

LOCK ASSEMBLY

The present invention relates to improvements in lock mechanisms, particularly for furniture items such as desk and cabinet drawer locks as well as furniture door locks.

- 5 With lock mechanisms of the aforementioned type, there is a desire to provide an assembly that can be factory positioned in the furniture item without a key operated barrel in place, the lock mechanism having a latch part or similar member that can be physically moved (without the key operated barrel) between a delatched position and a latched position with resistance preventing
10 free movement between these positions. This permits furniture to be produced at a factory site with drawers and doors in place and effectively retained in a closed position for transport to the ultimate installation site (e.g. office or the like). Once the furniture is appropriately located, lock barrels can be inserted into the already installed mechanisms so that in particular areas, a single key
15 can operate each of the lock barrels. Mechanisms of the aforementioned type are already well known and commonly available. One known and used lock mechanism of this type comprises a lock body housing adapted to receive a key operated barrel therein. Located at a rear face of the mechanism is a first die cast part that is secured to the rear face by four rivets. This first die cast part
20 contains a small sized bore aligned axially with the lock barrel housing a spring and a small diameter ball which is urged rearwardly by the spring. A second die cast part extends rearwardly from the first die cast part to form a latch part or similar element which is secured to an internal member capable of rotating within the lock body. The internal member includes a forwardly facing (directed
25 towards the front of the lock body) slot that can be engaged by a screw driver or similar device (when the barrel is removed) to rotate the latch part manually between latching and delatching positions. At the surface of the second die part facing towards the first die part, there are three detent recesses at equal radii and 90° apart that are engageable by spring urged ball to provide the desired
30 resistance against free rotational movement of the latch part. While lock mechanisms of the aforementioned type work quite well, they are relatively costly to produce because of the die cast parts, the number of elements in their

construction requiring assembly, and because of the assembly techniques required in their manufacture.

The objective of the present invention is to provide a lock mechanism of the aforementioned type which has the same capabilities but which is simplified
5 in construction and assembly techniques.

Accordingly, the present invention provides a lock mechanism comprising a lock body having a main bore adapted to releasably receive a key operated lock barrel therein, a latch means located at or adjacent a rear end region of said main bore and mounted for movement at least between a latched
10 position and a delatched position, said latch means being arranged for direct or indirect manipulation from a forward end of said main bore when said lock barrel is removed therefrom, said lock mechanism being characterized by leaf spring means operable to hold said latch means in at least said latched position and be capable of movement therefrom by manipulation from said forward end
15 with said lock barrel removed, said latch means being capable of operation by said lock barrel when said lock barrel is operably retained in said main bore.

Conveniently the latch means may be formed in a one or two part construction. In the second case, the latch means may be formed by a first member rotatably mounted to or in said lock body at or adjacent to the rear end
20 region of the main bore and by a latch member secured to said first member rearwardly thereof relative to said main bore. Preferably the leaf spring means is operable to hold said latch means in at least two different positions, at least one of which is a said latched position.

In accordance with a preferred arrangement, the leaf spring means may
25 comprise a leaf spring element formed from a spring plate adapted to be secured to a rear face of said lock body, the leaf spring element having detent formation cooperable with at least one detent formation on said latch means. In a possible alternative arrangement, the leaf spring means may comprise at least two leaf spring elements formed at spaced locations from a spring plate adapted
30 to be secured to a rear face of said lock body, each said leaf spring element having a detent formation cooperable with at least one detent formation on said latch means.

The detent formations on the or each said spring element may be either a projection or a recess and are advantageously formed at a distal end of each said element by deformation of the spring element itself. Each such detent formation would be engagable with a cooperable detent formation on the latch means.

Conveniently the spring plate is positioned to retain the latch means in a rear zone of the main bore of the lock body. Preferably, the latch means includes a forwardly facing recess or opening capable of being manipulated from the forward end of said main bore when the lock barrel is removed.

One preferred embodiment of the present invention will hereinafter be described with reference to the accompanying drawings, in which :

Figure 1 is a front elevation view with the key operated lock barrel removed;

Figure 2 is a longitudinal section view along line A-A of Figure 1;

Figure 3 is a rear elevation view of the assembly shown in Figure 2 but with the latch member and spring plate removed for the sake of clarity;

Figure 4 is a rear elevation view similar to Figure 3 but with the spring plate shown in position;

Figure 5 is a front elevation view of the spring plate;

Figure 6 is a longitudinal edge view of the plate shown in Figure 5; and

Figure 7 is an end edge view of the plate shown in Figure 5.

