J. HOLTZMAN.

LOCK.

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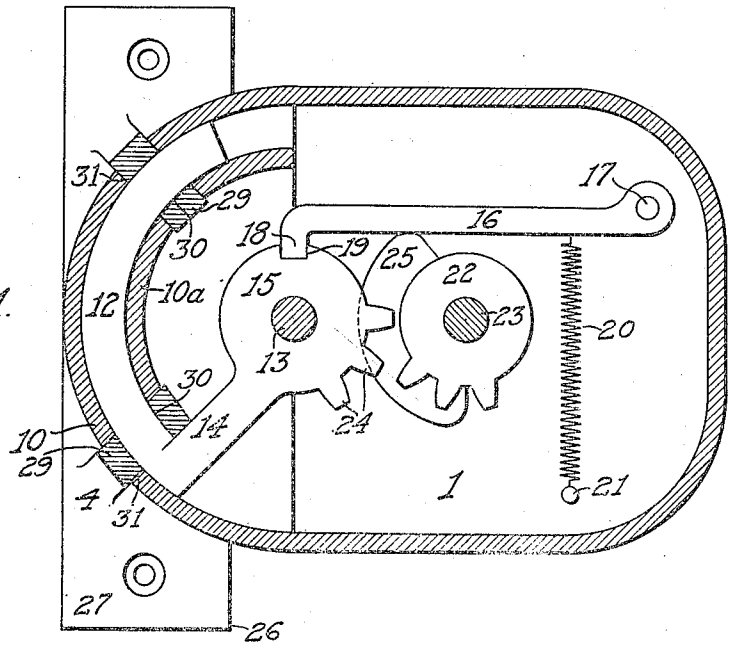


Fig. 1.

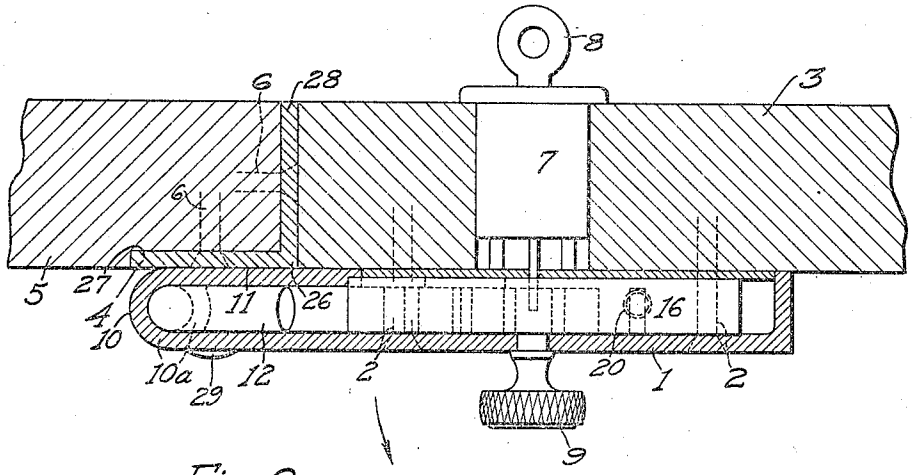


Fig. 2.

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UNITED STATES PATENT OFFICE.

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LOCK.

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To all whom it may concern:

Be it known that I, JOHN HOLTZMAN, a resident of the city of New York, in the county of New York and State of New York, have invented a certain new and useful Lock, of which the following is a specification.

This invention relates to locks, and particularly to locks which may be used for doors in certain convenient situations, as for example in connection with an outside house door whereon it may be secured upon its interior side to serve as a night lock.

The principal object of my invention is to provide a simplified, inexpensive, and improved lock, adaptable to be utilized in the above mentioned or similar situations, that will be strong, durable, secure, and highly efficient, and that will prevent dislocation of the lock-bolt, the lock casing, or its keeper in any direction by such means as jimmying through the exterior of the door.

Other objects and advantages will hereinafter appear.

In the accompanying drawings,—

Figure 1 is a sectional elevation of the lock showing the disposition of its parts when in locked state.

Fig. 2 is a sectional plan view of the lock shown in Fig. 1.

