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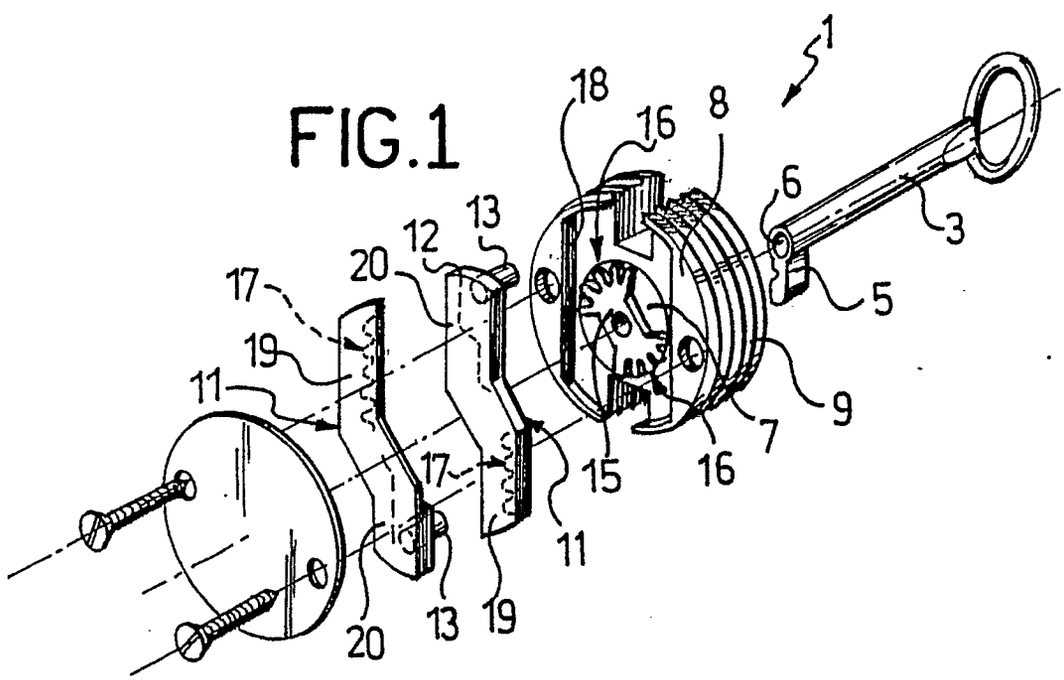
(54) A simplified operation lock for furniture elements, such as drawers, cupboard doors, and the like.

(57) A simplified operation lock (1) for furniture elements (2), such as drawers, cupboard doors, and the like, comprises a pair of locking bolts (11) for actuation by a key (3) and a cylinder (7) having opposed, substantially gear-like toothed portions (16), each in mesh engagement with a rack section (17) formed integrally with the corresponding bolt (11). The cylinder (7) is shiftable angularly by the key (3) through an arc of 90° or less but sufficient to cause the bolts (11) to move a significant distance.

FIG.1



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This invention relates to a simplified operation lock for furniture elements, such as drawers, cupboard doors, and the like, being of a type which comprises a locking bolt actuated by means of a key.

As is well known, locks of the above type are widely used on a number of pieces of furniture equipped with key-operated closures.

While being in many ways advantageous and employed by most furniture makers, such prior locks have in common a drawback specially objectionable with the users.

It is deplored, in particular, that to operate them one is required to turn the key 360°, which forces the user to perform an unnatural movement in manipulating the key.

This inconvenience also reflects in the likelihood that the locking action is sometimes not actually carried to its completion, thus giving free access to a compartment of a piece of furniture which one felt otherwise sure to have locked up.

The technical problem that underlies this invention is to provide a novel type of simplified operation lock which has such structural and performance characteristics as to provide for an effective locking action even where the key is not given a full turn.

This problem is solved by a lock as indicated being characterized in that it comprises a cylinder provided on one end, with opposed, substantially gear-like toothed portions, each in mesh engagement with a rack section formed on a corresponding bolt integrally with the latter, said cylinder being driven angularly by said key through an angle of 90° or less.

The features and advantages of a lock according to the invention will be more clearly apparent from the following detailed description of an embodiment thereof, given by way of illustration and not of limitation with reference to the accompanying drawings.

In the drawings:

Figure 1 is an exploded perspective view of a lock according to the invention;

Figure 2 is a perspective view of the lock shown in Figure 1, as fitted to a closure element of a piece of furniture; and

Figures 3 and 4 are front and vertical section views, respectively, of the lock of Figure 1 shown at two different stages of its operation.

With reference to the drawing views, generally indicated at 1 is a simplified operation lock embodying this invention and intended for installation on elements 2 of pieces of furniture, such as drawers, cupboard doors, and the like.