Referring to the drawings, a lock mechanism is shown comprising a lock body 10 having a central longitudinal bore 11 adapted to receive a key operated lock barrel (not shown) of any conventional type. A plurality of slots 12 are provided within the bore adapted in use to co-operate with tumblers of the lock barrel to provide the desired locking function. The lock body has rearwardly disposed mounting flanges 13 to enable the lock assembly to be mounted to the furniture item or the like with the front face 14 being exposed to receive the lock barrel when desired, conveniently after the furniture item has been installed in its final use position. At the rearward end of the main bore 11, a first member 15 is located so that it is rotatable about the axis of the bore 11. The inner end of the first member 15 has a series of stepped faces, the

innermost one of these faces defining a groove 16 with the bore 11 which in use co-operates with a lock barrel retaining tumbler to hold the barrel in place within the bore 11. The most rearward of the stepped faces defines an elongated slot 17 co-operable with the lock barrel to rotate the first member 15 under key operation or when the barrel is removed, a screw driver or the like can be used in this slot 17 to rotate the member 15 as desired. The rearward end of the first member 15 has drive faces 18 and a threaded bore 19 to enable a latch member 30 to be secured thereto by a threaded fastener 31 and be rotationally driven by rotational movement of the member 15. The latch member or any similar device can be of any desired configuration and has been omitted from the drawings. The rear end of the member 15 also includes an annular ledge 20 that in use is adjacent to and generally coplanar with the rear face of the mounting flanges 13 of the lock body. This annular ledge 20 has three detent depressions 21 arranged at 90° to one another as illustrated in the annexed drawings. These detent depressions 21 co-operate with the spring plate as hereafter described.

Figures 5 to 7 show the spring plate 22 of the present invention and Figure 4 shows the plate 22 in a position of use. The plate 22 has two spaced apertures 23 fitting over rivet receiving bosses 24 (for use in mounting the lock assembly) to position and locate the plate as desired. The plate 22 further has a central opening 25, the circumference of which overlies the ledge 20. A leaf spring member 26 is formed from the edge of the opening 25 extending generally in a circumferential direction. The leaf spring member 26 has a depression 27 formed in it to provide a detent extension extending inwardly to co-operate with the detent depressions 21 in the ledge of the first member 15. Thus, when the leaf spring part 27 is engaged in a depression 21, free movement of the member 15 and the latch means attached thereto is prevented. Movement can, however, be achieved by forcing the member 15 so that the part 27 moves out of the depression 21.

In this arrangement, the number of die cast parts are substantially reduced, the number of moving parts are reduced and the assembly techniques required to assemble the lock construction are much simpler than with the

known prior art discussed in the preamble hereto. As a result, substantial cost savings are made without any significant loss of performance characteristics.



CLAIMS

1. A lock mechanism comprising a lock body having a main bore adapted to releasably receive a key operated lock barrel therein, a latch means located at or adjacent a rear end region of said main bore and mounted for movement at least between a latched position and a delatched position, said latch means being arranged for direct or indirect manipulation from a forward end of said main bore when said lock barrel is removed therefrom, said lock mechanism being characterized by leaf spring means operable to hold said latch means in at least said latched position and be capable of movement therefrom by manipulation from said forward end with said lock barrel removed, said latch means being capable of operation by said lock barrel when said lock barrel is operably retained in said main bore.
2. A lock mechanism according to claim 1 wherein said latch means includes a first member rotatably mounted to or in said lock body at or adjacent to the rear end region of said main bore and a latch member secured to said first member rearwardly thereof relative to said main bore.
3. A lock mechanism according to claim 1 or claim 2 wherein said leaf spring means is operable to hold said latch means on at least two different positions at least one of which is a said latch position.
4. A lock mechanism according to any one of claims 1 to 3 wherein the leaf spring means comprises a leaf spring element formed from a spring plate adapted to be secured to a rear face of said lock body, the leaf spring element having detent formation cooperable with at least one detent formation on said latch means.
5. A lock mechanism according to any one of claims 1 to 3 wherein the leaf spring means comprises at least two leaf spring elements formed at spaced locations from a spring plate adapted to be secured to a rear face of said lock



body, each said leaf spring element having a detent formation cooperable with at least one detent formation on said latch means.

6. A lock mechanism according to claim 5 or claim 6 wherein the detent formation on the or each said leaf spring element is a projection.

7. A lock mechanism according to claim 5 or claim 6 wherein the or each said detent formation on the latch means is a projection.

8. A lock mechanism according to any one of claims 4 to 7 wherein said spring plate is positioned to retain said latch means in a rear zone of the main bore of the lock body.

9. A lock mechanism according to any one of claims 1 to 8 wherein the latch means includes a forwardly facing recess or opening capable of being manipulated from the forward end of said main bore when the lock barrel is removed.

10. A lock mechanism substantially as described herein with reference to the accompanying drawings.