

AUSTRALIA

649678

Patents Act 1990

PATENT REQUEST: STANDARD PATENT/PATENT OF ADDITION

We, being the persons identified below as the Applicant, request the grant of a patent to the person identified below as the Nominated Person, for an invention described in the accompanying standard complete specification.

Full application details follow.

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[70] Nominated Person: WHITCO PTY LTD

Address: 450 SHERWOOD ROAD, SHERWOOD, QUEENSLAND,
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[54] Invention Title: A DEADLOCKING LOCK

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ASSOCIATED PROVISIONAL APPLICATION(S) DETAILS

[60] Application Number(s) and Date(s): PK 0486 - 6.6.90

DATED this 5th day of June 1991

WHITCO PTY LTD

By:

Registered Patent Attorney

TO: THE COMMISSIONER OF PATENTS
AUSTRALIA

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NOTICE OF ENTITLEMENT

(To be filed before acceptance)

I, WE, WHITCO PTY LTD
of 450 Sherwood Road, Sherwood, Brisbane, Queensland, 4075

being the applicant in respect of Application No. 72173/91, state the following:-

Part 1 - Must be completed for all applications.

The person(s) nominated for the grant of the patent:

☐ *is / *are the actual inventor(s)

or

☒ has, for the following reasons, gained entitlement from the actual inventor(s):

The applicant is the assignee of the invention from the
inventor, Mervyn George Harcourt.

Part 2 - Must be completed if the application is Associated with one or more provisional applications.

The person (s) nominated for the grant of the patent *is / *are:

☒ the applicant(s) of the provisional application(s) listed on the patent request form

or

☐ entitled to make a request under Section 113 of the Act in relation to the provisional application(s) listed on the patent request form.

Part 3 - Must be completed if the application is a Convention application.

The person(s) nominated for the grant of the patent *is / *are:

☐ the applicant(s) of the basic application(s) listed on the patent request form

or

☐ entitled to rely on the basic application(s) listed on the patent request form.

Part 4 - Must be completed if the application was made under the PCT.

The person(s) nominated for the grant of the patent *is / *are:

☐ the applicant(s) of the application(s) listed in the declaration under Article 8 of the PCT

or

☐ entitled to rely on the application(s) listed in the declaration under Article 8 of the PCT.

(Continued over)

Part 5 - Must be completed if the application is a Divisional application.

The person(s) nominated for the grant of the patent *is / *are:

- ☐ the applicant(s) / patentee(s) of the original application / patent
or
☐ entitled to make a request under Section 113 of the Act in relation to the original application / patent.

Part 6 - Must be completed if the application relates to a microorganism and relies on Section 6 of the Act.

The person(s) nominated for the grant of the patent *is / *are:

- ☐ the depositor(s) of the deposits listed hereafter (by number, depositary institution and date)
or
☐ entitled to rely on the deposits listed hereafter (by number, depositary institution, date, and depositor's name and address) for the following reasons:

.....
.....
.....

Part 7 - Must be completed if the application is a Convention application, or the application was made under the PCT and the applicant made a declaration under Article 8 of the PCT in respect of the basic application.

☐ Except as stated in the next paragraph, the basic application(s) *listed on the patent request form / *referred to in the declaration under Article 8 of the PCT *is / *are the application(s) first made in a Convention country in respect of the invention.

☐ A request has been made under Section 96 of the 1990 Act (or Section 142AA of the 1952 Act) to disregard the following application.

Signed on behalf of the applicant,
WHITCO PTY LTD

by Ian de Jonge
Ian de Jonge, Patent Attorney, Cullen & Co

30 September, 1992

(Signature)

(Date)

Part 8 - Must be completed if the applicant for a patent of addition is not the applicant or patentee of the main invention.

I, ...
the *applicant / *patentee for *application / *patent No.
authorise
to apply for a further patent for an improvement in, or modification of, the main invention

Note: This MUST be signed by the applicant or patentee of the main invention.

