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(71) Applicant(s)

A C Technometal Ltd

(Incorporated in Cyprus)

**PO Box 8023, Strovolos Ind Estate, 6 Pangratiou Str,
Nicosia, Cyprus**

(72) Inventor(s)

Andreas Costantinides

(74) Agent and/or Address for Service

**Gill Jennings & Every
Broadgate House, 7 Eldon Street, LONDON,
EC2M 7LH, United Kingdom**

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A164 A171 A197 A199 A420 A421 A550 A558
U1S S1715**

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(58) Field of Search

**UK CL (Edition O) E2A AARD AARE AARL AEB APA
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INT CL⁶ E05B 15/00 63/12 65/08, E05C 1/00 1/02 1/04
1/08 1/10 1/12 1/14 5/00 9/18 21/02**

(54) Locking mechanisms for slidable doors or windows

(57) A locking mechanism for a slidable door or window. The mechanism having a catch (4) which is manually adjustable in the direction of sliding of the door/window, by means of ratchet teeth (6) clamped in position by a bolt (7), to ensure that the door/window is locked tightly in place when the latch is in the engaged condition. Independently, the mechanism comprises a two part socket (16,17) resiliently biased away from one another so as to absorb any impact between the catch (4) and socket. Independently also, the catch (4) is provided on a slider (3) which, when the catch is in its locked position, prevents vertical movement of the door/window and also prevents the catch from being moved away from the locked position until the slider is depressed against the action of a spring. The slider is locked in the engaged condition by the engagement of a lower flange (11) with a stop (10) under the bias of spring (13).

