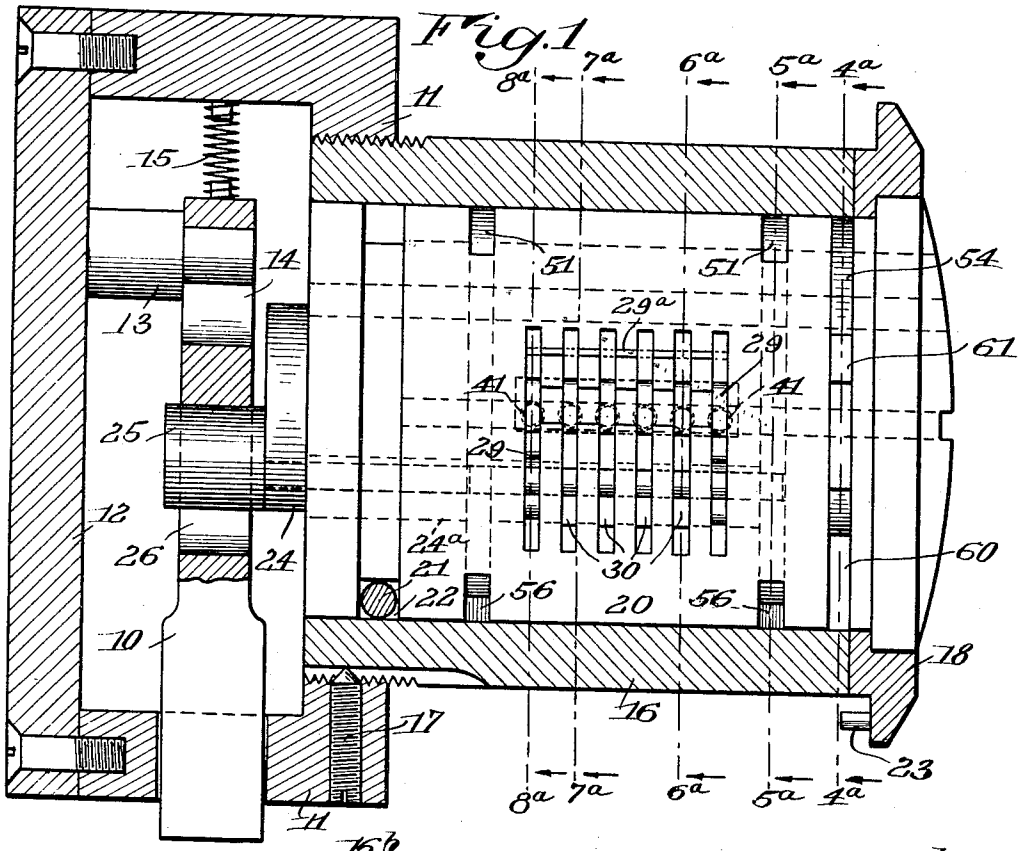
July 11, 1933. G. D. HILL 1,917,302

MULTIPLE KEY LOCK

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Fig. 1



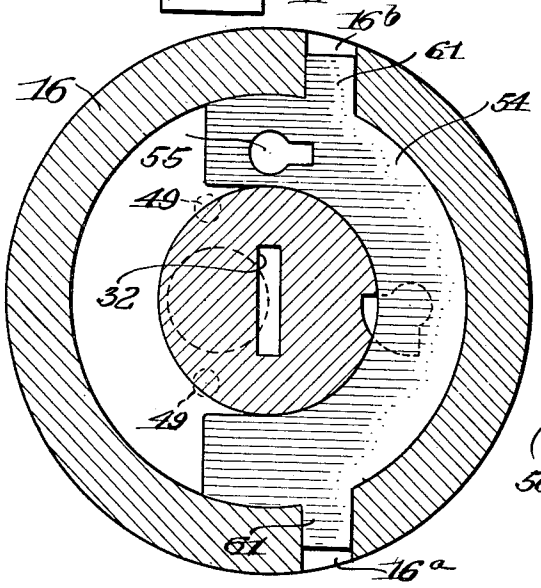


Fig. 4

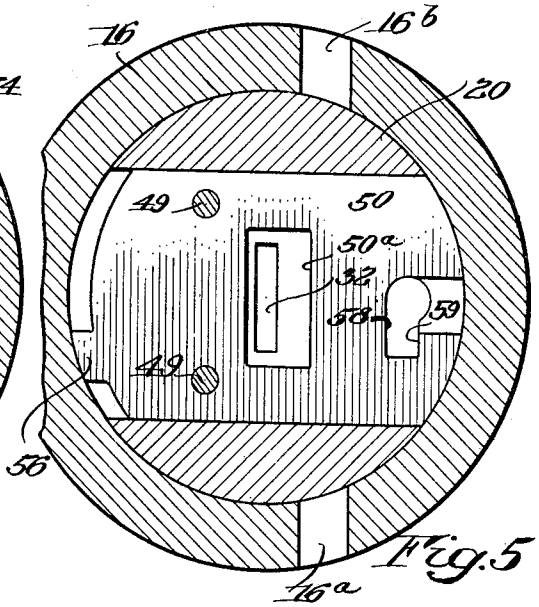


Fig. 5

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Fig. 3