(Signature)



AU9178173

(12) PATENT ABRIDGMENT (11) Document No. AU-B-78173/91
(19) AUSTRALIAN PATENT OFFICE (10) Acceptance No. 649678

(54) Title
A DEADLOCKING LOCK

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(56) Prior Art Documents
AU 604092 12029/88 E05B 63/00 E05C 1/00
AU 495933 13327/76 E05B 63/08 77.3
AU 154726 3393/51 E05B 63/00 77.1 77.3

(57) Claim

1. A deadlocking lock including -

a lock body,

a main latch tongue moveable between an extended position where the main latch tongue extends from said lock body and is engagable with a recess in a door jamb and a retracted position where the main latch tongue is free from the recess,

a deadlocking member slidably movable between an extended deadlocking position where said deadlocking member engages the main latch tongue to prevent it from retraction and a retracted undeadlocking position where said main latch tongue is movable to the retracted position,

said deadlocking member when in said deadlocking position being prevented against sliding movement to said undeadlocking position by being biased against a stop member.

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COMPLETE SPECIFICATION
FOR A STANDARD PATENT

AUSTRALIA

Patents Act 1990

Name of Applicant: WHITCO PTY LTD, A.C.N. 009667207

Actual Inventor(s):

Address for Service: CULLEN & CO.,
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240 Queen Street,
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Australia.

Invention Title: A DEADLOCKING LOCK

Details of Associated Provisional Applications: No. PK0486
filed on 6 June, 1990.

The following statement is a full description of this
invention, including the best method of performing it known to
us:

THIS INVENTION relates to a deadlocking lock and particularly relates to a deadlocking lock having a simplified deadlocking mechanism.

Deadlocking locks can be described as those locks wherein retraction of the latch tongue can be prevented. Deadlocking locks usually include a latch tongue which is typically biased to extend from the lock body. The latch tongue is movable between its extended and retracted position by operation of an external handle.

In the door closed position, the latch tongue extends into a recess provided on a striker plate, the striker plate being located on the door jamb.

To prevent the latch tongue from being forcibly retracted into the lock body and thereby allowing the door to be opened, it is known to use a deadlocking member which engages with the latch tongue to prevent the latch tongue from being retracted.

As the lock body is usually mounted vertically on a door, the deadlocking member is required to move vertically against the force of gravity into the deadlocking position to lock the latch tongue against retraction. Thus, it is necessary to ensure that the deadlocking member can not fall under the influence of gravity to the undeadlocking position.

In our Australian Patent No. 495933 we incorporated a spring biased ball bearing to prevent the deadlocking member from inadvertantly moving from the deadlocking position to the undeadlocking position. To move between the two positions, the deadlocking member was required to ride over

the ball bearing. A disadvantage with this arrangement was that a sharp blow to the lock body could be sufficient to cause the deadlocking member to be jolted to its undeadlocking position.

5 In our Australian patent application no. 12029/88, we provided a pivotally mounted latch arm which releasably locked the deadlocking member in the deadlocking position. The latch arm was spring biased and included a projection which located behind a portion of the deadlocking member to prevent the deadlocking member from movement out of its deadlocking position. To move the deadlocking member it was necessary to initially depress the pivot arm such that the deadlocking member could ride over the projection of the pivot arm and move to its undeadlocking position. A disadvantage with this arrangement was the cost of manufacture and assembly of the various component parts.

15 It is an object of the invention to provide a deadlocking lock which may at least partially overcome the abovementioned disadvantages.

20 In one form, the invention resides in a deadlocking lock including

a lock body,

a main latch tongue moveable between an extended position where the main latch tongue extends from said lock body and is engagable with a recess in a door jamb and a retracted position where the main latch tongue is free from the recess,

a deadlocking member slidably movable between an extended deadlocking position where said deadlocking member engages the main latch tongue to prevent it from retraction and a retracted undeadlocking position where said main latch tongue is movable to the retracted position,

said deadlocking member when in said deadlocking position being prevented against sliding movement to said undeadlocking position by being biased against a stop member.

The lock body may comprise a pair of face plates interconnected by one or more end walls, thereby defining a cavity in the deadlocking lock. The face plates may include openings to allow a spindle to pass through the lock body and to be operatively associated with the latch tongue. Suitable handles may be attached to one or both ends of the spindle to allow the latch tongue to be operated. The face plates may also include an opening to accommodate a key cylinder barrel.

