Sept. 5, 1967 H. GREENWALD 3,339,384

TUMBLER LOCK

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FIG.1

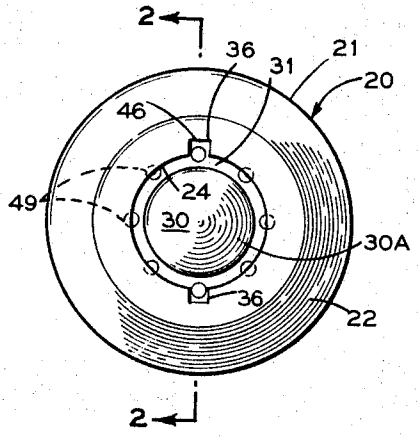


FIG.2

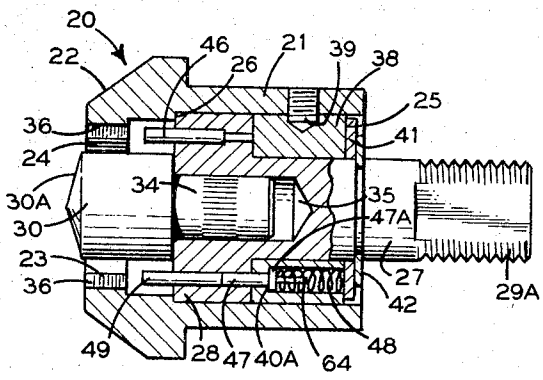


FIG.14

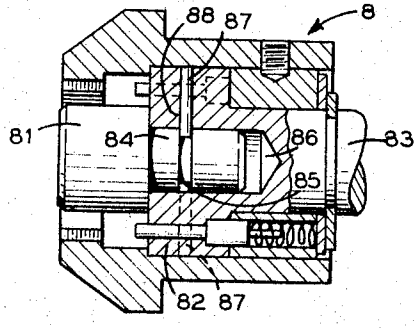


FIG.13

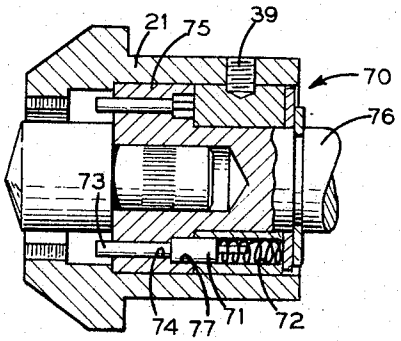


FIG. 4

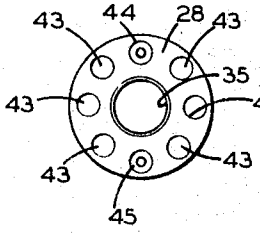


FIG. 3

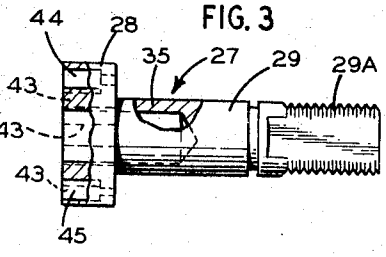


FIG. 5

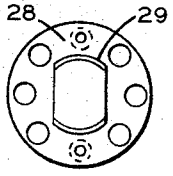
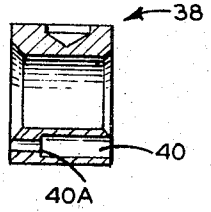


