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(11)

EP 1 103 682 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:

30.05.2001 Bulletin 2001/22

(51) Int Cl.7: **E05B 65/44**, E05B 65/46,
E05B 35/10

(21) Application number: **00310036.9**

(22) Date of filing: **10.11.2000**

(84) Designated Contracting States:

**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE TR**

Designated Extension States:

AL LT LV MK RO SI

(30) Priority: **15.11.1999 GB 9926987**

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(54) **A lock, and an item containing a lock**

(57) A lock is provided which can be inserted into a desk or other item of furniture in order to lock drawers or doors thereof, and the lock is removable from the furniture, removal of the lock being controlled by use of a key.

The lock comprises first engagement means (30) for selectively engaging with a supporting structure (2)

to secure the lock to the supporting structure, and second engagement means (16) for selectively controlling either directly or indirectly, the locking of an element for allowing access to a protected region, whereby motion of the first engagement means (30) and motion of the second engagement means (16) is controlled by at least one key.

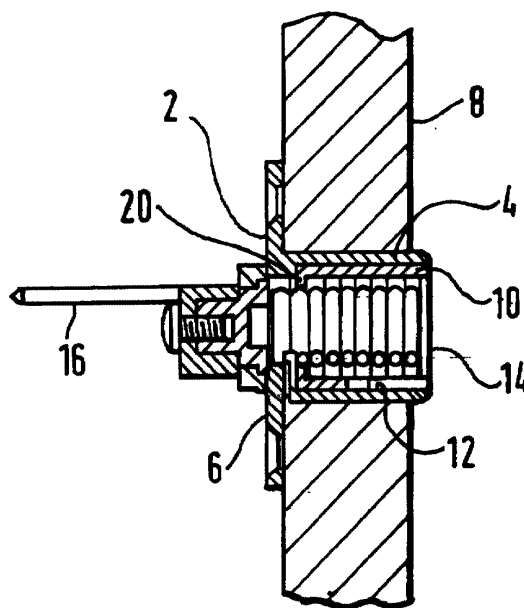


Fig.1.

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Description

[0001] The present invention relates to a lock, and in particular to a locking arrangement wherein the lock can be easily and readily interchanged between a number of items, for example items of furniture.

[0002] Working practices within the office environment are changing, and the concept of "hotdesking" whereby a person only uses a desk for a brief period of time is becoming more prevalent. Nevertheless, people may still wish to store personal items or confidential documents in a secure region for a period of time.

[0003] According to a first aspect of the present invention, there is provided a lock comprising first engagement means for selectively engaging with a supporting structure so as to secure the lock to the supporting structure, and second engagement means for selectively controlling, either directly or indirectly, the locking of an element for allowing access to a protected region, whereby operation of the first engagement means and operation of the second engagement means is controlled by at least one key.

[0004] It is thus possible to provide a lock which can be used to control access to a protected region, such as a drawer or a cupboard, but which can also be removed with a key from an item, such as a desk, and moved to another desk or other item incorporating a suitable receptacle for the lock.

[0005] Preferably a first key is used to control the operation of the first engagement means, and the operation of the second engagement means. This has the advantage of reducing the number of keys that a user must carry.

[0006] Alternatively, a first key may be used to control the operation of the first engagement means and a second different key may be used to control the operation of the second engagement means.

[0007] Preferably the lock is encapsulated with a housing. Advantageously the housing is arranged such that the lock mechanism is protected from damage.

[0008] Preferably the first engagement means comprises at least one protrusion that moves between a first position for insertion or withdrawal of the lock from the supporting structure and a second position in which the lock is engaged with the supporting structure so as to inhibit removal therefrom. The first engagement means may be arranged such that the lock can be inserted into the supporting structure without use of the key, or the key may be required both to insert and remove the lock.

[0009] Advantageously the first engagement means is in the form of a retractable bolt. Although a pin or disk or other element moveable around the periphery of the body or other suitable engagement mechanism may be employed.

[0010] Preferably the lock has means for ensuring that the lock is orientated within the supporting structure. Thus the lock, the housing thereof and the supporting structure may have corresponding pins, recesses,

grooves or guides or be otherwise shaped such that the lock can only be fully inserted within the supporting structure when it is at the correct orientation.

[0011] Preferably the second engagement means comprises a sliding bolt for engaging with a keeper. Such an arrangement is suitable for use with doors and single drawers. Alternatively, the second engagement means may comprise an offset rotating pin for moving a vertical slide to control the opening of at least one drawer. It will be appreciated that other locking mechanisms may be used.

