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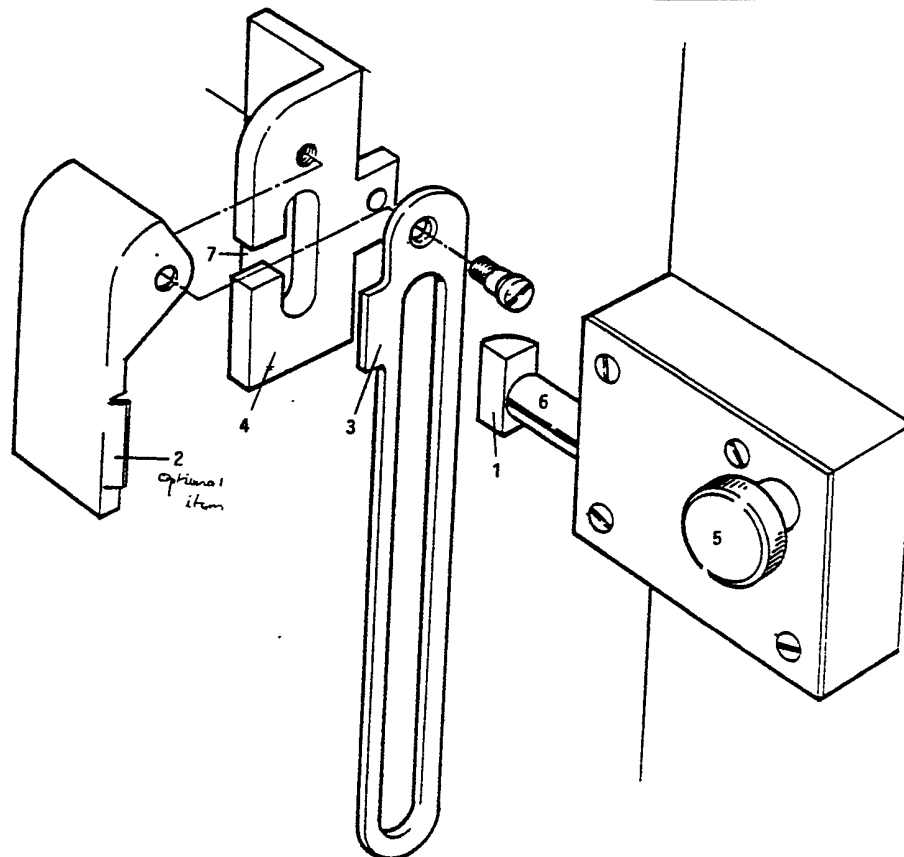
(54) A door latch

(57) The door latch is arranged so that when the door is closed bolt head 1 rides over the pressed cover lead 2 and link 3 and self locates in receiver 4 through link 3.

In order to place the latch in a 'view caller' position, bolt head 1 is projected through receiver 4 by clockwise rotation of knob 5. The bolt diameter (hardened steel sleeve) 6 will now pass through receiver slot 7 picking up link 3. The door can now be opened a limited amount (length of link/slot), bolt head 1 preventing disengagement of link. The door must be closed fully before turning 5 anti-clockwise to disengage the bolt from both receiver and link.

The door can be opened from outside by a key in the normal manner.

