Aug. 18, 1953 R. H. DIESEL 2,648,972

TUMBLER LOCK WITH FREELY ROTATING KEY PLUG

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Fig. 1.

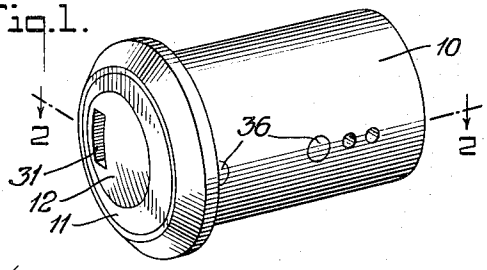


Fig. 2.

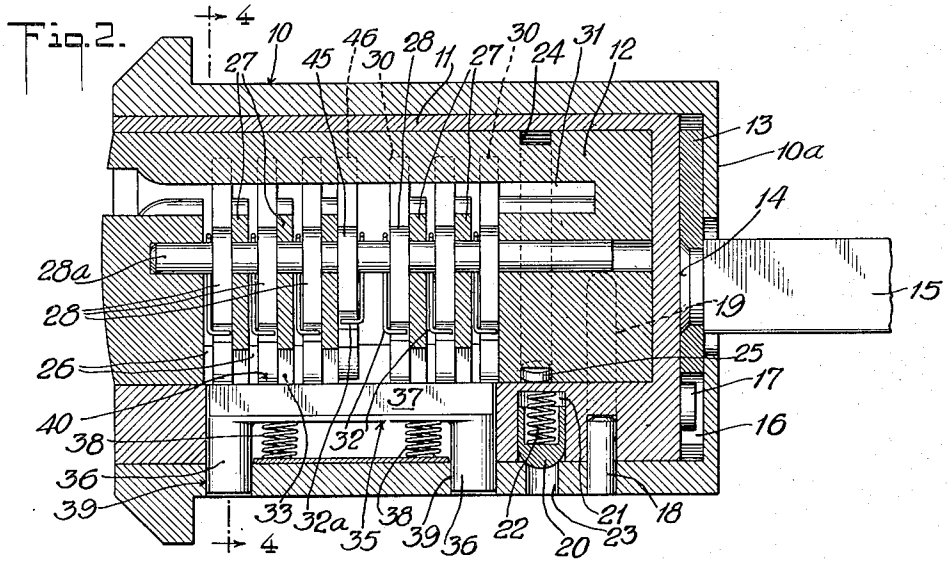
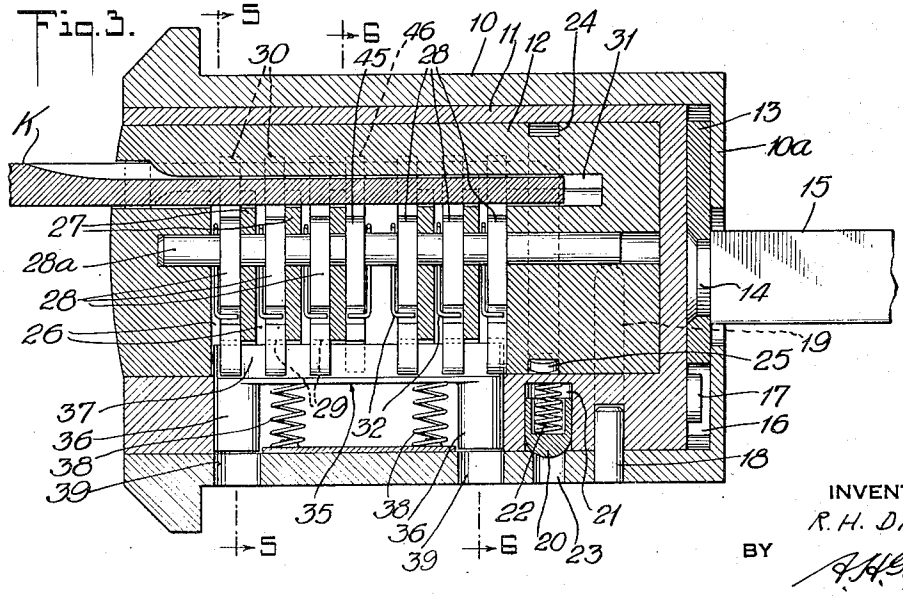


Fig. 3.



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Fig. 4.