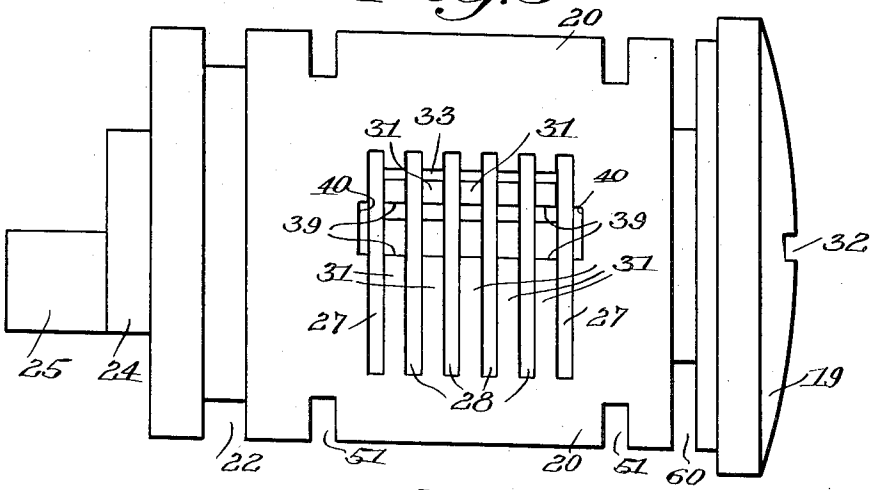


Fig. 2

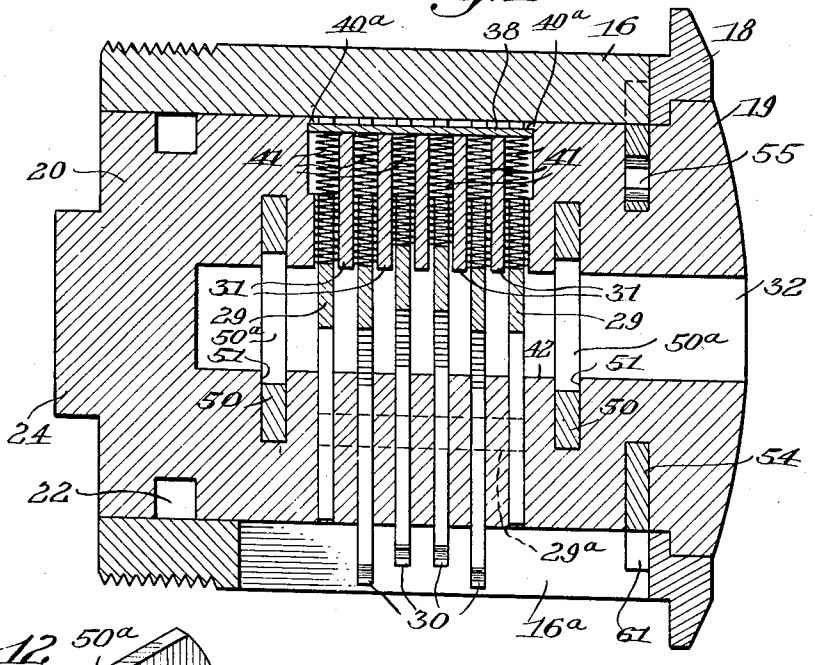
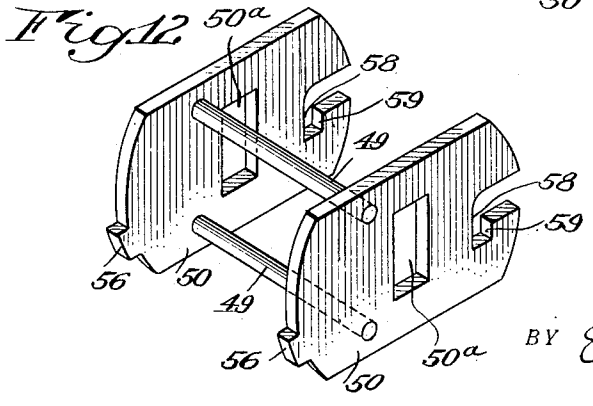


Fig. 12



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Fig. 13

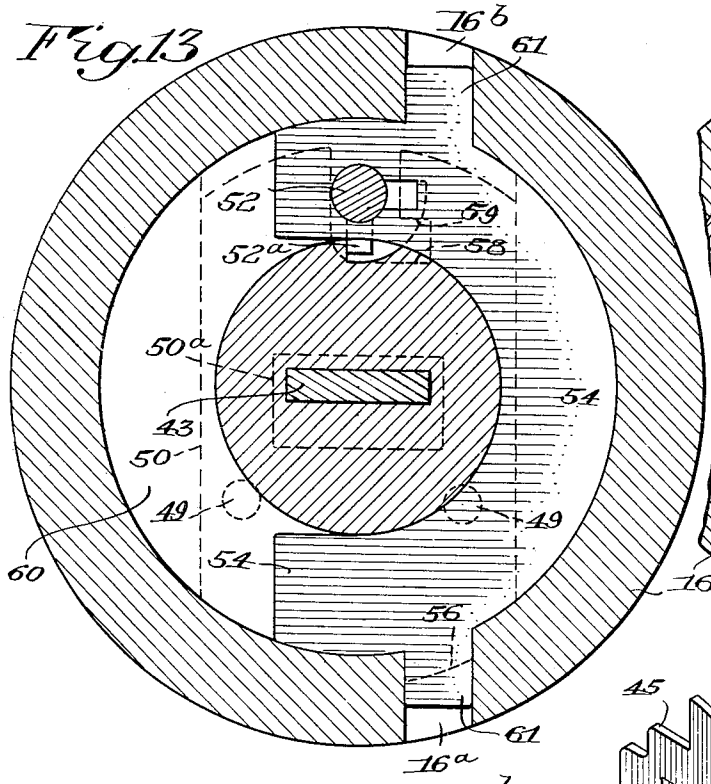
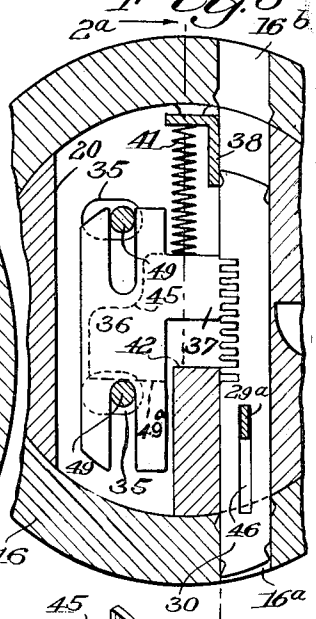