FIG 4



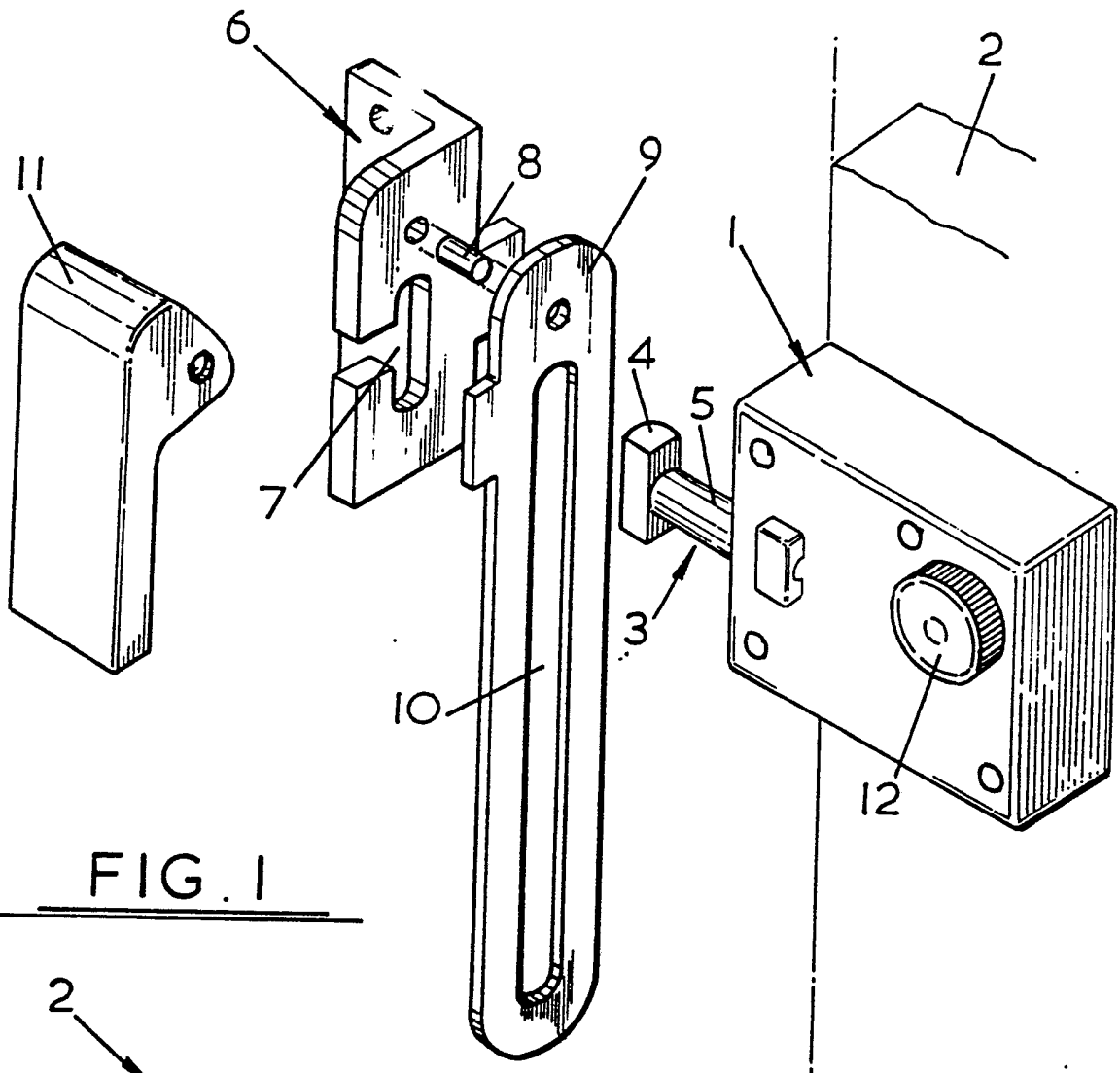


FIG. 1

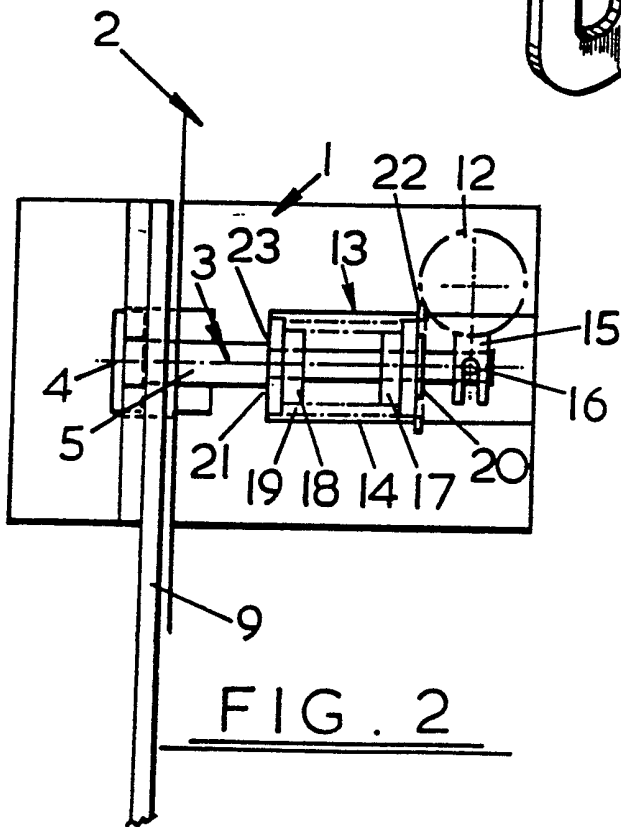


