July 31, 1923. 1,463,495

A. BORELLI

BARREL FOR LOCKS

Filed March 16, 1921

Fig. 1.

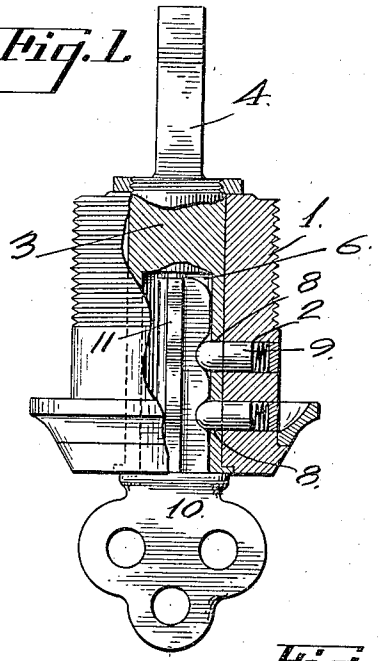


Fig. 2.

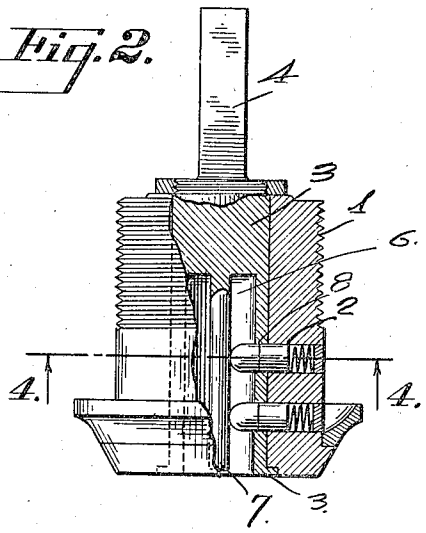


Fig. 4.

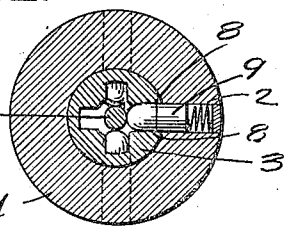


Fig. 7.

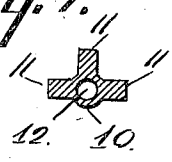


Fig. 3.

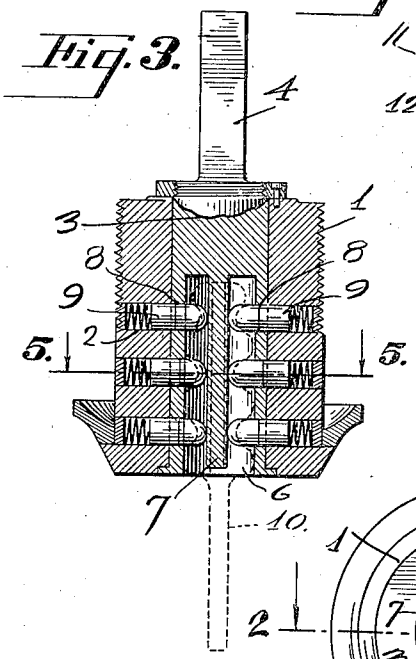
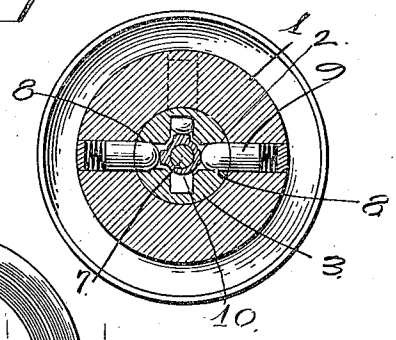


Fig. 5.



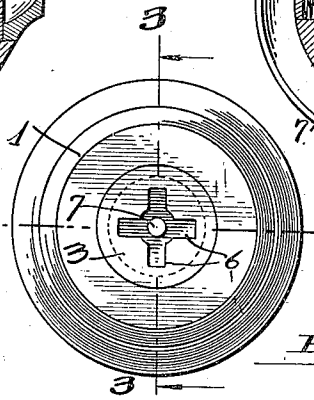


Fig. 6.

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UNITED STATES PATENT OFFICE.

ALBERT BORELLI, OF SAN FRANCISCO, CALIFORNIA.

BARREL FOR LOCKS.

Application filed March 16, 1921. Serial No. 452,836.

To all whom it may concern:

Be it known that I, ALBERT BORELLI, a citizen of the United States, residing in the city and county of San Francisco, and State of California, have invented a new and useful Improvement in a Barrel for Locks, of which the following is a specification.

My invention relates to improvements in barrels for locks and the like wherein an inner barrel is provided with a plurality of radial slots certain ones only of which are provided with locking pin apertures arranged to register with similar apertures in an outer barrel.

The primary object of the present invention is to provide a new and improved barrel for locks.

A further object of the invention is to provide a new and improved barrel for locks having a greater range of combination by means of which said lock may be actuated.

Another object of the invention is to provide an inner barrel having a plurality of key slots therein, certain ones only of which, are provided with locking pins to engage an outer barrel whereby a key, having several legs for engaging said slots, may only rotate said inner barrel when the proper legs of said key are in their respective slots.