FIG.6



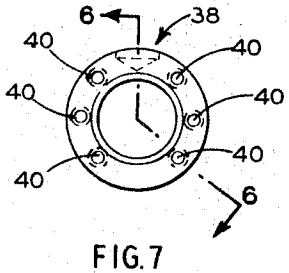


FIG.7

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FIG. 12

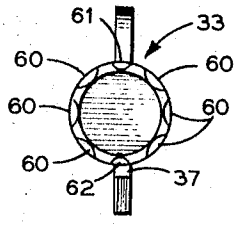


FIG. 11

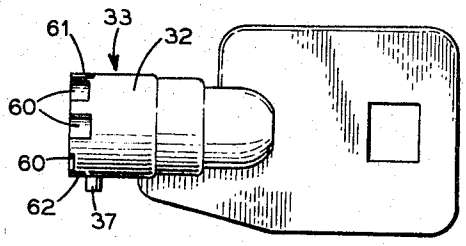


FIG. 8

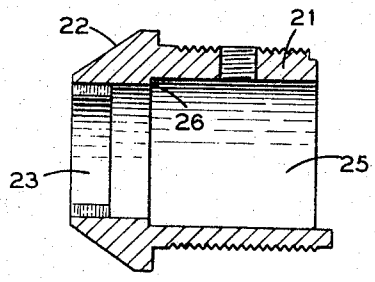


FIG. 9

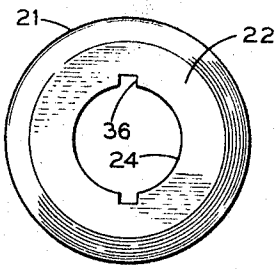
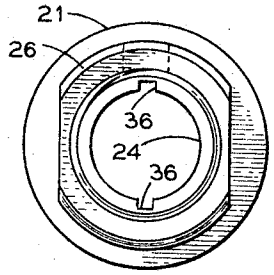


FIG. 10



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3,339,384

TUMBLER LOCK

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Filed July 6, 1965, Ser. No. 469,601
12 Claims. (Cl. 70—363)

ABSTRACT OF THE DISCLOSURE

This invention is directed to a tumbler lock and a complementary key means constructed so as to insure the key means first setting the code pins of the tumbler lock to permit alignment of the code pins so as to render the lock members rotatable with respect to one another before the driving connection is established between the key means and one of the movable lock members. The invention further contemplates a lock pin construction for such tumbler locks whereby such pins can be retained within their respective bores in the event the lock is disassembled for any reason. Also the lock pins are constructed with means to limit axial movement thereof so as to prohibit overstressing of the springs acting thereon when efforts are made to pick such locks.

This invention relates in general to a tumbler type lock or the like, and more specifically to a tumbler type lock adapted for use on vending or coin operated machines that is particularly constructed and arranged to render the lock theft proof.

Heretofore tumbler locks of the type to which this invention relates were constructed so as to render them vulnerable to picking. Consequently, operators of coin operated machines and vending machines secured by the prior known lock constructions have suffered a considerable amount of loss due to the skill which certain unscrupulous persons have developed in picking the locks of the prior known constructions. It has been discovered that the unscrupulous lock pickers are successful in picking the locks previously used on vending machines or the like because they have been able to apply a torque on the rotary component of the lock prior to the setting up of the code pins which must be set to render the lock operative. By so doing, the lock picker could individually set the respective code pins and thus successfully open the lock. Because the key of the prior construction was engaged in driving position before the code pins are set, the pickers by applying a rotary driving force on the rotary member of the lock with a tool simulating a key could effect limited rotary movement of the rotary member of the lock due to the working tolerances of the tumbler pins and their respective bores an amount sufficient to permit the picker to set one or more of the code pins. By successfully performing the operation a number of times, the picker could eventually set each of the code pins so that the lock was finally rendered operative. As a result, unscrupulous pickers have developed a considerable amount of skill in picking such lock solely because such locks were constructed in a manner which permitted the key to engage in driving relationship with the rotary member of the lock before the code pins had been set.

Another disadvantage which has been noted in the tumbler locks of prior construction was in the picking of such locks, it was also necessary for the picker to exert a considerable axial force to displace the pins, and in doing so would frequently overstress the springs. With the spring means acting as tumbler pins stressed beyond the resilient limits, the lock was rendered unreliable in use, and would have to be either extensively repaired or replaced. Another effort employed to gain unauthorized access to the money box of a coin operated or vending machine was to attempt to drill through the lock assembly. For this reason hardened plugs or key guides have been utilized to deter such drilling. However, each such hardened key guides merely deterred and did not solve the problem of drilling through the lock.