The lock 1 is of a type which is operated by means of a key 3, known per se, adapted for insertion through a keyhole 4, or into the slot of a bush where the key has a flat configuration of the Yale type.

In the embodiment to be discussed herein below by way of illustration, the key 3 is of the cylindrical stem variety with a lug 5 of conventional shape and a female or socket end 6 intended to fit over a male pin inside the lock 1.

That pin 21 is fast with a cylinder 7 supported rotatably and coaxially within a cylindrical case 8 which is knurled peripherally as at 9 to promote secure retention thereof in a mating bore 10 formed in the element 2.

The lock 1 comprises a pair of oppositely extending bolts 11 which are guided for sliding movement toward and away from the axis of the cylinder 7 on a perpendicular plane to that axis and along the directions indicated by arrows F.

The respective free ends 12 of the bolts 11 are provided with a pin 13 jutting out parallel to the cylinder axis to permit, for example, of connection to, and extension of such ends 12 into, corresponding closure rods 14 for a door of a cupboard.

Advantageously, the rearward end 15 of the cylinder 7 has oppositely located, substantially gear-like, toothed portions 16, each enmeshed with a rack section 17 formed on the corresponding bolt 11 integrally with the latter on the side facing toward the cylinder 7. Formed rearwardly in the case 8 is a groove 18 having a width dimension substantially equal to the diameter of the cylinder 7, wherein the bolts 11 are guided slidably.

Each bolt 11 has an S-like, or Z-like if preferred, shape with parallel opposed offset sections 19 and 20, one 19 of which carries said pin 13, the other section 20 being formed with said rack 17 in an integral manner.

The bolts 11 have identical shapes and are held in side-by-side relationship laterally such that said sections 19 and 20 are allowed to slide the one over the opposite section of the other bolt while running in the groove guide 18 and holding the sections 19 carrying the pins 13 in line with the directions F.

The toothed portions 16 have five teeth each, and are so shaped as to ensure a significant movement of the bolts 11 on the occurrence of a predetermined angular rotation of the cylinder 7.

More specifically, on the far end of the cylinder 7 from the gear 15, and hence accessible through the keyhole 4, there is defined an aperture 24 in the form of a segment of a circle bound by walls 22 and 23 set 90° apart.

Within said aperture 24, the lug 5 on the key 3 is shiftable angularly about the pin 21, which enables the cylinder 7 to be entrained rotatively and, therefore, shifted angularly to abut against the walls 22 or 23, as the case may be.

By inserting the key 3 into the keyhole 4 such

that the end 6 engages on the pin 21, it becomes possible to lock and unlock this lock 1. It will be sufficient for the purpose to turn the key on the clockwise direction indicated by the arrow F1 such that the lug 5, by abutting against the wall 23 of the aperture 24 in the cylinder 7, enables the cylinder 7 to be shifted angularly within the case 8.

An angular rotation through an angle of 90° or less is enough to cause the bolts 11 to move a substantial distance and perform their locking action.

By turning the key back to its initial position, and then turning it in the counterclockwise or opposite direction to the arrow F1, the lug 5 on the key 3 is brought to abut against the wall 22 of the aperture 24 and shift the cylinder 7 angularly throughless than 90°, thereby enabling the lock to become unlocked.

The lock of this invention has a major advantage in that its operation has been simplified so as to require less exertion of the user in performing the locking and unlocking acts, it being sufficient that the key be turned through angles of just 90 degrees or even less.

Claims

1. A simplified operation lock (1) for furniture elements (2), such as drawers, cupboard doors, and the like, being of a type which comprises at least one locking bolt (11) actuated by means of a key (3), and characterized in that it comprises a cylinder (7) provided on one end (15) with opposed, substantially gear-like toothed portions (16), each in mesh engagement with a rack section (17) formed on a corresponding bolt (11) integrally with the latter, said cylinder (7) being driven angularly by said key (3) through an angle of 90° or less.

2. A lock according to Claim 1, characterized in that it comprises a cylindrical case (8) wherein said cylinder (7) is supported rotatably and coaxially, in said case (8) there being defined a rearward groove (18) wherein a pair of bolts (11) are guided for sliding movement.

3. A lock according to Claim 2, characterized in that each bolt (11) has an S-like shape with parallel oppositely extending offset sections (19,20), one (19) of which has said rack (17) formed integrally therewith, said bolts (11) being arranged laterally in side-by-side relationship such that said sections (19,20) will slide in said groove (18) the one over the opposite section of the other bolt.

