

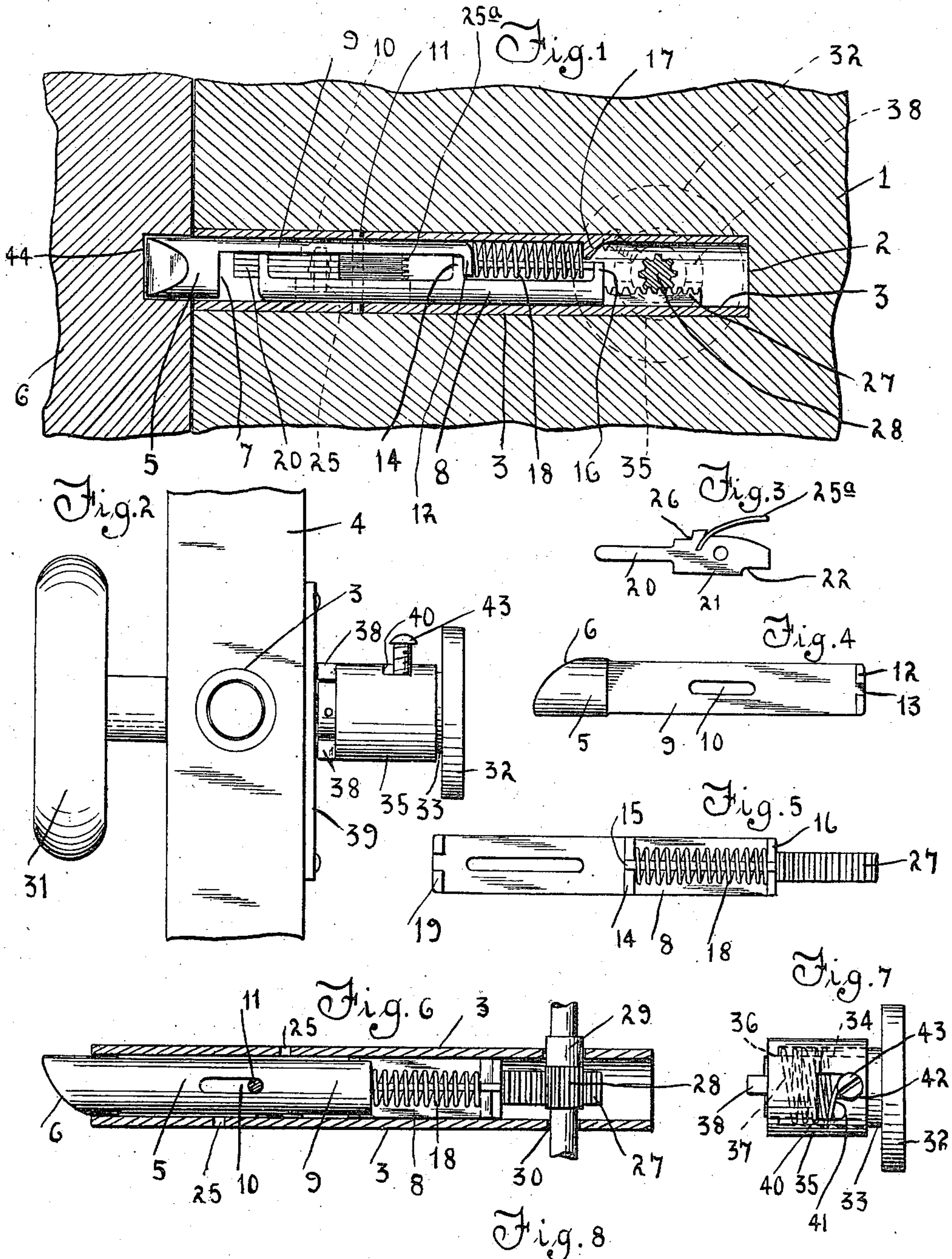
H. MARKOVITZ.

LOCK.

