April 7, 1959 C. J. M. KOK 2,881,020

DOOR LATCH

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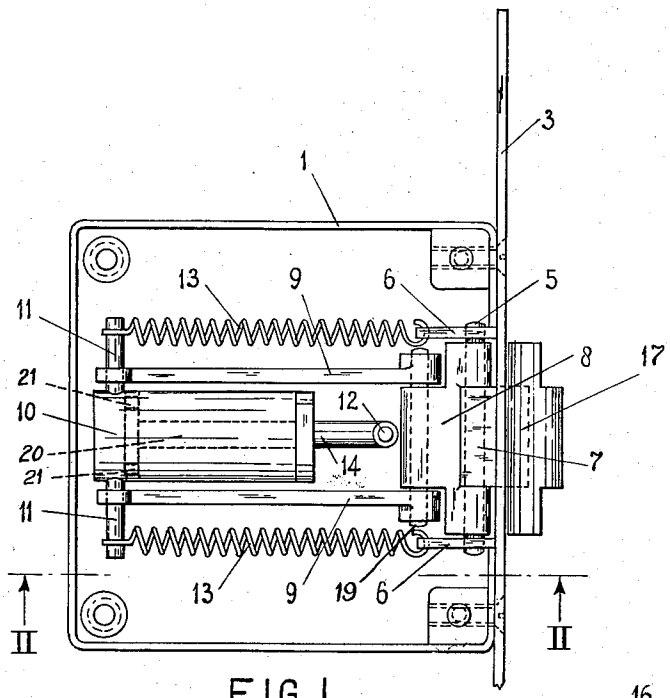


FIG. 1

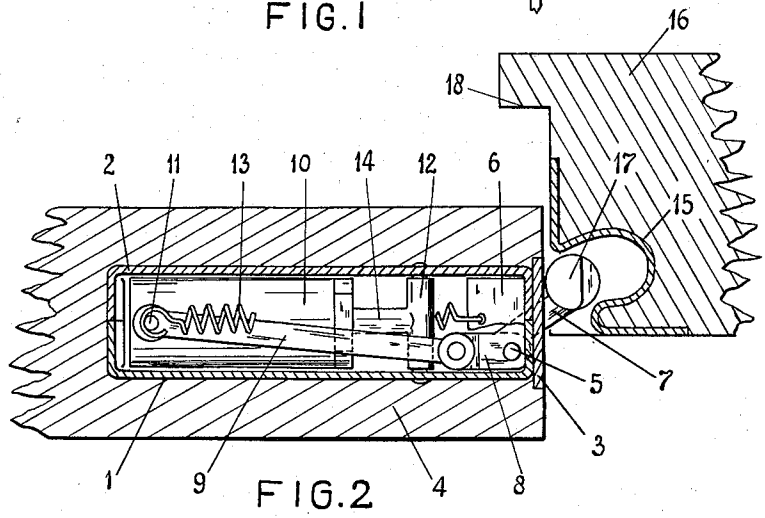


FIG. 2

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DOOR LATCH

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3 Claims. (Cl. 292—78)

This invention relates to a door latch provided with a bell crank lever of which one arm, on closing the door, enters into a recess in the door frame with one or more springs acting on the other arm of the bell crank lever so as to urge the bell crank lever to swing into the closed position.

The invention aims at providing a door latch of the said type in such manner that its mechanism requires little space and may be accommodated in a casing adapted to be mounted in a door like a normal lock casing. According to the present invention the bell crank lever arm pointing inwards is connected by a connecting rod to a body guided slidably in a rectilinear manner in a lock casing, the spring or springs being fixed to said body. It is preferred to form the slidable body as a cylinder containing a liquid or a liquid mass, the said cylinder being slidable on a stationary piston provided with one or more passages so as to enable the cylinder to act as a buffer.

In the drawings showing an embodiment of the latch according to the invention Fig. 1 shows a view of the lock casing with removed cover plate so that the mechanism is visible.