[0012] Preferably the supporting structure is an interface unit which, in use, is attached to part of an item enclosing the protected area.

[0013] Thus the interface unit may be provided as part of a cabinet or drawer arrangement or an item of furniture, or maybe included within another structure, such as a door frame or the like.

[0014] According to a second aspect of the present invention, there is provided an item of office furniture incorporating an interface element for engaging with a lock according to the first aspect of the present invention.

[0015] According to a third aspect of the present invention, there is provided an interface unit having means for attaching the interface unit to a structure, and being arranged to accept a lock according to the first aspect of the present invention.

[0016] The present invention will further be described, by way of example, with reference to the accompanying drawings, in which;

Figure 1 is a schematic cross-section through a lock constituting an embodiment of the present invention;

Figure 2 schematically illustrates a cross-section through the locating arrangement of the interface element;

Figure 3 is a plan view of the rear of the lock when inserted in the interface element;

Figure 4 is a plan view of the lock when inserted in the interface element, the interface element not being attached to an item of furniture;

Figure 5 is a plan view of a locking arrangement constituting a second embodiment of the present invention, the structure of the item of furniture being omitted for clarity;

Figure 6 is a side view of the arrangement shown in Figure 5;

Figure 7 is a perspective view of a carry case for the lock and associated key; and

Figure 8 shows the locking arrangement in more detail.

[0017] The arrangement shown in Figure 1 comprises an interface element 2 having a generally cylindrical section 4 upstanding from a flange 6 which carries screw holes such that the interface element can be attached to a through bore in an item of furniture 8. The interface element has integrally formed therein a cylindrical sleeve 10 coaxial with the circular section 4 but having an open mouth groove 12 formed therein. The mouth of the groove faces away from the flange 6. A lock 14 has a generally cylindrical profile and is a close sliding fit within the sleeve 10. The rear of the sleeve 10 is open, as is the rear of the section 4, such that the lock can be slid through from the front of the furniture thereby enabling a rearwardly extending locking mechanism, in the example, an offset pin 16, to extend into the item of furniture. The sleeve 10 preferably has an inwardly facing lip 20 disposed thereon to provide an abutment against which the body of the lock rests when it has been inserted into its correct operating position. A lock insertion key may then be operated to move the lock fixing element to its engaged position such that the barrel of the lock becomes held within the interface element 2. The fixing key may be similar to the normal lock operating key, but may for example have an additional lift in order to operate the first engagement element. Alternatively the keys may be identical and the magnitude of and/or direction of key motion and/or force required to turn the key may be used to distinguish between the normal operation of the lock and the lock insertion/removal operations. The engagement element may, advantageously, be a pin 30 which is caused to rotate with respect to a guide pin 31 which engages the opened mouth slot 12 thereby securing the lock 14 in position. Thus, as shown in Figure 8, once the lock is inserted, the locking pin 30 may be moved to position "a" from position "b" in a dog legged portion of the guide slot 12 so as to prevent removal of the lock. The guide pin 31 prevents rotation of the lock barrel.

[0018] Once the lock is in position, the same key or a second key is then used which allows the locking element 16 to be moved between locking and unlocking positions. Where a second key is used, it does not allow the lock 14 to be removed from the interface element 2.

[0019] Figure 5 schematically illustrates a cupboard lock which drives a flat cranked pin 30. The pin 30 is attached at one end to a lock 32 and passes through a guide rail 34 of generally known design. The lock 32 can be inserted into the item of furniture or removed from the item of furniture via the front surface in a manner similar to that described with respect to Figure 1.

[0020] Figure 7 schematically illustrates a personal lock and key holder module which provides a convenient carry case for holding a lock constituting an embodiment of the present invention and also securely holds the lock operating key or keys where two keys are provided,

these can be kept as a matched set.

[0021] It is an important feature of the present invention that each lock has an associated lock removal key which differs (to within an acceptable number of combinations) from lock removal keys of other locks of the same design. Thus there need not to be a lock removal master key, thereby ensuring that each user can remain confident that their lock cannot be accessed or removed by other users of the system.

[0022] It is apparent that a master key could be provided, although such a key should then be kept by a trusted member of personnel.

[0023] It is thus possible to provide a lock which can be locked into an item of furniture or equipment, and can then provide a locking function to that item of furniture or equipment.