FIG. 2

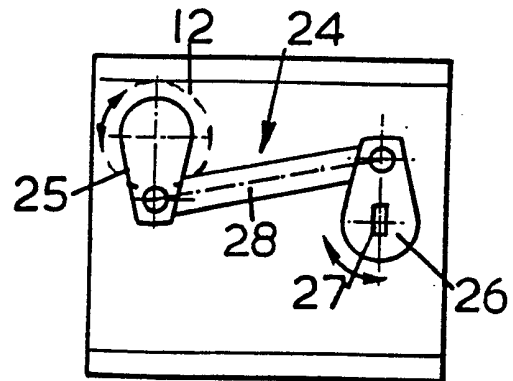
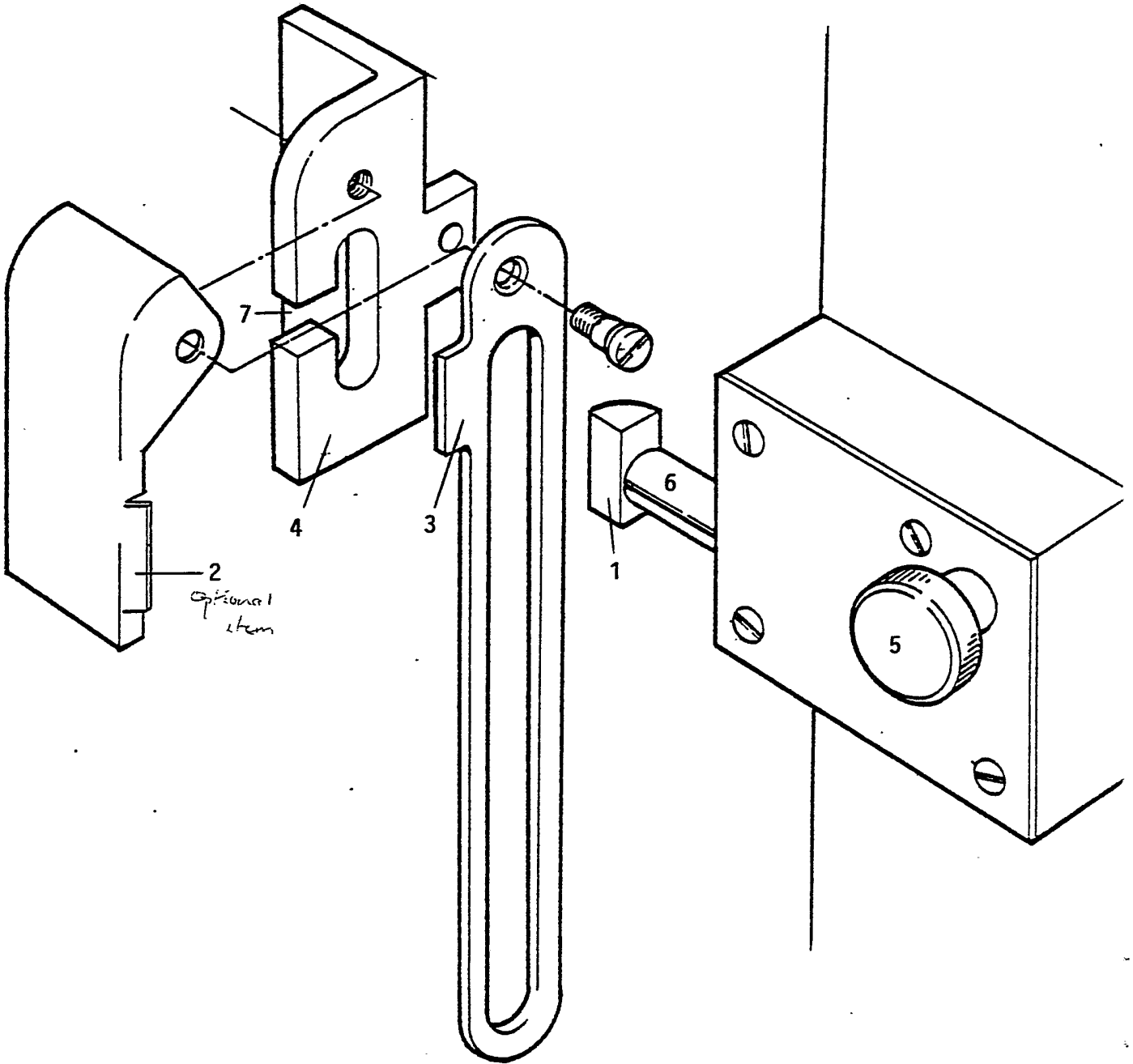