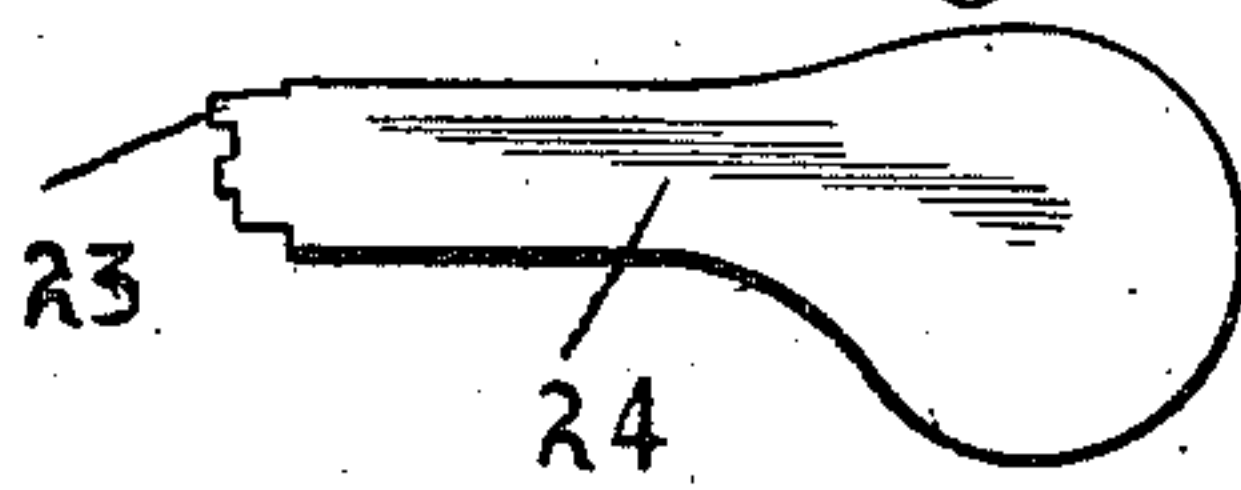
APPLICATION FILED MAY 28, 1910.

975,880.

Patented Nov. 15, 1910.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

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## LOCK.

975,880.

Specification of Letters Patent.

Patented Nov. 15, 1910.

Application filed May 28, 1910. Serial No. 563,878.

*To all whom it may concern:*

Be it known that I, HARRY MARKOVITZ, a subject of the King of Hungary, residing at Braddock, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Locks, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to locks and more particularly to that type of lock used in connection with doors and embodying a spring-pressed locking bolt, a knob actuated bolt shifting member, and a plurality of spring-pressed tumblers adapted to hold the bolt shifting member in a fixed position until released by a key.

The primary object of my invention is to provide a lock of the above type consisting of comparatively few parts easily and quickly assembled, simple in construction, and inexpensive to manufacture.

A further object of the invention is to provide a lock with means as will be hereinafter described that will permit of the lock being secured from the inner side of the door in an inactive position, thus preventing a person upon the outside of the door from manipulating the lock, even though equipped with a proper key.

These and such other objects as may hereinafter appear are attained by the novel construction to be hereinafter specifically described and then claimed, and reference will now be had to the drawing forming a part of this specification, wherein there is illustrated a preferred embodiment of my invention, but it is to be understood that the structural elements thereof can be varied or changed, as to the size, shape, and manner of assemblage without departing from the spirit and scope of the invention.

In the drawings: Figure 1 is a longitudinal sectional view of the lock as applied to a door. Fig. 2 is an edge view of a portion of the door. Fig. 3 is a side elevation of a detached tumbler. Fig. 4 is a side elevation of a detached locking bolt. Fig. 5 is a similar view of a detached bolt shifting member. Fig. 6 is a horizontal sectional view of the lock. Fig. 7 is a plan of the inner knob of the lock, and Fig. 8 is an enlarged elevation of a key designed to operate the lock.

In the accompanying drawings the reference numeral 1 denotes a portion of a door

provided with a cylindrical socket 2 and mounted in said socket is a cylindrical or tubular lock casing 3 extending from the inner end of the socket 2 to the outer end thereof, which is flush with the outer edge 4 of the door.

5 denotes a cylindrical lock bolt movably mounted within the lock casing 3, said bolt having the outer end thereof beveled, as at 6, for a purpose that will hereinafter appear. The bolt 5 has the underneath side thereof cut away, as at 7, to provide clearance for a semi-cylindrical bolt shifting member 8. In cutting away the bolt 5, as at 7, said bolt is provided with a longitudinal web 9 having a longitudinal slot 10 through which extends a vertical pin 11 adapted to limit the movement of the locking bolt 5. The ends of this pin extend into the lock casing 3 and are flush with the outer sides of said casing. The end of the web 9 is provided with a depending lug 12 having a slot 13 formed therein. This lug is adapted to engage the rear side of an upwardly extending protuberance 14 carried by the shifting member 8, and in said protuberance is mounted the forward end of a rod 15 having the rear end thereof mounted in an upwardly extending lug 16 carried by the end of the member 8. The slot 13 of the lug 12 provides clearance for the rod 15, and interposed between the depending lug 12 and an inward projection 17 carried by the casing 3, is a coiled spring 18 which encircles the rod 15 and normally holds the lug 12 against the upwardly extending lug 14 of the member 8.