I accomplish these and other objects by means of the device disclosed in the drawings forming a part of the present specification wherein like characters of reference are used to designate similar parts throughout said specification and drawings, and in which—

Fig. 1 is a broken view, partly in section, of my improved barrel, disclosing a key inserted therein;

Fig. 2 is a similar view with the key removed, and taken partly on line 2—2 of Fig. 6 in the direction indicated;

Fig. 3 is a sectional view taken on line 3—3 of Fig. 6 in the direction indicated, or at right angles to Fig. 2;

Fig. 4 is a transverse sectional view taken on line 4—4 of Fig. 2 in the direction indicated, the key being removed;

Fig. 5 is another transverse sectional view taken on line 5—5 of Fig. 3 in the direction indicated, the key being in position;

Fig. 6 is an end elevation of the barrel; and

Fig. 7 is a transverse sectional view of the shank of the key.

Referring to the drawings the numeral 1 is used to designate an outer barrel having rows of apertures 2 arranged in several planes radial to the axis of said barrel 1. An inner rotating barrel 3 is rotatably mounted within the barrel 1 and provided with a rectangular extension 4 to engage the bolt actuating mechanism of any suitable lock not shown.

The inner rotating barrel 3 is provided with a plurality of radial slots 6 preferably arranged at right angles to each other to provide four radial slots, and likewise provided with a pin 7 arranged at the junction of said slots and coaxial with the axis of said inner barrel 3, the purpose of which will hereinafter be more fully set forth.

Certain of the slots 6, preferably three of them, are provided with rows of apertures 8, the row of apertures 8 in any one slot 6 registering with one only of the rows of apertures 2 in the outer barrel 1.

Suitable split locking pins 9 are mounted in all of the registering slots and as said pins are well known in the art and are not a part of the present invention no further description of their construction and operation is required in this specification. Sufficient to say that said pins 9, when in certain position, permit rotation of the inner barrel 3 relatively to the outer barrel 1 and prevent such rotation when in any other position.

A key 10 is provided with a plurality of legs 11, preferably three legs, or one less than the number of slots 6, said key 10 being arranged to be inserted with its said legs 11 in any of the slots 6 but the edges of each leg are shaped to actuate only those locking pins 9 in its respective slot.

By means of this novel arrangement the key may be inserted with its legs in any of the slots but will only operate to actuate the plugs 9 when the proper legs are in their proper slots, thereby not only increasing the range of combinations by which the barrel may be operated but providing a greater number of apertures with a correspondingly greater number of locking pins, but also increasing the difficulty of unauthorized unlocking or operating the barrel by reason of providing four positions in which the key 10 may be inserted within the slots 6, but only one of said positions being operative.

In the present type of barrel, wherein only one row of locking pins is provided, a skillful operator may easily "pick" said lock by inserting a small instrument in the single

slot and setting the pins successively and rotating the barrel slightly after each setting to prevent return of the locking pins so set. The barrel may then be rotated by any flat tool inserted within the slot thereof.

In the present invention I have provided a plurality of slots one of which serves as a blind, while the remaining slots are provided with a plurality of locking pins, so that it is practically an impossibility for an operator, however skilled, to "set" the great number of locking pins thus provided.

Another advantage of the multiple slot barrel is that a greater range of different combinations is provided by means of the increased capacity of the plurality of slots.

For instance, three legs of three different keys may be shaped the same as the three different legs of three other keys, but to provide different combinations so that one key may not operate the lock of the other keys, said legs are arranged in different relative positions, on the same key, to the relative positions of said legs on the other keys, and while one key may be inserted in the slots of any inner barrel, it is obvious that only the proper key will actuate said barrel.

The provision of the central pin 7 provides a means for preventing the locking pins from leaving their respective apertures as well as a guide upon which the key is mounted.

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

1. A barrel for locks comprising an outer barrel having rows of apertures arranged in several planes radial to the axis of said barrel; an inner rotating barrel having radial slots therein arranged in similar planes with the apertures in the outer barrel, certain of said slots having apertures therein registering with the apertures in the outer barrel; locking pins mounted within said apertures; and a key having one less leg than the number of slots, said legs being shaped to enter any of the slots but to actuate said pins in certain slots only.

2. A barrel for locks comprising an outer barrel having rows of apertures arranged in several planes radial to the axis of said barrel; an inner rotating barrel having a plurality of identical radial slots, certain of which are provided with apertures registering with the apertures in the outer barrel; locking pins mounted within the registering apertures; and a key having one less leg than the number of slots, each leg being shaped to actuate certain of the locking pins only whereby said inner barrel may be rotated only when the several legs of said key are in their respective slots.

3. A barrel for locks comprising an inner rotating barrel having radial slots arranged at right angles to each other and radial to the axis of said barrel, certain of said slots only being provided with apertures; an outer barrel having apertures registering with the apertures in the inner barrel; locking pins mounted within said registering apertures; and a key having one less leg than the number of slots in the inner barrel, each leg being shaped to enter any of said slots but to actuate certain of the pins in certain slots whereby said inner barrel may be rotated only when the proper legs of said key are in their respective slots.

4. A barrel for locks comprising an outer barrel having rows of apertures arranged in several planes radial to the axis of said barrel; an inner rotatable barrel having radial slots therein arranged in similar planes with the apertures in the outer barrel, certain of said slots having apertures therein registering with the apertures in the outer barrel; locking pins mounted within said apertures; a key having one less leg than the number of slots, said legs being shaped to enter any of the slots but to actuate the plugs in certain slots only; and an outward extension formed upon the inner end of the rotatable barrel to engage a door lock whereby rotation of the inner barrel by the key when correctly applied and turned will operate said lock.

In witness whereof I hereunto set my signature.

ALBERT BORELLI.