FIG. 3

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FIG 4



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1.

A DOOR LATCH

2.

The present invention relates to a door latch, and in particular to a door latch comprising a safety link, which safety link acts in the same way as a door chain to restrain the door from being fully
5 opened, thus affording protection against attack to anyone answering the door.

It is known to provide door chains to protect occupants of a house when opening the door, which door chain is connected between the door and the
10 door frame, so that the door can only be opened the length of the chain. Usually, the door chain comprises a knob attached to the end of a chain secured to the door frame, which knob is slidable in a channel member secured to the door so as to be engag-
15 able therein. When it is desired to open the door fully, the knob is slid out of the channel member, thus releasing the door.

Unfortunately, it is frequently the case that the occupants of a house forget to engage the knob, in the channel when answering the door, which means
20 that the door chain may as well not be there. This is especially so in the case of old people, which is particularly unfortunate as they are very vulnerable to attack at the door.

25 A further disadvantage is that when the door chain is used, because the chain wraps round the corner of the door as it is opened, it tends to rub

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off the paint work on the door and/or spoil the finish.

It is an object of the present invention to provide a door latch in which the abovementioned problems are obviated or mitigated.

5 According to the present invention there is provided a door latch, whereby a door may be locked having a catch movable relative to the body of the lock to a first position in which it engages in a receiver to lock the door and a second position in
10 which it is disengaged from the receiver so as to enable the door to be fully opened, characterised in that the latch further comprises a safety link secured to the receiver and having an elongate slot therein in which the catch is slidable, and that the catch is
15 movable relative to the body of the lock to a third position in which it engages in the slot in the safety link so that the door can be opened by the distance the catch is slidably movable in the said slot.

 Preferably the safety link is pivotally secured
20 to the receiver so as to be pivotable relative to the receiver as the door is opened with the catch engaged in the slot therein and is that when the door is closed the safety link hangs down from the receiver with the top of the slot therein aligning with the
25 path of the catch into the receiver.

 Preferably the catch comprises a head, engageable in the receiver to prevent the door being opened, mounted on a shaft, that portion of the shaft behind

about a central position in which the head is engaged in the receiver, the head being moved back from the central position towards the lock to disengage it from both the receiver and the safety link and moved forwards from the central position, away from the lock so that the head of the catch passes through the receiver and the safety link and the shaft aligns with the slot in the side of the receiver so that the catch can be disengaged from the receiver whilst still engaging with the safety link.

An embodiment of the present invention will now be described, by way of example, with reference to the accompanying drawings, in which :-

Fig. 1 shows an exploded view of a door latch embodying the present invention;

Fig. 2 shows the "self-centering" type mechanism for a door latch embodying the present invention; and

Fig. 3 shows a mechanism whereby the latch mechanism of Fig. 2 may be operated by a standard "Yale" type key barrel.

Referring to Fig. 1 of the accompanying drawings there is shown a door latch embodying the present invention, comprising a lock 1 secured to the edge of a door 2 (only partially shown). The lock 1 comprises a bolt or catch 3, having a head 4 and a shaft 5, and is located immediately adjacent a

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receiver 6 secured to the door frame (not shown) of the door 2. Located in the side of the receiver 6 facing the catch 3 is a slot 7, in which the head 4 of the catch 3 is engagable, and which slot 7 comprises an opening on one side through which the shaft 5, but not the head 4, of the catch 3 can pass in and out of.

