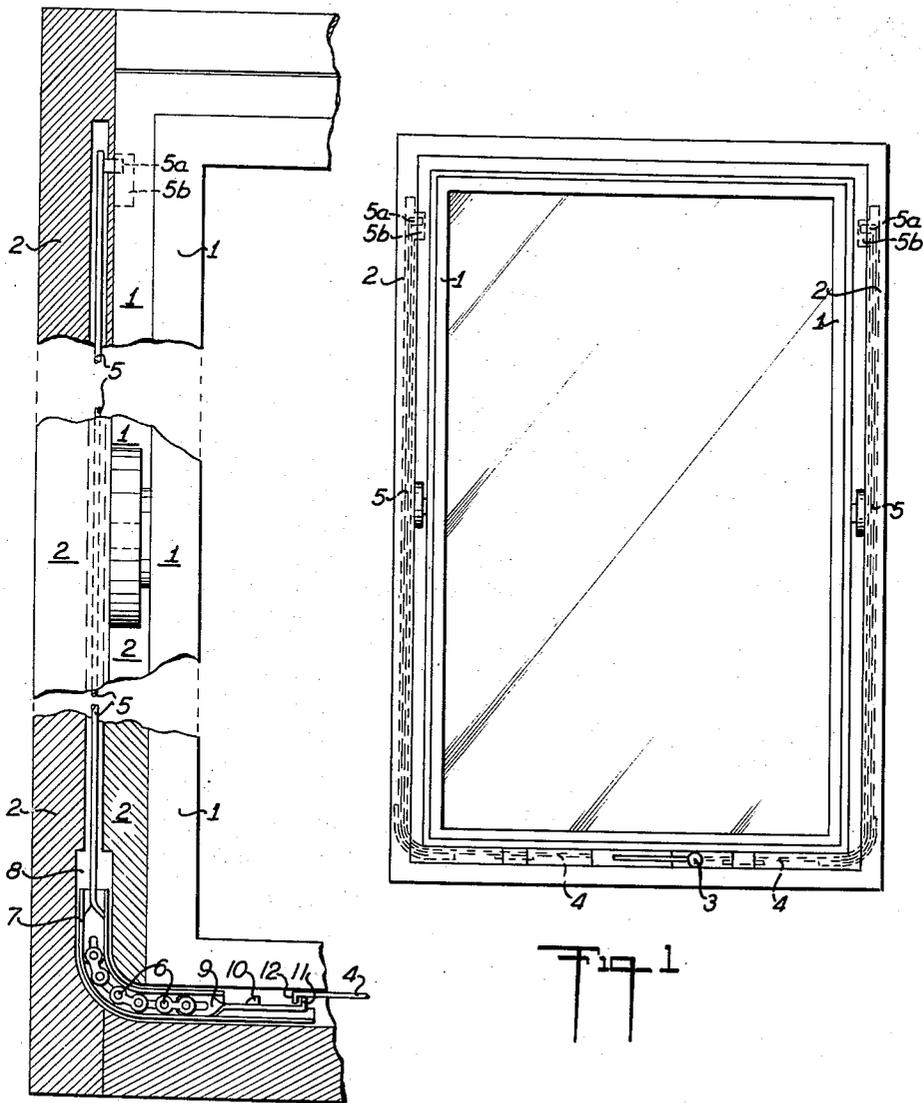


Fig 2

Fig 1

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LOCKING DEVICE FOR WINDOWS

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2 Claims. (Cl. 292—141)

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The present invention relates to windows of the type having a casement swingable about a horizontal axis in a window frame.

One object of the invention is to provide a locking device which is capable of locking the casement effectively to the frame at the lower portion of the window as well as at the side or sides thereof in the closed position of the window.

A further object of the invention is to provide a locking device which may be easily operable by a single handle to efficiently lock the casement to the frame at more than one point.

The invention has also for its object to provide a locking device with a simple, reliable and durable connecting means for transmitting movements from locking means at the lower portion of the window to locking means at the vertical edge thereof.

With these and other objects in view the invention is substantially characterized by the fact that a lock adapted to secure the lower edge of the casement to the frame has a push rod at the lower portion of the window, and that a vertical locking rod adapted to secure the vertical edge of the casement to the frame is movable at the vertical edge of the window, a flexible connecting member such as a chain mounted in an arcuate guide being arranged between the push rod and the vertical locking rod to transmit motion therebetween.

The invention will be explained in more detail in the following, reference being had to the accompanying drawing in which Fig. 1 is a diagrammatic front elevation of the window in its closed position. Fig. 2 is a vertical section of one side of the window, on a larger scale.

As will be seen from the drawing, the window is of the type in which a casement 1 is swingable about a horizontal axis, a lock, preferably a push lock being provided at the lower edge of the window, which lock is fitted into the frame 2 of the window in the example shown. A handle 3 of the lock is connected with the push rods 4 in any suitable manner, not illustrated, so that said push rods will be displaced outwardly from the handle or inwardly toward the same, according as the handle is swung in the one or the other direction. Displaceably arranged in the side pieces of the frame 2 are vertical locking rods 5, the special flexible connecting members according to the invention being arranged between said vertical locking rods 5 and the push rods 4. At the top the vertical locking rods 5 each have a pin 5a adapted to engage an oblique slot in a

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mounting plate 5b secured to the edge of the casement, to lock the top of the casement to the frame 2.

As will appear from Fig. 2, the connecting member between a push rod and a vertical locking rod 5 consists of a chain 6 arranged in an arcuate guide 7. Said guide is constituted by a channel of U-shaped cross section, and is fitted into a recess 8 in the frame, wherein it is suitably secured. Arranged between the push rod 4 and the chain is a link 9 provided with two offset surfaces 10, 11, an abutment 12 or the like on the push rod engaging between said offsets, which are arranged at a distance from each other, so that the push rod may be displaced for a certain distance independently of the link. Hereby it will be possible to lock the window at the lower edge thereof by means of the push lock, before the vertical locking rod is actuated.

When the push rod 4 is displaced to the left, Fig. 2 from the position shown therein, the abutment 12 is caused to bear against the offset 10 of the link 9, whereupon the latter is forced to move to the left and the chain 6 sliding in the guide 7 is caused to transmit the movement to the vertical locking rod 5. This rod is then displaced upwardly and at its upper end locks the casement 1 to the frame 2 by the pin 5a engaging the slotted mounting plate 5b. When the push rod is displaced to the right, Fig. 2, the link 9 is pulled in the opposite direction after the abutment 12 has engaged the offset 11. The vertical locking rod is thus released from its locking engagement.

In place of the chain, some other flexible connecting member, such as a wire cable or the like, may be made use of.

What we claim is:

1. In a window having a window frame and a casement swingable about a horizontal axis in the frame, a locking device comprising a push rod slidably mounted at the lower portion of the window frame, a vertical locking rod movable at the vertical edge of the window for securing the vertical edge of the casement to the frame, a chain connected to and for transmitting movement between the push rod and the vertical locking rod, and a link having two spaced shoulders and connected to the chain, said push rod having an abutment projecting into the path between said spaced shoulders.

2. In a window having a window frame and a casement swingable about a horizontal axis in the frame, a locking device comprising a push rod slidably arranged at the lower portion of the

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window, a vertical locking rod displaceable at the vertical edge of the window for securing the vertical edge of the casement to the frame, a flexible connecting member in the form of a chain mounted between said push rod and said vertical locking rod in an arcuate path around a corner of the frame, and a guide member for said flexible connection member in which the flexible member is guided, said member being channel-shaped and fitted into the frame of the window.

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