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54 **An adjustable bolt for sash locks such as on sliding door and window sashes.**

57 An adjustable bolt for locks of sliding sashes consisting of a hook-shaped portion (11) provided with a tubular element (13) fitting slidably over a second solid element (14) connected to the mechanism of a lock, in turn mounted to the moving part of the sash. A screw-type locking means (16) is inserted between the tubular element (13) and the second solid element (14). By adjusting the tubular element (13) for position on the solid element (14), precise engagement of the hook (11) with a respective ledge (12) can be achieved, and hence a correctly closing sash.

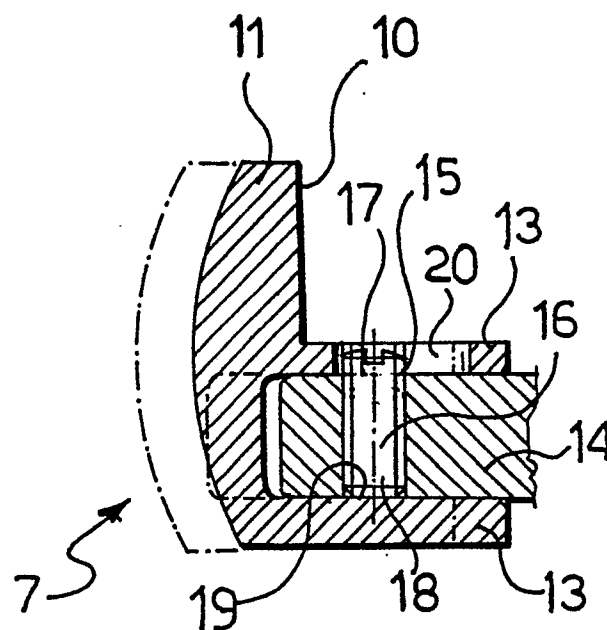


FIG. 2

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This invention relates to an adjustable bolt for locks, intended for installation on sashes such as sliding door and window sashes.

Preferably, the invention is applicable to sashes fabricated from metal sectional members, although it may be advantageously applied to wooden sashes or sashes of another construction.

As is known, the problem is encountered with sliding sashes of how to hold the vertical upright of the moving part, in the shut condition of the sash, as close as possible to the corresponding vertical upright of the stationary part of the sash.

The two uprights are usually locked to each other by means of a bolt having one end formed with a hook which protrudes from the vertical upright of the moving part and engages with a ledge detent of a purposely provided housing in the opposite fixed upright after passing through a slot cut in the upright wall.

The hooked bolt is part of the conventional mechanism that makes up a lock, also mounted to the sash moving part, and is operated thereby through a handle or knob.

Its operation normally provides for just oppositely directed movements about a pivot to engage with and disengage from the ledge detent.

It may be appreciated from the foregoing that a close fit between the upright of the moving part and the upright of the fixed part, that is a good closure of the sash, will be dependent on the amount of play present between the bolt hook and the ledge surface with which it is to engage.

In prior art practice, that play is minimized on installation of the sash by the use of one or more superimposed shim plates of different thicknesses, which are placed on the abutment surface of the stationary part of the sash and secured thereon either by adhesive means or screw fasteners.

This is a cut-and-try procedure which is less than fully satisfactory from an engineering standpoint because it provides inaccurate adjustment of the play to be taken up due to it being tied to the thickness dimension of the shim plate(s).

In addition, it takes a relatively long working time that weighs on the sash installation costs.

The problem that underlies this invention is, therefore, that of achieving a close fit between the moving and stationary uprights of a sash, that is a good closure thereof, by a mechanism which can take up the play between the bolt hook and its ledge in a fine and controllable way, the play take-up being carried out in a quick and precise manner.

This problem is solved according to the invention by an adjustable bolt having a hook-shaped working end and being characterized in that said hook-shaped end is fast with a first element slidably coupled to a second element connected to a

conventional lock mechanism, a locking/unlocking means being provided between said first element and said second element.

The invention will be now described in greater detail with reference to a preferred embodiment thereof, as shown in the accompanying illustrative drawing, where:

Figure 1 is a vertical sectional view showing schematically a sliding-type sash in the shut condition; and

Figure 2 is a vertical sectional view through the hooked bolt of this invention.

