Feb. 6, 1934. B. C. SMITH 1,946,364

KEY PERMUTATION LOCK

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Fig. 1.

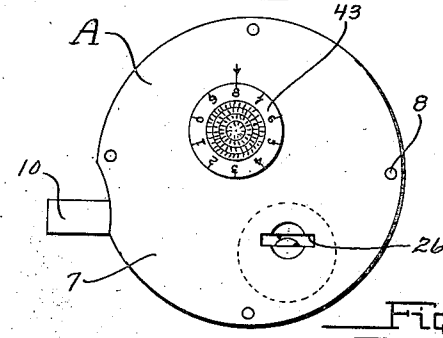


Fig. 2.

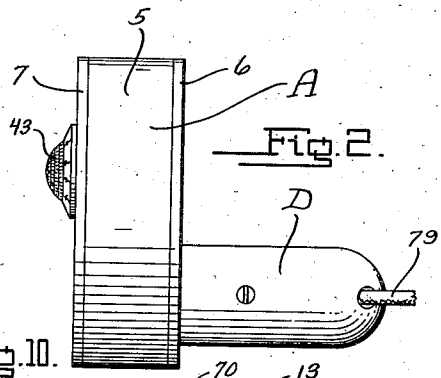


Fig. 10.

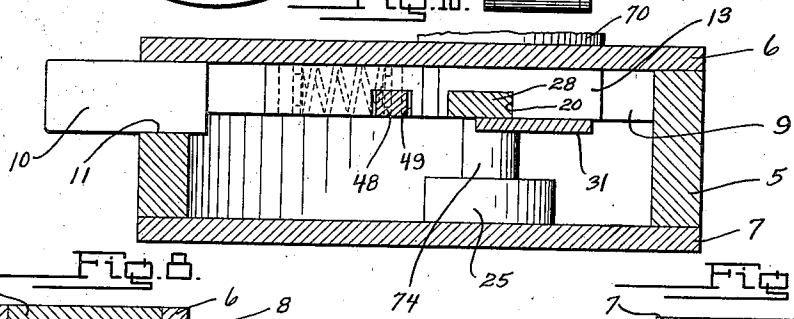


Fig. 8.

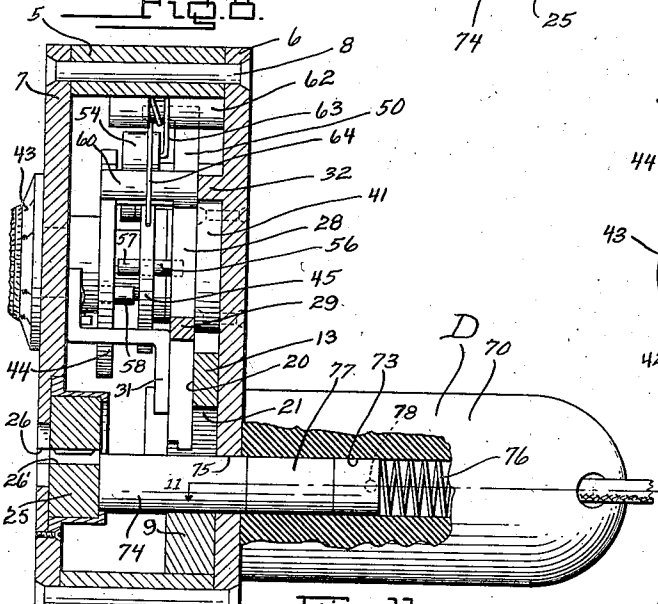


Fig. 9.

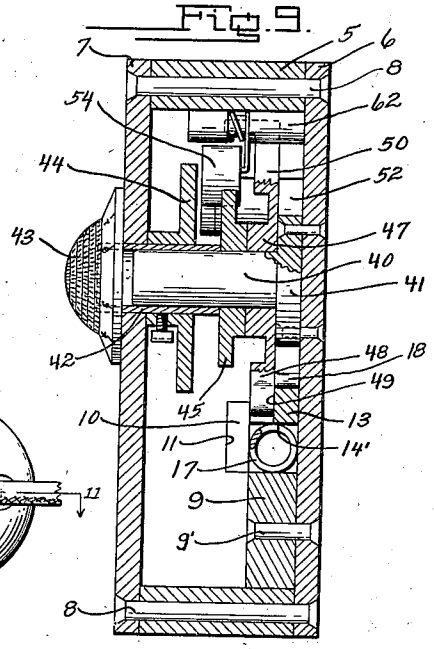
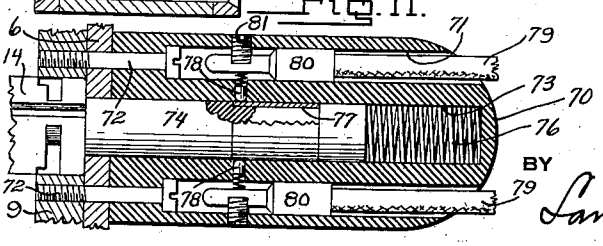


Fig. 11.