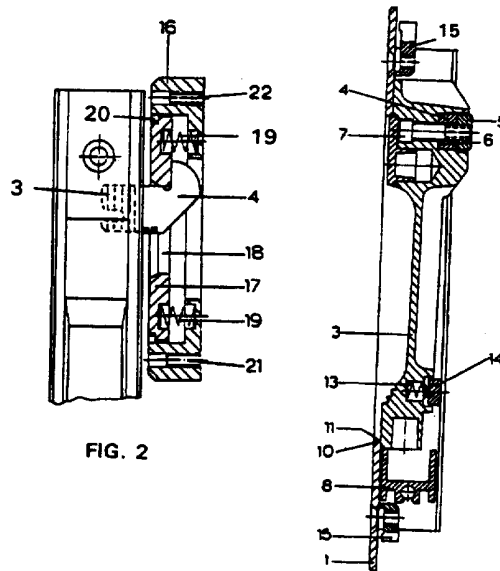


FIG. 2

FIG. 4

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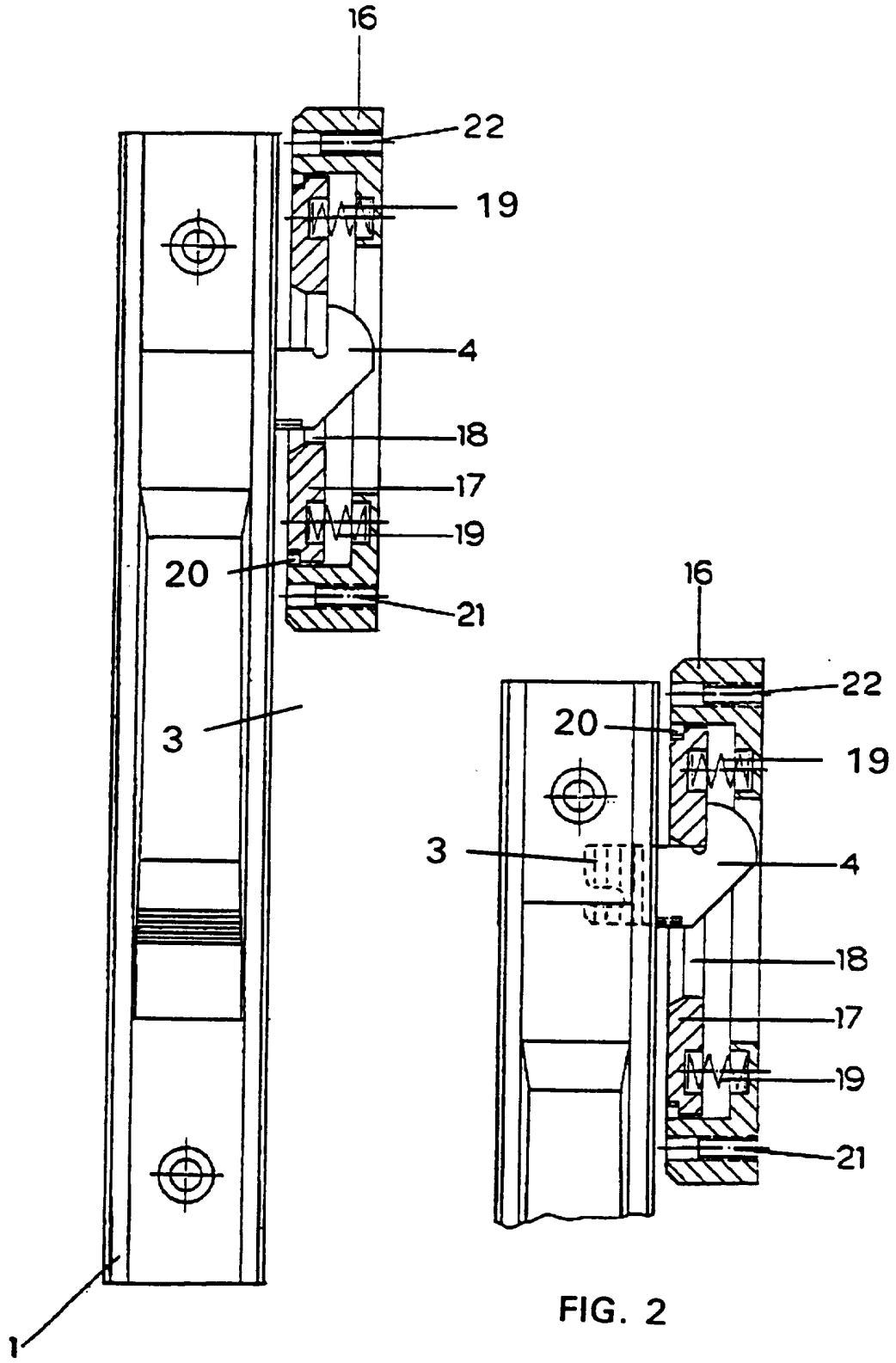