Another disadvantage noted in the tumbler locks of the type utilized on vending and/or coin operated machines was that extreme difficulty had been encountered by an operator of such vending machines in changing the coding of the lock. The reason for this was that the locks of known construction did not utilize any positive means for retaining the tumbler pins within the lock. Consequently, when such locks were taken apart to change the coding thereof, the pins would frequently pop out and become lost or misplaced.

It is, therefore, an object of this invention to overcome each of the foregoing noted disadvantages by providing a tumbler lock construction that is rendered theft proof.

It is another object of this invention to provide a tumbler lock in which the drive connection is not affected until after the code pins have been set.

It is another object of this invention to provide a tumbler lock construction adapted for use on coin operated or vending machines in which the coding of the pin can be readily changed in the field.

It is another object of this invention to provide a tumbler lock in which the tumbler pins are positively retained in the lock so as to enhance the changing of the coding of the lock by a relatively unskilled person in the field.

Another object of this invention is to provide means for limiting the movement of the tumbler pins so as to prohibt over stressing of the spring means acting thereon by a would be lock picker.

Another object of this invention is to provide a rotary type tumbler lock with freely rotatable key guide so as to prohibt drilling through the lock.

Still another object of this invention is to provide a lock construction which can be manufactured and assembled with relative ease, and which is simple and positive in operation.

The foregoing objects, and other features and advantages are attained by a tumbler lock construction comprising a tubular housing, and a pair of juxtapositioned members disposed within the housing which are arranged for relative movement with respect to one another. Each of the respective members is provided with a plurality of axially aligned bores formed thereon. A set of lock pins are mounted in the bores of one of the said members, and a set of cooperating code pins are disposed within the bores of the other member. Cooperatively associated and operating on the lock pins are means for normally biasing the respective lock pins so that the end portions thereof extend into the aligned bores of the other member to prohibit relative movement therebetween in the lock position of the lock.

In accordance with this invention a key means, for effecting axial displacement of the code pins to set the lock pins a corresponding amount to effect disengagement of the lock pins from the other member, is provided with means for affecting the driving connection between the key and the rotary member only after the code pins and locking pins have been set to effect relative rotation of the lock members when the key is turned.

Means are provided for positively retaining each of the lock pins within their respective bores so that assembly of the lock and/or changing of the code pins can be facilitated. Also in one form of the invention a means is provided for rotatably journalling the key guide of the lock so as to render the same freely rotatable in the assembled position thereof. Means are provided in accordance with this invention for limiting the axial displace-

ment of the lock pins within their respective bores so as to prohibit over stressing of the resilient or spring means acting thereon.

A feature of this invention resides in a tumbler lock construction and key therefor wherein cooperating drive means are provided on the key and the lock to effect a driving connection between the key and the lock only after the code pins have been set by the key.

Another feature of this invention resides in means for positively retaining the lock pin within the bore of its associated lock member.

Another feature of this invention resides in means for limiting the axial displacement of the lock pins within their respective bores so as to prohibit over stressing of the spring means operating thereon.

Another feature of this invention resides in the provision of a key guide mounted for free rotational movement with respect to the key plug of the lock.

Another feature of this invention resides in the relative ease with which the coding of the lock construction can be changed at will.

Another feature of this invention resides in the provision of a tumbler lock construction specifically constructed and arranged to prohibit would be pickers from unauthorized opening of the lock.

Other features and advantages will become more readily apparent when considered in view of the drawings and specification in which:

FIGURE 1 is a front end view of a tumbler lock construction embodying the instant invention.

FIGURE 2 is a cross-sectional view of the lock taken along line 2—2 on FIG. 1.

FIGURE 3 is a detail view of the plug member of FIG. 2 having portions thereof shown in section.

FIGURE 4 is a left end view of the plug member of FIG. 3.

FIGURE 5 is a right end view of the plug member of FIG. 3.

FIGURE 6 is a detail sectional view of the pipe member incorporated in the lock construction of FIG. 2.

