Oct. 12, 1937. F. J. LEJBOWICZ 2,095,607

LOCKING DEVICE

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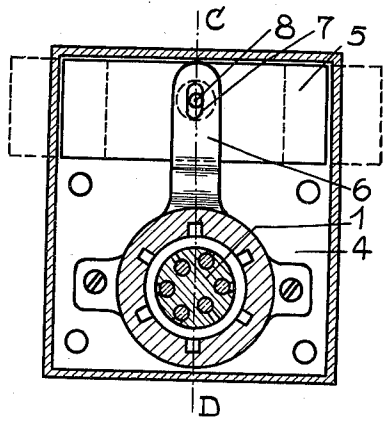

Fig. 1.

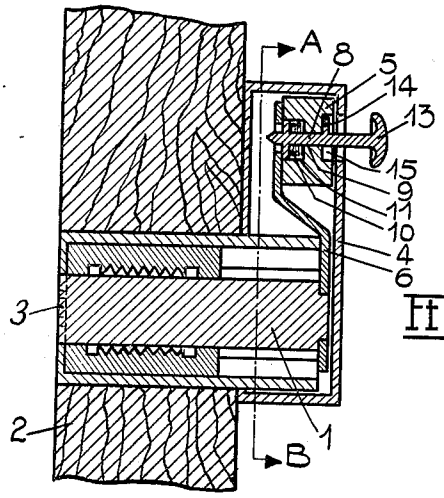

Fig. 2.

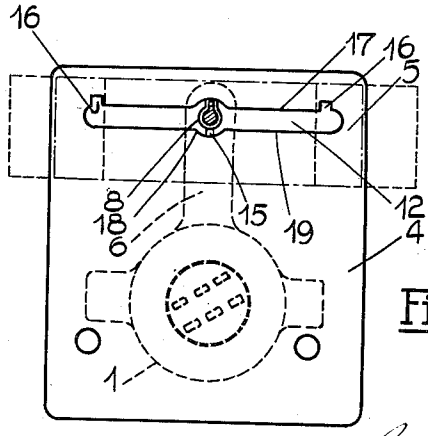

Fig. 3.

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LOCKING DEVICE

Ferdinand Josef Lejbowicz, Chorzow, Poland

Application May 20, 1936, Serial No. 80,893
In Poland April 13, 1933

7 Claims. (Cl. 70—134)

This application is a continuation in part of my co-pending application Serial No. 719,017, filed April 4, 1934, Patent No. 2,044,534, June 16, 1936.

The present invention relates to a locking device and more particularly to locks of the kind comprising a casing to be fitted on the inside of the door, a movable locking bolt adapted to reciprocate in said casing and a rotatable device to be operated by a key from the outside of the door and adapted to actuate said locking bolt.

An object of the invention is to provide a simple, novel and efficient locking device in which said locking bolt is allowed to be optionally connected to or disconnected from said rotatable key-operated device.

Another object of the invention is to allow said locking bolt to be connected to or disconnected from said key-operated device by means operated by hand from the inside of the door.

A further object of the invention is to provide a locking device allowing said movable locking bolt to be kept disconnected from said key-operated device, so that said bolt can be moved by hand from the inside of the door without actuating said device by means of its key.

A further object of the invention is to provide a locking device in which said bolt is allowed to be disconnected from said key-operated device only when in definite positions.

Another object of the invention is to provide means for preventing said locking bolt from being disconnected from said key-operated device, in order to be moved by hand from the inside of the door, without said key-operated device being operated to rotate by its key.

Features of invention, other than those adverted to, will be apparent from the hereinafter detailed description and claims, when read in conjunction with the accompanying drawing.

The accompanying drawing illustrates only one practical embodiment of the invention, but the construction therein shown is to be understood as illustrative only and not as defining the limits of the invention.

Fig. 1 is a sectional view of the lock device, on the line A—B of Fig. 2.

Fig. 2 is a section on the line C—D of Fig. 1.

Fig. 3 is a view of the back wall of the lock casing.

Referring to the drawing, the locking device comprises a lock constructed in any suitable manner as, for instance the cylinder lock 1 fitted in the door 2 and having only one key hole 3 so as to be operated by a key only from the outside of the door, said cylinder lock 1 being rotatably mounted in the rim lock casing 4 secured to the inside of the door. Within the casing 4 is adapted to slide a movable locking bolt 5 connected to the cylinder lock 1 by means of a radial arm 6 secured to the rotary plug of the said lock 1 and having a radial slot 7, so that the locking bolt 5 is operated to reciprocate, when the rotatable lock cylinder 1 is actuated by its key.