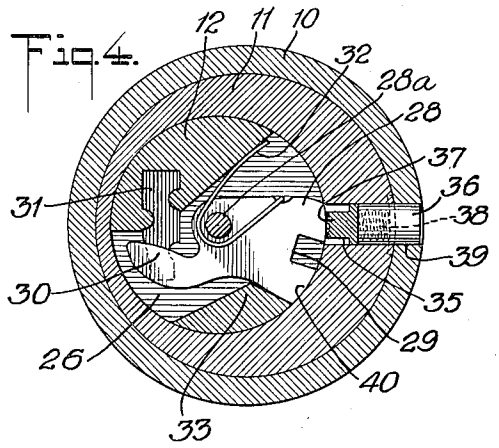


Fig. 5.

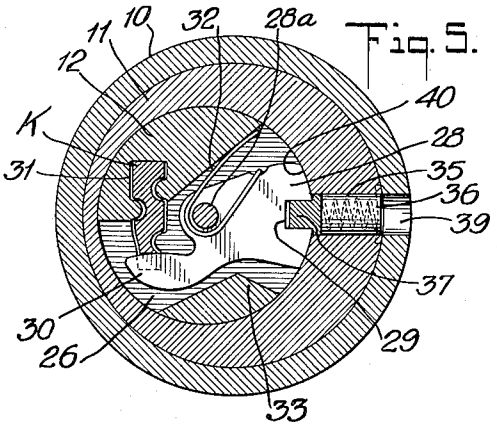


Fig. 6.

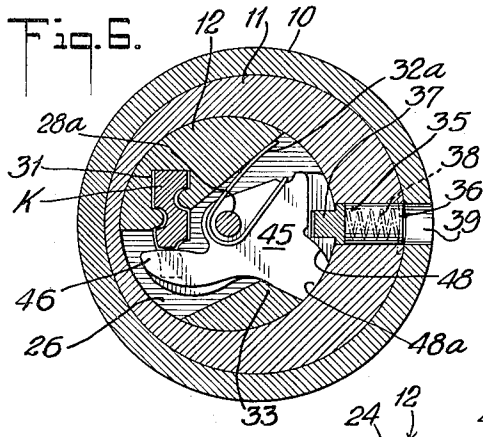


Fig. 7.

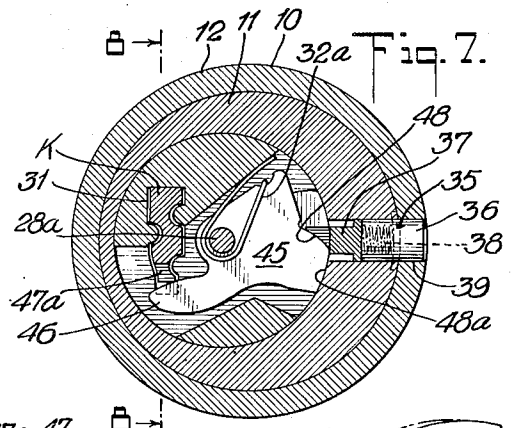


Fig. 8.

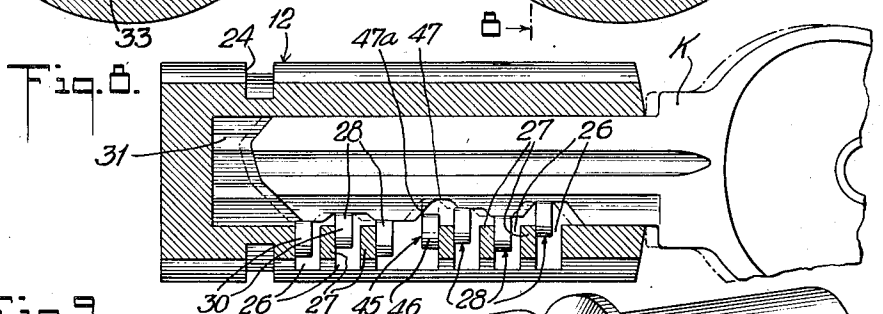
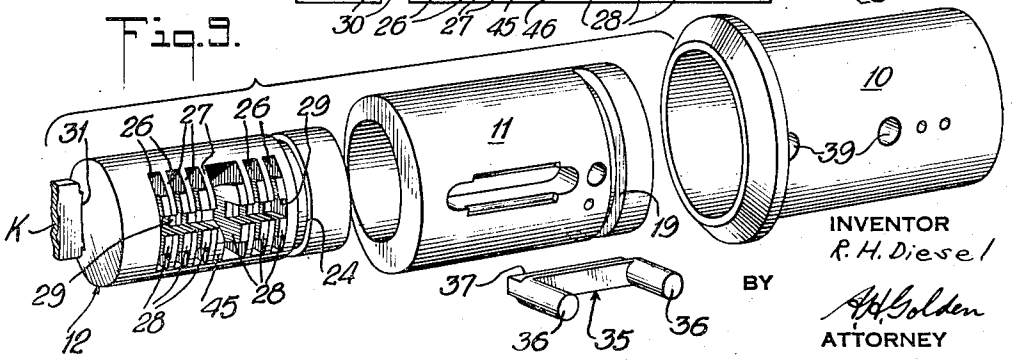


Fig. 9.