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Fig. 3.

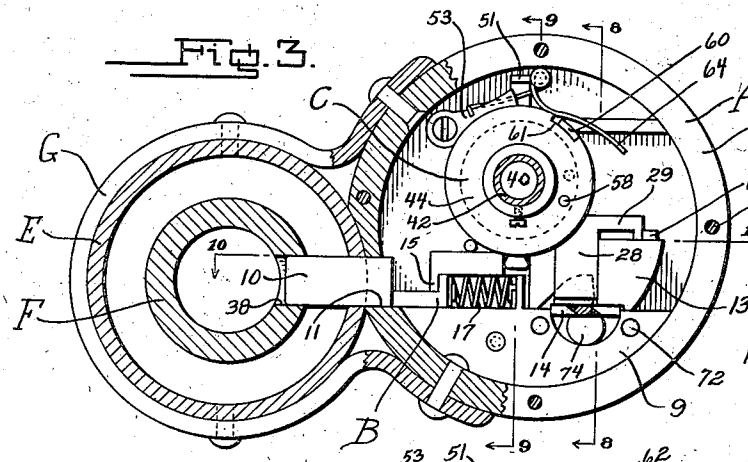


Fig. 4.

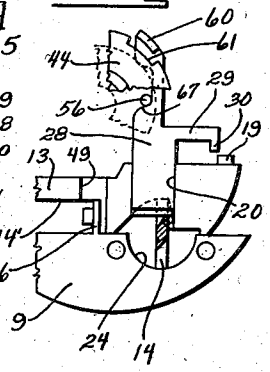


Fig. 5.

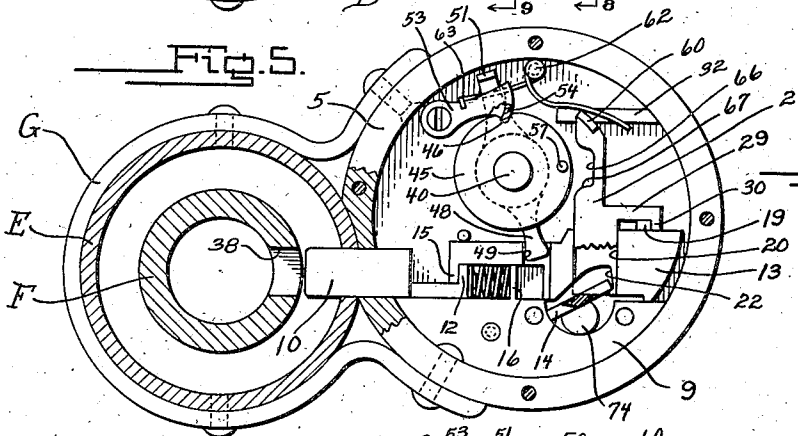


Fig. 7.

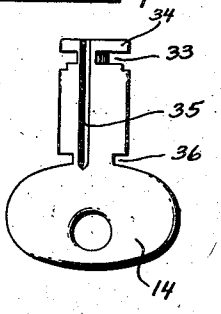
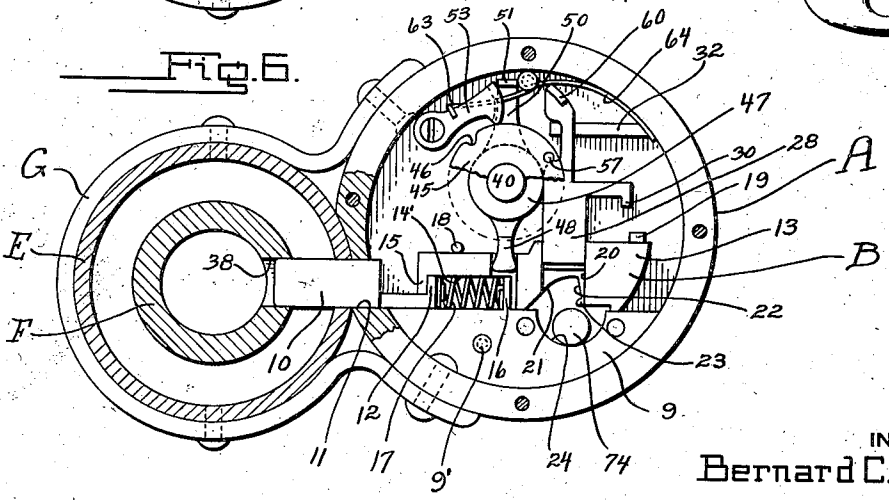


Fig. 6.



