A. B. LAKE.

DOOR LOCK.

APPLICATION FILED NOV. 18, 1908.

930,392. **Patented Aug. 10, 1909.**

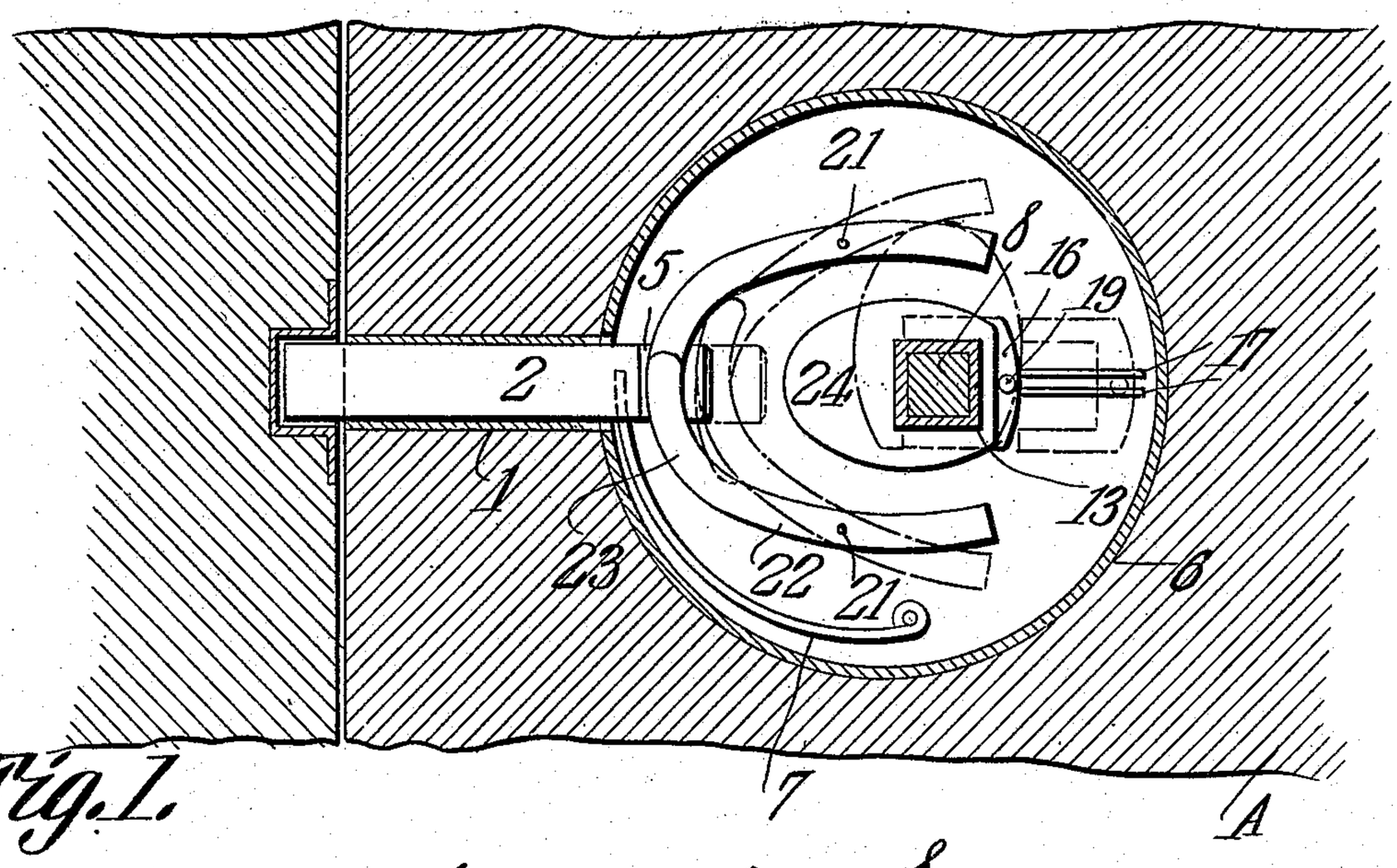

Fig. 1.

Fig. 3.

