J. E. HJORT.

CYLINDRICAL MORTISE LOCK.

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Fig. 1.

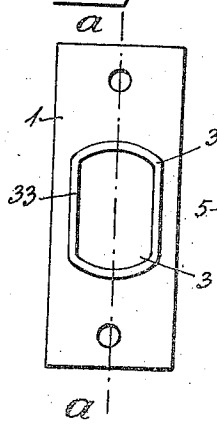



Fig. 2.

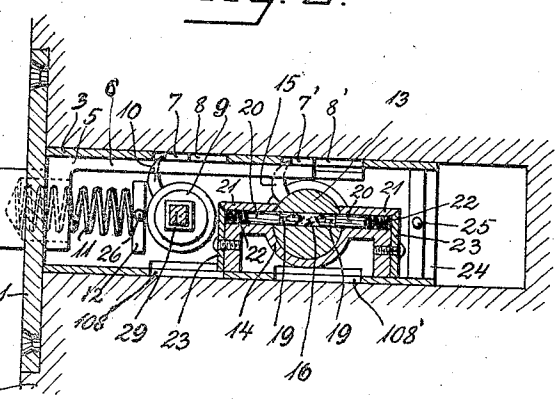



Fig. 3.

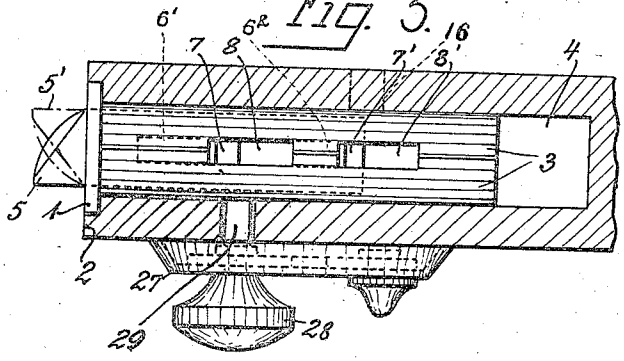
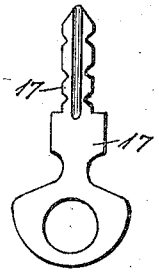



Fig. 4.




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# UNITED STATES PATENT OFFICE.

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## CYLINDRICAL MORTISE LOCK.

Application filed August 22, 1922. Serial No. 583,538.

*To all whom it may concern:*

Be it known that I, JOHANNES EHRHORN HJORT, subject of the King of Denmark, residing at 9 Emilievej, Copenhagen, Denmark, have invented certain new and useful Improvements in Cylindrical Mortise Locks, (for which I have filed applications in Denmark, May 6, 1921; France, May 17, 1921), of which the following is a specification.

The invention relates to improvements in mortise locks of the kind used for doors and furniture and having a substantially cylindrical lock casing inserted into a hole bored in the door stile parallel to the plane of the door, and the invention has for its object to provide a simple, cheap and reliable combined bolt- and cylinder-lock.

An embodiment of the invention is illustrated in the accompanying drawing, in which;

Figure 1 is an end view of the improved lock.

Fig. 2 is a longitudinal vertical section on line *a*—*a*, Fig. 1.

Fig. 3 is a horizontal section.

Fig. 4 is a face view of a key for the lock.

Referring to the drawing, 1 is the front plate which is sunk into the edge 2 of the stile of the door. 3 is a lock casing having two parallel side faces 33, as represented in Fig. 1, but being otherwise shaped as a cylinder, so that it may be inserted directly into a cylindrical hole 4, Fig. 3, bored into the door stile. 5 is the bolt of the lock, and is seated in the lock casing 3, in well known manner, and is fitted with a rearwardly directed tail 6 extending into the lock casing parallel to the axis of the latter. The bolt 5 is guided partly by the parallel side faces 33 of the lock casing, and partly by two lugs 7, 7′, engaging two corresponding slots 8 and 8′ in the top face of the lock casing. Similar slots 108 and 108′ are provided in the bottom face of the lock casing in order to enable the bolt 5 to be replaced by a bolt 5′ having an oppositevly-inclined head. 9 is the hub of the handle or knob 28, said hub being disposed between the two plane side faces of the lock casing with its axis perpendicular to the axis of the lock casing. The hub is fitted, at its periphery, with a nose 10 which is adapted to project through a slot 6′ in the bolt tail 6 into the front slot 8 in the casing; said slot 6′ being disposed immediately in front of lug 7 and adapted to register with slot 8.

The bolt is in known manner maintained in the outer position shown in Fig. 2 by means of a helical spring 11 interposed between the inwardly directed end face of the bolt and a transverse partition 12 inserted in the lock casing 3. When the hub 9 is rotated, the nose 10 engages the lug 7 and moves the same, and with it the bolt, rearwardly of the lock casing.

When the parts occupy the position shown in Fig. 2, the nose 10 will rest against the transverse partition 12, and serves thus at the same time as a stop for the bolt.

According to the invention the lock mechanism proper is inserted behind the hub 9 as shown in Fig. 2. This lock, which is of the pin-tumbler type, consists mainly of a cylindrical key barrel 13, which is revolubly disposed in a tumbler casing 14, and is fitted with an upwardly directed nose 15 projecting in the same manner as the nose 10, through a second slot $6^2$ in the tail 6, into the rear slot 8′ in the casing. The barrel 13 is fitted with a key hole 16 for insertion of a flat key 17, Fig. 4, the said key when inserted into the key hole 16 in known manner displacing the key pins 19 which are seated in the key barrel 13, and also the tumbler pins 20 which are disposed in line with the key pins, and are seated in recessed, lateral projections 21 on opposite sides of the tumbler casing 14, so that the barrel 13 may be turned by means of the key 17, whereby the nose 15 will withdraw the bolt 5. 22 are springs which are provided in the tumbler casing 14 behind the tumbler pins 20, and serve to press the latter towards the key barrel. The springs 22 are maintained in position in the tumbler casing by means of plates 23 secured to the casing by means of screws.

24 is a transverse wall which closes the rear end of the lock casing and to which the casing is fastened by means of rivets 25, the said casing consisting of two symmetrical halves joined together along the section line *a*—*a* in Fig. 1.

Similar rivets 26 are provided on the transverse wall 12.

On the inside of the door into which the lock is inserted there may be attached a plate 27 in which there is seated the knob 28, the square shank 29 of which passes through the hub 9, so that the latter may be turned by revolution of the said knob and, thereby, the bolt will be withdrawn. In

the construction shown the key barrel 13 with the tumblers and tumbler casing are disposed behind the hub but, if desired, these members may be interchanged so that the key barrel with the tumblers and tumbler casing will be located in front of the hub, between the latter and the bolt.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In a mortise lock, a lock casing having a longitudinal guide slot therein; a bolt slidable in said casing and provided with a lug projecting into said slot and with a longitudinal slot immediately in advance of said lug and adapted to register with the first slot; and a rotatable member within the casing having a projection which is disposed in the plane of, and is adapted to extend into, said registering slots so as to engage said lug and withdraw the bolt when said member is rotated.

2. In a mortise lock, a lock casing having a longitudinal guide slot therein; a bolt slidable in said casing and provided with a lug projecting into said slot and with a longitudinal slot immediately in advance of said lug and adapted to register with the first slot; a key-actuated rotatable barrel within the casing; pins normally engaging the barrel to hold it against rotation, but releasable by the insertion of the key to permit rotation; and a projection on said barrel disposed in the plane of, and adapted to extend into, said registering slots so as to engage said lug and withdraw the bolt when said member is rotated.

In testimony whereof I affix my signature.

JOHANNES EHRHORN HJORT.