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UNITED STATES PATENT OFFICE

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TUMBLER LOCK WITH FREELY ROTATING KEY PLUG

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Application September 3, 1947, Serial No. 771,913

19 Claims. (Cl. 70—366)

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This invention relates to a lock, and more particularly to that type of lock utilizing a key plug whose rotation is controlled by a series of key set tumblers.

It is the object of my invention to contribute a lock in which the key plug, when in locked condition, is freely rotatable. Upon insertion of a proper type of key and the setting of the tumblers to a predetermined position, the key plug is then adapted for rotation together with what may broadly be termed an actuator for operating any type of lock mechanism controlled by the key plug.

Locks utilizing a freely rotating key plug are old and well known in the art, but such locks are generally complex and are difficult to operate. Moreover, in locks of the particular class, the actuator is itself not fully controlled, so that a required degree of security is not obtained.

As a feature of my invention, I contribute a lock having a freely rotating key plug adapted to be clutched to an actuator upon proper setting of a series of tumblers, the actuator being itself locked against effective movement until it is brought into clutching engagement with the key plug.

As a still further feature of the invention, a single clutch member is utilized for locking the actuator to a cylinder or the like, and in turn to lock the actuator to the key plug while releasing the actuator from the cylinder.

As a still further feature of the invention, I contribute a key plug having moving tumblers that normally maintain the clutch member in a position locking the actuator to the cylinder or the like, while the key plug is itself freely rotatable. It is only through a proper positioning of the tumblers that the clutch member is then movable into clutching relation to the key plug while simultaneously releasing the actuator for movement relatively to the cylinder or the like.

As a still further feature of the invention, I use tumblers of the type having gatings into which a fence portion of the clutch member enters upon proper alignment of the gatings. The relationship of the fence and gatings is preferably such that there is a mutual interlock between the two, whereby the fence does not move out of the gatings nor the tumblers move relatively to the fence, once the fence enters the gatings. As a feature of my invention, I utilize an ejector that is actuated for moving the fence out of the gatings of the tumblers when it is desired to relock after an unlocking operation. As a still further feature of this part of the invention, the ejector is

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preferably operated by the action of the key moving outwardly of the key plug.

I have thus outlined rather broadly the more important features of my invention in order that the detailed description thereof that follows may be better understood, and in order that my contribution to the art may be better appreciated. There are, of course, additional features of my invention that will be described hereinafter and which will form the subject of the claims appended hereto. Those skilled in the art will appreciate that the conception on which my disclosure is based may readily be utilized as a basis for the designing of other structures for carrying out the several purposes of my invention.

Referring now to the drawings, Fig. 1 is a perspective view of a cylinder embodying my invention. Actually, my invention may be utilized without a cylinder; thus, the key plug and actuator may be mounted in a handle, door knob, or the like, functioning as the cylinder. Fig. 2 is a section taken along lines 2—2 of Fig. 1. Fig. 3 shows the parts of Fig. 2 with a key inserted and with the tumblers positioned with their gatings in alignment and the fence of the clutch member pressed into the gatings. Fig. 4 is a section taken along lines 4—4 of Fig. 2. Figs. 5 and 6 are sections taken along lines 5—5 and 6—6 respectively of Fig. 3. Fig. 7 shows the parts of Fig. 6 with the key moved outwardly a short distance as demonstrated in Fig. 8. Fig. 8 is a section taken along lines 8—8 of Fig. 7. Fig. 9 is an exploded view of the several parts of my invention.

Referring now more particularly to the drawings, the cylinder in which I here show my invention embodied, is designated generally by reference numeral 10 and has rotating therein a sleeve 11, the sleeve 11 having in turn rotatable therein a key plug 12. Sleeve 11 is the part hereinabove referred to as the lock actuator and will so be called hereinafter.