With reference to the above-detailed drawing views, the numeral 1 designates the vertical upright of the stationary part of a sash of a kind fabricated, for example, from conventional metal sectional members.

That upright has its wall 2, shown in section, with a surface 3 intended to face mate with the surface 4 of the vertical upright 5 of the moving part of the sash, with the latter in its shut condition.

The sliding movement of the moving part is indicated by a double-headed arrow F.

Conventionally mounted inside a purposely provided housing in the sectional member which forms the upright 5 is a lock 6 whose outline is shown by dash lines in the drawing.

That lock is provided with a bolt, generally indicated at 7, which is driven in a conventional way by the lock mechanism on application of a rotary impulse to the square pin 8 by means of a handle or knob, not shown.

The bolt 7 engages with the wall 2 of the fixed upright 1 by passing in an angularly downward movement as viewed in Figure 1 through an opening 9.

The engagement of the bolt 7 with the wall 2 takes place between the surface 10, facing the lock, of the hook-shaped terminating portion 11 and the surface 12 of the wall 2.

With specific reference to Figure 2, it may be seen that the hook-shaped portion 11 of the bolt 7 is carried on a first tubular element 13 fitting slidably over a second, rod-like element 14 which is connected to the lock actuating mechanism, not shown because quite conventional.

That second element 14 has an inside threaded through-going hole 15 in which a setscrew dowel 16 engages which has a drive head 17 and a pressure end 18 adapted to push down on the inner surface 19 of the tubular element 13.

The latter is formed with a slot 20 which extends longitudinally in front of the drive head 17 of the setscrew dowel 16 whose length is selected to allow its drive head 17 to lie within the slot 20.

The cross-sectional shape of the tubular element 13 and the corresponding one of the solid rod-like element 14 are preferably quadrangular.

It may be appreciated from the foregoing that, by backing out the setscrew dowel 16 from the hole 15 with a suitable tool (screwdriver) to be passed through the longitudinal slot 20, the hooked portion 11 of the bolt can be made slidable over the element 14 to an appropriate position to produce a correct engagement of the surface 10 with the ledge 12, thereby on shutting the sash, the surface 4 of the moving upright 5 can be brought to a close fit against the surface 3 of the stationary upright 1.

The dash-and-dot outlines shown in Figures 1 and 2 are the position attainable by the hook 11 in consequence of its adjustment lengthwise of the element 14.

Once the best setting is found in relation to the thickness of the wall 2 of the fixed upright 1, the setscrew dowel 16 is tightened down in its threaded hole, and the pressure exerted by the end 18 on the surface 19 enables the setting to be retained.

Furthermore, the lay of the setscrew 16 with its drive head 17 inside the slot 20 ensures that, should the frictional engagement fail of the pressure end 18 with the surface 19, as may be overcome in the instance of sliding sashes, the element 14 cannot slip axially off the tubular element 13. This constitutes a safeguard against possible attempts at forcing the sash open.

(15), the drive head (17) of said setscrew projecting into said longitudinal slot (20).

5. A bolt according to Claims 1 to 3, characterized in that the cross-sectional shapes of said first and second elements are quadrangular.