Fig. 6



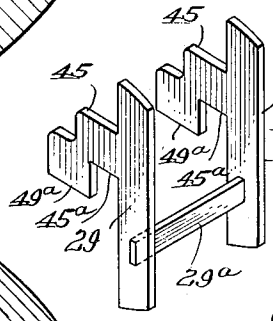


Fig. 15

Fig. 14

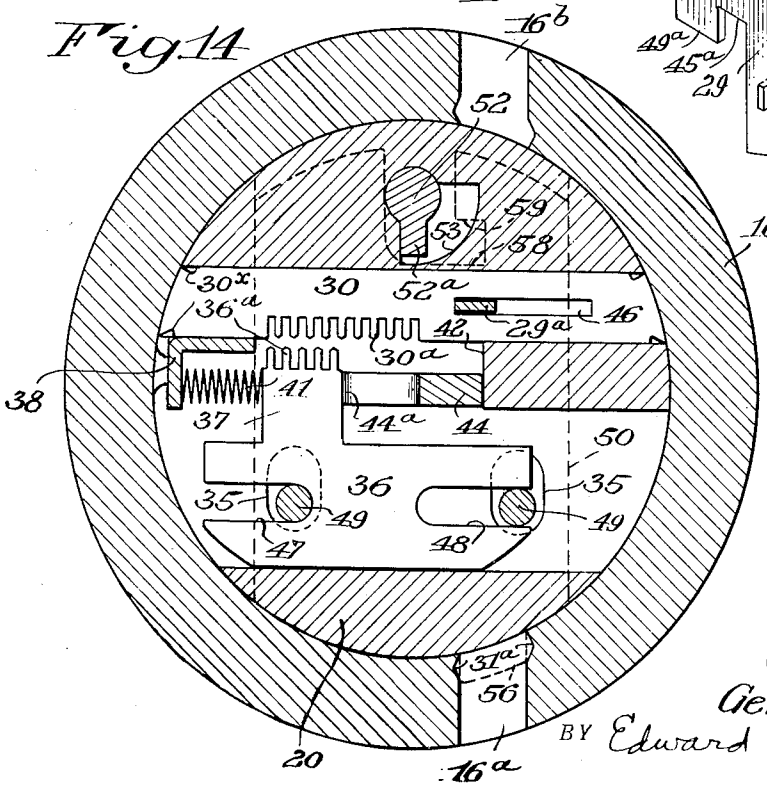
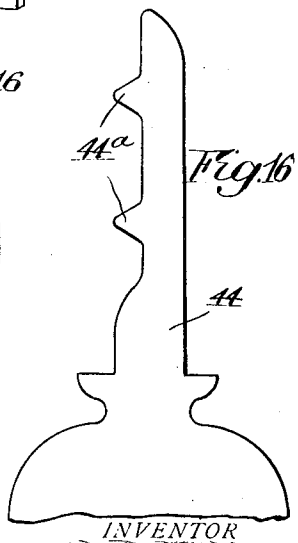