FIGURE 7 is a left end view of the pipe member of FIG. 6.

FIGURE 8 is a cross-sectional view of the lock housing.

FIGURE 9 is a left end view of the lock housing of FIG. 8.

FIGURE 10 is a right end view of the lock housing of FIG. 8.

FIGURE 11 is a side elevation view of a key construction adapted to operate on the lock of FIGURE 2.

FIGURE 12 is a left end view of the key of FIGURE 11.

FIGURE 13 illustrates a cross-sectional view of a modified form of the invention.

FIGURE 14 is a cross-sectional view of still another modified form of the invention.

Referring to the drawings, FIGURES 1 through 8 disclose a tumbler lock construction **20** of this invention adapted for use on coin operated or vending machines. Such locks are employed to permit authorized access only to the coin box and/or operating mechanism of such machines.

As shown, the tumbler lock **20** comprises of a tubular housing **21** having a front facing portion **22** terminating in an inturned flange **23** to define an angular front opening **24**. Between the opened ends of the housing **21** is a bore **25** for housing the component parts of the lock as will be hereafter described. The bore **25** terminates in an internal annular shoulder **26** that is spaced inwardly from the inturned flange **23** or front opening **24** of the housing **21**. Disposed within the bore **25** of the housing is a plug member **27**. The plug member **27** is provided with a head end portion **28** and a connected stem portion **29** of reduced cross-section. As shown, the head end portion **28** is provided with an outer periphery which is sized to be received within the bore **25** of the housing with the front face of the head end portion **28** disposed in abutting relationship with the internal shoulder **26** of the housing. The arrangement is such that the plug member **27** is rendered free to rotate within the bore **25** of the housing. Connected to the head end portion **28** of the plug **27** is a key guide **30**.

As shown in FIGURE 2, the enlarged end portion **30A** of the key guide **30** is provided with a circumference which is spaced from the circumference defined by the flange **23** forming the front opening of the housing. Accordingly, an angular space **31** is defined between the exterior circumference of the key guide **30** and the inner circumference of the inturned flange **23** to define a key opening for receiving the cylindrical shank **32** of a key **33** illustrated in FIGURES 11 and 12. The shank **34** of the key guide **30** is force fitted into a bore **35** formed in the plug member **27**.

The inturned flange **23** defining the front opening of the housing is provided with a notched portion to define a key way **36**. Accordingly, as it will be hereinafter described, the key way provides the means adapted to align with a lug **37** formed on the key **33** for orientating the cylindrical shank **32** of the key **33** with respect to the lock to effect the actuation thereof.

An annular pipe member **38** is mounted on the stem portion **29** of the plug **27** within the tubular housing **21**. The arrangement is such that the front facing of the annular pipe member **38** is disposed contiguous to the head end portion **28** of the plug **27**. The annular pipe member **38**, in turn is fixed against relative rotation with respect to the housing **21** by means of a set screw **39** which is threaded through a tapped opening extending through the wall portion of the housing **21**.

In accordance with this invention the annular pipe member **38** is provided with a plurality of circumferentially spaced bores **40** extending longitudinally therethrough. A washer **41** positioned on the stem **29** of the plug member **27** is disposed contiguous the rear facing of the pipe member **38** to form a base or bottom for the bores **40** extending through the pipe member. A retainer ring **42** secures the annular pipe member **38** and associated washer **41** in position on the stem **29** of the plug member **27**. The extended end portion **29A** of the stem **29** may be threaded for receiving a suitable lock washer or lock nut (not shown) by which the lock is secured to the cooperating mechanism of the vending machine which is also not shown.

Referring more particularly to FIGURES 2, 3 4, and 5 the head end portion **28** of the plug member **27** is also provided with a plurality of longitudinally extending bores **43**. As shown a pair of opposed bores **44–45** are counterbored for receiving a drive pin **46** which has an end portion extending forwardly of the head end portion **28** of the plug. The other bores **43** formed in the head end portions are axial aligned with the bores **40** of the annular pipe member **38** in the lock position of the lock.