The main latch tongue may extend through a recess provided in the or one of the walls. The wall may include extensions provided with apertures to accommodate fasteners thereby allowing the lock body to be fastened to a door. The end wall may include a further opening or recess to accommodate an auxiliary tongue.

The main latch tongue may comprise a pair of opposed side faces. One or both of the side faces may be tapered to allow the main latch tongue to ride over a striker plate and into the recessed portion in the striker plate. Preferably, the main latch tongue includes a tapered bevelled or curved surface on both side faces.

One or both of the side faces of the main latch tongue may comprise a serrated portion which catches against an edge of the striker plate if the door is forced. Such an arrangement is described in our earlier Australian patent application.

The main latch tongue may be biased to extend from the lock body. The bias may comprise a spring one end of which may be attached to the lock body and the other end attached to the latch tongue.

The main latch tongue may include a rear portion normally housed in the lock body. The rear portion may include a recess or a portion of reduced thickness relative to the remainder of the latch tongue and against which the deadlocking member may locate to deadlock the latch tongue in the extended position.

The main latch tongue may be movable by a lever. The lever may be operable by a spindle whereby rotation of the spindle rotates the lever to retract the latch tongue into the lock body.

The deadlocking lock may include an auxiliary latch tongue. The auxiliary latch tongue may be moveable between an extended position where the auxiliary latch tongue extends from the lock body and a retracted position. The auxiliary latch tongue may be biased to normally extend from the lock body.

The auxiliary latch tongue may be engageable with the main latch tongue whereby when the auxiliary latch tongue in its extended position it engages with the main latch tongue

to prevent the main latch tongue from moving to its extended position. Upon movement of the auxiliary latch tongue to its retracted position, the auxiliary latch tongue may release the main latch tongue to allow the latch tongue to move to its extended position.

The stop member may be located adjacent the wall of the lock body. Preferably, the stop member is integrally formed with the lock body.

The stop member may include a projection against which a portion of the deadlocking member is biased to prevent the deadlocking member from moving to its undeadlocking position.

Alternatively the stop member may include a recess in which a portion of the deadlocking member can locate.

The deadlocking member may comprise an elongate body. The elongate body may be slidable between the deadlocking and undeadlocking positions. The elongate body may be guided between its deadlocking and undeadlocking positions by the lock body.

The elongate body may include a nose portion at one end thereof. The nose portion may engage with the latch tongue when the deadlocking member is in the deadlocking position. In this position, the nose portion may locate in the recess in the latch tongue or may locate behind a shoulder or end face of the latch tongue.

In the deadlocking position, the deadlocking member is biased against the stop member to prevent a deadlocking member from moving to the undeadlocking position. The

deadlocking member may be biased by a spring. The spring may be located between the lock body and the deadlocking member.

The deadlocking member may be moved to its undeadlocking position by moving the deadlocking member against the bias of the spring to release it from engagement with the stop member thereby allowing the deadlocking member to move to its undeadlocking position.

The deadlocking member may be moved between its deadlocking and undeadlocking positions by a key operated cylinder lock. The cylinder lock may include a cam member which may engage the deadlocking member to move the deadlocking member to its deadlocking position and which may disengage the deadlocking member from the stop member and then facilitate movement of the deadlocking member to the undeadlocking position.

A preferred embodiment of the invention will now be described by way of example with reference to the drawings in which

Figure 1 is a plan view of the lock with the latch tongue in its retracted position and the deadlocking member in its undeadlocking position.

Figure 2 is a view of the lock shown in figure 1 with the latch tongue in its extended position and the deadlocking member in its undeadlocked position.

Figure 3 is a view of the lock shown in figure 1 with the latch tongue in its extended position and the deadlocking member in its deadlocking position.

In figures 1 to 3 there is shown a deadlocking lock

10 comprising a lock body 11, main latch tongue 12, auxiliary latch tongue 13, deadlocking member 14, stop member 15, and key cylinder lock 16.