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1,946,364

KEY-PERMUTATION LOCK

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Application December 6, 1932. Serial No. 645,986

12 Claims. (Cl. 70—53)

The present invention relates to improvements in locks and the primary object of the invention resides in the provision of a lock embodying key operated lock mechanism, and permutation or combination lock mechanism automatically tripped upon unauthorized tampering with the lock to prevent operation of the key operated lock mechanism, even by use of the proper key, until the permutation lock mechanism has been properly reset by one knowing the combination, and which resetting of the combination may then only be accomplished through aid of the proper key for the lock.

A further object of the invention is to provide a key-permutation lock embodying trip means for automatically rendering the lock inoperative unless operated by the proper key.

A further object of the invention is to provide a key-permutation lock wherein the permutation lock mechanism acts to prevent operation of the key operated lock mechanism in event of tampering with the lock.

A further object resides in the novel arrangement whereby the permutation lock mechanism is automatically tripped through attempted operation of the key operated lock mechanism.

A still further object of the invention is to provide a combined key-permutation steering wheel and ignition lock wherein a single key acts to unlock the steering wheel and actuate an ignition switch.

Other objects and advantages of the invention will be apparent during the course of the following detailed description, taken in connection with the accompanying drawings forming a part of this specification and in which drawings:—

Figure 1 is a face plan view of the lock.

Figure 2 is a side view of the lock.

Figure 3 is an enlarged view showing the cover plate removed and parts in section, the view showing the lock attached to a steering column and the locking bolt projected.

Figure 4 is a fragmentary detail view showing the tripper raised when the key is rotated through ninety degrees from the position shown in Figure 3.

Figure 5 is a view substantially similar to Figure 3 but showing the lock bolt retracted.

Figure 6 is a view substantially similar to Figure 3 and showing the tripper raised for tripping the permutation lock mechanism and preventing retraction of the lock bolt.

Figure 7 is a plan view of a key for the lock.

Figures 8 and 9 are enlarged sections substantially on the respective lines in Figure 3.

Figure 10 is an enlarged horizontal section substantially on the line 10—10 of Figure 3.

Figure 11 is a longitudinal section through the ignition switch on the line 11—11 of Figure 8.

Referring to the drawings in detail and wherein similar reference characters designate corresponding parts throughout the several views, the improved key-permutation lock comprises a lock casing or housing A enclosing the key operated lock mechanism B and permutation lock mechanism C. The letter D designates an ignition switch carried by the casing A to be actuated by a key when inserted into the casing for operating the key operated lock mechanism B.

The casing A is preferably of flat, circular formation and embodies the tubular or ring-like body portion 5 closed at its rear end by the rear disk-shaped cover plate 6 and at its front end or side by the face cover plate 7. The plates 6 and 7 may be secured to the body portion 5 by suitable rivets or the like 8.

The letter E may designate the tubular shell or casing of a steering column of a motor vehicle having a steering post or shaft F rotatable therein. The letter G designates a suitable form of bracket for rigidly securing the lock casing A to the shell E.

The key operated lock mechanism B is preferably arranged in the lower portion of the casing A and embodies a segmental shaped slide block 9 which may be secured to the rear cover plate 6 as by one or more fastening rivets 9'. The upper straight side of the block 9 provides a sliding surface for a lock bolt 10 which slidably projects through a preferably square opening 11 in the tubular body portion 5. The body portion of this lock bolt 10 is preferably square shaped in cross section to prevent rotation of the bolt. The lower side of the opening 11 is in alignment with the upper slide surface of the block 9, while the inner surface of the rear cover plate 6 preferably forms one wall of the opening 11 as shown in Figure 10. The inner end of the lock bolt 10 is preferably reduced to the width of the block 9 and formed with an upstanding stop shoulder 12. Slidable upon the upper edge of the slide block 9 is a tumbler block 13 for retracting the lock bolt 10 by means of a key 14. The tumbler block 13, adjacent its lock bolt end is recessed as at 14' providing an opening for receiving the stop shoulder 12. This recessed end of the tumbler block is formed with a downturned stop shoulder 15 against which the stop shoulder 12 abuts to limit outward movement of the lock bolt. Projecting upwardly into the recess 14' and preferably