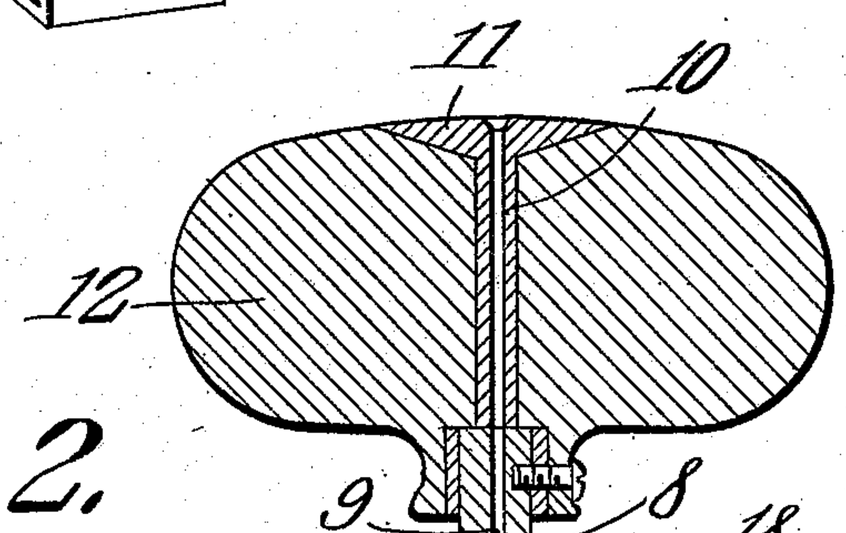

Fig. 2.

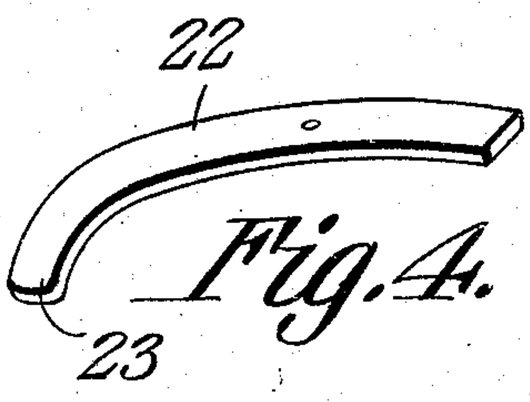

Fig. 4.

Witnesses

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UNITED STATES PATENT OFFICE.

ALBERT B. LAKE, OF KEARNEY, NEBRASKA.

DOOR-LOCK.

No. 930,392. Specification of Letters Patent. Patented Aug. 10, 1909.

Application filed November 18, 1908. Serial No. 463,302.

To all whom it may concern:

Be it known that I, ALBERT B. LAKE, a citizen of the United States, residing at Kearney, in the county of Buffalo and State of Nebraska, have invented a new and useful Door-Lock, of which the following is a specification.

This invention relates to mortise locks for doors and the like, and its object is to provide a lock of this character so constructed as to require merely the formation of two bores within a door or the like, said bores being disposed at right angles to each other and communicating so as to receive, respectively, the body of the lock and the bolt thereof.

Another object is to provide a lock of this character in which the key is designed to be inserted through the actuating knob for the purpose of so shifting the parts as to permit the bolt to be withdrawn by turning the knob.

Another object is to improve and simplify the mechanism of locks of this character and to provide such a lock which is compact and durable in construction.

With these and other objects in view the invention consists in certain novel details of construction and combinations of parts hereinafter more fully described and pointed out in the claims.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a vertical longitudinal section through the lock and the structure in which it is mounted. Fig. 2 is a horizontal section through the parts shown in Fig. 1. Fig. 3 is a detail view of a portion of the knob spindle and the sleeve combined therewith, said sleeve being shown disconnected from the spindle. Fig. 4 is a perspective view of one of the levers.

Referring to the figures by characters of reference "A" designates a door or other structure to which the lock is to be connected, said door having a transverse bore "*a*" therein and another bore "*b*" opening into the bore "*a*" and disposed at right angles to the axis thereof. A guide sleeve 1 is arranged within the bore "*b*" and slidably mounted within this sleeve is a locking bolt 2, one end of which is preferably beveled as at 3, so as to cause the bolt to automatically retract when the door is pushed closed and said beveled end moved against the inclined face 4 of the keeper. The other end of the bolt 2 has a notch 5 extending thereinto, said notched portion being arranged within the casing 6 of the lock, this casing being so shaped as to fit snugly within the bore "*a*". A spring 7 is located within the casing 6 and one end thereof engages the bolt 2 so as to hold it normally projected beyond the sleeve 1.