Lock 10 includes two face plates 17 (one of which has been removed). The face plates 17 are connected by end walls 18b, 18d and side walls 18a, 18c. Side wall 18a includes a pair of extending portions 19 which include openings (not shown) to accommodate fasteners (not shown) thereby allowing the lock to be fastened to a door. Side wall 18a includes a recess through which main latch tongue 12 can extend and retract. A further recess is provided in side wall 18a to allow the passage of auxiliary latch tongue 13.

Main latch tongue 12 includes a nose portion 20 which is bevelled on each side so that the lock may be used for both left and right hand closing doors.

Main latch tongue 12 can be retracted into lock body 11 by rotation of lever 21. Lever 21, upon rotation, contacts spigot 22 on main latch tongue 12 and upon further rotation of lever 21, main latch tongue 12 is retracted into the lock body. Lever 21 is rotated by rotation of a spindle (not shown) which locates within opening 23 on lever 21. One or both ends of the spindle may be provided with door handles to facilitate rotation of the spindle and therefore rotation of lever 21.

Main latch tongue 12 is biased by spring 24 which is mounted to spigot 25 in lock body 11. One end of spring 24 abuts against end wall 18b of lock body 11 while the other end of spring 24 abuts against spigot 22. In this manner, main

latch tongue 12 is biased to project from the lock body 11 by spring 24.

Auxiliary latch tongue 13 is biased to extend from lock body 11 by spring 26 which is located on spigot 27. One end of spring 26 is located against end wall 18b while the other end of spring 26 abuts against a shoulder 28 on auxiliary latch tongue 13.

The auxiliary latch tongue 13 includes a further shoulder portion 29 which abuts against a projection 30 on main latch tongue 12 when the main latch tongue is in its retracted position, thereby preventing main latch tongue 12 from extending (see figure 1).

When auxiliary latch tongue 13 is retracted, the rear portion of the auxiliary latch tongue rides against a ramped abutment 31 on lock body 11 which frees further shoulder portion 29 from projection 30. Main latch tongue 12 can then move to its extended position by spring 24.

Figure 2 shows main latch tongue 12 in its extended position with further shoulder portion 29 of auxiliary tongue 13 now located behind projection 30. Upon retraction of main latch tongue 12 into lock body 11, further shoulder portion 29 will ride over projection 30 and then will locate forward of projection 30 to again lock latch tongue 12 in its retracted position as shown in figure 1.

Main latch tongue 12 can be deadlocked in its extended position by deadlocking member 14. Figure 2 shows latch tongue 12 in its extended position with deadlocking member 14 in its undeadlocked position and figure 3 shows

deadlocking member 14 in its extended deadlocking position. Deadlocking member 14 comprises an elongate body having a nose portion 32 which in the deadlocking position locates in recess 33 on latch tongue 12 such that latch tongue can no longer be retracted substantially into the lock body.

Deadlocking member 14 is biased by spring 34 into engagement against projection 15a on stop member 15. Deadlocking member 14 includes a projection 35 which can locate on either side of projection 15a, to prevent movement of member 14.

In figure 3 the deadlocking member 14 is shown in its deadlocking position where projection 35 is located on one side of stop member 15 thereby preventing deadlocking member 14 from moving to its undeadlocking position. Projection 35 prevented from moving over projection 15a by spring 34.

Deadlocking member 14 is moved between its deadlocking and undeadlocking positions by cam member 36 which is operable by key cylinder lock barrel 16. Cam member 36 rotates from a lower position as shown in figure 2 to an upper position as shown in phantom in figure 3. Rotation of cam member 36 is achieved by insertion and rotation of a key in key cylinder barrel 16.

Upon rotation of cam member 36 from its lower to upper position, the cam member will contact shoulder 37 on deadlocking member 14 and will lift deadlocking member 14 against the bias of spring 34. This action also raises projection 35 above projection 15a.

Further rotation of cam member 36 will result in the

cam member contacting surface 38 which will move the deadlocking member to the deadlocking position as shown in figure 3.

Continued rotation of cam member 36 to its upper position as shown in figure 3 releases contact between the cam member and the deadlocking member and deadlocking member 14 is biased by spring 34 such that projection 35 now locates on the other side of projection 15a.