In accordance with this invention, a lock pin **47** is disposed in each of the bores **40** in the pipe member **38**. A means is provided for affecting positive retention of the lock pins **47** within each of its respective bores **40**.

As best seen in FIGURE 2 positive retention of the lock pins **47** in the bores **40** is accomplished by providing the bore **40** with an internal shoulder **40A** as by counterboring, and by providing the pins **47** with a complementary flange **47A** adapted to abut against the shoulder **40A** so formed. Interposed between the shoulder end **47A** of the pin **47** and the washer **41** closing the rear end of the respective bores **40** is a resilient spring means **48** for normally biasing the pins **47**. In the illustrated form of the invention the spring means **48** comprises a coil spring which is utilized to normally urge or project the lock pins **47** into the aligned bores **43** of the head end portion in the locked position of the lock. Accordingly, the ends of the respective pins **47** projecting through the bore

40 of the pipe member and into the aligned bore 43 of the head end member 28 serves to prohibit relative rotation between the plug member 27 and the annular pipe member 38.

Disposed within each of the aligned bores 43 of the head end portion 28 is a code pin 49. It will be understood that the code pins 49 are of different lengths. The arrangement being such that each of the code pins 49 is required to be set or axially displaced a predetermined amount so that each of the cooperating lock pins 47 are axially displaced a corresponding amount, when properly set, the adjacent abutting end portions of the respective cooperating lock pins 47 and code pins 49 are disposed in alignment with the respective contiguous face portions of the head end portion 28 of the plug 27 member and the annular pipe member 38. Accordingly, rotation of the plug member 27 relative to the pipe member can be affected upon the turning of the key when the abutting ends of the pins 47, 49 align with the contiguous faces of members 28 and 38.

Referring to FIGURES 11 and 12 there is shown therein the key construction 33 adapted to be utilized to operate on the lock described with respect to FIGURE 2. As shown, the key comprises a tubular stem portion 32 which is adapted to be inserted into the annular spacing 31 defined between the key guide 30 and the inturned flange 23 of the front facing. Projecting radially adjacent the tip end of the tubular key stem 32 is a lug 37 which is adapted to be received in a key way 36 defined in the front facing of the lock housing 21 to properly align or orientate the key 33 with respect to the code pins 49 of the lock.

Circumferentially spaced about the outer circumference of the tubular shank 32 of the key are a plurality of notched portions 60 to define a seat to accommodate the respective extended end portions of the code pins 49. As best seen in FIGURE 11 the axial length of the respective notch or seats 60 formed about the outer circumference of the key vary in accordance with the respective code pins, the relative lengths of the key seats 60 being determined by the respective lengths of the code pins adapted to be received therein.

The oppositely opposed recess or seats indicated at 61 and 62 are provided to make engagement or connection with the drive pins 46 projecting forwardly of bores 44, 45 of the plug member 27. Accordingly, it is to be noted that the engagement of the drive pin notches or seats 61, 62 on the key with the drive pins 46 of the plug member is not affected until the respective code pin seats 60 have made engagement with the respective code pins 49 and have displaced them accordingly. Thus the turning torque which the key 33 applies to the head end member 28 upon turning thereof cannot be effected until each of the respective code pins 49 has been set to an unlocking position. With the construction described it will be apparent that a would be picker cannot impart a torque or rotative force on the head end 28 of the plug 27 before setting of the code pins 49. Consequently, the lock picking techniques heretofore applied on the locks of prior constructions cannot be utilized on the lock construction herein described. This is because the lock herein described is constructed and arranged to render void the technique heretofore employed in picking locks of the type to which the instant invention relates.