The forward end of the shifting member 8 is provided with an upwardly extending bifurcated lug 19 engaging the under side of the web 9 and adapted to extend through the bifurcation of said lug are the forward ends 20 of a plurality of spring-pressed tumblers 21 pivotally mounted upon the pin 11. These tumblers have the side edges thereof cut away, as at 22, to provide seats for the wards 23 of a key 24 adapted to be inserted in key openings 25 provided therefor in the casing 3, these key openings registering with similar openings in the door 1. The tumblers 21 are normally held under tension within the bifurcation of the lug 19 by curved springs 25<sup>a</sup> carried by said tumblers and engaging the side wall of the casing 3.

The key openings 25 are placed out of alinement, whereby the key opening upon one side of the door will accommodate the



key 24 for engaging in the seats 22, while the key opening 25 at the opposite side of the door will accommodate the key for engaging seats 26 provided therefor in the sides of the tumblers 21 opposite the sides having the seats 22.

The rear end of the bolt shifting member 8 is provided with a rack 27 and engaging said rack is a pinion 28 carried by a knob spindle 29 extending through openings 30 provided therefor in the casing 3 and suitable openings within the door 1. The outer end of the spindle 29 is provided with an ordinary knob 31, while the inner end thereof is provided with a knob 32 having a shank 33, which is reduced, as at 34. Encircling the shank 33 is a sleeve 35 having the end thereof provided with an inwardly projecting annular flange 36. Encircling the reduced end 34 of the shank 33 between the flange 36 and the large end of said shank is a coiled spring 37. This spring normally retains the sleeve in an extended position upon the shank, whereby diametrically opposed teeth 38 carried by the flanged end thereof will engage in openings provided therefor in a rose or escutcheon plate 39 secured to the inner side of the door 1, said plate having an opening formed therein providing clearance for the knob spindle 29. The sleeve 35 has the top thereof provided with an opening 40 and in the rear wall thereof are two recesses 41 and 42, the former being of a less depth than the latter. Extending through the opening 40 into the reduced end of the shank 33 is a screw 43, and when this screw engages in the recess 42 the coiled spring 35 will retain the teeth 38 in the rose or escutcheon plate, but when the screw engages in the recess 41 the teeth 38 will be held out of engagement with the rose or escutcheon plate 39 with the coiled spring 37 under tension. It is therefore obvious that when the teeth 38 engage in the rose or escutcheon plate of the door that the knob 32 cannot be rotated and consequently the knob 31, thus allowing a person upon the inner side of the door to lock the door whereby a person upon the outer side, even though equipped with a key, cannot open the door.

As shown in Fig. 1 of the drawings, the bolt shifting member 8 can be moved through the medium of the knob spindle 29, and when said member is shifted inwardly in the tubular casing 3, the lock bolt 5 will be shifted to move the beveled end 6 thereof out of the keeper or recess 44 provided therefor in the jamb or frame of the doorway. It is through the medium of the beveled end 6 that the door can be closed without rotating either of the door knobs, inasmuch that the beveled end 6 allows the spring-pressed bolt 5 to serve functionally as the latch of a spring lock.

To lock the door whereby it will be necessary to use the key, it is only necessary to rotate either of the door knobs in an opposite direction from that used for shifting the bolt 5 into the casing 3. When either of the door knobs is so rotated, the bolt shifting member 8 is moved until the bifurcated lug 19 thereof impinges the end of the bolt 5 at the cut away portion 7, and as sufficient space exists between the ends of the tumblers and the end of the bolt 5, the ends of the tumblers which have been held under tension within the bifurcation of the lug 19 will be released, the ends of said tumblers engaging the lug 19 and preventing the bolt shifting member 8 from being moved within the casing 3 until the key 24 is brought into action at either side of the door. With the ends of the tumblers engaging the lug 19 the coiled spring 18 is retained under tension, while the tension of the springs 25<sup>a</sup> is released. When the key 24 is inserted in either of the openings 25, to engage either of the seats 22 or 26, the ends of the tumblers 21 are immediately shifted into position to aline with the bifurcation of the lug 19 and immediately upon assuming such position the lug 19 is released and the spring 18 immediately restores the bolt shifting member 8 to its normal position, as shown in Fig. 1, it being understood that the knobs 31 and 32 are also restored to their normal position, whereby they can be again rotated in the opposite direction to move the lock bolt out of the keeper provided therefor in the door jamb or frame.