FIG. 1

FIG. 2

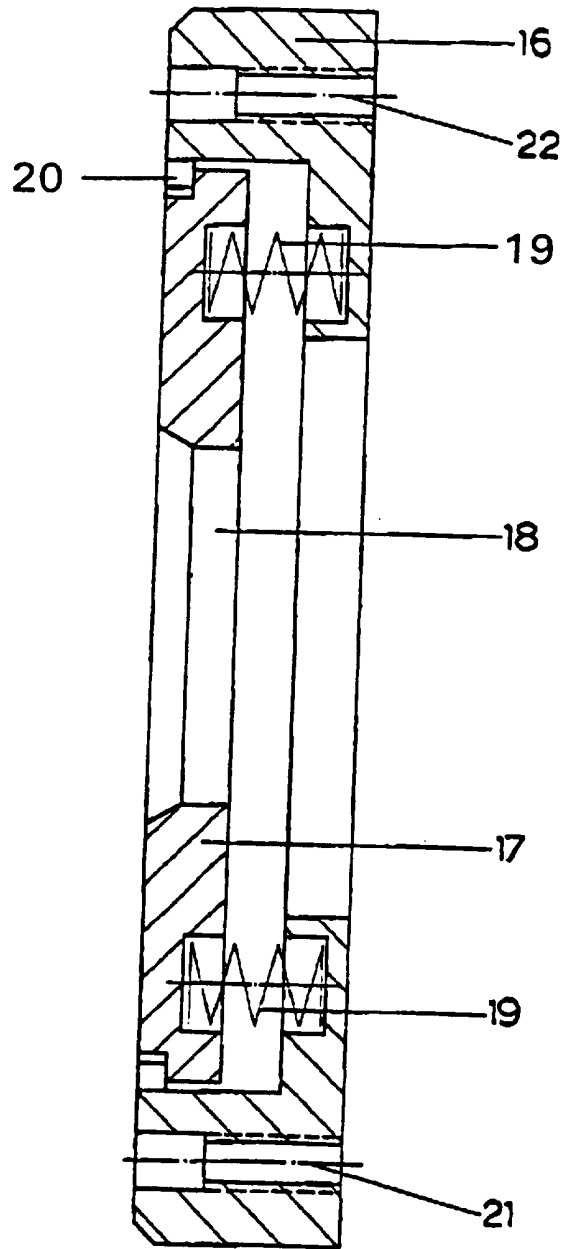


FIG. 3

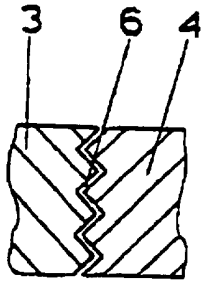


FIG. 6

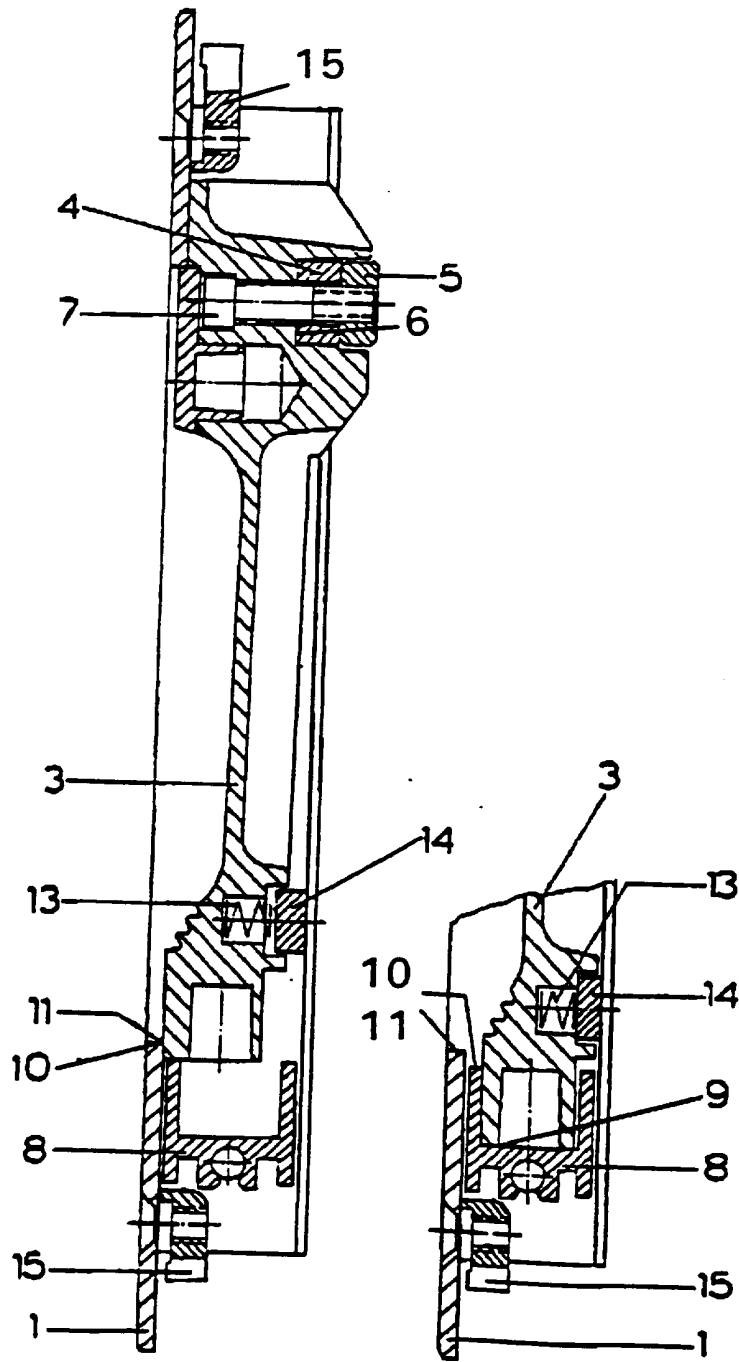


FIG. 4

FIG. 5

A LOCKING MECHANISM FOR A SLIDABLE MEMBER

The present invention relates to a locking mechanism for a slidable member which is slidable with respect to a fixed member, the mechanism comprising a catch on one of the slidable and fixed members, and a socket on the other of the slidable and fixed members, the catch being slidable into locking engagement with the socket. Such a mechanism will be referred to as of the kind described.