Means are also provided for prohibiting the over stressing of the spring members 48 acting on the lock pin 47 in the event an excessive force applied to the lock pins as in an attempt to pick the lock. These means comprise of a limit pin 64 which extends rearwardly of the respective lock pin 47. Accordingly, it will be noted that when an excessive axial force applied to the code pins 49 which in turn is imparted to the lock pin 47, the force will be limited or resisted by the engagement of the limit pin 64 against the washer 41 closing the ends of the bores 40. Thus, the limit pin 64 functions to positively limit the displacement of the lock pin 47 within its respective bore 40

and consequently limit the compression applied on the spring 48.

FIGURE 13 is a modified form of the invention. FIGURE 13 disloses a lock 70 which is similar in all respects to the construction described with reference to FIGURES 1 through 8 with the exception that the means for effecting positive retention of the lock pins 71 within their respective bores 72 has been modified. In this form of the invention it is to be noted that the lock pins 71 are provided with a diameter which is slightly greater than that of the respective code pins 73 cooperating therewith. Accordingly, the bores 74 in the head end portion 75 of the plug member 76 accommodating the code pin are counter bored at one end to define a seat 77 for receiving the projected end of the enlarged diameter lock pins 71. Accordingly, the head end portion 75 of the plug member 76 functions to retain the lock pin 71 in their respective bores 72.

Consequently, whenever it is desired to effect a change in the coding of the lock to either of the locks described with respect to FIGURES 2 or 13, an operator in the field merely has to remove the internal working parts i.e. the plug and pipe member of the lock from the housing by disengaging the set screw 39. The plug 27, 76; the pipe secured on the stem of the plug, and the key guide can then be readily removed through the back end of the housing 21. Accordingly, the code pins may be readily removed, and in doing so the lock pins are positively retained in position within their respective bores as is apparent from the construction of either FIGURES 2 or 13. Accordingly, the respective code pins may be rearranged and/or replaced with varying sized code pins to alter a particular combination of the lock. However, with every change in the combination of a lock, it will be apparent that a new key will have to be constructed to accommodate the change of the code pins. Accordingly, with the coding of the lock so changed, the working portions of the lock are again returned to position within the housing, and the housing secured in place by locking of the set screw. Accordingly, the lock is ready for use with a new combination.

FIGURE 14 illustrates still another modified form of lock in accordance with this invention. In this form of the invention the key guide 81 is arranged so as to be freely rotatable with respect to the head end portion 82 of the plug member 83, to which it is secured. This is attained by providing the stem portion 84 of the key guide 81 with an annular groove 85. The head end portion 82 of the plug member 83 is provided with a central bore 86 to receive the stem portion 84 of the key guide 81. The dimensions of the stem 84 is such that the key guide 81 is rendered freely rotatable with respect to the head end portion 82 of the plug member 83. Means in the form of retaining pins 87 are utilized for rotatably journaling the key guide 81 within the bore 86 of the plug member 83. As shown, the head end portion 82 of the plug member 83 is provided with a pair of opposed radially extending bores 88 arranged to be disposed in alignment with the annular groove 85 formed in the stem 84 of the key guide in the assembled position thereof. Accordingly, the retaining pin 87 disposed within the radial bore 88 are arranged so that the inner ends thereof extend into the annular groove 85 of the guide key. Thus, the retaining pins 88 in the assembled position of the lock function to positively retain the key guide 81 to the plug member 83 so that the guide 81 is rendered freely rotatable with respect to the head end portion of the plug 83.

With the key guide 81 rendered freely rotatable with respect to the head end portion 82 of member 83 of the lock; attempts to drill through the lock by placing a drill bit against the end of the key guide is rendered ineffective as the key guide 81 would rotate with the drill bit. Thus, drilling of the key guide 81 is prohibited thereby.

With respect to the embodiments shown in FIGURES 2 and 13, it will be noted that the key guide may be made of either a hardened steel or softer material as may be desired by a particular vending machine operator. In other respects, the operation of the lock as disclosed in the embodiments of FIGURES 13 and 14 is similar to that described with respect to FIGURE 2.

While the instant invention has been described and illustrated with respect to several embodiments thereof, it will be readily understood and appreciated that variations and modifications may be made without departing from the spirit or scope of this invention.