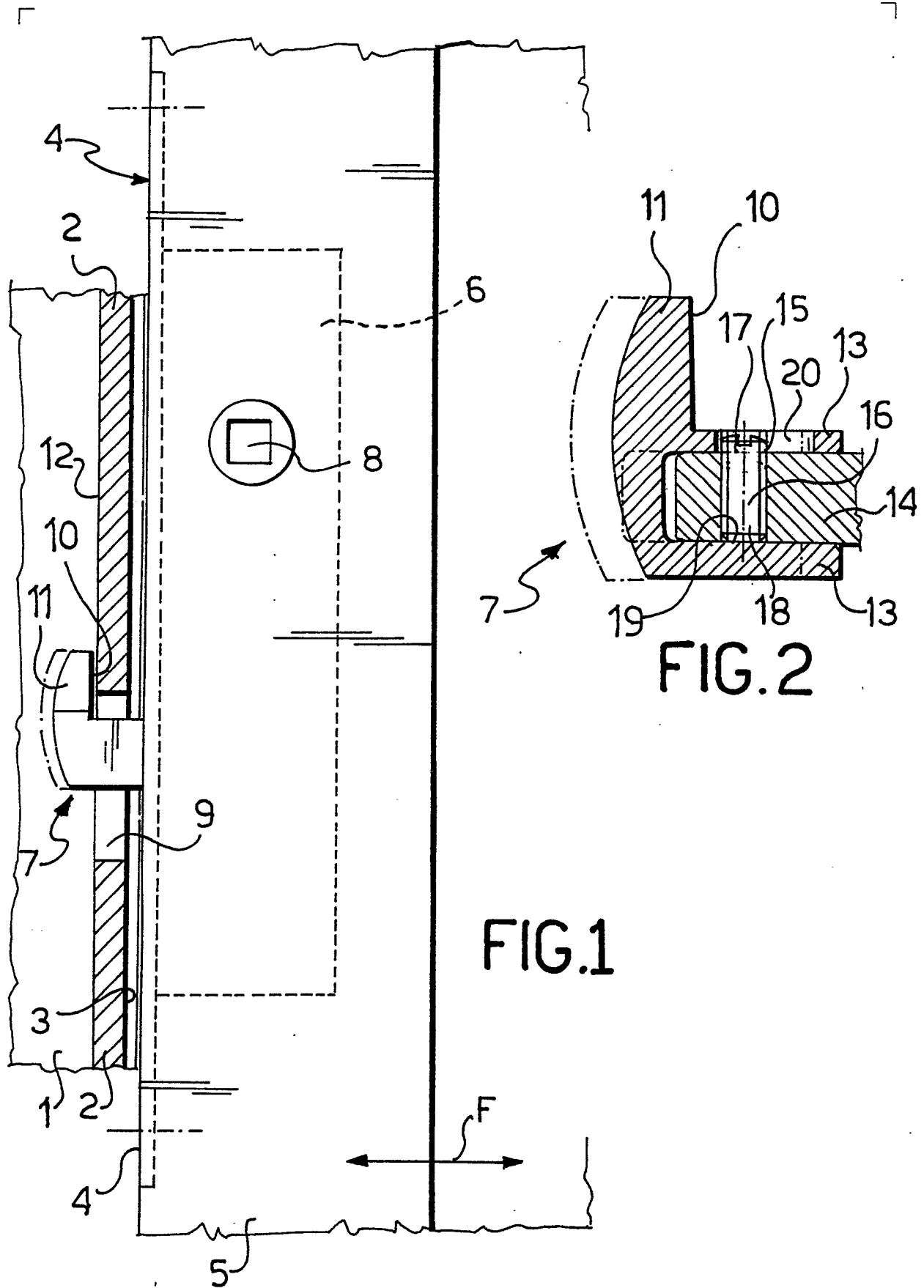
Claims

1. An adjustable bolt for sash locks, such as sliding door and window sashes, having a hook-shaped working end and being characterized in that said hook-shaped end (11) is fast with a first element (13) slidably coupled to a second element (14) connected to a conventional lock mechanism, a locking/unlocking means (16) being provided between said first element (13) and said second element (14).

2. A bolt according to Claim 1, characterized in that said locking/unlocking means is a screw mechanism (16).

3. A bolt according to Claims 1 and 2, characterized in that said first element comprises a tubular body (13) and said second element comprises a rod-like body (14) fitting axially inside the cavity of the tubular body element, said second element (14) being formed with an inside threaded cross hole (15) wherein a setscrew dowel (16) engages, and said first element (13) being formed with a longitudinal slot (20) positioned to align to said threaded hole (15) in the second element.

4. A bolt according to Claim 3, characterized in that said setscrew dowel (16) has an axial length dimension exceeding the length of the cross hole





DOCUMENTS CONSIDERED TO BE RELEVANT			EP 89107359.5
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int Cl ³)
Y	<u>US - A - 4 209 194</u> (POE) * Fig. 1,2; abstract * --	1-5	E 05 C 1/10 E 05 B 63/06
Y	<u>GB - A - 1 396 876</u> (MARSLAND & CO) * Fig. 1; claim 1 * ----	1-5	
			TECHNICAL FIELDS SEARCHED (Int Cl ³)
			E 05 C E 05 B
The present search report has been drawn up for all claims			
Place of search VIENNA		Date of completion of the search 27-03-1990	Examiner MEISTERLE
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	