In order to enable the locking bolt 5 to be operated from the inside of the door, without unlocking the cylinder lock 1, means are provided for optionally connecting said bolt 5 to, or disconnecting it from, the radial arm 6. To this end a pin 8 is adapted to axially slide within a hole 9 provided in the locking bolt 5 at right angles to the direction of the motion of said bolt, and a spring 10 is positioned within an enlarged portion 11 of said hole so as to operate the pin 8 to engage with said slot 7 when registering. It will be seen that said pin 8 when engaged in the slot 7 connects the locking bolt 5 to the radial arm 6, so that a motion is imparted to the locking bolt 5 when the cylinder lock 1 is rotated by its key.

In order to allow the locking bolt 5 to be disconnected from the arm 6, the pin 8 can be withdrawn by means of a knob 13 on said pin which extends through a slot 12 in casing 4 parallel with the path of movement of said bolt 5. Said knob 13 forms at the same time a handle for displacement of bolt 5 when disconnected from the cylinder lock 1.

As illustrated in Figs. 2 and 3, the pin 8 is provided with a peg 14 radially secured on said pin 8 and a groove 15 radially extending across the hole 9 is provided in the bolt 5 so that the peg 14 when registering with the groove 15 engages said groove under the action of the spring 10 whilst the pin 8 engages the slot 7 whereby the bolt 5 is connected to the cylinder lock 1.

By retracting by hand the knob 13, the peg 14 is withdrawn from the groove 15 and the inner end of the pin 8 is therefore also withdrawn from the radial slot 7, whereby the locking bolt 5 becomes disconnected from the cylinder lock 1. It will be seen that the knob 13 if rotated after having been retracted, brings the peg 14 out of registration with the groove 15 so that the pin 8 lies on the surface of bolt 5 in its inoperative position, and the bolt 5 may then be moved by hand provided that the peg 14 is positioned so that it can move within the slot 12.

According to the invention, the locking bolt 5

can be disconnected from the cylinder lock only when brought into one or more predetermined positions, as, for instance, when said bolt is in its locking and unlocking positions or in a position in which it projects from the remote side of the key casing 4, as shown in dotted lines in Figs. 1 and 3.

The invention provides also means for preventing the locking bolt 5 from being disconnected from the cylinder 1 even when in said predetermined positions, so that the bolt can not be moved by hand, but only by the key-operated cylinder 1. To this end the radial peg 14 is moved 180° by rotating the knob 13 so as to engage the opposite portions of the groove 15.

According to the position of the peg 14, the disconnection of the bolt 5 from the cylinder 1 in the extreme positions of the bolt is either made possible or is prevented. When the peg 14 is in the position shown in Figure 3, the bolt 5 can be disconnected from the arm 6 of the cylinder 1 both in its extreme right and left end positions shown in dotted lines in Fig. 3 for sake of clearness, since the connecting pin 8 can be withdrawn in the end positions of the locking bolt owing to the provision of the widened portions 16 in the edge 17 of the slot 12.

If, on the other hand, in the opening position of the bolt which is illustrated in full lines in Figure 3, the knob 13 is rotated, after being raised in the portion 18 of the slot 12 which is widened on both sides, to such an extent that the peg 14 is situated in the lower part of the groove 15 in the bolt, a disconnection of the locking bolt 5 from the cylinder lock 1 is made impossible in the two extreme positions of the bolt because the edge 19 of the slot 12 prevents the withdrawal of the connecting pin 8 since the peg 14 positioned under said edge 19 can not be disengaged from the groove 15.

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. A lock comprising in combination a casing to be fitted on the inside of the door, a movable locking bolt adapted to reciprocate in said casing, a rotatable device to be operated by a key from the outside of the door, a radial arm secured to said key operated device, a radial slot provided in said arm, a hole extending through said bolt at right angles to the direction of motion of said bolt, a longitudinal slot cut out in said casing parallel with the path of movement of said movable bolt, a pin adapted to axially and rotatably slide in said hole and having its outer end outwardly projecting from said longitudinal slot, a knob secured to said outer end of the pin, an enlarged portion provided in said hole, a laterally projecting portion provided on said pin and positioned within said enlarged portion of the hole, a spring positioned in said enlarged portion for normally impelling said projecting portion so as to engage the inner end of said pin in said radial slot when in registering position, a groove provided in the side of said locking bolt remote from said radial arm and a peg radially secured on said pin, said peg being engaged in said groove when registering and being withdrawn from said groove by retraction of said knob and kept in its retracted position by said peg when brought out of registration with said groove by rotation of said knob.

2. A lock comprising in combination a casing to be fitted on the inside of the door, a movable locking bolt adapted to reciprocate in said casing, a rotatable device to be operated by a key from the outside of the door, a radial arm secured to said key-operated device, a radial slot provided in said arm, a pin adapted to axially and rotatably slide in said bolt at right angles to the path of movement of said bolt, a spring adapted to operate said pin for engagement with said slot when registering, means for operating said pin from the inside of the door to disengage said slot against the action of the said spring, means for keeping said pin in its inoperative position and means allowing said bolt to be disconnected from said key-operated rotatable device only when in predetermined positions.