Fig. 16



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Fig. 7

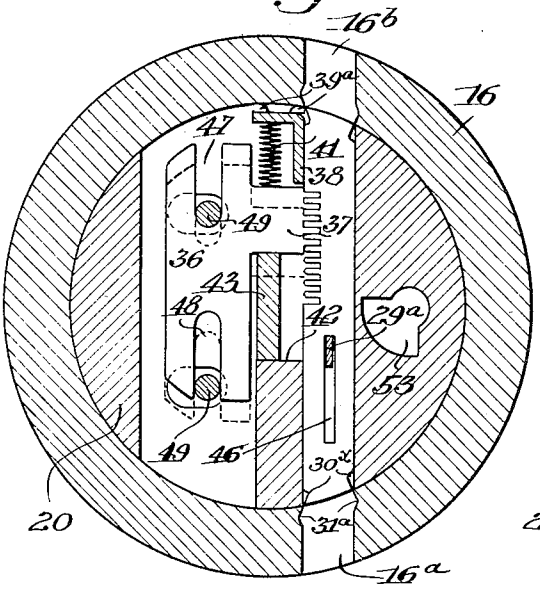


Fig. 9

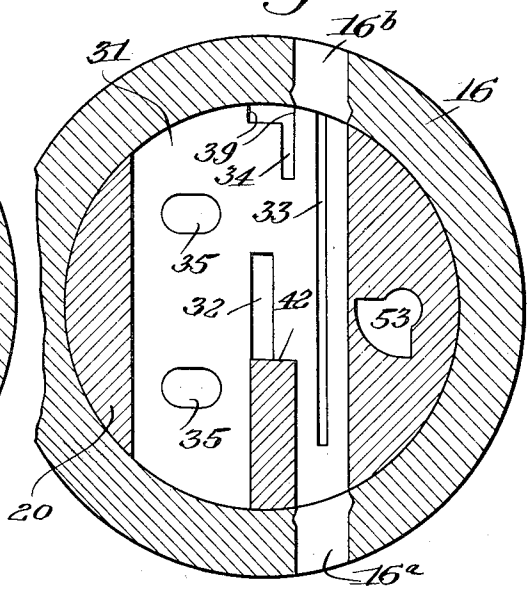


Fig. 8

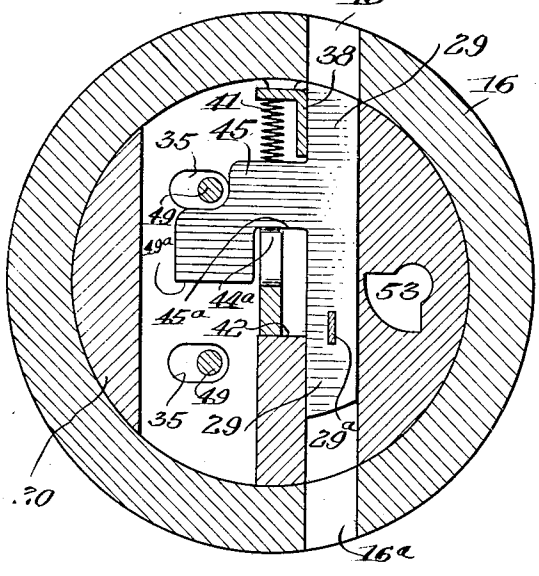


Fig. 10

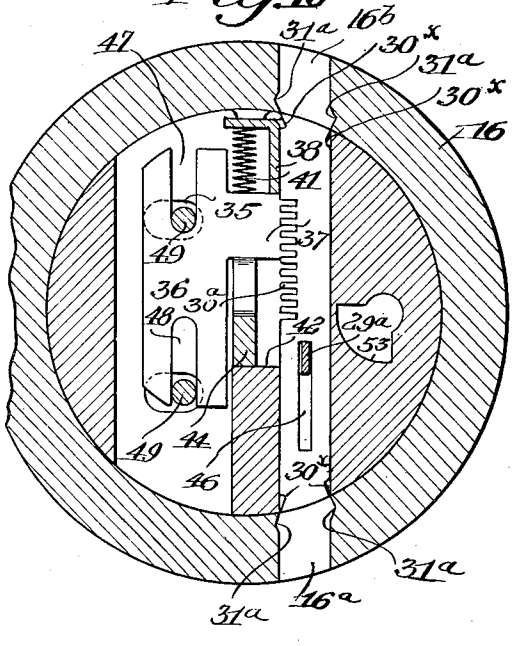
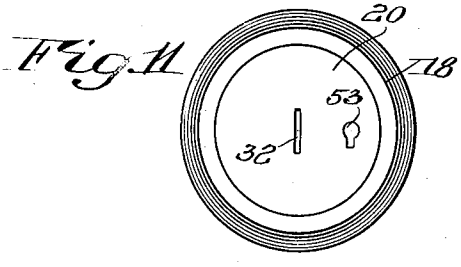


Fig. 11



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UNITED STATES PATENT OFFICE

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MULTIPLE KEY LOCK

Application filed July 18, 1931. Serial No. 551,712.

The present invention relates to improvements in locks and has for its object to provide more particularly an improved change key lock, such for example, as one of the type commonly known as a cylinder lock.

A further object of the invention is to provide an improved change key lock of simplified construction which is comparatively inexpensive to manufacture and one adapted particularly for use as a door lock designed for ready application to the doors of offices, apartments, and residences as well, whereby to insure greater protection than is possible with the door locks now in use, by reason of being adjustable to render them non-responsive to previously used keys while capable of being operated by a new or different key.

A further object of the invention is to provide an improved change key lock constituting a unit designed for the operation or control of different types of securing or locking devices and which is preferably arranged for operation by a master key.

A further object of the invention is to provide an improved change key cylinder lock in which the operating tumblers, the control means therefor, and the adjustable means made responsive to the change key constitute a simplified arrangement of parts operable within the plug or barrel of the lock.

A further object of the invention is to provide in a change key cylinder lock improved means by which to make it extremely difficult to pick the lock or to effect its release by any means other than that normally employed to operate the same.

To these and other ends the invention resides in certain improvements and combination of parts, all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings:

Fig. 1 is a sectional elevation of a lock embodying the invention;

Fig. 2 is a longitudinal section substantially on line 2*a*—2*a* of Fig. 6;

Fig. 3 is a top plan view of the tumbler holding cylinder as it appears with the operating parts removed;

Fig. 4 is a transverse section taken on line 4*a*—4*a* of Fig. 1;

Fig. 5 is a transverse section on line 5*a*—5*a* of Fig. 1;

Fig. 6 is a transverse section on line 6*a*—6*a* of Fig. 1 with the tumblers shown in locking position;

Fig. 7 is a transverse section on line 7*a*—7*a* of Fig. 1 with the tumblers shown moved to release position by the ordinary service key employed for operating the lock;

Fig. 8 is a transverse section substantially on the line 8*a*—8*a* of Fig. 1 showing one of the carrier tumblers, the parts being in the position corresponding to that shown in Fig. 7;

Fig. 9 is a transverse section similar to Fig. 7 with all of the operating parts removed from the cylinder;

Fig. 10 is a transverse section corresponding to Fig. 7 but with a master key substituted for the regular key shown in Fig. 7;

Fig. 11 is a front view of the lock barrel drawn to a reduced scale and showing the relative positions of the main and change key slots;

Fig. 12 is a perspective view of the means operated by the change key to condition the lock for the reception of a new key;

Fig. 13 is a transverse section drawn to an enlarged scale corresponding substantially to Fig. 4 but with the barrel rotated into position to permit of the insertion of the change key within the lock;

Fig. 14 is an enlarged transverse section showing the parts shifted by the change key to release the tumblers in order to permit them to accommodate themselves to the new key inserted in the plug;

Fig. 15 is a perspective view of the tumbler carrying means, and

Fig. 16 is a view showing a master key for releasing the lock, which corresponds to the key shown in operating position in Figs. 10 and 14.