formed integral with the slide block 9 is a stop 16 against which the tumbler block abuts for limiting movement of the tumbler block by an expansion coil spring 17 acting between the stop 16 and shoulder 12. By observing Figures 3 and 6 it will be seen that the spring 17 acts to normally project the lock bolt 10. A guide pin 18 serves to retain the forward portion of the tumbler block 13 against upward movement, while a preferably rectangular-shaped retaining stud 19, projecting inwardly from the rear cover plate 6, acts to slidably retain the rear end portion of the tumbler block against upward movement. The tumbler block 13 is provided adjacent its rear end and in its front face with a transverse guide groove 20 opening at the upper and lower edges of the block. The block 13 is provided at the lower end of the guide groove 20 with a substantially quadrant-shaped recess 21 providing a key engaging edge 22 having at its lower end a projection 23. The slide block 9 is provided in its upper edge with a semi-circular recess 24 which aligns with a key barrel or plug 25 rotatably mounted upon the inner side of the face cover plate 7. The cover plate 7 is provided with a keyway 26 adapted to align with a keyway 26' formed through the barrel 25.

Slidably guided at its lower portion in the guide groove 20 is a combined latch and trip member 28 provided with a right angularly extending keeper arm 29 having at its outer end a downturned lug 30 adapted to co-act with the retaining stud 19 for holding the tumbler block 13 against longitudinal movement. This downturned lug 30, through engagement with the upper surface of the block 13 also acts to limit downward movement of the member 28 in the groove 20. As will be observed in Figures 8 and 10, the groove 20 extends for one-half the thickness of the block 13. As will also be noted in Figures 8 and 10, a bracket 31, preferably carried by the face cover plate 7, serves to slidably retain the member 28 in the groove 20 and the tumbler block 13 in sliding engagement against the rear cover plate 6. A rib 32 on the rear cover plate 6 provides a guide for the upper extremity of the combined latch and trip member 28.

The stem or shank portion of the key 14 is provided adjacent its ends with bittings 33 providing terminal lugs 34. The stem of the key may also be formed with longitudinal grooves 35 for receiving suitable wards formed in the keyway 26' of the key barrel 25. The bittings 33 are formed of unequal depth at the opposite edges of the key stem so that the key will not operate the lock mechanism B unless properly inserted in the lock.

In operating the lock mechanism B through use of a proper key, the key is inserted through the keyways 26 and 26' until the key abuts the rear cover plate 6 and at which time the notches 36 in the key stem so align with the face cover plate 7 as to permit rotation of the key. The position of the key when first inserted into the lock is shown in Figure 3. The key is then rotated in a clockwise direction and when rotated through ninety degrees to a position as shown in Figure 4, the combined latch and trip member 28 is raised sufficiently to allow the lug 30 to clear the retaining stud 19. It will be noted that the member 28 is raised through engagement with the base of one of the bittings 33 and the depth of this bitting determines the proper height that the member 28 may be raised to clear the retaining stud 19 and yet not trip the permutation lock mechanism C. As the key is turned for its limit of movement in a clockwise direction, one of the terminal lugs 34 on the key engages the inclined key engaging edge 22 of the tumbler block 13 and shifts the block in a direction for retracting the lock bolt 10. As the block 13 is shifted, the latch member 28 is permitted to lower as in Figure 5 so that the lug 30 engages behind the retaining stud 19 and thus latches the lock bolt against being accidentally projected. The projection 23 limits rotation of the key in a lock opening direction and from Figure 5 it will be seen that the key is not rotated through 180° for operating the lock so that the key is held against being withdrawn from the lock when in an unlocked condition. The key is held against withdrawal by the notches 36 receiving the reduced portion of the face cover plate 7 at the key barrel 25. As the tumbler block 13 is moved by the key, the shoulder 15 acts upon the stop shoulder 12 to retract the lock bolt 10 and compress the coil spring 17. When the key is turned in a counter clockwise direction for the locking operation, the key acts to lift the latch member 28 and free the lug 30 from the retaining stud 19 and after which the spring 17 acts to project the lock bolt 10 and through the shoulders 12 and 15 return the tumbler block 13 to the position as in Figure 3.