Located between the end of the lock actuator 11 and the end 10a of the cylinder 10, as best seen in Figs. 2 and 3, is a disc 13 to which is riveted at 14 a spindle 15. This disc 13 is bifurcated at 16 for coaction with a pin 17 on the end of the lock actuator 11. Through this arrangement, rotation of the lock actuator 11 effects the rotation of spindle 15 to operate the usual lock mechanism.

For retaining the lock actuator 11 within the cylinder 10, I utilize a pin 18 carried by the cylinder 10 and operating in a groove 19 of the lock actuator, pin 18 being best illustrated in Fig. 2 while the groove 19 is best shown in Fig. 9. Pin

18 will, of course, function also as a limit member if so desired.

For yieldingly retaining the lock actuator 11 in its locking position, I utilize a plunger 20 mounted in a bore 21 of the lock actuator 11 and spring pressed outwardly thereof by a spring 22. Plunger 20 coacts with a bore 23 in the cylinder for yieldingly retaining the lock actuator in its position of Figs. 2 and 3.

Key plug 12, as best seen in Fig. 9, is formed with a retaining groove 24 in which operates a pin 25 extending from the actuator 11, it being the function of this pin to retain the key plug 12 against removal from the actuator and therefore from the cylinder 10. At this point it will be well to indicate that I have shown in the drawings an actuator extending outwardly toward the front end of the cylinder and accessible at that front end. The construction of my lock mechanism, as will hereinafter appear, makes it possible to so expose the forward end of actuator 11. However, my invention may best be practiced by inserting the actuator 11 from the rear end of the cylinder by elimination of part 10*a*, while forming a head on the forward end of the cylinder for covering the end of the actuator and making it inaccessible.

The key plug of my lock is formed with a series of chambers 26 separated by spacers 27 and in each of these chambers is found a tumbler 28, as is well shown in the several figures of my drawings. The several tumblers are mounted on a single shaft 28*a* carried in bores formed in the key plug 12 as best seen in Figs. 2 and 3. Each tumbler 28 is formed with a gating 29 and with a key actuated tail piece 30, the several tail pieces 30 being in alignment with a keyway 31 of the key plug, and therefore adapted for operation by a suitable key K inserted in the said keyway 31. The several tumblers 28 are each spring pressed by a spring 32 in a clockwise direction as seen in Figs. 4, 5, and 6 toward a limit member 33 formed as an integral part of the key plug.

For coaction with the several tumblers 28, I utilize what I have heretofore termed a clutch member, best shown in Fig. 9, and there designated generally by reference numeral 35. Clutch member 35 is formed with detent legs 36 and a fence 37, it being the function of the fence 37 to coact with the gatings 29 and to enter those gatings when they are aligned properly. Thus, as seen in Fig. 5, the key K has set the several tumblers 28 so that their gatings 29 are in alignment with the fence 37. Fence 37, under the pressure of springs 38 against clutch member 35, has now entered the tumbler gatings. The relationship of the parts is well shown also in Fig. 3 where the fence 37 is also seen in the tumbler gatings, the key K being in the keyway 31.

Cooperating with the detent legs 36 are bores 39 in the cylinder 10, the detent legs 36 lying within the bores when the tumblers are in the position of Figs. 2 and 4; that is, their locking position. With the parts positioned as in Figs. 2 and 4, the key plug is, of course, freely rotatable, the fence merely riding against the peripheral surfaces 40 of the tumblers. Since the gatings 29 of the tumblers will be differently positioned on the several tumblers, the fence 37 will be prevented from movement to the position of Fig. 5 by portions of surfaces 40 of at least some of the tumblers at all times. With the tumblers set as in Fig. 5, the fence will move into the several gatings 29 and the detent legs 36 will move out of the bores 39 of the cylinder 10 as best seen in Fig. 3. When the parts are thus positioned, the clutch member 35 has clutched the key plug 12 to the lock actuator 11 for rotation therewith. Of course, rotation of the key plug and lock actuator effects a rotation of the spindle 15.

It will be noted that the tumbler gatings 29 are rectangular and that the fence 37 of the clutch member 35 is also rectangular in section. Thus, when the parts are in the position of Fig. 5, the tumblers are locked against rotation as the fence is held by springs 38 against outward movement from the gatings 29. Therefore, in order to remove the key K from the lock and in order to effect a locking movement of the clutch member 35 from its position of Figs. 3 and 5 to its position of Figs. 2 and 4, I am required to employ an ejector. This ejector, designated by reference numeral 45, is mounted in the key plug 12 in a relatively large space between two of the conventional tumblers 28. Ejector 45 is preferably mounted on shaft 28*a*, the same shaft on which the tumblers 28 are rotatably mounted, and is spring pressed by a spring 32*a* in a clockwise direction as seen in Fig. 6, in the same general manner as the several tumblers 28.