A cast-metal casing 1 containing the locking mechanism and constituting the lock body proper is secured by means of screws 2 against the inner side of a swinging door 3, which opens into the interior of a room and swings about a vertical axis of its hinges in the direction of the arrow, Fig. 2. A keeper 4 for the lock-bolt is secured to the door-frame 5 by means of screws 6. The tumbler-barrel 7 of the lock-mechanism passes through the door 3, whereby a key 8 may be inserted from the exterior to unlock the door, while at the inner side of the door it may be unlocked by turning a knob 9.

When the lock casing 1 is secured in properly alined position against the door 3 a semicircular end-portion 10 thereof, which is a complete incasement, extends beyond the door-edge 11 and overlaps the door-frame 5 and the keeper 4. Within the extending end-portion 10 is contained a bolt 12 which is segmental in general configuration, circular in cross-section, and concentric to a stud 13 forming part of the casing 1. An arm 14 at the extremity of bolt 12 has a hub 15 pivoted upon the stud 13, whereby the bolt 12 is swingable concentrically thereto, about the stud 13, in a clockwise direction and backwardly. The incased end-portion 10 of casing 1 is tubular at 10^a and completely envelops or incases the bolt 12 when it is in the position shown in Fig. 1, while when said bolt is swung in an anti-clockwise direction it completely clears out of the tubular portion 10^a.

Upon the casing 1 is pivoted a pawl 16 at 17, from where it extends horizontally and which has a bent extremity 18 lodging within a notch 19 in the hub 15, wherein it is normally retained, to maintain the bolt 12 in the position shown, by a spring 20 secured to the pawl and fixed to a pin 21 upon casing 1. A gear-segment 22 secured to a rotatable shaft 23 meshes with gear teeth 24, forming part of the hub 15, and carries a cam 25 that engages the pawl 16. The shaft 23 and gear 22 are rotatable in opposite directions either by turning the knob 9 at the interior side of the door or by operation of the lock mechanism with the key 8 at the exterior side of the door. Rotation of the gear 22 in a clockwise direction, as viewed in the drawing, first causes the cam 25 to lift the pawl 16 to disengage the hub 15, and then meshes the gears 22, 24 to swing the bolt 12 from the position shown in a counter-clockwise direction, while rotating the gear 22 oppositely first swings the bolt 12 in a clockwise direction to restore it to the initial position shown, and thereafter causes the cam 25 to release the pawl 16, whereupon it falls back by the action of its spring 20 into notch 19 and reëngages the hub 15 to lock the bolt 12 in restored state.

The keeper 4, preferably made of cast-metal, is provided with an angle portion 26 comprising legs 27, 28 which are fitted against the door-frame 5 and firmly secured thereto by the screws 6, said legs being fitted so that their outer surfaces are flush with the surfaces of the frame 5. A pair of ears 29 having central openings 30 and constituting the staple portions of the keeper 4 are formed upon the keeper-legs 27. Said ears extend radially to the pivot 13 of bolt 12, have the axes of their openings 30 concentric with said pivot, and the diameters of said openings are adaptable to fittingly receive the bolt 12. Upon closing of the door 3 both of the ears 29 enter into the tubular end-portion 10^a of the lock-casing 1 through notched openings 31 provided in

said end-portion. And when securing the keeper 4 in proper position in the installation of the lock its ears 29 are alined in such manner that when entering the receiving openings 31 in casing 1 the axes of the ear-openings 30 will register with the joint axes of the bolt 12 and the tubular casing-portion 10^a, whereby upon said bolts being immediately thereafter swung in a clockwise direction through the casing portion 10^a it will enter the openings 30 of ears 29 and interlock the keeper 4 with the casing 1. Turning of the knob 9 or key 8 to swing the bolt in a counter-clockwise direction, to remove it out of the tubular casing-portion 10^a and the ears 29, causes the door 3 to be maintained in unlocked state so that it may be freely opened.