A locking mechanism of the kind described is generally used for locking a sliding door or window. Such a mechanism suffers from a number of problems. Firstly, if the locking mechanism is a poor fit, the door or window does not lock precisely within the frame so that sound and heat insulation are adversely affected. Secondly, if the door/window is closed with the catch in its locked position, the catch will collide with the socket thereby damaging the catch and socket. Thirdly, if the door/window is locked in a position where the door/window can still be moved up or down, it is possible for this movement to unlock the door/window.

According to a first aspect of the present invention, in a locking mechanism of the kind described, the catch is adjustable in the direction in which the slidable member slides to ensure that the slidable member can be locked to the fixed member without a gap therebetween. The position of the catch can therefore be adjusted according to the specific requirements of each door/window, to ensure that the door/window is always tightly closed.

According to a second aspect of the present invention, in a locking mechanism of the kind described, the socket is formed of two pieces, one of which is attachable to the other of the slidable and fixed members, and the other of which receives the catch, and is resiliently retained within the first piece.

Thus, if the catch strikes the socket when the door/window is being closed, the impact will be absorbed by

the resilience between the two pieces. The resilience is preferably provided by one or more springs between the two pieces.

5 According to a third aspect of the present invention, in a locking mechanism of the kind described, the catch is connected to a slider which allows the catch to be slid into locking engagement with the socket, wherein, upon locking engagement of the catch with the socket, the slider is urged by a biasing means against a stop to prevent 10 movement of the catch away from the socket and of the slidable member perpendicular to its direction of sliding, so that the slider must be depressed against the action of the biasing means to release it from the stop, and hence to unlock the slidable member.

15 Such an arrangement ensures that, as soon as the door/window is locked, it cannot be moved vertically, and therefore cannot be unlocked until the slider is released from the stop.

An example of the locking mechanism constructed in accordance with the present invention will now be described 20 with reference to the accompanying drawings, in which:

Fig. 1 shows the mechanism in an unlocked configuration with the socket shown in cross section;

25 Fig. 2 is a view similar to the upper part of Fig. 1 with the locking mechanism in locked configuration and showing a hidden part of the catch 4 in broken lines;

Fig. 3 is an enlarged view of the socket as shown in Figs. 1 and 2;

30 Fig. 4 is a cross sectional view through the slider, with the locking mechanism in a locked configuration;

Fig. 5 is a view similar to the lower part of Fig. 4 with the locking mechanism in an unlocked configuration and

Fig. 6 shows a detail of the engagement between the catch and slider.

35 The locking mechanism consists of a main body 1 which is fixed to a sliding member such as a door or window. The main body 1 has a slider 3 which is attached a catch 4,

allowing the catch to be moved. The catch 4 is retained by the slider 3 by complementary teeth 6 as shown in Figs. 2 and 6. The catch 4 is retained in place by a nut 5 and screw 7. By loosening the screw 7 and nut 5, the catch 4 can be moved in the left/right direction in Fig. 2 which corresponds to a direction perpendicular to the plane of the paper for Fig. 4 by one or more tooth positions. The screw 7 and nut 5 are then tightened with the catch 4 in an adjusted position.

10 In the lower part of the main body 1 is a plastic stopper 8 having a recess 9 which receives the lower end of the slider, and defines an upper lip 10 which terminates just short of an upper lip 11 on the main body 1. The slider 3 is biased to the left in Fig. 4 by a spring 13 which acts against a member 14 in the main body 1. The main body 1 is fixed to the door or window using a clamp 15 at either end of the main body. As can be seen from Figs. 4 and 5, when the slider 3 is moved upwardly to bring the catch 4 into locking engagement with the socket, the lower end of the slider is slid out of the recess 9, and, once it is above the lip 10, it is urged outwardly by the spring 13 into the position shown in Fig. 4. It will be appreciated from this that the door or window is prevented by the slider 3 from moving vertically, and that the mechanism cannot be unlocked until the slider 3 is pressed inwardly against the action of the spring 13 to allow the slider to slide downwardly into the recess 9.