The lock bolt 10 slidably extends through an opening in the steering column casing E and is intended to have its outer end engage in a bolt receiving opening 38 provided in the steering shaft F when the opening 38 is properly aligned with the lock bolt 10. The opening 38 is preferably arranged to align with the lock bolt 10 when the vehicle wheels are in a straight forward position. Should the lock be operated with the vehicle wheels turned to either side so that the opening 38 does not align with the lock bolt 10, the spring 17 acting to normally project the lock bolt, holds the bolt in engagement with the circumferential face of the steering shaft so that the bolt will enter the opening 38 when the steering shaft is rotated to a straight forward position. Thus it will be seen that it is not essential to have the steering wheels in a straight forward position at the time the lock is operated for locking the steering wheel.

Referring now to the permutation lock mechanism C, the same is preferably arranged in the upper portion of the lock casing and embodies a mounting spindle 40 having a flange 41 at its rear end for rigid attachment to the rear cover plate 6. Rotatable upon the forward end of the spindle 40 is a sleeve 42 which projects through an opening in the face cover plate 7 and has secured thereto a dial plate 43 provided with suitable numbers or letters for co-acting with a marking provided on the face cover plate. Secured against rotation upon the sleeve 42 at the inner side of the cover plate 7 is a master tumbler disc 44 which co-acts with the dial plate 43 to prevent axial movement of the sleeve. Freely rotatable upon the spindle 40 at the inner end of the sleeve 42 is a tumbler disc 45 having provided in its peripheral edge a notch or recess 46. The sleeve 42 acts to space the discs 44 and 45. Pivotally mounted intermediate its ends upon the spindle 40 between the flange 41 and tumbler disc 45 is a locking lever 47 adapted for swinging movement upon actuation of the tumbler block 13. The lower arm 48 of the locking lever 47 projects into a slot 49 formed in the face side of the tumbler block 13. The upper arm 50 of the lock-

ing lever is provided with a forwardly and right angularly offset end portion 51.

Pivotally mounted in the upper portion of the casing A as upon a suitable stud 52 carried by the rear cover plate 6, is a pivoted locking pawl 53 of L-shape and providing a head portion 54 adapted to engage in the notch or recess 46 provided in the peripheral edge of the tumbler disc 45. The head portion 54 of the locking pawl 53 is intended for swinging movement into and out of the path of swinging movement of the offset end portion 51 of the locking lever 47 to prevent actuation of the sliding tumbler block 13.

Extended through the peripheral portion of the tumbler disc 45 to project laterally from each face thereof is a pin or stud providing a trip pin portion 56 projecting from the rear face of the disc and a setting pin portion 57 projecting from the forward face of the disc. Projecting rearwardly from the master tumbler disc 44 is a pin or stud 58 which upon rotation of the master tumbler disc engages the setting pin portion 57 for imparting rotation to the tumbler disc 45.

The upper end of the body portion of the combined latch and trip member 28 extends at the rear of the tumbler disc 45 as shown in Figure 8 and is provided at its upper extremity with a forwardly extending, right angularly off-set locking arm or extension 60 adapted to engage in a suitable notch 61 provided in the peripheral edge of the master tumbler disc 44.

Projecting forwardly from the upper portion of the rear cover plate 6 is a pin 62 having an annularly recessed intermediate portion for receiving the convolutions of a spring so coiled upon the pin as to provide spring arms 63 and 64 for respectively engaging the locking pawl 53 and the locking arm extension 60 of the trip member 28. As will be observed, the spring arm 63 acts to normally urge the head portion 54 of the locking pawl 53 against the peripheral edge of the tumbler disc 45, while the spring arm 64 acts to normally urge the member 28 downward for forcing the locking extension 60 against the peripheral edge of the master tumbler disc 44 and the keeper arm lug 30 into engagement with the upper edge of the tumbler block 13. It will be noted that the tumbler disc 45 is of less diameter than that of the master tumbler disc 44 to allow for the locking arm 60 to properly engage in the notch 61.