3. A lock comprising in combination a casing to be fitted on the inside of the door, a movable locking bolt adapted to reciprocate in said casing, a rotatable device to be operated by a key from the outside of the door, a radial arm secured to said key operated device, a radial slot provided in said arm, a hole extending through said bolt at right angles to the path of movement of said bolt, a longitudinal slot cut out in said casing parallel with the path of movement of said movable bolt, a pin adapted to axially and rotatably slide in said hole and having its outer end outwardly projecting from said longitudinal slot, a knob secured to said outer end of the pin, a peg radially secured on said pin, a groove provided in the side of said bolt remote from said radial arm, a spring positioned within said bolt and adapted to normally impel said pin to engage in said radial slot, when said peg is registering with said groove, said peg projecting from said pin so as to engage under one longitudinal edge of said slot cut out in said casing and widened portions provided at predetermined places in said slot so as to allow said peg to be withdrawn from said groove across said slot.

4. A lock comprising in combination a casing to be fitted on the inside of the door, a movable locking bolt adapted to reciprocate in said casing, a rotatable device to be operated by a key from the outside of the door, a radial arm secured to said key operated device, a radial slot provided in said arm, a hole extending through said bolt at right angles to the path of movement of said bolt, a longitudinal slot cut out in said casing parallel with the path of movement of said movable bolt, a pin adapted to axially and rotatably slide in said hole and having its outer end outwardly projecting from said longitudinal slot, a knob secured to said outer end of the pin, a peg radially secured on said pin, a groove provided in the side of said bolt remote from said radial arm, a spring positioned within said bolt and adapted to normally impel said pin to engage in said radial slot, when said peg is registering with said groove, said peg projecting from said pin so as to engage under one longitudinal edge of said slot cut out in said casing and notches provided at determined places of one longitudinal edge of said slot, whereby said peg is allowed to be withdrawn from said groove only when positioned so as to engage said notched longitudinal edge of said slot.

5. A lock comprising in combination a casing to be fitted on the inside of the door, a movable locking bolt adapted to reciprocate in said casing, a rotatable device to be operated by a key from the outside of the door, a radial arm secured to said key operated device, a radial slot provided in said arm, a hole extending through said bolt at right angles to the path of movement of said

bolt, a longitudinal slot cut out in said casing parallel with the path of movement of said movable bolt, a pin adapted to axially and rotatably slide in said hole and having its outer end outwardly projecting from said longitudinal slot, a knob secured to said outer end of the pin, a peg radially secured on said pin, a groove provided in the side of said bolt remote from said radial arm, a spring positioned within said bolt and adapted to normally impel said pin to engage in said radial slot, when said peg is registering with said groove, said peg projecting from said pin so as to engage under one longitudinal edge of said slot cut out in said casing, notches provided at determined places of one longitudinal edge of said slot and means allowing said peg to be brought alternatively under said notched or unnotched edge of said slot.

6. A lock comprising in combination a casing to be fitted on the inside of the door, a movable locking bolt adapted to reciprocate in said casing, a rotatable device to be operated by a key from the outside of the door, a radial arm secured to said key operated device, a radial slot provided in said arm, a hole extending through said bolt at right angles to the path of movement of said bolt, a longitudinal slot cut out in said casing parallel with the path of movement of said movable bolt, a pin adapted to axially and rotatably slide in said hole and having its outer end outwardly projecting from said longitudinal slot, a knob secured to said outer end of the pin, a peg radially secured on said pin, a groove provided in the side of said bolt remote from said radial arm, a spring positioned within said bolt and adapted to normally impel said pin to engage in said radial slot, when said peg is registering with said groove, said peg projecting from said pin so as to engage under one longitudinal edge of said slot cut out in said casing, notches provided at determined places of one longitudinal edge of said slot and a widened portion provided in said slot intermediately said notches so as to allow said peg to be rotated when withdrawn from said groove.

7. A lock comprising in combination a casing to be fitted on the inside of the door, a movable locking bolt adapted to reciprocate in said casing, a rotatable device to be operated by a key from the outside of the door, a radial arm secured to said key operated device, a radial slot provided in said arm, a hole extending through said bolt at right angles to the path of movement of said bolt, a longitudinal slot cut out in said casing parallel with the path of movement of said movable bolt, a pin adapted to axially and rotatably slide in said hole and having its outer end outwardly projecting from said longitudinal slot, a knob secured to said outer end of the pin, a peg radially secured on said pin, a groove provided in the side of said bolt remote from said radial arm, a spring positioned within said bolt and adapted to normally impel said pin to engage in said radial slot, when said peg is registering with said groove, said peg projecting from said pin so as to engage under one longitudinal edge of said slot cut out in said casing, a widened portion provided in said slot and notches provided at opposite ends of one longitudinal edge of said slot so that said peg is allowed to be withdrawn from said groove only when the locking bolt is in its end positions.

FERDINAND JOSEF LEJBOWICZ.