To move deadlocking member 14 from its deadlocking position as shown in figure 3 to its undeadlocking position as shown in figure 2, cam member 36 is rotated in the opposite direction. Upon such rotation, cam member 36 can initially contact shoulder 39 and thereafter surface 38 which will lift deadlocking member against the bias of spring 34 over projection 15a to allow the deadlocking member to be returned to its undeadlocking position as shown in figure 2.

The deadlocking member is guided between its undeadlocking position and deadlocking position by spaced projections 40, 41 and 42 which are formed integral with lock body 11. Screw 43 locates key cylinder barrel 44 within lock body 11. Screw 43 passes through a recessed portion (not shown) in deadlocking member 14 to allow the deadlocking member to move without contacting screw 43.

The operation of the lock of figures 1 to 3 is described as follows: When the door is opened or ajar, the lock assumes the position of figure 1 with main latch tongue 12 and auxiliary latch tongue 13 retracted within lock body 11. When the door is closed, both tongues 12 and 13 hit the

striker plate of the door jamb and are further retracted into lock body. As auxiliary tongue moves into lock body 14, it rides up ramped abutment 31 thereby raising further shoulder portion 29 away from projection 30 to release main latch tongue 12. The main latch tongue thereby is moved to its fully extended position by spring 24. The lock is now in its latched position.

To deadlock the latch tongue, a key is inserted into lock cylinder body 16 and is rotated to move cam member from the position of figure 2 to the position of figure 3. As described above, this rotation results in deadlocking member 14 becoming freed from engagement with stop member 15 and moving to an extended position where nose portion 32 now locates behind a shoulder 33 of latch tongue 12. Furthermore, deadlocking member 14 is biased by spring 34 to locate on the other side of projection 15a to prevent the deadlocking member from moving to its undeadlocking position. In the deadlocked position, latch tongue 12 can not be substantially retracted into lock body 11.

To release the deadlocking member 14, the key is rotated in a counter direction to move cam member 36 from the position shown in figure 3 to the position shown in figure 2. Upon such movement, deadlocking member 14 is freed from engagement against stop member 15 and is also moved back to its undeadlocking position as shown in figure 2 where projection 35 to the one side of projection 15a.

Thus, the deadlocking lock according to the invention provides a relatively simple deadlocking arrangement

comprising a single deadlocking member which is securely locked into its deadlocking position and cannot be inadvertantly moved to its undeadlocking position. Furthermore, as the deadlocking member comprises a single body, assembly time and manufacturing costs are minimised.

It should be appreciated that further changes and modifications may be made to the embodiment described. In particular, there is no requirement for the presence of auxiliary latch tongue 13.

Various other changes and modifictions may be made to the embodiments described without departing from the spirit and scope of the invention as claimed.

The claims defining the invention are as follows;

1. A deadlocking lock including -

a lock body,

a main latch tongue moveable between an extended position where the main latch tongue extends from said lock body and is engagable with a recess in a door jamb and a retracted position where the main latch tongue is free from the recess,

a deadlocking member slidably movable between an extended deadlocking position where said deadlocking member engages the main latch tongue to prevent it from retraction and a retracted undeadlocking position where said main latch tongue is movable to the retracted position,

said deadlocking member when in said deadlocking position being prevented against sliding movement to said undeadlocking position by being biased against a stop member.

2. The deadlocking lock as claimed in claim 1 wherein said deadlocking member is prevented against sliding movement from the undeadlocking position to the deadlocking position by being biased against said stop member.

3. The deadlocking lock as claimed in claim 1 or claim 2 wherein said deadlocking member comprises an elongate body having two opposed ends, a nose portion adjacent one end engageable with the main latch tongue when in the deadlocking position and a projection which is biased against said stop member when said deadlocking member is in the deadlocking position.

4. The deadlocking lock as claimed in claim 3 wherein said projection extends from adjacent the other end of said elongate body.

5. The deadlocking lock as claimed in any one of the preceding claims wherein said stop member is adjacent a lower wall of the lock body when the lock is mounted to a door and includes a projection against which the projection of the elongate body is biased to prevent movement of the deadlocking member.