From the foregoing it will be observed that I have devised a novel lock wherein tumblers are employed for holding the bolt shifting member whereby the bolt can be shifted, and besides resorting to the use of tumblers for this purpose, I have provided the inner side of the door with an auxiliary lock that prevents either the bolt or the shifting member thereof from being moved.

What I claim, is:

1. A door lock comprising a casing, a bolt arranged within said casing, a slidable bolt shifting member extending in and engaging said bolt and adapted to shift it in one direction when said member is manually shifted, a resilient element carried by said member and engaging the bolt for automatically shifting the latter in the opposite direction, said bolt carrying said member therewith when shifted by the resilient element, means whereby said member can be manually shifted, spring-pressed shiftable tumblers interposed between said bolt and member for locking the member relative to the bolt to prevent movement of the bolt or member, and means to permit of shifting said tumblers to allow of the actuation of the bolt.

2. A lock for doors embodying a casing, a bolt arranged within said casing, a bolt



shifting member arranged in said casing and extending in and engaging the bolt and adapted when actuated in one direction to shift said bolt to unlocked position, a door knob spindle adapted to shift said member in one direction, a resilient element carried by said member for automatically shifting it and said bolt in the opposite direction, spring-pressed tumblers arranged between said bolt and said member and adapted to lock said member relatively to said bolt whereby neither said bolt nor member can be moved, and an auxiliary lock carried by said door knob spindle upon the inner end thereof and adapted to prevent either said bolt or said member from being moved by shifting said tumblers.

3. In a door lock, the combination with a door, of a casing arranged in said door, a bolt movably mounted in said casing, a shifting member arranged in said casing and extending in and permanently engaging with said bolt and adapted to shift said bolt to unlocked position, a resilient element carried by said member and permanently engaging said bolt for shifting it automatically in the opposite direction, a door knob spindle revolvably mounted in said door and adapted to shift said member, and key-operated spring-pressed tumblers pivotally mounted within said casing between said bolt and said member and adapted to lock said member relatively to said bolt whereby neither said bolt nor member can be shifted.

4. In a door lock, the combination with a door, of a casing arranged in said door, a bolt movably mounted in said casing, a shifting member arranged in said casing and extending in and permanently engaging said bolt and adapted to shift said bolt to unlocked position, a resilient element carried by said member and permanently engaging said bolt and adapted to automatically shift said bolt in the opposite direction, a door knob spindle revolvably mounted in said door and adapted to shift said member, key-operated spring-pressed tumblers pivotally mounted within said casing between said bolt and said member and adapted to lock said member relatively to said bolt whereby neither said bolt nor member can be shifted, and an auxiliary lock carried by the inner end of said door knob spindle and adapted to engage in said door to prevent said door knob spindle from being rotated.

5. In a door lock, the combination with a door, of a casing arranged in said door, a bolt movably mounted in said casing and provided with a cut-away portion forming thereby a depending lug at one end, a shifting member arranged in said casing and extending in said bolt and permanently engaging said lug and adapted to shift said bolt to unlocked position, a spring-pressed element carried by said member and permanently engaging said lug and adapted to automatically shift said bolt in the opposite direction, a door knob spindle revolvably mounted in said door and adapted to shift said member, key-operated spring-pressed tumblers pivotally mounted within said casing between said bolt and said member and adapted to lock said member relatively to said bolt whereby neither said bolt nor member can be shifted, and an auxiliary lock carried by the inner end of said door knob spindle and adapted to engage in said door to prevent said door knob spindle from being rotated, said auxiliary lock comprising a spring-pressed sleeve supported by said bolt, teeth carried by said sleeve and adapted to engage in said door, and means adapted to hold said teeth out of engagement with said door.

6. A lock for doors comprising a casing, a bolt arranged within said casing and cut-away to provide a depending lug at one end and a protuberance intermediate its ends and further provided with a lug at its forward end, the lug at the forward end of said member and said protuberance extending in said bolt, said protuberance permanently engaging the lug of the bolt, means whereby said member is shifted in one direction whereby the bolt is moved to unlocked position, a resilient element carried by said member and engaging the lug of the bolt for shifting the bolt in the opposite direction, and key operated spring-pressed shiftable tumblers interposed between the bolt and said member and adapted to lock said member relative to said bolt to prevent movement of the bolt or member.

In testimony whereof I affix my signature in the presence of two witnesses.

HARRY MARKOVITZ.

Witnesses:

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EDMUND D. NUGENT.