Claims

1. A lock characterised by comprising first engagement means (30) for selectively engaging with a supporting structure (2) to secure the lock to the supporting structure, and second engagement means (16) for selectively controlling either directly or indirectly, the locking of an element for allowing access to a protected region, whereby motion of the first engagement means and motion of the second engagement means is controlled by at least one key.
2. A lock as claimed in claim 1, characterised in that the lock is encapsulated within a housing.
3. A lock as claimed in claim 1 or 2, characterised in that the first engagement means (30) moves between a first position for insertion or withdrawal of the lock from the supporting structure, and a second position in which the lock is engaged with the supporting structure so as to inhibit its removal therefrom.
4. A lock as claimed in claim 3, in which a key is required to remove the lock from the supporting structure.
5. A lock as claimed in any one of the preceding claims, characterised in that the first engagement means is a retractable bolt.
6. A lock as claimed in any one of the claims 1 to 4, characterised in that the first engagement means comprises an element moveable around the periphery of the body of the lock.
7. A lock as claimed any one of the preceding claims, in which the lock comprises means (31) for ensuring that the lock is correctly orientated within the sup-

porting structure.

8. A lock as claimed in any one of the preceding claims, characterised in that the second engagement means comprises a sliding bolt or an offset rotating pin. 5
9. A lock as claimed in any one of the preceding claims, characterised in that the interface unit is provided as part of a cabinet or drawer arrangement, or as part of an item of office furniture. 10
10. An item of office furniture incorporating an interface element for engaging with a lock as claimed in any one of claims 1 to 9. 15
11. An interface unit having means for attaching the interface unit to a structure, and arranged to accept a lock as claimed in any one of claims 1 to 9. 20

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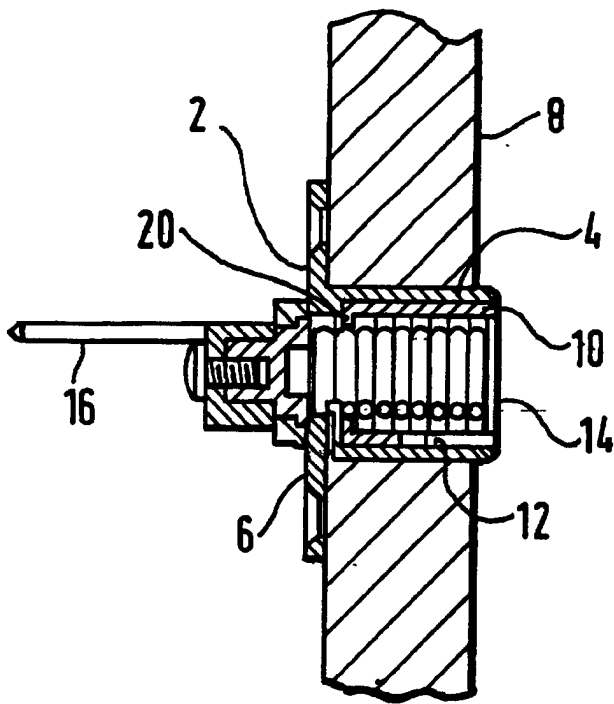


Fig.1.

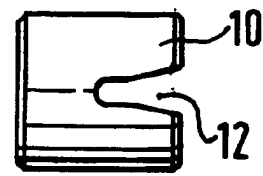


Fig.2.

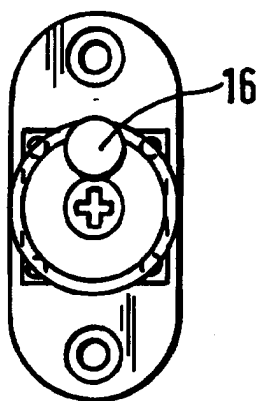


Fig.3.

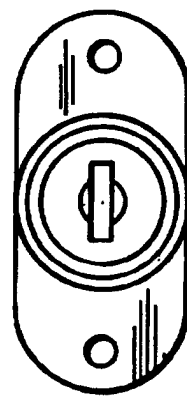


Fig.4.

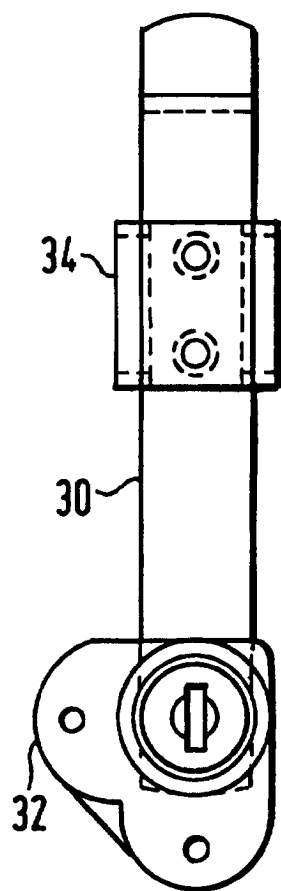


Fig.5.