Similar reference numerals throughout the several views indicate the same parts.

One of the important features of the invention resides in a change key arrangement in combination with a cylinder lock where-

by to afford greater protection than has been possible to obtain heretofore with locks of this type. In previous locks of this class used on the doors of offices and residences or apartments, which are vacated from time to time and subsequently rented to different parties, it has been a relatively easy matter for unscrupulous persons before moving out to have duplicate keys made which will later afford them free entrance to the quarters which they formerly occupied. Thus it will be seen that it is highly desirable not only for the reasons stated above, but for other reasons as well to provide a cylinder lock which can quickly and easily be converted into what practically amounts to a new lock and which cannot be unlocked by any outstanding previously used key or keys in the hands of persons who may have had possession of such keys.

The present cylinder lock has been designed particularly with the idea in view of overcoming the objections pointed out above, which are being raised against cylinder locks of the rotary plug type now in use. The design of the lock including the change key arrangement is compact, simple, and practical in construction and embodies comparatively few additional parts not likely to get out of order and which are relatively inaccessible and therefore cannot be tampered with when once assembled.

The arrangement comprises generally a series of wafer-like tumblers or locking parts within the plug, operated by suitable actuating elements responsive to the proper key and adjustable within the plug to assume different operating positions with respect to the tumblers. Adjustment of the tumblers is effected by a unitary device responsive to a change key when the plug and tumblers are in a predetermined release position. A unitary device is also provided for moving the tumblers to release position, said device being responsive to a master key regardless of the particular service key which the parts may have been conditioned to receive.

The lock is designed to be operated by any one of a series of different operating or service keys, according to whichever one it has been made responsive to by a previous adjustment, effected by means of a suitable instrument which constitutes a change key. It is also preferably made responsive to a master key to be retained by one having authority to make use of the same when the occasion demands, such use preferably not being affected by conditioning the lock from time to time for control by different service keys. With the arrangement shown, the change key cannot be employed until after the plug has been unlocked and moved to a predetermined release position.

Referring to the drawings, 10 represents a door bolt of any suitable type which is shown in a more or less conventional manner in Fig. 1 and which is suitably supported, as for example, within a housing 11 arranged to be connected with the door and preferably to be disposed within a recess formed therein. The housing includes a removable plate or wall 12 at one side thereof which carries a support 13 for the rear end of the bolt, the latter being preferably slotted at 14 to receive the reduced portion of the support as shown in Fig. 1. A spring 15 tends at all times to urge the bolt to advanced or locking position, the front end of the bolt being guided by the front end wall of the housing.

Arranged to extend partially through the wall of the door and connected with the housing 11 therein is a lock cylinder or casing 16, threadedly engaging the wall of the housing as shown in Fig. 1 and held against accidental release by a set screw 17. On the front end of the cylinder is a detachable escutcheon plate 18 arranged for engagement with the face of the door at one side thereof and counter-bored or recessed to receive the head 19 of the barrel or rotary plug 20 shown detached from the cylinder in Fig. 3. The plug is held against longitudinal movement in the cylinder by a pin 21, Fig. 1, which is inserted through an opening in the wall of the cylinder and projected into an annular recess 22 formed in the rear end of the plug. The plug is thus permitted to rotate within the cylinder but is held against withdrawal therefrom while at the same time operating to secure the escutcheon plate upon the outer end of the cylinder, the plate being held against rotation preferably by a pin 23 thereon arranged to take into the door, not shown. The reduced rear end portion 24 of the plug may be formed integral therewith or made detachable if desired by screwing it into the plug. A stud 25 is carried by the reduced end 24 of the plug and is eccentrically arranged with respect to the axis of the plug for the purpose of shifting the bolt upon rotation of the plug.

The plug is provided with a pair of transversely extending slots 27 and a group of intermediate slots 28, the former arranged to receive the non-locking tumbler carrying elements 29, Figs. 2 and 15, and the latter being arranged to receive the locking tumblers 30 shown in locking position in Figs. 2 and 6. The slots are separated by vertically disposed walls 31 having certain openings therein as best shown in Fig. 9. These openings include the keyway slot 32, the vertical slots 33 for the downward passage of the tumbler lifting bar 29*a*, the angular shaped slots 34 and the upper and lower openings 35, all as shown in Fig. 9. The cylinder 16 is provided with a longitudinally extending slot 16*a* for receiving the lower ends of the locking tumblers 30.

The tumblers 30 are operated by individual actuating members 36 having laterally extending key receiving portions 37, said members being disposed in the slots 28 and the portions 37 lying beneath the angular shaped bar 38 extending longitudinally of the plug through the slots 34 in the walls 31 of the plug. The bar 38 is preferably held in position by peaning over the upper end portions of the walls 31 at the points 39 indicated in Fig. 3, and as shown at 39*a* in Fig. 7. At the ends of the angle bar the wall of the plug is also peaned over at the points 40, Fig. 3, as indicated at 40*a* in Fig. 2.

The locking tumblers 30 and the actuating elements 36 therefor are provided with cooperating teeth 30*a* and 36*a* respectively, which interengage in the different positions at which the actuating elements are adjusted with respect to the locking tumblers. The tumblers are moved to locking position within the plug upon withdrawal of the key, by springs 41, the upper ends of which are seated upon the horizontal portion of the angle bar 38, the lower ends of which rest upon the transversely extending tooth carrying portions 37 of the actuating members, which overlie the ledge 42 upon which the service key rests as shown in Fig. 7.