The upper portion of the trip member 28 is notched out at its edge confronting the spindle 40 as at 66 and provides a trip shoulder 67. This recess 66 accommodates the trip pin portion 56 of the tumbler disc 45 and is of such length as to permit movement of the trip member 28, when operated by the proper key, without tripping the permutation lock mechanism C. As shown in Figure 4, when the trip member 28 is raised for the proper distance through use of the proper key, the trip shoulder 67 has just contacted the trip pin 56 without imparting any rotation to the tumbler disc 45. Should the trip member 28 be lifted beyond the position shown in Figure 4 by some one endeavoring to operate the lock, and say to a position as shown in Figure 6, the trip shoulder 67 through engagement with the trip pin 56 will impart rotation to the tumbler disc 45 in an anti-clockwise direction thus raising the locking pawl 53 out of the recess 46 so that the head portion 54 rides upon the peripheral surface of the tumbler disc. In this position, the head 54 is moved into the path of swinging movement of the offset end 51 of the locking lever 47 so as to prevent pivotal movement of the locking lever. Thus the tumbler block 13 is held against movement through engagement of the locking lever arm 48 in the tumbler block slot 49.

The ignition switch D is intended to be actuated by a key when inserted through the key barrel 25 for operating the key operated lock mechanism B. This switch preferably embodies a cylindrical switch body 70 formed of a suitable insulating material and secured to the rear side of the lock casing at a point with its axis slightly below the axis of the key barrel 25. Formed longitudinally through the switch body 70 is a pair of terminal receiving openings 71 which are reduced in diameter at the attaching end of the switch body to provide shoulders for the heads of attaching screws 72 extended through the rear cover plate 6 and preferably threaded into the slide block 9. This manner of attaching the switch body to the lock casing permits ready separation of the switch from the lock for repairing the switch without requiring dismembering of the lock. Formed axially through the switch body 70 and terminating just inwardly of the outer end of the body is a circular bore 73 to slidably receive a plunger 74 formed of any suitable insulating material. This plunger 74 is slidable through an opening 75 in the rear cover plate 6 and extends through the recess 24 in the slide block 9 just below the tumbler block 13. An expansion coil spring 76 arranged in the closed end of the bore 73, acts upon the plunger 74 to normally urge the plunger into the lock casing A into abutting engagement with the inner end of the key barrel 25. As will be observed in Figure 8, the plunger 74 projects over the keyway 26 so that when the key is inserted, the key will force the plunger into the switch body 70 against the action of the spring 76.

Recessed into the rear end portion of the plunger 74 is a metallic contact sleeve 77 adapted to be engaged by spring urged contacts 78. The openings 71 receive terminal wires 79 provided with tips 80 held against displacement by suitable set screws 81. The tips 80 are preferably recessed to receive the set screws 81. When the plunger 74 is projected into the lock casing as in Figure 8, the metal contact sleeve 77 is out of bridging relation between the contacts 78. When a key is inserted for operating the lock, the key acts to force the plunger 74 into the position shown in Figure 11 so that the contact sleeve 77 bridges the contacts 78. When the key is rotated for locking the lock, the spring 76 acting upon the plunger 74 serves to eject the key from the lock and eliminates possibility of the operator leaving the key in the lock.

In operation of the key-permutation lock, and with the lock in a condition as shown in Figure 3, it will first be noted that the master tumbler disc 44 is locked against rotation through engagement of the locking arm 60 in the peripheral notch 61 of the master tumbler disc. When the proper key is inserted into the lock and rotated in a clockwise direction, the combined latch and trip member 28 is raised so that the lug 30 clears the stud 19 and after which the member 28 and tumbler block 13 are moved as a unit for retracting the lock bolt 10. The proper key raises the trip member 28 for such an extent that the trip shoulder 67 just engages the trip pin 56 without imparting rotation to the tumbler disc 45. So long as the locking pawl 53 remains in the notch 46 of the tumbler disc 45, the locking

lever 47 may swing as shown in Figure 5. When the lock bolt 10 is fully retracted the lug 30 engages behind the retaining stud 19 and holds the lock bolt against being accidentally projected.

Now, should an attempt be made by an unauthorized person to operate the lock, it will first be noted that the dial plate 43 is locked against rotation. Should an attempt be made to operate the lock by use of an improper key or an instrument inserted through the key barrel 25, the combined latch and trip member 28 must first be raised to permit any movement being imparted to the tumbler block 13. Should the member 28 be raised slightly above a point of its proper operating position, the trip shoulder 67 so engages the trip pin 56 as to rotate the tumbler disc 45 thus raising the locking pawl 53 out of the notch 46 and into the path of swinging movement of the locking lever 47. Thus, the key operated lock mechanism is locked against operation. With the lock in this condition, it will not be possible to operate the lock even through use of the proper key and the permutation lock mechanism must be set by the person knowning the proper combination. It may here be well to state that the dial plate 43 is not required to be operated for opening the lock by the key 14 and is only used in case the lock has been tampered with so as to trip the permutation lock mechanism.