Ejector 45 is further equipped with a tail piece 46 adapted for coaction with a portion of key K. With the key K out of the key plug 12, the ejector 45 is maintained by the spring 32*a* in the position shown in Fig. 6 against the same stop 33 as the tumblers 28. In this position of the parts the ejector does not function to maintain the fence 37 out of the several gatings 29 of the tumblers. The key K is formed with a very deep bitting shown best in Fig. 8 and there designated by reference numeral 47. It is this bitting that is positioned opposite the tail piece 46 of the ejector 45 when the key K is fully inserted into the lock. Because of this relationship of the parts, the insertion of the key K fully in the lock does not hold the ejector in ejecting position but allows it to remain in its position of Fig. 6. The fence 37 is therefore free to enter the aligned tumbler gatings 29, the key K having so set the tumblers 28 when in its position of Fig. 6 and its dash and dotted line position of Fig. 8.

With the parts in the position of Fig. 6, the movement of the key from the dash and dotted line position of Fig. 8 to the solid line position of Fig. 8, effects a movement of the ejector through coaction of the slope 47*a* of deep bitting 47 with ejector tail piece 46. This relationship of the parts is well illustrated in Fig. 7 where the ejector is shown rotated counter-clockwise from its position of Fig. 6, against the pressure of spring 32*a* by surface 47*a* of the key K. It will there be noted that the cam surface 48 of the ejector 45 has first cammed the fence 37 out of the several tumbler gatings, and that the surface 48*a* of the ejector is now holding the fence out of the tumbler gatings. The key may now be fully withdrawn from the key plug 12 as the tumblers 28 are free to rotate through contact of the fittings of the key K with the several tail pieces 30 of the tumblers.

It will be well to indicate that if so desired, I can form the ejector 45 so that when it is in the extreme position of Fig. 6, it will hold the fence out of the gatings of the tumblers, so that some return movement of the ejector 45 by the key K is required to move the ejector into a release position corresponding to that of Fig. 6. As I have shown my invention, it is in its simplest form, with the ejector merely maintained out of ejecting position by the spring 32*a* and allowed to re-

main in that position by the deep bitting 47 of the key K. Only upon movement of the key K outwardly of the key plug is the ejector moved to eject the fence 37 from the gatings 29 so that the tumblers may rotate and the key fully withdrawn. It should be noted that the tumbler bittings of the key K are flattened to allow surface 47a to operate before any of the tumblers are to be rotated by the key in its movement out of the lock.

Those skilled in the art will now fully appreciate that I have contributed a lock having a key plug that is normally free for rotation so as to be extremely pick resisting. I have also contributed a lock having a lock actuator that is locked against movement at all times except when released through key action and then coupled to a normally freely rotating key plug. The rather ingenious utilization of the tumblers for maintaining my clutch member out of clutching position and for controlling the clutch member will also be fully appreciated by those skilled in the art, as will be the ejector action that makes possible the relocking of my mechanism. I believe that the principle of my contribution to the art and its operation will now be clear.

I now claim:

1. In a lock of the class described, a cylinder, a key plug rotatable in said cylinder, a lock actuator, key set tumblers, means whereby said tumblers are movable in said key plug and rotate bodily with said key plug, means for clutching said key plug to said lock actuator, surfaces on said tumblers for maintaining said clutching means out of clutching position, said tumblers having gatings that when aligned allow movement of said clutching means into said aligned gatings and into clutching position to clutch said key plug to said lock actuator.

2. In a lock of the class described, a cylinder, a key plug rotatable in said cylinder, a lock actuator, key set tumblers movable in said key plug, means for clutching said key plug to said lock actuator, surfaces on said tumblers for maintaining said means out of clutching position whereby said key plug rotates freely relatively to said lock actuator, said tumblers having gatings that when aligned allow movement of said means into said aligned gatings and into clutching position to clutch said key plug to said lock actuator.

3. In a lock of the class described, a cylinder, a key plug rotatable in said cylinder, a lock actuator, key set tumblers movable in said key plug, spring means for pressing said tumblers toward a predetermined position relatively to said key plug, said tumblers being movable by a key in opposition to said spring means, means for clutching said key plug to said lock actuator, surfaces on said tumblers for maintaining said means out of clutching position when said tumblers are pressed toward said predetermined position whereby said key plug rotates freely relatively to said lock actuator.