One of the service keys for operating the lock is shown at 43 in Fig. 7 in lock releasing position and the master key 44 is shown in the corresponding position in Fig. 8 with the bits 44*a* thereof engaging the portions 45*a* of the laterally extending parts 45 of the tumbler lifting members 29 which carry the bar 29*a* and by which the locking tumblers are elevated to release position when using the master key. When using any one of the service keys 43, the actuating members 36 are moved thereby to shift the locking tumblers to release position as shown in Fig. 7. The locking tumblers when in either locking or release position rest upon the carrier 29*a* extending through the slots 46 of the tumblers, the slots being of sufficient length to permit of the necessary relative movement of the tumblers with respect to the bar when operated by the service keys.

The tumbler actuating elements 36 are provided with upper and lower slots 47 and 48 respectively, through which extend guide and supporting rods 49 the opposite ends of which are disposed within a pair of spaced supporting elements 50 slidably disposed in transversely extending slots 51 formed in the plug or barrel 20, said rods extending through the openings 35 in the partition walls 31 of the plug. The parts 49 and 50 constitute an operating unit for shifting the actuating members 36 to release position with respect to the locking tumblers as shown in Fig. 14 when conditioning the parts for operation by a different service key from that previously employed to operate the lock, said parts 50 having openings 50*a* therein large enough to clear the service or master key when the latter is employed to rotate the plug. The rods 49 are passed through longitudinally extending openings 24*a* formed in the rear end of the plug in registry with the openings in the slides 50. The openings 24*a* may be plugged or guarded by any suitable means, not shown, to prevent longitudinal displacement of the rods. The rods form guides for the tumbler actuating members 36, the upper rod also forming a stop for said members when the latter are shifted to release the tumblers. The lower rod forms a stop for limiting the downward movement of the unit shown in Fig. 15, through engagement thereof with the lower edges 49*a* of the arms 45 of the tumbler carrier when the parts are in the locking position shown in Fig. 6. In this lowest position of the carrier the lower ends of the members 29 are not permitted to extend into the slot 16*a*, and their upper ends are also prevented from projecting within the slot 16*b* as indicated in Fig. 8 when the tumblers are in release position.

The operating unit shown in Figs. 5 and 12 is moved to shift the actuating elements 36 from engagement with the locking tumblers by means of a change key 52 insertable within a slot 53 formed in the rotary plug. Normally a guard or baffle plate 54 prevents insertion of the key within the plug, but when the tumblers have been released by the proper service or master key and the plug rotated through an angle of 90° the key slot 53 is brought into registry with a slot 55 in the guard plate, in which position of the parts the change key can be inserted and advanced to operating position within the plug. The lugs 56 on the operating elements 50 are at this time opposite the slot 16*a* in the cylinder, into which the lugs will move when the operating unit is shifted by the change key to the dotted line position shown in Fig. 14, and in which position the plug is held against rotation by the lugs. In shifting the operating unit, the bits 52*a* of the change key will engage abutments 58 on the slides 50 so that in turning the key in the proper direction the slides will move transversely within the plug during which time the rods 49 will shift the tumbler actuating members 36 to the release position shown in Fig. 14, before the old service key is removed. After removal of the old service key the new key is inserted within the plug and the change key then removed, causing the teeth 30*a* and 36*a* to remesh in proper position.

The slot 16*b* in the cylinder is arranged to receive the upper ends of the tumblers 30 whereby to avoid checking upward movement of said parts at the moment of clearing the slots 16*a*, thus making it difficult to effect release of the lock by a picking operation. To increase the difficulty of picking the lock the

tumblers are notched at 30*a* and the walls of the cylinder at 31*a* whereby to render it practically impossible to tell by the feel or touch method just when the tumblers have reached the proper release position, the notches 31*a* being particularly effective for this purpose since by the provision of the same there are no shoulders left at these points for engagement by the ends of the tumblers to make it possible to determine by the sense of touch when to discontinue the shifting movement of the individual tumblers.

The guard plate 54 is disposed within an annular recess 60 formed within the plug and is held in fixed relation with respect to the cylinder by means of the projecting lugs 61 positioned within the slots 16*a* and 16*b* of the cylinder and into which they are moved when the escutcheon plate is moved into engagement with the cylinder. It will be understood that the escutcheon plate is inserted upon the plug before positioning the latter within the cylinder and that when the plug is moved to the position shown in Fig. 1 and the key or pin 21 is inserted through the wall of the cylinder into the groove 22 of the plug, the latter, though free to rotate, is held against longitudinal movement and cannot be removed until the set screw 17 is moved to release position, after which the cylinder can be unscrewed from the housing 11 to render the pin 21 accessible for removal from the cylinder. With this arrangement neither the cylinder nor the plug can be removed when the door is locked since the securing parts are inaccessible when the door is closed and secured by the bolt.

It will be understood that the present change key cylinder lock, irrespective of the housing 11 and locking parts therein, constitutes a complete and improved locking unit which can be employed as a lock for various devices or closures to be protected and that it can readily be adapted for controlling different forms of securing mechanisms for such devices and closures.

In the operation of conditioning the lock for control by a new operating or service key, the old key is first inserted within the plug and operated to release the tumblers and to rotate the plug through an angle of 90° to the position at which the change key can be inserted. The change key can then be operated to shift the slides 50 and rods carried thereby to the position shown in Fig. 14, in which the teeth of the actuating elements 36 are disengaged from those of the tumblers. The old service key is then withdrawn and the new key inserted at which time the actuating elements will accommodate themselves to the new key under the pressure of the springs 41. The change key can then be operated to effect reengagement of the actuating elements with the tumblers and then withdrawn and the lock operated by the new key, the old key being no longer effective as a means for releasing the tumblers. It will be understood that the change just described may also be effected by using the master key to release the tumblers and to rotate the plug to the position for receiving the change key, after operation of which the master key is withdrawn and the new key inserted and operated as previously described.