In resetting the lock for proper operation from a condition of the lock as shown in Figure 6, the proper key is first inserted and rotated ninety degrees to the position in Figure 4 for raising the locking arm extension 60 out of the notch 61 to permit rotation of the master tumbler disc 44 by the dial 43. The master tumbler disc 44 is then rotated in a clockwise direction whereby its pin 58 will engage the setting pin 57 of the tripping tumbler disc 45. Continued rotation of the disc 44 in a clockwise direction until the proper number on the dial plate 43 aligns with the arrow on the face cover plate 7, rotates the disc 45 to an extent whereby the head 54 of the locking pawl 53 drops into the notch 46. This disposes the trip pin 56 in proper relation to the trip member 28. The master tumbler disc 44 is then rotated in an anti-clockwise direction until the proper number on the dial plate 43 is reached, which places the notch 61 in proper position for receiving the locking arm extension 60 when the trip member 28 is lowered.

While the lock has been shown and described as a combined steering wheel and ignition lock, it will readily be apparent that the ignition switch may be dispensed with if so desired, and that the lock may be used for various other purposes than that of preventing rotation of a steering shaft.

From the foregoing it will be apparent that an improved form of key-permutation lock has been provided embodying a novel arrangement whereby the key operated lock mechanism will be automatically locked against operation through a trip mechanism including permutation lock mechanism which must be properly reset to permit operation of the key operated lock mechanism. It will further be apparent that an improved key-permutation lock has been provided wherein the permutation lock mechanism only serves to prevent operation of the key operated lock mechanism upon attempted unauthorized operation of the lock.

Changes in detail may be made to the form of invention herein shown and described, without departing from the spirit of the invention or the scope of the following claims.

I claim:

1. A lock comprising key operated lock mechanism, permutation lock mechanism for preventing actuation of the key operated lock mechanism, trip means for automatically tripping the permutation lock mechanism by the key operated lock mechanism, and means actuated through tripping of the permutation lock mechanism to lock the key operated lock mechanism against movement.

2. A lock comprising key operated lock mechanism, permutation lock mechainsm, means for tripping the permutation lock mechanism upon operation of the key operated lock mechanism, and locking means actuated through tripping of the permutation lock mechanism to prevent operation of the key operated lock mechanism.

3. A lock comprising in combination, key operated lock mechanism embodying a movable trip member, permutation lock mechanism normally inactive upon operation of the key operated lock mechanism and tripped by said trip member when the member is moved beyond a point of its proper operating position, a locking lever movable with the key operated lock mechanism, and means for locking said lever against movement upon tripping of the permutation lock mechanism.

4. In a lock of the class described, the combination of a casing, key operated lock mechanism in the casing including a sliding tumbler, a combined latch and trip member movable with the tumbler, permutation lock mechanism in the casing embodying a tumbler disc, a locking lever movable by the sliding tumbler, a locking pawl engaging the tumbler disc and normally out of the path of movement of the locking lever, and means for tripping the tumbler disc upon movement of the combined latch and trip member beyond a point of its proper operating position whereby the locking pawl moves to a position preventing movement of the locking lever.

5. In a lock of the class described, the combination of a casing, key operated lock mechanism in the casing including a tumbler block and a combined latch and trip member movable with and slidable in the tumbler block, permutation lock mechanism in the casing including a tumbler disc having a trip pin, a locking lever pivoted intermediate its ends in the casing with one end engaging the tumbler block for imparting swinging movement to the lever upon movement of the tumbler block, a pivoted locking pawl coacting with the tumbler disc and movable into the path of movement of the opposite end of the locking lever when the tumbler disc is rotated through engagement of the combined latch and trip member with said trip pin, and spring means normally urging the locking pawl into engagement with the tumbler disc.

6. In a lock of the class described, the combination of a casing, a key actuated tumbler in the casing, a lock bolt movable by the key actuated tumbler, a key actuated trip member movable with and in the key actuated tumbler, a tumbler disc rotatable in the casing and having a notch provided in its peripheral edge, a trip pin on the disc, a locking lever pivoted intermediate its ends in the casing, said lever having one end engaging in the key actuated tumbler for swinging the lever and having an offset stop portion at its opposite end, a locking pawl pivoted in the casing and normally seating in the notch in the tumbler disc, and a trip shoulder formed on the trip member to engage said trip pin and

rotate the tumbler disc whereby the locking pawl forms an abutment for the offset stop portion of the locking lever to prevent movement of said key actuated tumbler to retract the lock bolt.