4. In a lock of the class described, a cylinder, a key plug rotatable in said cylinder, a lock actuator, key set tumblers movable in said key plug, means for clutching said key plug to said lock actuator, surfaces on said tumblers for maintaining said means out of clutching position, a detent portion on said means for locking said lock actuator to said cylinder when said means are held by said tumblers out of clutching position, said tumblers having gatings that when aligned allow movement of said means into said aligned gatings and into clutching position whereby to clutch said key plug to said lock actuator while releasing said lock actuator from said cylinder whereupon said key plug and lock actuator rotate together.

5. In a lock of the class described, a cylinder, a key plug rotatable in said cylinder, a lock actuator, key set tumblers movable in said key plug, springs means for pressing said tumblers toward a predetermined position, said tumblers being movable by a key in opposition to said spring means, means for clutching said key plug to said lock actuator, surfaces on said tumblers for maintaining said means out of clutching position when said tumblers are pressed toward said predetermined position whereby said key plug rotates freely relatively to said lock actuator, a detent portion on said means for locking said lock actuator to said cylinder when said means are held by said tumblers out of clutching position, said tumblers having gatings that when aligned by key operation allow movement of said means into said aligned gatings and into clutching position whereby to clutch said key plug to said lock actuator.

6. In a lock of the class described, a cylinder, a key plug rotatable in said cylinder, a lock actuator, key set tumblers movable in said key plug, means for clutching said key plug to said lock actuator, surfaces on said tumblers coincidental with the surface of the key plug for maintaining said means out of clutching position, said tumblers having gatings that when aligned allow movement of said clutching means inwardly of said key plug into said aligned gatings whereby to clutch said key plug to said lock actuator, the gatings of said tumblers being non-camming with relation to said means whereby said tumblers are locked against movement by said means when said means enter said gatings, and a camming ejector for engaging said clutching means to eject said means from said gatings, said ejector moving out of ejecting position when said tumblers are set by a key.

7. In a lock of the class described, a cylinder, a key plug rotatable in said cylinder, a lock actuator, key set tumblers movable in said key plug, means for clutching said key plug to said lock actuator, surfaces on said tumblers for maintaining said means out of clutching position, said tumblers having gatings that when aligned allow movement of said means into said aligned gatings and into clutching position whereby to clutch said key plug to said lock actuator, the gatings of said tumblers being non-camming with relation to said means whereby said tumblers are locked against movement by said means when said means enter said gatings, and a camming ejector for engaging said clutching means to eject said means from said gatings.

8. In a lock of the class described, a cylinder, a key plug rotatable in said cylinder, a lock actuator, key set tumblers movable in said key plug, means for clutching said key plug to said lock actuator, surfaces on said tumblers for maintaining said means out of clutching position, said tumblers having gatings that when aligned allow movement of said means into said aligned gatings and into clutching position to clutch said key plug to said lock actuator, the gatings of said tumblers being formed with outlining surfaces substantially radial and parallel to the surfaces of the means entering said gatings whereby to be in non-camming relation thereto so that said tumblers are locked by said means against movement upon entry of said means in said gatings, a spring pressed ejector mounted in said key plug, and means whereby said ejector when moved by a key

ejects said clutching means from said gatings, said ejector moving out of ejecting position when the tumblers are set by the key.

9. In a lock of the class described, a cylinder, a sleeve rotatable in said cylinder, a key plug rotatable in said sleeve, key set tumblers mounted for movement in said key plug and having peripheral portions movable along the outer periphery of said key plug, said peripheral portions of said tumblers having gatings therein, a clutch member for clutching said key plug to said sleeve, the peripheral portions of said tumblers holding said clutch member out of clutching position until said gatings are aligned by key action whereupon the entry of said clutch member in said gatings and into clutching position clutches said key plug and sleeve for rotation together relatively to said cylinder.

10. In a lock of the class described, a cylinder, a sleeve rotatable in said cylinder, a key plug rotatable in said sleeve, key set tumblers mounted for movement in said key plug and having peripheral portions, said peripheral portions of said tumblers having gatings therein, a clutch member for clutching said key plug to said sleeve, the peripheral portions of said tumblers holding said clutch member out of clutching position until said gatings are aligned by key action whereupon the entry of said clutch member in said gatings and into clutching posiiton clutches said key plug and sleeve for rotation together relatively to said cylinder.

