Oct. 4, 1927. 1,644,092

L. B. SHINN

LOCK

Filed Sept. 25. 1925

Fig. 1

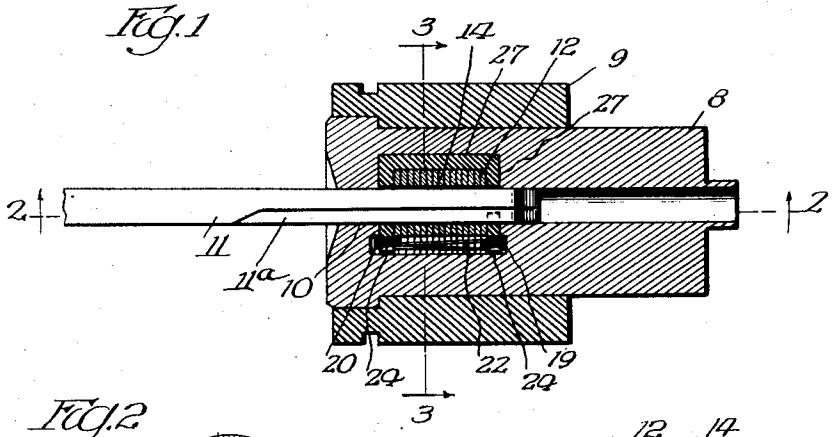


Fig. 2

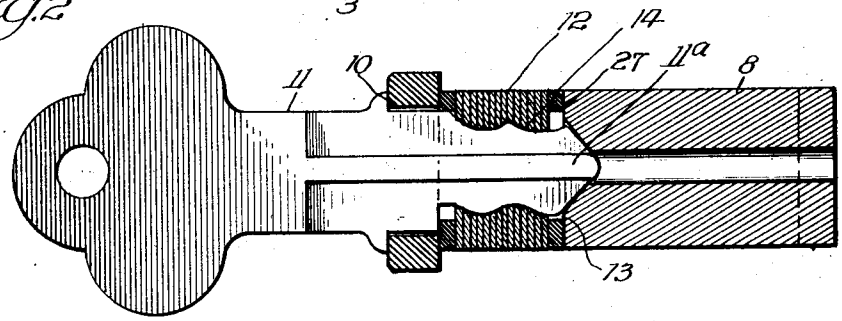


Fig. 3

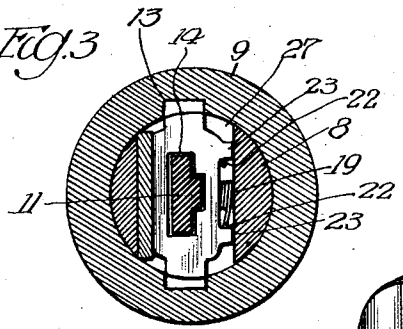


Fig. 4

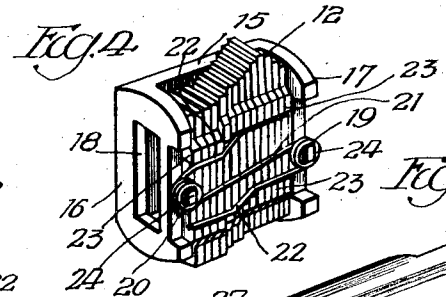


Fig. 5

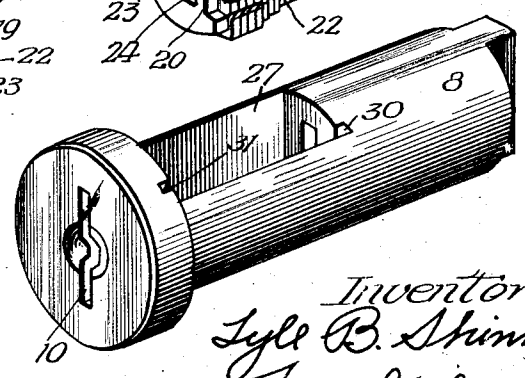
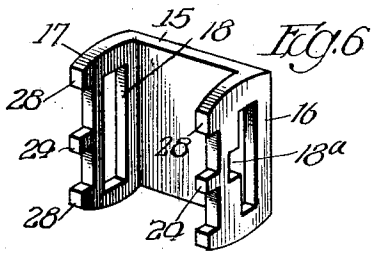


Fig. 6



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UNITED STATES PATENT OFFICE.

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LOCK.

Application filed September 25, 1925. Serial No. 58,505.

The invention relates to locks.

In tumbler locks in which plates are slidably mounted in a rotatable barrel or cylinder, it has been found desirable in some instances to provide for the substitution of one series of tumblers for another, for example, when it becomes desirable to have a different combination of tumblers in a lock, so that it is no longer operable by a key which was previously used.

The object of the invention is to provide an improved lock, in which provision is made for the ready substitution of one set of plate tumblers for another, so that the combination may be changed without changing the cylinder or casing. Other objects of the invention will appear from the specification.

The invention consists in the several novel features hereinafter set forth and more particularly defined by claims at the conclusion hereof.

In the drawings: Fig. 1 is a longitudinal section of a lock embodying the invention. Fig. 2 is a section on line 2—2 of Fig. 1. Fig. 3 is a transverse section on line 3—3 of Fig. 1. Fig. 4 is a detail perspective of a removable tumbler case provided with a set of tumblers held therein. Fig. 5 is a detail perspective of the cylinder. Fig. 6 is a detail perspective of the removable tumbler case.