Extending through and revolubly mounted within the casing 6 is the knob spindle 8 which is preferably rectangular in cross section as ordinarily, said knob spindle being provided with a longitudinal slot 9 in one end portion which slot extends into the casing 6 and has its outer end registering with a similar slot 10, formed within the core 11 of the outer knob 12 of the door lock. These slots 10 and 9 are so proportioned as to receive a key designed to be used for the purpose of shifting the lock mechanism. A rectangular sleeve 13 is slidably mounted on the spindle and within the casing 6, said sleeve being provided with a cross-bar 14 which projects through the slot 9 and is designed to slide therein. A coiled spring 15 surrounds that portion of the spindle between the sleeve 13 and the inner face 6^a of the casing 6, and serves to hold the sleeve 13 normally in position within an angular locking yoke 16, mounted to slide within the casing 6 and being held in any suitable manner against rotation within the casing, such rotation being preferably prevented by providing guides 17, between which a lug 18 on the yoke can travel. An arm 19 extends perpendicularly from the locking yoke 16 and through a slot 20 formed in the inner face of the lock casing 6. This arm constitutes means whereby the locking yoke can be shifted from the inside of the door, and without the necessity of utilizing a key.

Mounted on oppositely disposed studs 21, within the casing are retracting levers 22, each of which has a curved terminal portion 23, the said portions of both levers being designed to normally lap and to rest within the notch 5 in bolt 2. An actuating cam or eccentric 24 is mounted on the sleeve 13 and between the levers 22, it being of course understood that the sleeve 13 is capable of sliding within the cam or eccentric 24, although, if preferred, said cam or eccentric can be made to move with the sleeve, it merely being necessary to make the cam or eccentric sufficiently thick to enable it to move against either of the levers 22 when the cam is in its normal or its shifted position.

Inasmuch as the locking yoke 16 cannot

rotate, it will of course be understood that as long as the sleeve 13 is seated within this yoke, it becomes impossible for either the sleeve or the spindle 8 to rotate, and the bolt 2 cannot therefore be retracted, because the cam 24 cannot be shifted against the levers 22 to actuate them. Should it be desired to open the door from the inside it becomes merely necessary to push the arm 19 longitudinally of slot 20. This will cause the locking yoke 16 to move out of engagement with sleeve 13 and therefore the spindle and sleeve are free to rotate within the casing 6. Movement of the spindle and sleeve will cause the cam 24 to swing against one of the levers 22 and cause said lever to pull backward on the bolt 2, as indicated by dotted lines in Fig. 1. The bolt will thus be retracted from the keeper and the door released. When it is desired to open the door from the outside while the locking yoke 16 is in engagement with the sleeve 13, a suitable key is inserted in the slots 10 and 9 and against the bar 14. By pressing this bar the sleeve 13 can be pushed against the spring 15 until said sleeve is disengaged from the locking yoke 16. The spindle 8 can then be turned by means of the knob and the cam will act upon the levers in the same manner as heretofore described.

It is of course to be understood that various devices may be utilized for preventing the lock from being actuated except by means of a key of predetermined shape and size.

Various changes can be made in the construction and arrangement of the parts without departing from the spirit or sacrificing the advantages of the invention.

What is claimed is:—

1. A lock comprising a casing, a bolt slidably mounted therein, a lever slidably engaging the bolt, knob-actuated revoluble means within the casing for engaging and shifting the lever, and slidable means within the casing for embracing and holding said knob-actuated means against movement.

2. A lock comprising a casing, a sliding bolt extending therefrom, a knob spindle within the casing, a lever slidably engaging the bolt, revoluble means operated by the spindle for engaging and shifting the lever, and slidable means within the casing for embracing the spindle to hold it against movement.

3. A lock comprising a casing, a sliding bolt extending therefrom, a knob-spindle revolubly mounted within the casing, a lever slidably engaging the bolt, means revoluble with the spindle for actuating the lever, a slidable device within the casing for holding the spindle against rotation, and a key-actuated means upon the spindle for releasing said spindle from the locking device.

4. A lock comprising a casing, a sliding bolt projecting therefrom, a knob spindle mounted to rotate within the casing, a lever slidably engaging the bolt, means upon the spindle for actuating the lever, a slidable locking device within the casing, and a key-actuated means upon the spindle for holding said spindle against movement relative to the locking device.

5. A lock comprising a casing, a sliding bolt extending therefrom, a longitudinally slotted knob spindle revolubly mounted within the casing, a sleeve slidably mounted upon the spindle, said sleeve having means projecting into the slot for engagement with a key, a locking device within the casing and engaging the sleeve, a lever within the casing and slidably engaging the bolt, and means revoluble with the spindle for actuating the lever.

6. A lock comprising a casing, a sliding bolt, a lever within the casing and slidably engaging the bolt, a longitudinally slotted knob spindle revolubly mounted within the casing, a sleeve slidably mounted upon and revoluble with the spindle, a portion of said sleeve projecting into the slot, a locking device slidably mounted within the casing, a spring for holding the sleeve normally in engagement with said locking device, and means revoluble with the spindle for actuating the lever.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

ALBERT B. LAKE.

Witnesses:
N. P. McDONALD,
A. J. TEMPLE.