FIG.1

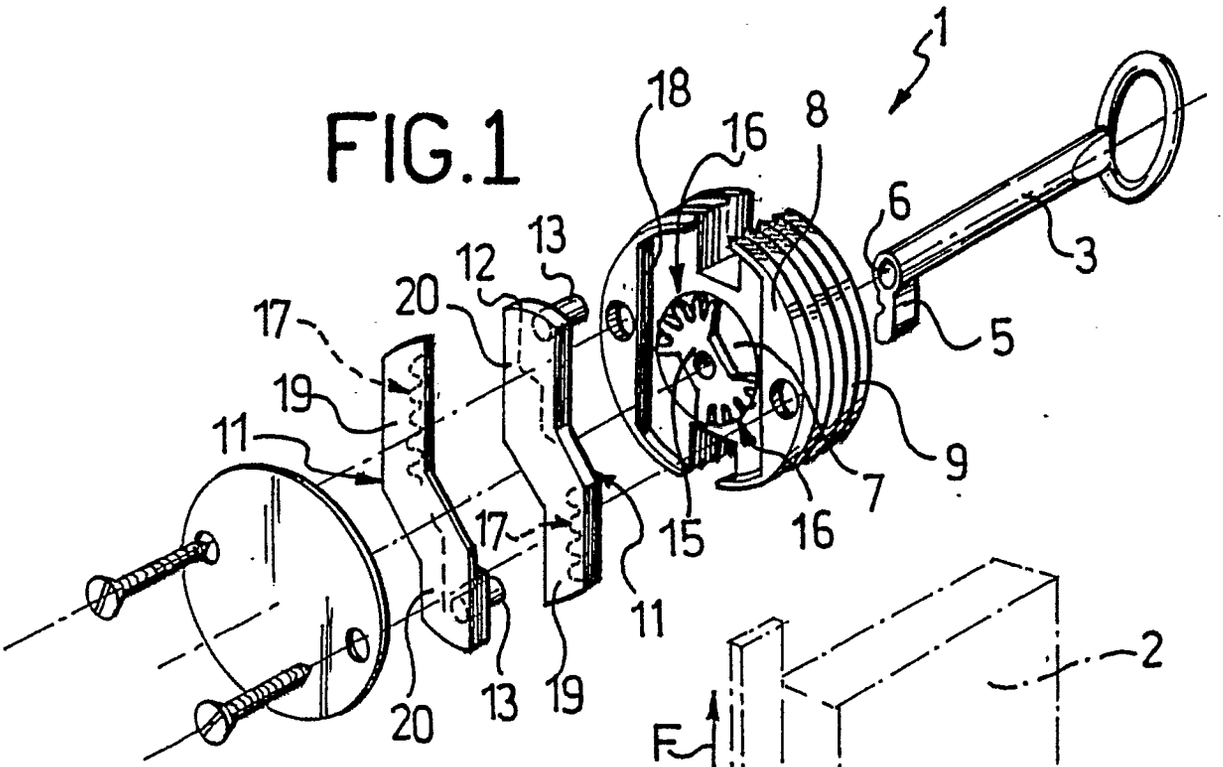
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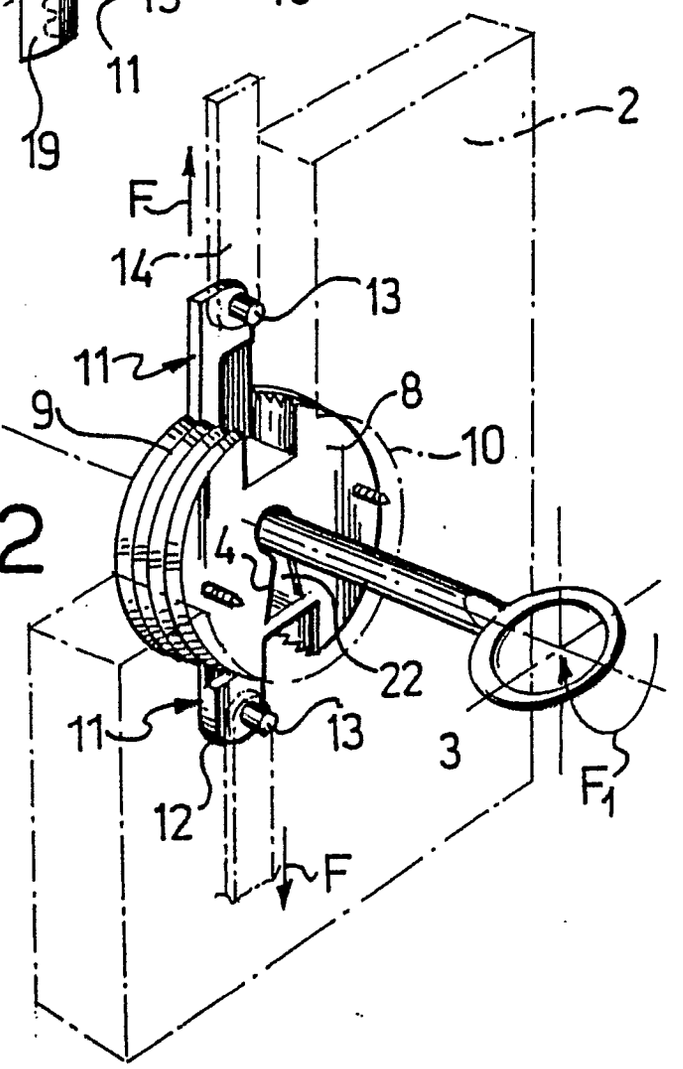
FIG.2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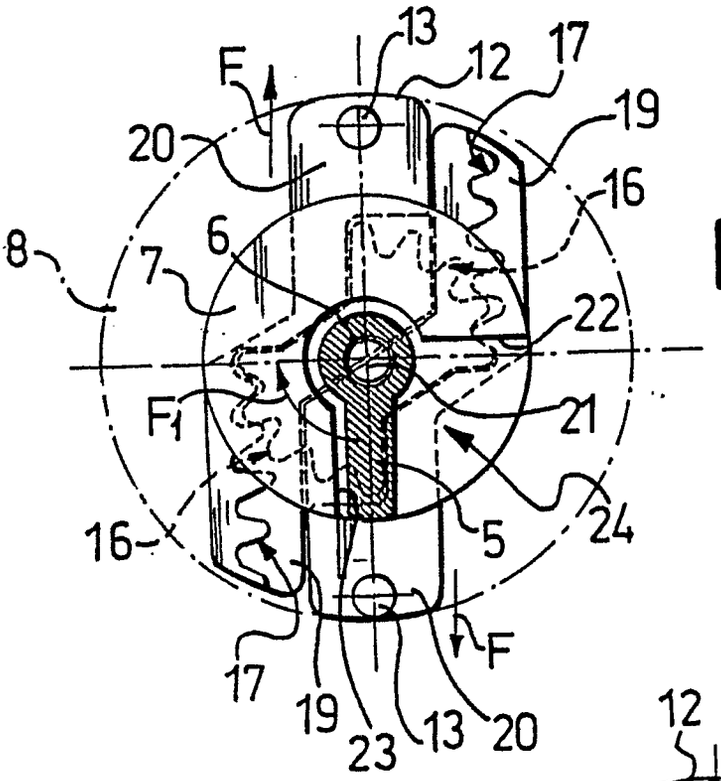
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FIG.3