When the bolt 12 is interlocked with the ears 29 and tubular casing-portion 10^a it is entirely surrounded and incased by the metal of ears 29 and the said casing portion. The bolt 12 is therefore strongly protected by the complete envelopment of the metal of said ears and casing-portion 10^a, and should any attempt be made to dislocate said bolt by reaching thereto with a jimmy through the exterior of the door, said incasing metal would prevent access to the bolt and frustrate such attempt. Should it be attempted to dislocate the keeper or lock-casing in any direction the same would be prevented by the complete interlocking of the casing, bolt, and keeper. The general roundness and convexity of the single lock-bolt and of its enveloping interlocking casing-portion add greatly to the strength and general security of the lock.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:—

1. A lock having a pivoted bolt, said bolt being concentric to its pivot and swingable about its pivot in the direction of its longitudinal axis and concentrically to its pivot, a keeper for said bolt having ears, a casing surrounding said bolt and having its interior wall concentric to the bolt pivot, said casing overlapping said keeper and having openings, said ears passing through said openings, and key operated mechanism to operate said bolt in its passage through said casing and said ears to interlock said casing with said ears.

2. A lock having a pivoted bolt, said bolt being concentric to its pivot and swingable in the direction of its longitudinal axis and concentrically to its pivot, a casing surrounding said bolt and having its interior wall concentric to the bolt pivot, a keeper for said bolt having ears radial to its pivot, said bolt and casing overlapping said keeper, said casing having openings for the passage of said ears therethrough, and mechanism to operate said bolt to pass it through said casing and said ears to interlock said casing with said ears.

3. A lock having a pivoted bolt, said bolt being concentric to its pivot and swingable about its pivot in the direction of its longitudinal axis and concentrically to its pivot, a keeper for said bolt having ears, mechanism to operate said bolt, a casing for said mechanism having a portion thereof surrounding said bolt and having its interior wall concentric to the bolt pivot, and said casing having openings to receive said ears to permit said bolt to pass through said ears to interlock the keeper with the casing.

4. A lock having a pivoted bolt, said bolt being concentric to its pivot and swingable about its pivot in the direction of its longitudinal axis and concentrically to its pivot, a keeper for said bolt having ears, mechanism to operate said bolt, a casing for said mechanism having a portion thereof surrounding said bolt and having its interior wall concentric to the bolt pivot, and said casing overlapping said keeper and having openings to receive said ears to permit said bolt to pass through said ears to interlock the keeper with the casing.

5. A lock having a single bolt, said bolt being curved and pivoted to swing in the direction of its curve, a keeper for said bolt having a plurality of ears, mechanism to swing said bolt to operate it, a casing for said mechanism having a portion thereof surrounding said bolt when it is in operative state, and said casing-portion having a plurality of openings to receive said ears to permit said single bolt to pass through all of said ears and interlock them with the casing.

6. A lock having a curved bolt, a keeper for said bolt, mechanism to operate said bolt, a casing for said mechanism having a portion thereof surrounding said bolt when it is in operative state, said bolt being outside of said portion when actuated by said mechanism to its inoperative position, and said casing-portion having an opening to receive said keeper to permit said bolt to pass through said keeper and interlock it with the casing.

7. A lock having a bolt comprising a single curved bar, means to guide said bolt to swing in the direction of its curve, a keeper for said bolt having a plurality of ears, mechanism to operate said bolt, a casing for said mechanism having a portion thereof surrounding said bolt when it is in operative state, and said casing-portion having a plurality of openings to receive said ears to permit said single bolt to pass through all of said ears and interlock them with the casing.

8. A lock having a curved bolt, mechanism to operate said bolt, a casing for said

mechanism having a tubular portion thereof guiding said bolt into operative state and incasing said bolt when in operative state, and said bolt being within said casing and outside of said tubular portion when actuated by said mechanism to its inoperative position.

9. A lock having a curved bolt, mechanism to operate said bolt, a casing for said mechanism having a curved portion thereof surrounding said bolt when it is in operative state, and said bolt being within said casing and outside of said portion when actuated by said mechanism to its inoperative position.

10. A lock having a single bolt, said bolt being curved and adapted to swing in the direction of its curve, a keeper for said bolt having a plurality of ears, mechanism to swing said bolt to operate it, a casing for said mechanism having a portion thereof surrounding said bolt when it is in operative state, said casing-portion guiding said bolt in the direction of its curve, and said casing portion having a plurality of openings to receive said ears to permit said single bolt to pass through all of said ears and interlock them with the casing.

Signed at the city of New York, in the county of New York, and State of New York, this 12th day of May, A. D. 1917.

JOHN HOLTZMAN.

Witnesses:
R. T. ROMAN,
B. ROMAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."