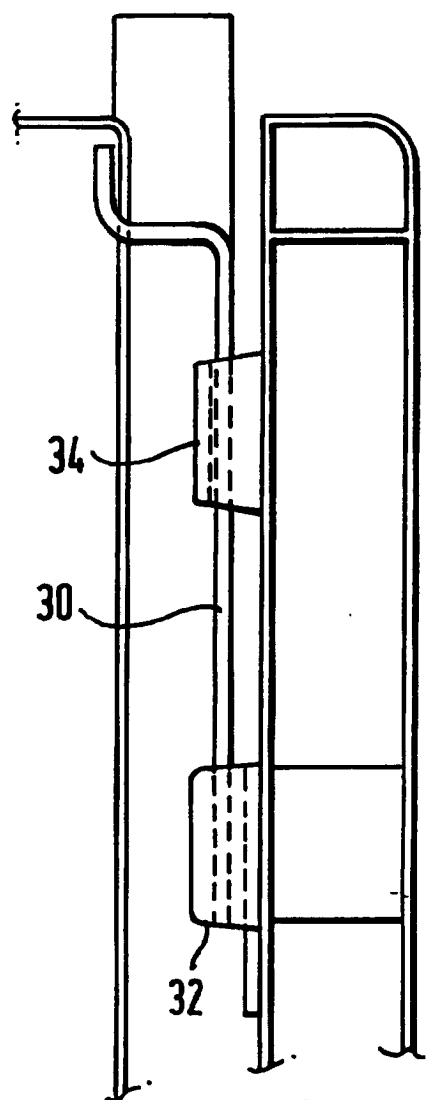


Fig.6.

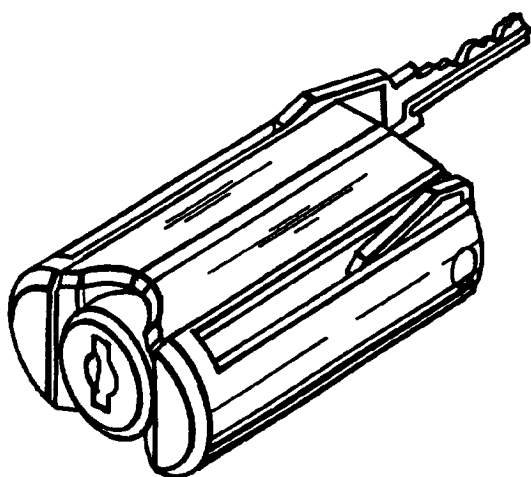


Fig.7.

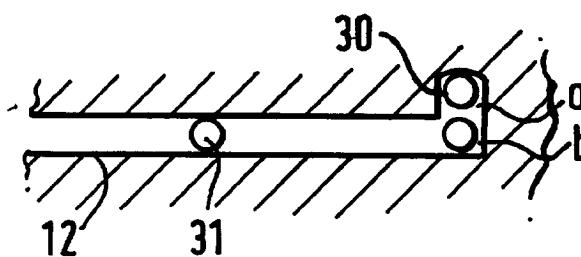


Fig.8.



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EUROPEAN SEARCH REPORT

Application Number
EP 00 31 0036

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	EP 0 771 921 A (SERRATURE MERONI S.P.A.) 7 May 1997 (1997-05-07) * column 5, line 7 - column 5, line 18; figures *	1-5,7-11	E05B65/44 E05B65/46 E05B35/10
X	US 4 012 928 A (DAUENBAUGH) 22 March 1977 (1977-03-22) * column 4, line 43 - column 5, line 10; figures *	1-4,6-11	
X	EP 0 494 062 A (S.A. EURO-LOCKS N.V.) 8 July 1992 (1992-07-08) * column 8, line 52 - column 10, line 5; figures *	1-5,7,11	
X	DE 196 27 248 C (JUL. NIEDERDRENK KG) 24 July 1997 (1997-07-24) * column 4, line 24 - column 5, line 27; figures *	1-5,7, 9-11	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			E05B
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 8 March 2001	Examiner Vacca, R
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			

EPO FORM 1503 03 82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 00 31 0036

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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