The socket shown in Figs. 1 to 3 is made up of a first piece 16 and a second piece 17 which has an aperture 18 for receiving the catch 4. The two pieces 16, 17 are resiliently biased away from each other by a pair of springs 19 and the second piece 17 is retained in the first piece 16 by virtue of a frame 20. The first piece 16 is attached to the frame by a pair of screws 21, 22. If the door or window is closed with the catch 4 already in the locked position, it is apparent that the catch 4 will collide with the second piece 17, but that this impact will be absorbed by the springs 19.

CLAIMS

1. A locking mechanism for a slidable member which is
slidable with respect to a fixed member, the mechanism
5 comprising a catch on one of the slidable and fixed
members, and a socket on the other of the slidable and
fixed members, the catch being slidable into locking
engagement with the socket, and being adjustable in the
direction in which the slidable member slides to ensure
10 that the slidable member can be locked to the fixed member
without a gap therebetween.

2. A locking mechanism for a slidable member which is
slidable with respect to a fixed member, the mechanism
15 comprising a catch on one of the slidable and fixed
members, and a socket on the other of the slidable and
fixed members, the catch being slidable into locking
engagement with the socket, the socket being formed of two
pieces, one of which is attachable to the other of the
20 slidable and fixed members, and the other of which receives
the catch, and is resiliently retained within the first
piece.

3. A locking mechanism according to claim 2, wherein the
25 resilience is provided by one or more springs between the
two pieces.

4. A locking mechanism for a slidable member which is
slidable with respect to a fixed member, the mechanism
30 comprising a catch on one of the slidable and fixed
members, and a socket on the other of the slidable and
fixed members, the catch being slidable into locking
engagement with the socket, and being connected to a slider
which allows the catch to be slid into locking engagement
35 with the socket, wherein, upon locking engagement of the
catch with the socket, the slider is urged by a biasing
means against a stop to prevent movement of the catch away

from the socket and of the slidable member perpendicular to its direction of sliding, so that the slider must be depressed against the action of the biasing means to release it from the stop, and hence to unlock the slidable member.

4. A locking mechanism for a slidable member substantially as described with reference to the accompanying drawings.

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Application No: GB 9625427.1
Claims searched: 4

Examiner: A Angele
Date of search: 16 June 1997

**Patents Act 1977
Further Search Report under Section 17**

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
UK Cl (Ed.O): E2A(AARD, AARE, AARL, AEB)
Int Cl (Ed.6): E05C-001/08, -001/10, -001/12, -001/14, -005/00, -021/02, -063/12;
E05B-065/08
Other:

Documents considered to be relevant:

| Category | Identity of document and relevant passage | Relevant to claims |
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|---|---|---|--|
| X | Document indicating lack of novelty or inventive step | A | Document indicating technological background and/or state of the art. |
| Y | Document indicating lack of inventive step if combined with one or more other documents of same category. | P | Document published on or after the declared priority date but before the filing date of this invention. |
| & | Member of the same patent family | E | Patent document published on or after, but with priority date earlier than, the filing date of this application. |



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Claims searched: 2&3

Examiner: A Angele
Date of search: 16 June 1997

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Further Search Report under Section 17**

Databases searched:

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UK CI (Ed.O): E2A(AEB, APA)
Int CI (Ed.6): E05B-015/00, -015/02; E05C-009/18
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| X | Document indicating lack of novelty or inventive step | A | Document indicating technological background and/or state of the art. |
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Patents Act 1977
Search Report under Section 17

Databases searched:

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Int Cl (Ed.6): E05C-001/00, -001/04, -001/10; E05B-065/08

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| X | EP 0546336 A1 SHURINGH GMBH (See catch 16 in embodiment of figs 6 & 11) | 1 |
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| X | EP 0273841 A2 FERCO INT. | 1 |
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