What is claimed is:

1. A tumbler lock comprising:
a housing,
a pair of juxtapositioned relatively movable members disposed within said housing,
each of said members having a plurality of axially aligned bores formed therein,
lock pins mounted in the bore of one of said members,
means for normally biasing said lock pins so that the ends of said respective lock pins extend into the aligned bores of said other member to prohibit relative movement therebetween,
code pins disposed in the bore of said other member,
a key guide,
means for connecting said key guide for free relative rotation with respect to said other member,
and a key means for effecting axial displacement of said code pins and lock pins a proportional amount to disengage said lock pins from said other member,
and complementary means on said key means and said other member for effecting a driving connection between said key means and said other member whereby said driving connection is engaged only after said code pins have been displaced a proportional amount necessary to permit relative movement between said members.

2. The invention as defined in claim 1 wherein each of said lock pins include means for limiting the axial displacement thereof within their respective bores.

3. A tumbler lock comprising:
(a) a housing,
(b) a pair of juxtaposition members disposed within said housing for relative rotational movement with respect to one another,
(c) each of said members having a plurality of axially aligned bores formed therein,
(d) lock pins mounted in the bore of one of said members,
(e) means normally biasing said lock pins so that the ends of said lock pins extend into the aligned bores of said other member to prohibit relative movement therebetween,
(f) means for positively retaining each of said lock pins in its respective bore,
(g) a code pin disposed in each of the bores of said other member whereby said code pins are in contiguous relationship with the ends of said lock pins for effecting axial displacement of said lock pins, a key guide, and means for connecting said key guide for free relative rotation with respect to said other member to deter the drilling of said lock,
(h) and a key means for effecting axial displacement of said code pins and lock pins a proportional amount to disengage said lock pins from said other member,
(i) and, complementary means on said key means and said other member for effecting a driving connection between said key means and said other member whereby said driving connection is engaged only after said code pins have been displaced the proportional amount necessary to permit relative rotational movement between said members.

4. The invention as defined in claim 3 wherein said latter means for effecting the drive includes:
(a) a drive pin projecting forwardly of said other member,
(b) and, means formed on said key for engaging with said drive pin only after said code pins have been displaced to permit relative movement between said members whereby the torque of turning said key means imparts a rotary movement to said other member.

5. A lock construction comprising:
(a) a plug member having a plurality of bores extending axially therethrough,
(b) a pipe member mounted contiguous to said plug member,
(c) said pipe member having a plurality of bores formed therein, said bores being disposed in axial alignment with the bores of said plug member,
(d) a lock pin located in each bore of said pipe member,
(e) spring means normally biasing each of said lock pins so that the ends of said lock pins normally extend into the aligned bore in said plug member to normally prohibit relative rotation between said plug and pipe members,
(f) a code pin disposed in each bore of said plug member,
(g) said code pins being of varying lengths,
(h) a key guide connected to said plug member,
(i) a lock housing encasing said pipe and plug members,
(j) said housing defining with said key guide an annular key opening,
(k) a key way formed in said housing,
(l) a drive means connected to said plug member,
(m) key means for operating said lock when inserted into said key opening,
(n) said key means including a complementary driving means to engage the drive means of said plug,
(o) and, means formed on said key means for engaging each of said code pins for displacing each of them axially within their respective bores a predetermined amount sufficient to retract the respective lock pins into their respective bore so as to permit relative rotation of the plug member to open the lock only after the drive means has been engaged,
(p) and means for connecting said key guide for free relative rotation with respect to said plug member to deter drilling of said lock.