Pivotaly secured to the receiver 6 by a pin 8 is a safety link 9. The safety link 9 is located between the receiver 6 and the lock 1 and comprises an elongate strip of, for example, medium tensile steel, in which is provided an elongate slot 10. The slot 10 in the safety link 9 is positioned to lie over the slot 7 in the receiver 6, when the safety link 9 is hanging down vertically from the pin 8; and, when the safety link 9 is hanging down vertically from the pin 8, is therefore aligned with the head 4 of the catch 3 to enable it to pass there-through into the slot 7 in the receiver 6.

Also pivotaly connected to the receiver 6 by the pin 8 is a cover plate 11. The cover plate 11 is located between the receiver 6 and the safety link 9 and is intended to obscure from sight the opening in the side of the slot 7 and the back plate of the receiver 6, by which the receiver 6 is secured to the door frame, to give the receiver 6 an aesthetically pleasing appearance. From the point of oper-

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ation of the lock according to the present invention the cover plate 11 may be omitted altogether or may be provided as an integral part of the safety link itself.

5 The catch 3 of the lock 1 is of a "self-centering" type, in that it is movable, by means of an operating knob 12, back and forth about a central position which it usually maintains. In this central position the head 4 of the catch 3 is engaged in the slot 7
10 provided in the receiver 6. Since the head 4 of the catch 3 is too big to pass through the opening in the side of the slot 7, in this central position, the catch 3 acts to lock the door 2. In this way the lock of the present invention acts much in the
15 same way as a standard door latch, in that the catch of the lock is sprung to always return to a position where it will engage with the receiver to lock the door.

 When the catch 3 is moved bank from the central
20 position, towards the lock 1, the head of the catch 3 is withdrawn past the slots 7 and 10 in the receiver 6 and safety link 9 respectively, into a recess (not shown) in the end face of the lock 1. Being disengaged from both the receivers 6 and the
25 safety link 9, the catch 3 cannot, in the "withdrawn" position, prevent the door from being fully opened.

 When the catch 3 is moved forwards from the

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central position, away from the lock 1, the head 4 of
the catch 3 is again disengaged from the slot 7 in
the receiver 6, in that it passes out of the slot 7
on the opposite side of the receiver 6 from the lock
5 1. In this position only the shaft 5 of the catch
3 passes through the slots 7 and 10 in the receiver
6 and the safety link 9, respectively. However,
because of the opening in the side of the slot 7 in
the receiver 6, the shaft 5 may be disengaged from
10 the slot 7, by opening the door 2, although it still
engages with the slot 10 in the safety link 9. As
the door 2 is opened still further the shaft 5 slides
down the slot 10 in the safety link 9, which at the
same time pivots about the pin 8 so as to keep the
15 slot 10 in the safety link 9 in the same position as
the shaft 5. When the shaft 5 reaches the end of the
slot 10 the door 2 is restrained from being opened
further and because the head 4 of the catch 3 can
only be disengaged from the slot 10 when the safety
20 link 9 hangs down vertically from the pin 8, the
head 4 prevents the safety link 9 being slipped off
the end of the catch 3. By making the slot 10 in
the safety link 9 of sufficient length it is pos-
sible to ensure that either the door 2 is opened,
25 with the safety link 9 engaged with the catch 3, a
person may look out easily through the gap between
the door and the door frame, whilst still preventing

9.

anyone from actually entering through it.

Where medium tensile steel is used for the safety link 9 a very strong security device is obtained which will prevent all but the most determined forced entries. In addition, because the safety link is automatically engaged, if the control knob 12 is turned the correct way, (which can be ensured by markings on the lock cover and/or by means described hereinbelow) when the door 2 is opened, the door latch of the present invention is particularly suited to those who may be forgetful or find it hard to engage conventional door chains. A further advantage of the present invention is that the safety link 9 does not wrap itself around the corner of the door as the door is opened, and therefore the finish of the door is not spoiled by the safety link 9, as is the case with a conventional door chain.

Referring now to Fig. 2 there is shown a door latch embodying the present invention, in which the lock cover has been removed to show "self-centering" mechanism 13 for the catch 3. Those parts of the door latch of Fig. 2 corresponding to the door latch of Fig. 1 have been given identical reference numerals.

The "self-centering" mechanism 13 of Fig. 2 is intended to ensure that people, particularly the old, who may be forgetful, open the door with the safety link 9 engaged. To this end the "self-centering"

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mechanism 13 is disengaged so that turning the operating knob 12 clockwise, which direction would conventionally open a door, in fact, moves the catch 3 away from the lock 1 to engage the shaft 5 in the slot 10 of the safety link 9 and vice versa.