6. The deadlocking lock as claimed in any one of claims 3 to 5, wherein said deadlocking member is biased against the stop member by a biasing member located adjacent the projection on the elongate body.

7. The deadlocking lock as claimed in claim 6 wherein said biasing member comprises a spring extending between the elongate body and a wall of the lock body.

8. The deadlocking lock as claimed in any one of the preceding claims wherein said deadlocking member is moved between the deadlocking position and undeadlocking position by a rotatable cam member which disengages the deadlocking member against the stop member.

9. The deadlocking lock as claimed in claim 8 wherein said rotatable cam member slidably moves said deadlocking member from its deadlocking position to its undeadlocking position.

10. The deadlocking lock as claimed in claim 8 or claim 9 wherein said rotatable cam member slidably moves said

deadlocking member from the undeadlocking position to the deadlocking position.

11. The deadlocking lock as claimed in any one of the preceding claims wherein the main latch tongue includes a rear portion having a recess or a portion of reduced thickness relative to the remainder of the latch tongue against which the deadlocking member can locate to deadlock the latch tongue in the extended position.

12. The deadlocking lock as claimed in any one of the preceding claims including an auxiliary latch tongue movable between an extended position where the auxiliary latch tongue extends from the lock body and a retracted position, the auxiliary latch tongue being biased to normally extend from the lock body.

13. The deadlocking lock as claimed in claim 12 wherein the auxiliary latch tongue is engagable with the main latch tongue whereby when the auxiliary latch tongue is in its extended position it engages with the main latch tongue to prevent the main latch tongue from moving to its extended position and upon movement of the auxiliary latch tongue to its retracted position, the auxiliary latch tongue releases the main latch tongue to allow the main latch tongue to move to its extended position.

14. The deadlocking lock as claimed in any one of claims 8 to 10 wherein said cam member is part of a key operated cylinder lock.

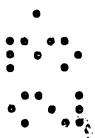
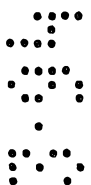
15. A deadlocking lock substantially as hereinbefore described with reference to the accompanying drawings.

16. A deadlocking lock as claimed in any one of claims 1 to 14 wherein the deadlocking member is a one piece member which is pivotally biased into engagement with or against the stop member when the deadlocking member is in its deadlocking position.

17. The deadlocking lock as claimed in claim 16, wherein the deadlocking member has a top wall, bottom wall and peripheral side wall and where the side wall engages with or against the stop member when the deadlocking member is in its deadlocking position.