7. In a lock of the class described, the combination of a casing, a tumbler slidable in the casing and having a transverse guide groove, a lock bolt retractable by the tumbler, a combined latch and trip member slidable in the guide groove embodying a keeper arm and a trip portion, a spindle mounted in the casing, a locking lever intermediately pivoted upon the spindle and having one end interlocked with the tumbler and having a stop projection at its opposite end, a tumbler disc rotatable on the spindle and having a recess provided in its peripheral edge, a trip pin carried by the tumbler disc and engageable by the trip portion of the combined latch and trip member for imparting rotation to the tumbler disc, a locking pawl pivoted in the casing and having a head portion for seating in the recess in the tumbler disc, said head portion upon rotation of the tumbler disc to rise out of the recess and into the path of movement of the stop projection on the locking lever to prevent swinging thereof, and means for returning the tumbler disc to a position with the head portion of the locking pawl seating in the recess of the tumbler disc.

8. In a lock of the class described, the combination of a casing, a tumbler slidable in the casing and having a transverse guide groove, a combined latch and trip member slidable in the guide groove embodying a keeper arm and a trip portion, a locking extension on the trip portion, a lock bolt movable by the tumbler, a spindle mounted in the casing, a tumbler disc rotatable on the spindle and having a recess in its peripheral edge, a stop pin on the tumbler disc engageable by the trip portion of the combined latch and trip member, a locking lever pivoted upon the spindle and having an arm interlocked with the tumbler for imparting swinging movement to the lever, a locking pawl co-acting with the peripheral edge of the tumbler disc and the recess therein for locking the locking lever against movement when the pawl rides out of said recess, a master tumbler disc rotatable on the spindle and having a notch in its peripheral edge for receiving said locking extension, means for rotating the master tumbler disc, setting pins on the discs for imparting rotation to the tumbler disc upon rotation of the master tumbler disc, and spring means acting upon the locking pawl and the combined latch and trip member for normally urging the same into engagement with their respective tumbler discs.

9. In a lock embodying key operated lock mechanism including a latch member, a locking lever rotated upon operation of the key operated lock mechanism, and permutation trip means for the lock mechanism including a tumbler disc having a recess in its peripheral edge, a trip pin on the tumbler disc and engageable by the latch member when moved beyond its point of normal operation, for imparting rotation to the tumbler disc, a locking pawl bearing upon the peripheral edge of the tumbler disc to engage in said recess, said locking pawl when moved out of the recess through rotation of the tumbler disc preventing movement of the locking lever, and resetting means for the tumbler disc to permit actuation of the key operated lock mechanism.

10. In a lock of the class described, the combination of a casing, a tumbler slidable in the casing, and having a transverse guide groove, a lock bolt retractable by the tumbler, a retaining stud, a latch member slidable in said guide groove and embodying a keeper arm co-acting with said stud for retaining the tumbler in either of its positions of limited movement, permutation trip means tripped upon movement of the latch member transversely of the tumbler beyond its normal position of operation, and locking means associated with the tumbler and trip means for locking the tumbler against movement upon tripping of the trip means.

11. In a lock of the class described, the combination of a casing, a tumbler slidable in the casing, and having a transverse guide groove, a lock bolt retractable by the tumbler, a retaining stud, a latch member slidable in said guide groove and embodying a keeper arm co-acting with said stud for retaining the tumbler in either of its positions of limited movement, a locking lever pivoted for swinging movement upon operation of the tumbler, a locking pawl for the locking lever, and means for swinging the locking pawl into locking relation with the locking lever to prevent retraction of the lock bolt by the tumbler upon movement of the latch member beyond its normal limit of movement.

12. In a lock of the class described, the combination of a casing, a tumbler slidable in the casing and having a transverse guide groove, a lock bolt retractable by the tumbler, a retaining stud, a latch member slidable in said guide groove and embodying a keeper arm co-acting with said stud for retaining the tumbler in either of its positions of limited movement, a locking lever pivoted for swinging movement upon operation of the tumbler, a locking pawl for the locking lever, and means for swinging the locking pawl into locking relation with the locking lever to prevent retraction of the lock bolt by the tumbler upon movement of the latch member beyond its normal limit of movement including permutation resetting mechanism and the proper key for operating the lock.

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