11. In a lock of the class described, a cylinder, a sleeve rotatable in said cylinder, a key plug rotatable in said sleeve, key set tumblers mounted for movement in said key plug and having peripheral portions, said peripheral portions of said tumblers having gatings therein, spring means for pressing said tumblers toward a predetermined position, said tumblers being movable by a key in opposition to said spring means, a clutch member for clutching said key plug to said sleeve, the peripheral portions of said tumblers holding said clutch member out of clutching position when said tumblers are pressed towards said predetermined position so that said key plug rotates freely relatively to said sleeve and cylinder, the alignment of said gatings by key action effecting the entry of said clutch member in said gatings and into clutching position to clutch said key plug and sleeve for rotation together relatively to said cylinder.

12. In a lock of the class described, a cylinder, a sleeve rotatable in said cylinder, a key plug rotatable in said sleeve, key set tumblers mounted for movement in said key plug and having peripheral portions, said peripheral portions of said tumblers having gatings therein, a clutch member for clutching said key plug to said sleeve, the peripheral portions of said tumblers holding said clutch member out of clutching position until said gatings are aligned by key action whereupon the entry of said clutch member in said gatings clutches said key plug and sleeve for rotation together relatively to said cylinder, and a detent portion on said clutch member for locking said sleeve to said cylinder when said clutch member is held by said tumblers out of clutching position.

13. In a lock of the class described, a cylinder, a sleeve rotatable in said cylinder, a key plug rotatable in said sleeve, key set tumblers mounted for movement in said key plug and having peripheral portions, said peripheral portions of said tumblers having gatings therein, spring means for pressing said tumblers toward a predetermined position, said tumblers being movable by a key in opposition to said spring means, a clutch member for clutching said key plug to said sleeve, the peripheral portions of said tumblers holding said clutch member out of clutching position when said tumblers are pressed towards said predetermined position so that said key plug rotates freely relatively to said sleeve and cylinder, the alignment of said gatings by key action effecting the entry of said clutch member in said gatings and into clutching position to clutch said key plug and sleeve for rotation together relatively to said cylinder, and a detent portion on said clutch member for locking said sleeve to said cylinder when said clutch member is held by said tumblers out of clutching position.

14. In a lock of the class described, a cylinder, a sleeve rotatable in said cylinder, a key plug rotatable in said sleeve, key set tumblers mounted for movement in said key plug and having peripheral portions movable along the outer periphery of said key plug, said peripheral portions of said tumblers having gatings therein, a clutch member for clutching said key plug to said sleeve, the peripheral portions of said tumblers holding said clutch member out of clutching position until said gatings are aligned by key action whereupon the entry of said clutch member in said gatings clutches said key plug and sleeve for rotation together relatively to said cylinder, the gatings of said tumblers being non-camming with relation to said clutch member whereby said tumblers are locked against movement by said clutch member when said clutch member enters said gatings, and a camming ejector engaging said clutch member for ejecting said clutch member from said gatings, said ejector moving out of ejecting position when the tumblers are set by a key.

15. In a lock of the class described, a cylinder, a sleeve rotatable in said cylinder, a key plug rotatable in said sleeve, key set tumblers mounted for movement in said key plug and having peripheral portions movable along the outer periphery of said key plug, said peripheral portions of said tumblers having gatings therein, a clutch member for clutching said key plug to said sleeve, the peripheral portions of said tumblers holding said clutch member out of clutching position until said gatings are aligned by key action whereupon the entry of said clutch member in said gatings clutches said key plug and sleeve for rotation together relatively to said cylinder, the gatings of said tumblers being non-camming with relation to said clutch member whereby said tumblers are locked against movement by said clutch member when said clutch member enters said gatings, and a camming ejector engaging said clutch member for ejecting said clutch member from said gatings.

16. In a lock of the class described, a cylinder, a sleeve rotatable in said cylinder, a key plug rotatable in said sleeve, key set tumblers mounted for movement in said key plug and having peripheral portions, said peripheral portions of said tumblers having gatings therein, spring means for pressing said tumblers toward a predetermined position, said tumblers being movable by a key in opposition to said spring means, a clutch member for clutching said key plug to said sleeve, the peripheral portions of said tumblers holding said clutch member out of clutching position when said tumblers are pressed to-

wards said predetermined position so that said key plug rotates freely relatively to said sleeve, the alignment of said gatings by key action effecting the entry of said clutch member in said gatings to clutch said key plug and sleeve for rotation together relatively to said cylinder, the gatings of said tumblers being non-camming with relation to said clutch member whereby said tumblers are locked against movement by said clutch member when said clutch member enters said gatings, and a camming ejector engaging said clutch member for ejecting said clutch member from said gatings, said ejector moving out of ejecting position when the tumblers are set by a key.