DATED this Twenty-third day of March 1994

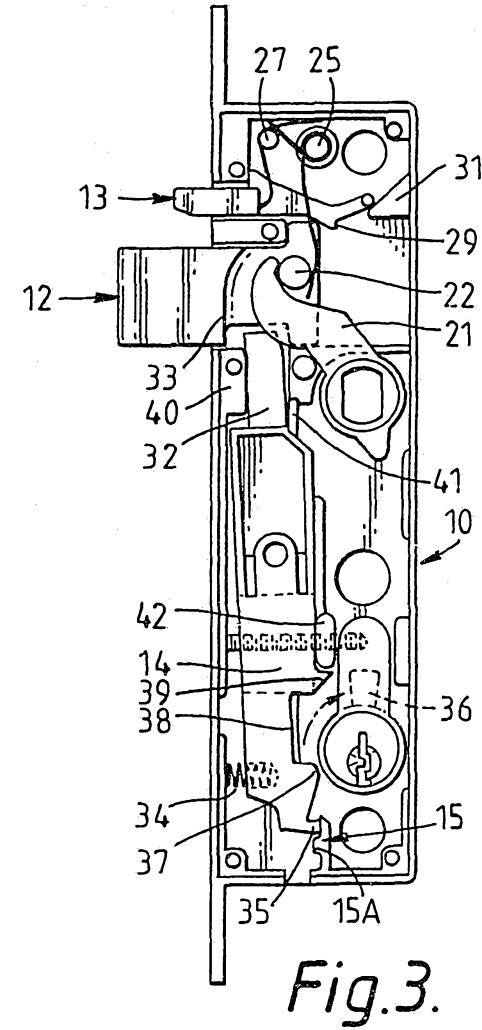
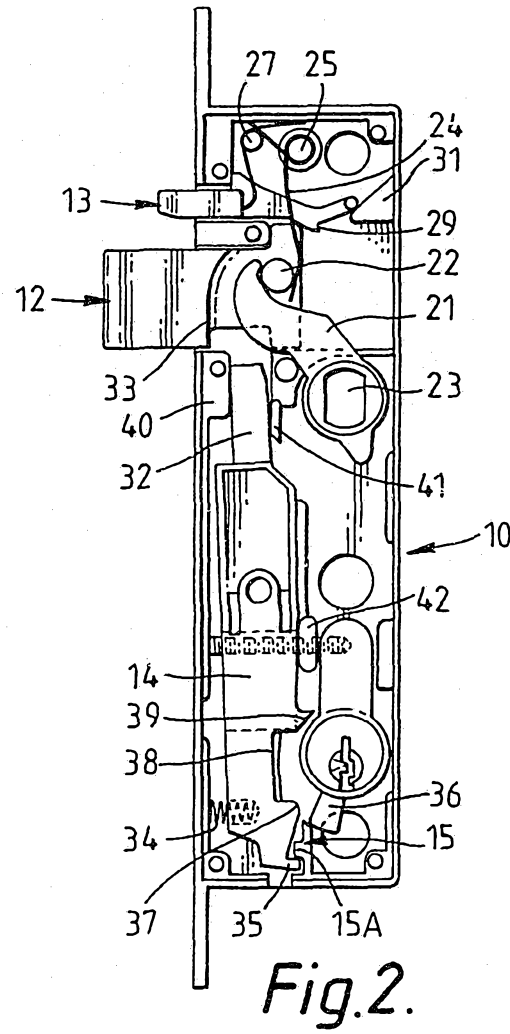
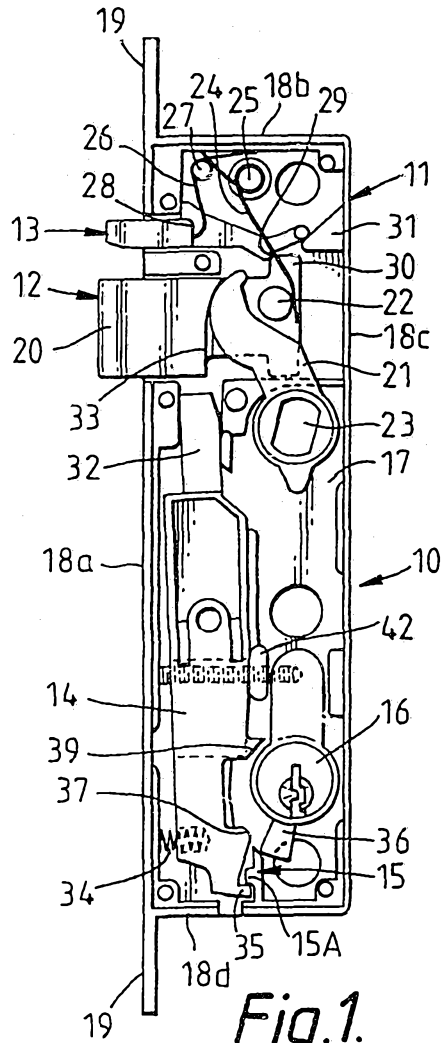
WHITCO PTY LTD
By Their Patent Attorneys
CULLEN & CO



ABSTRACT

A deadlocking lock of simplified construction comprises a lock body (10) housing a latch tongue (12) which can move between an extended position projecting from the lock body and a retracted position. Latch tongue (12) can be deadlocked in the extended position by deadlocking member (14) which has a nose portion (32) which engages with latch tongue (12) when in the extended position. Deadlocking member (14) has a projection (35) which engages with a stop member (15) and is biased into engagement with stop member (15) through a spring (34). Deadlocking member (14) is moved between its deadlocking position and undeadlocking position by a cam member (36) which is part of a key operated cylinder barrel (16). In this manner, deadlocking member (14) can be securely locked in its deadlocking position and will not be able to move to its undeadlocking position either inadvertently or by deliberate blows to the lock.

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