I claim:

1. In a change key cylinder lock, the combination of a cylinder, a plug rotatable therein, key controlled locking parts associated with the plug and arranged for cooperation with the cylinder to lock the plug against rotation, and mechanism mounted within the plug for rotation therewith adapted for controlling said parts to condition them for response to a different key, said mechanism being operable independently of said key.

2. In a change key cylinder lock, the combination of a cylinder, a plug rotatable therein, adjustable key controlled locking parts associated with the plug arranged in one position to cooperate with the cylinder to hold the plug against rotation, and control means associated with the plug responsive to the operation of a change key inserted within the plug to condition said parts for operation by any one of a different number of keys occupying a position within the plug during operation of the change key.

3. In a change key cylinder lock, the combination of a cylinder, a key receiving plug rotatable therein, locking parts associated with the plug arranged for cooperation with the cylinder to lock the plug against rotation, key responsive members for operating said parts adjustable relative thereto, and means for adjusting said members to engage said locking parts in different positions to render said members responsive to operation by different keys, said means being arranged for operation with any one of said keys at rest within the plug.

4. In a change key cylinder lock, the combination of a cylinder, a plug rotatable therein, locking parts within the plug arranged for cooperation with the cylinder to lock the plug against rotation, key responsive members adjustable to different positions within the plug for operation by different keys to effect control of said locking parts, and means within the plug responsive to the insertion of a member therein for effecting adjustment of said key responsive members to render them responsive to the different keys.

5. In a change key cylinder lock, the combination of a cylinder, a key receiving plug rotatable therein, a plurality of key controlled locking devices associated with the plug arranged for cooperation with the cylinder to lock the plug against rotation, each of said devices including parts adjustable one

relative to another to render them responsive to different keys, and means for simultaneously effecting relative adjustment of the parts of each of said devices to condition them for operation by a key different from the previous key employed to operate the same, said means being operable independently of said different key to effect said relative adjustment of the parts.

6. In a change key cylinder lock, the combination of a cylinder, a plug rotatable therein, a plurality of key controlled locking devices associated with the plug arranged for cooperation with the cylinder to lock the plug against rotation, each of said devices including parts adjustable one relative to another to render them responsive to different keys, operating means movable within the plug to shift the adjustable parts of each of the devices to condition said devices for operation by different keys, and a member insertable within a recess formed in the plug arranged to actuate said operating means.

7. In a change key cylinder lock, the combination of a cylinder, a plug rotatable therein, adjustable key controlled locking parts associated with the plug arranged in one position to cooperate with the cylinder to hold the plug against rotation, control elements associated with the plug responsive to the operation of a member inserted within the plug to condition said parts for operation by different keys, and means arranged to block insertion of said member within the plug until the latter has been unlocked and rotated to a predetermined position.

8. In a change key cylinder lock, the combination of a cylinder, a plug rotatable therein, adjustable key controlled locking parts associated with the plug arranged in one position to cooperate with the cylinder to hold the plug against rotation, control elements associated with the plug responsive to the operation of a member inserted within a recess formed in the plug to condition said parts for operation by different keys, and a guard carried by the cylinder for blocking the insertion of said member within said recess, said guard permitting of the passage of said member into said recess when the plug has been unlocked and rotated to a predetermined position.

9. In a change key cylinder lock, the combination of a cylinder, a plug rotatable therein, locking parts within the plug arranged to cooperate with the cylinder to hold the plug against rotation, adjustable key responsive devices associated with the plug arranged to control said locking parts and to be conditioned for response to different operating keys, conditioning means for said device, and means associated with the plug for moving the locking parts to release position, said means being responsive to a master key arranged for insertion within the plug.

10. In a change key cylinder lock, the combination of a cylinder, a plug rotatable therein, locking parts within the plug arranged to cooperate with the cylinder to hold the plug against rotation, adjustable key responsive devices associated with the plug arranged to be conditioned for response to different operating keys for releasing said locking parts, conditioning means for said devices and means movable within the plug arranged to effect simultaneous movement of said locking parts to release position and adapted to be operated by a master key inserted within the plug.

11. In a change key cylinder lock, the combination of a cylinder, a plug rotatable therein, a bolt responsive to movement of the plug, locking parts within the plug arranged to cooperate with the cylinder to hold the plug against rotation, key responsive members adjustable within the plug and arranged to be conditioned for operation by different keys to effect release of said locking parts, conditioning means for said members arranged to be operated by a change key inserted within the plug, and a device operable within the plug for shifting said locking parts to release position said device being responsive to a master key inserted within the plug.

12. In a change key cylinder lock, the combination of a cylinder, a plug rotatable therein, locking parts within the plug arranged to cooperate with the cylinder to hold the plug against rotation, key responsive members adjustable within the plug and arranged for operation in different positions by different keys to effect release of said locking parts, means within the plug for adjusting said members to said different positions, and a device adjustable within the plug arranged to simultaneously move said locking parts from locking position and to support them in release position, said device being movable relative to said key responsive members and arranged for operation by a master key inserted within the plug.

13. In a lock, the combination of a cylinder, a plug rotatable therein, a bolt arranged to be operated by the plug, locking parts within the plug arranged to cooperate with the cylinder to hold the plug against rotation, key responsive members within the plug for operating said locking parts, and a device within the plug movable relative to said members to move said locking parts from locking to release position, said device being responsive to a master key when operated within the plug.