The invention is exemplified in a lock comprising a casing 9 which may be mounted and secured in any suitable manner to a part to be locked and a cylinder or barrel 8 which is rotatably mounted in the casing. A slot or way 10 is formed in the cylinder for a key 11 having its edges shaped to operate a series of transversely slidable tumblers 12 which are adapted to have their outer ends aligned at the periphery of the cylinder by the key so that the cylinder may be operated. Tumblers 12 are each provided with a slot 14, through which the key is adapted to pass. The ends of the slot are adapted to be engaged by the edges of the keys. When the key is withdrawn, the ends of the tumblers will project into grooves 13 in the casing 9 to secure the cylinder against rotation.

In the present invention, the entire set of tumblers 12 is held in a case or frame comprising a side 15, a front end 16 and a back end 17. The ends are formed with slots 18 for the passage therethrough of the key 11 and these slots are longitudinally aligned with the slots 14 in the tumblers. The tumblers are held in the frame by a spring which comprises coils 19 and 20 which are connected by a member 21 and each of which is provided with a resilient arm 22 adapted to engage lugs 23 at one side of the tumblers. Coils 19 and 20 are wrapped around a pair of studs 24 which are integrally formed with the frame ends respectively. Coils 19 and 20 are secured against endwise withdrawal from studs 24 and at least one of the lugs 23 on each of the tumblers will be engaged and pressed outwardly by one of the spring arms 22, so that the frame with the tumblers therein will form a unit which is adapted to be slipped transversely into and out of the pocket 27 which is formed in the cylinder. The frame ends 16 and 17 are shaped to approximately conform to the cylinder and the bore of casing 9. The side 15 of the frame engages one side of the pocket 27, and lugs 28 on frame ends 16 and 17 engage the other side of pocket 27, so that the frame will rotate with the cylinder.

The opening 18 in the rear end 17 of the tumbler carrying-frame is formed to fit snugly around the inner end of the key and with a notch 18^a adapted to receive the rib 11^a on the key to better guide the inner end of the key in the cylinder. When lugs 23, which are integral with the frame ends 16 and 17, are used, the coils 19 and 20 of the spring extend longitudinally of the faces of said ends. To permit the insertion and removal of said coils, the cylinder 8 is grooved as at 30 and 31.

When it is desired to make a change in the tumbler combination in the lock, so that it is no longer operable by a key which has been used, it is only necessary to remove the cylinder from the casing 9, slide the frame with the tumblers carried thereby out of the pocket 27 in the cylinder and to substitute the frame with a different set of tumblers. This makes it possible for the tumbler sets to be assembled at the factory as units which are adapted to be substituted by the user of the locks. By utilizing the cylinder, the cost of making these combination changes is reduced to the minimum.

The invention is not to be understood as

restricted to the details set forth, since these may be modified within the scope of the appended claims, without departing from the spirit and scope of the invention.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent, is:

1. The combination with a lock comprising a casing, a cylinder rotatable in the casing and provided with a key-slot, a removable frame in and rotatable with the cylinder, and a set of tumblers mounted in the frame, said tumblers having key-slots and being removable as a unit with said frame.

2. The combination with a lock comprising a casing, a cylinder rotatable in the casing and provided with a key-slot, a removable frame slidable transversely into and out of the cylinder and a set of tumblers mounted in the frame, said tumblers having key-slots and being removable as a unit with said frame.

3. The combination with a lock comprising a casing, a cylinder rotatable in the casing and provided with a key-slot, a frame comprising ends having key-slots therein and removably held in the cylinder, and a set of tumblers mounted in the frame, said tumblers being provided with key-slots and being removable as a unit with the frame.

4. The combination with a lock comprising a casing, a cylinder rotatable in the casing and provided with a key-slot, a removable frame in and rotatable with the cylinder, a set of key operable tumblers mounted in and unitarily removable with the frame, and spring means for pressing the tumblers outwardly, removable with the frame.

5. The combination with a lock comprising a casing, a cylinder rotatable in the casing and provided with a key slot and a pocket extending completely and transversely therethrough, a frame comprising a side and ends fitting in said pocket, and a set of key-operable tumblers mounted in and unitarily removable from the cylinder with said frame.

6. The combination with a lock comprising a casing, a cylinder rotatable in the casing and provided with a key slot and a transversely extending pocket, a frame comprising a side and ends fitting in said pocket, one of said ends having a slot to fit and guide the inner end of the key, and a set of key-operable tumblers mounted in and unitarily removable from the cylinder with said frame.

7. The combination with a lock comprising a casing, a cylinder rotatable in the casing and provided with a key slot and a transversely extending pocket, a frame comprising a side and ends fitting in said pocket, a set of key-operable tumblers mounted in and unitarily removable from the cylinder with said frame, and spring-means for pressing the tumblers outwardly removable with the frame.

8. The combination with a lock comprising a casing, a cylinder rotatable in the casing and provided with a key-slot and a transversely extending pocket, a frame comprising a side and ends fitting in said pocket, a set of key-operable tumblers mounted in and removable from the cylinder with said frame, and a spring connected to and extending between said ends and engaging the tumblers to hold them outwardly.

9. The combination with a lock comprising a casing, a cylinder rotatable in the casing and provided with a key slot and a transversely extending pocket, a frame comprising a side and ends fitting in said pocket, integral lugs on said ends, a set of key-operable tumblers mounted in and removable unitarily from the cylinder with the frame, and a spring for pressing the tumblers outwardly having coils held on said lugs.

Signed at Chicago, Illinois, this 24th day of March, 1925.

LYLE B. SHINN.