6. A lock construction comprising:
(a) a plug member having a head end portion and a connected stem portion,
(b) said head end portion having a plurality of bores extending axially therethrough,
(c) said bores being circumferentially spaced about said head,
(d) a pipe member mounted on the stem of said plug whereby said plug member may rotate relative to said pipe member,
(e) said pipe member having a plurality of bores formed therein, said bores being circumferentially spaced so as to be disposed in axial alignment with the bores in said plug,
(f) means for connecting said pipe on said stem in contiguous relationship to the head end portion,
(g) a lock pin located in each bore of said pipe member,
(h) spring means normally biasing each of said lock pins so that the ends of said lock pins normally extend into the aligned bores of said head end portion to normally prohibit relative rotation between said plug and pipe member,
(i) a code pin disposed in each bore of said head end portion,
(j) said code pins being of varying lengths,

(k) a key guide connected to said plug, means for rotatably connecting said key guide to said plug,
(l) a lock housing encasing said pipe and plug members,
(m) said housing having an inturned lip covering the axis of the bores of said head end portion, said lip being slightly spaced from the face of said plug,
(n) a key way formed in the lip of said housing,
(o) a drive means connected to the face of said plug member adjacent said inturned lip,
(p) key means for operating said lock,
(q) said key means including a complementary driving means adapted to engage the drive means of said plug member,
(r) and, means formed on said key means for engaging each of said code pins for displacing each of them axially within their respective bores a predetermined amount sufficient to retract the respective lock pins into their respective bore a corresponding amount to permit relative rotation of the plug to open the lock as the key means is turned.

7. A tumbler lock comprising:
(a) a tubular housing having an inturned annular flange to define the front facing of said lock,
(b) means defining an internal shoulder formed on the interior of said housing intermediate the ends thereof and spaced from the inner surface of said flange,
(c) a plug having a head end portion and a connected reduced stem portion rotatably journalled within said housing,
(d) said head end portion being disposed to abut against said internal shoulder of said housing,
(e) an annular pipe member mounted on the stem portion of said plug whereby said pipe member is disposed contiguous to the head end portion of said plug,
(f) means for securing said pipe member within said housing and fixed thereto whereby said plug may rotate relative to said pipe member upon the actuation of said lock,
(g) said pipe having a plurality of bores circumferentially spaced therearound,
(h) and said head end portion of said plug having corresponding bores circumferentially spaced therearound disposed in axial alignment with the bores of said pipe member in the locked position of said lock,
(i) the axis of said bores being disposed behind the flange of said housing,
(j) a key guide connected to the head end of said plug,
(k) said key guide and flange defining therebetween an annular space to form a key opening,
(l) a lock pin disposed in each bore of said pipe member,
(m) means biasing each of said lock pins so that the end portions thereof normally project into the corresponding aligned bore of said head end portion in the normal locked position thereof,
(n) a code pin disposed in each of the bores of said head end portion of the plug,

(o) the ends of the respective code pins extending forwardly of said head end portion,
(p) said lock pins and code pins being disposed in axial end-to-end relationship so that axial displacement of said code pin a predetermined amount effects retraction of said lock pins against its biasing means a corresponding amount sufficient to effect disengagement of said lock pins from the bore of said head end portion,
(q) a drive means connected to the front of said head end portion of said plug member,
(r) and, a key means operative to engage said code pins and said drive means whereby said code pins are axially displaced prior to the engagement of said drive means by said key means so that the drive of said plug member upon the turning of said key means is affected only after displacement of said code and lock pins to their respective operative lock turning position has been attained,
(s) and means for rotatably journalling said key guide relative to the head end portion of said plug member to prohibit the drilling of the same.

8. The invention as defined in claim **7** wherein said drive means includes a pin projecting forwardly of said head end portion of said plug, and said key means includes a plurality of notched out portions on the external surface thereof to define seats for receiving driving pin and code pins.

9. The invention as defined in claim **7** wherein said lock pin includes stop means to limit the axial displacement thereto to prohibit overstressing said biasing means.

10. The invention as defined in claim **7** and including means for retaining said lock pins within their respective bores to enhance changing of the code pins.

11. The invention as defined in claim **10** wherein said latter means includes an internal shoulder formed in the bores of said pipe member, and said lock pins each having a complementary flange to abut against said shoulder for retaining said lock pin within its respective bore.

12. The invention as defined in claim **10** wherein said latter means includes a counter bore formed in the respective bores of the head end portion to receive the projected ends of said lock pins.

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