17. In a lock of the class described, a cylinder, a sleeve rotatable in said cylinder, a key plug rotatable in said sleeve, tumblers pivotally mounted in said key plug on an axis parallel to the axis of rotation of said key plug and having each a peripheral portion moving in substantial alignment with the outer periphery of said key plug, said peripheral portions of said tumblers having gatings formed therein, spring means pressing said tumblers toward a predetermined position, said tumblers being movable by a key against the pressure of said spring means to bring said gatings into alignment, a clutch bar mounted for movement relatively to said key plug, sleeve and cylinder, a spring pressing a part of said clutch bar toward said gatings and for entry into said gatings whereby to clutch said key plug to said sleeve when said gatings are aligned, said key plug being freely rotatable in said sleeve when said tumbler gatings are not aligned, said clutch bar then riding at least partially on the peripheral portions of said tumblers, and a detent portion on said clutch bar for locking said sleeve to said cylinder when said clutch bar is out of the tumbler gatings, the entry of the clutch bar into the tumbler gatings releasing said sleeve for rotation with said key plug relatively to said cylinder.

18. In a lock of the class described, a cylinder, a sleeve rotatable in said cylinder, a key plug rotatable in said sleeve, tumblers pivotally mounted in said key plug on an axis parallel to the axis of rotation of said key plug and having each a peripheral portion moving in substantial alignment with the outer periphery of said key plug, said peripheral portions of said tumblers having gatings formed therein, spring means pressing said tumblers toward a predetermined position, said tumblers being movable by a key against the pressure of said spring means to bring said gatings into alignment, a clutch bar mounted for movement relatively to said key plug, sleeve and cylinder, a spring pressing a part of said clutch bar toward said gatings and for entry into said gatings whereby to clutch said key plug to said sleeve when said gatings are aligned, said key plug being freely rotatable in said sleeve when said tumbler gatings are not aligned, said clutch bar then riding at least partially on the peripheral portions of said tumblers, a detent portion on said clutch bar locking said sleeve to said cylinder when said clutch bar is out of the tumbler gatings, the entry of the clutch bar into the tumbler gatings releasing said sleeve from said cylinder and for rotation with said key plug relatively to said cylinder, the gatings of said tumblers being formed with substantially radial outlining surfaces substantially parallel to the surfaces of the clutch bar entering said gatings whereby to be in non-camming relation thereto so that said tumblers are locked by said clutch bar against movement upon entry of said clutch bar in said gatings, a spring pressed ejector mounted in said key plug, and means whereby said ejector when moved by a key ejects said clutch bar from said gatings, said ejector moving out of ejecting positions when the tumblers are set by the key.

19. In a lock of the class described, a cylinder, a sleeve rotatable in said cylinder, a key plug rotatable in said sleeve, tumblers pivotally mounted in said key plug on an axis parallel to the axis of rotation of said key plug and having each a peripheral portion moving in substantial alignment with the outer periphery of said key plug, said peripheral portions of said tumblers having gatings formed therein, spring means pressing said tumblers toward a predetermined position, said tumblers being movable by a key against the pressure of said spring means to bring said gatings into alignment, a clutch bar mounted for movement relatively to said key plug, sleeve and cylinder, a spring pressing a part of said clutch bar toward said gatings and for entry into said gatings whereby to clutch said key plug to said sleeve when said gatings are aligned, said key plug being freely rotatable in said sleeve when said tumbler gatings are not aligned, said clutch bar then riding at least partially on the peripheral portions of said tumblers, a detent portion on said clutch bar locking said sleeve to said cylinder when said clutch bar is out of the tumbler gatings, the entry of the clutch bar into the tumbler gatings releasing said sleeve from said cylinder and for rotation with said key plug relatively to said cylinder, the gatings of said tumblers being non-camming with relation to said clutch bar whereby said tumblers are locked against movement by said clutch bar when said clutch bar enters said gatings, a camming ejector, and means whereby a key when moving relatively to said key plug ejects said clutch bar from said gatings, said ejector moving out of ejecting position when said tumblers are set by the key.

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