14. In a lock, the combination of a cylinder, a plug rotatable therein, a bolt operatively connected with the plug, locking means within the plug responsive to an operating key and arranged for cooperation with the cylinder to hold the plug against rotation, and means associated with the plug movable relative to said locking means and arranged

to be actuated by a different key from said operating key when inserted within the plug whereby to move said locking means to release position.

15. In a lock, the combination of a cylinder, a plug rotatable therein, locking means within the plug comprising relatively movable locking parts arranged to cooperate with the cylinder to hold the plug against rotation, said parts being relatively adjustable by means of a change key operable within the plug to condition them for operation by different service keys, and a guard associated with the plug and preventing insertion of the change key within the plug while the latter is in normal locked position.

16. In a lock, the combination of a cylinder, a plug rotatable therein, locking means within the plug comprising relatively movable locking parts arranged to cooperate with the cylinder to hold the plug against rotation, said locking means being movable to release position by an operating key inserted within the plug, and a device within the plug movable relative to and forming a carrier for said locking parts, said device being responsive to a second key different from the first when inserted within the keyway of the latter and being movable by the second key to effect release of said locking parts.

17. In a change key cylinder lock, the combination of a cylinder having a plurality of abutments thereon, a plug rotatable within the cylinder, a bolt arranged for operation by the plug, a plurality of locking parts movable within the plug to engage said abutments to hold the plug against rotation, a key controlled operating member for each of said parts, said members being adjustable to different positions to operatively engage the locking parts in which positions said members are responsive to different operating keys inserted in a common keyway formed in the said plug, and a device movable within the plug to effect adjustment of said members and responsive to an operating element inserted within a recess formed in the plug in spaced relation to said keyway.

18. A change key lock comprising a cylinder having abutments formed thereon, a plug rotatable within the cylinder, locking parts slidable within the plug for engagement with said abutments whereby to lock the plug against rotation, key responsive operating members for said locking parts, said members and locking parts having cooperating teeth permitting adjustment of said members to different operating positions upon said locking parts whereby to render them responsive to different operating keys, and means within the plug arranged to receive a change key operable to adjust said members to permit them to accommodate themselves to the different operating keys inserted within the plug.

19. A change key lock comprising a cylinder having abutments formed thereon, a plug rotatable within the cylinder, locking parts slidable within the plug for engagement with said abutments whereby to lock the plug against rotation, key responsive operating members for said locking parts adjustable relative thereto, said members and locking parts having cooperating teeth in all operating positions thereof, a device movable within the plug to adjust said operating members to render them responsive to the different operating keys inserted within the plug, and a recess formed in the plug for receiving a member arranged to operate said devices to effect adjustment of said operating members.

20. A change key lock comprising a cylinder having abutments formed thereon, a plug rotatable within the cylinder, locking parts slidable within the plug for engagement with said abutments whereby to lock the plug against rotation, key responsive operating members for said locking parts adjustable relative thereto, guiding and supporting means for said operating members adjustable within the plug to move said key responsive members to and from operating position with respect to said locking members, and a recess formed in the plug for receiving a member arranged to effect movement of said guiding and supporting means.

21. A change key lock comprising a cylinder having abutments formed thereon, a plug rotatable within the cylinder, a bolt arranged to be operated by the plug, locking parts movable within the plug for engagement with said abutments whereby to lock the plug against rotation, key responsive operating means for said locking parts adjustable to different positions within the plug for operation by different service keys and arranged in said different positions to operatively engage said locking parts, and a device movable within the plug and responsive to a change key inserted therein arranged to effect adjustment of said key responsive operating means.

22. A change key lock comprising a cylinder having abutments formed thereon, a plug rotatable within the cylinder, a bolt arranged to be operated by the plug, locking parts movable within the plug for engagement with said abutments whereby to lock the plug against rotation, key responsive operating means for said locking parts adjustable to different positions within the plug for operation by different control keys and arranged in said different positions to operatively engage said locking parts, a device movable within the plug and responsive to a change key inserted therein arranged to effect adjustment of said operating means, and guard means arranged to block insertion of said change key within the plug until

the latter has been unlocked and rotated to a predetermined position.

23. A change key lock comprising a cylinder having abutments formed thereon, a plug rotatable within the cylinder, a bolt arranged to be operated by the plug, locking parts movable within the plug for engagement with said abutments whereby to lock the plug against rotation, key responsive operating members for said locking parts adjustable to different positions within the plug for operation by different control keys and arranged in said different positions to operatively engage said locking parts, a device movable within the plug and responsive to a change key inserted therein and arranged to effect adjustment of said operating parts, and a guard secured within the cylinder between the ends of the plug arranged when the plug is in locked position to block insertion of the change key within the plug and permitting its insertion therein when the plug is unlocked and rotated to a predetermined position.

24. A lock of the class described, comprising a cylinder, a plug rotatable therein, locking parts within the plug responsive to a service key and arranged for cooperation with the cylinder to hold the plug against rotation, an adjustable device within the plug for conditioning said parts for operation by different service keys, said device being responsive to a change key operable within the plug, and means within the plug movable by a master key to effect release of said locking parts, said means being limited in its movement in one direction by said adjustable device.

25. A lock of the class described, comprising a cylinder having oppositely disposed alined slots formed in its walls, a plug rotatable within the cylinder, tumblers movable within the plug having their locking ends normally disposed in one of the slots to hold the plug against rotation, portions of the cylinder wall surrounding the opposite slot being recessed whereby to avoid contacting of the non-locking ends of the tumblers with said wall portions in attempting to pick the lock by relying on the sense of touch to shift the tumblers to release position, adjustable key responsive operating parts within the plug for releasing said tumblers, and means within the plug for adjusting said parts to condition them for response to different operating keys, said means being arranged for operation by a change key with any one of said operating keys at rest within the plug.

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