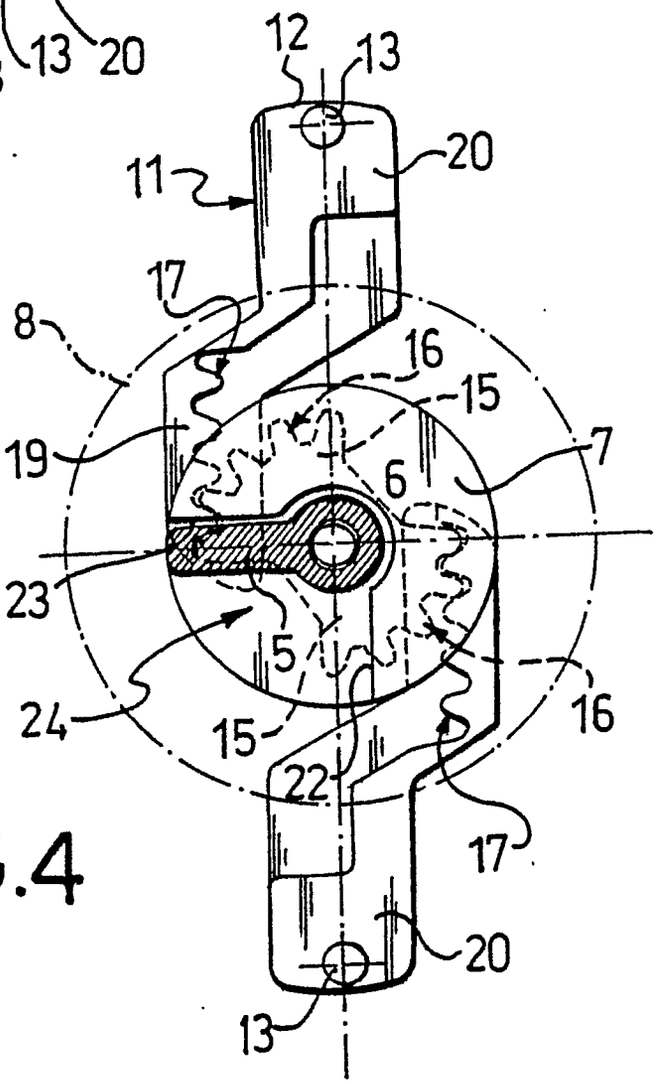
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FIG.4