Fig. 2 is a section according to the line II—II in Fig. 1.

The lock casing 1 has a removable cover plate 2 and at the front a plate 3 is affixed to the lock casing, said plate 3 serving to secure the casing in the door 4. On the inner wall of the lock casing two lugs 6 are provided in which a pin 5 is inserted around which a bell crank lever may swing, the outwardly projecting arm 7 of the said lever forming a lock bolt and the inwardly projecting arm 8 being hingedly connected by means of a pivot 19 to two connecting rods 9, said connecting rods 9 being hingedly secured to a cylinder 10 which is provided with two diametrically projecting journals 11. The cylinder is slidable on a piston 20 of which the rod 14 ends in a pin 12 secured in the lock case. The cylinder 10 is filled with a liquid, which when opening or closing the door, may be transferred in a conventional manner from one side of the piston 20 to the other side through passages 21 provided in the piston.

Two draw springs 13 are fixed to the journals 11, the other end of each spring being attached to the lugs 6, these springs keeping the lock bolt 7 in the position shown in Fig. 2 when the door is open.

The lock bolt 7 co-operates with the wall 15 of a recess provided in the door frame 16. On closing the door the nose 17 of the lock bolt abuts against the wall 15 of the recess in the door frame due to which the arm 8 shown in Fig. 2 swings through its dead centre position so that the springs 13 cause the lock bolt 7 to swing outwards

until the door comes to rest against the groove 18 in the door frame, the nose 17 of the lock bolt being closed in between the opposite walls of the recess in the door frame. The springs 13 keep the door in this closed position. This closing movement of the door is dampened in that the liquid in the cylinder 10 is caused to flow from one side of the piston to the other side.

As appears from Fig. 2, the cylinder 10 is guided not only on the stationary piston but also between the walls of the lock casing thus ensuring a satisfactory guiding.

I claim:

1. A door latch provided with a casing, a bell crank lever swingably mounted in said casing, one arm of said lever projecting from said casing, a spring mounted in said casing and cooperatively engaged with the other arm of the bell crank lever for urging said lever to swing into the closed position, said first arm of the bell crank lever forming a lock bolt and having a head provided with cut-away portions and lying, in the open position of the door latch, against the outer side of the casing and cooperating with a recess in a door post of a door between two positions lying at both sides of a dead center line of the bell crank lever, said cut-away portions of said head being arranged so that said head may pass one wall portion of said recess and may abut against another wall portion of said recess whereby when said head abuts against the last-mentioned wall portion, the bell crank lever will swing through its dead center line position and said head will cooperate with the first-mentioned wall portion for closing the door.

2. A door latch provided with a casing, a pin mounted in said casing, a bell crank lever swingably mounted on said pin, one arm of said lever forming a lock bolt and projecting from said casing, a body slidably guided in a rectilinear manner in the lock casing, two springs each having one of their ends secured to said slidable body and their other end fixed on the casing, said body having oppositely extending lateral journals, and rods pivotally connecting the other arm to said journals, said lock bolt having a head provided with cut-away portions and lying, in the open position of the door latch, against the outer side of the casing and being destined for cooperating with a recess in a door post of a door between two positions lying at both sides of a dead center line of the bell crank lever, said cut-away portions of said head being arranged in such a way that said head may pass one wall portion of said recess and may abut against another wall portion of said recess so that when said head abuts against the last-mentioned wall portion the bell crank lever will swing through its dead center line position and said head will cooperate with the first-mentioned wall portion for closing the door.

3. A door latch according to claim 2, characterized in that the slidable body is formed as a cylinder containing liquid, said cylinder being slidable on a piston secured in the casing and provided with one or more passages.

References Cited in the file of this patent

UNITED STATES PATENTS

2,389,056 Jamison ---------- Nov. 13, 1945

FOREIGN PATENTS

18,261 Australia ---------- Jan. 3, 1935

243,625 Germany ---------- Feb. 20, 1912