The end of the shaft 5 of the catch 3 extends through a chamber 14 provided in the body of the lock 1 where it is pivotally engaged with a lever 15, by means of a pin 16, which lever 15 is connected to the operating knob 12. Located within the chamber 14, on the shaft 5 are two bushes 17 and 18 between which is located a partially compressed spring 19. The bushes 17 and 18 are prevented from being moved apart under the influence of the spring 19 by a circlip 20 provided on the shaft 5 behind bush 17 and abutments 21 provided by increasing the diameter of the shaft 5 behind bush 18. So as to ensure that the head 4 of the shaft 3 is "self-centering" relative to the body of the lock 1 a circlip 22 and abutments 23 are provided on the walls of the chamber 14 adjacent the circlip 20 and the abutments 21, respectively, which acting on the bushes 17 and 18 maintain the shaft 5 in a fixed position relative to the lock 1.

It will be seen that turning the operating knob 12 clockwise moves the catch 3 forward, away from the lock 1 so that the head 4 passes through the slot 7

11.

in the receiver 6, whilst the shaft 5 of the catch 3 still engages with the safety link 9. When the catch 3 is moved forward the spring 19 is compressed between the bushes 17 and 18, bush 17 being forced
5 towards bush 18, held in position by abutments 23, by the circlip 20 mounted on the shaft 5 of the catch 3. As a result when the door is closed and the operating knob 12 released, the spring 19 forces bush 17 to move away from bush 18 until it again
10 abuts against circlip 22, returning the shaft 5 to its central position.

On the other hand, when the operating knob 12 is turned anticlockwise the shaft 5 withdraws the head 4 towards the lock 1 through the slots 7 and 10
15 in the receiver 6 and safety link 9, allowing the door 2 to be opened. Movement of the shaft 5 in this direction forces bush 18 towards bush 17, held in position by circlip 23, and as a result when the operating knob 12 is released the spring 19 forces
20 the bush 18 away from bush 17 returning the shaft 5 to its central position.

Referring now to Fig. 3 there is shown a linkage mechanism 24 whereby the latch mechanism of Fig. 2 may be operated by a standard "Yale" type key
25 barrel. The linkage mechanism 24 is mounted on the reverse side of the latch mechanism of Fig. 2, and comprises a first lever 25 connected to the operating

12.

knob 12 and a second lever 26, having therein a slot
27, in which the tab of a "Yale" type key barrel is
engagable. The two levers 25 and 26 are each pivot-
ally connected to the respective end of a link 28 so
5 that by turning a key in the "Yale" type key barrel
anticlockwise, the tab of the said key barrel moves
the lever 26 anticlockwise, This movement of the
lever 26 is transmitted to the lever 25 by the link
28 and causes the operating knob to be turned clock-
10 wise (looking at it from the side shown in Fig. 3).
This causes the catch 3 to be withdrawn from the
receiver 6 and the safety link 9.

It will be appreciated that in the embodiment
of the present invention described hereinabove, the
15 catch is moved back and forth about a central
position, in which the door is locked, to respect-
ively release the catch completely so that the door
can be fully opened and engage the catch with the
safety link so that the door can only be partially
20 opened.

CLAIMS - A DOOR LATCH

- 1 A sprung (not deadlocking) door latch which automatically engages its receiver through an integrated security link every time the door is closed.
- 2 A door latch as claimed in claim 1 is intended to replace a separate latch and security chain or other devices which do not cause the latch to self engage the receiver as the door is closed.
- 3 A door latch as claimed in claim 2 has a rotating knob which when rotated away from the receiver/link causes the rectangular bolt head to pass through the receiver, trapping the link but permitting the bolts round shaft to pass through the receivers horizontal slot as the door is opened.
- 4 A door latch as claimed in claim 3 has a rotating knob which when rotated towards the receiver causes the rectangular bolt head to disengage the receiver and link allowing the door to be opened in the normal manner.
- 5 A door latch as claimed in claim 4 could use a different type of knob to promote easier operation by disabled or infirm persons.
- 6 A door latch as claimed in claim 5 can be opened from the outside using a conventional key.
- 7 A door latch substantially as described herein with reference to figures 1 - 3 of the drawings shown on page 13 of the specification.