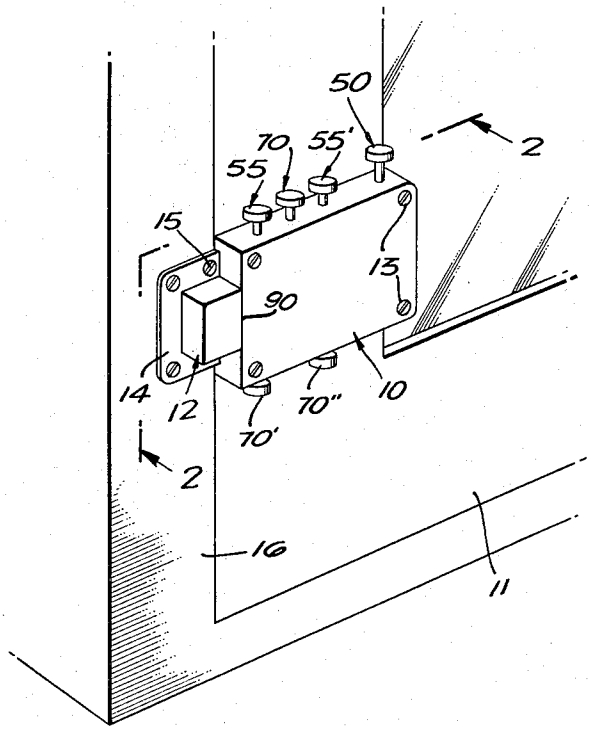
Aug. 29, 1961 C. B. FRY 2,997,872

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FIG. 1.



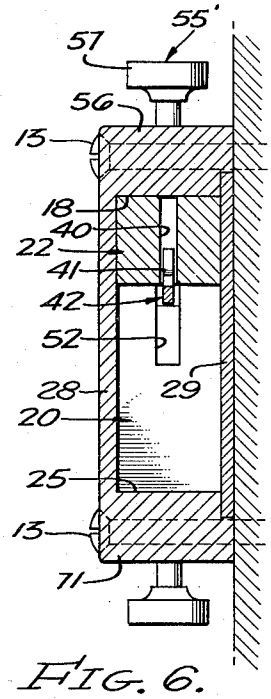


FIG. 6.

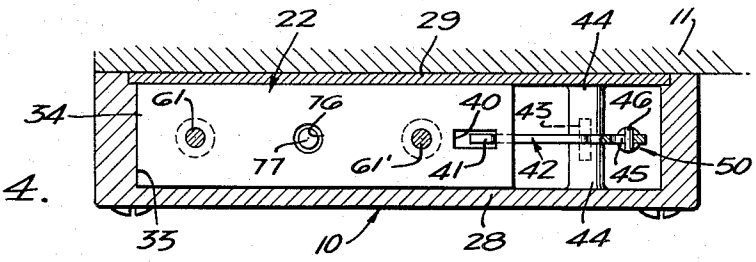


FIG. 4.

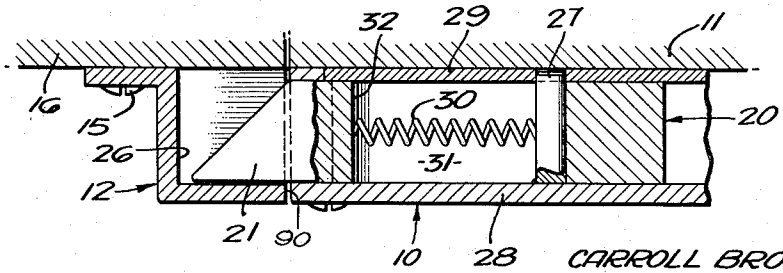


FIG. 5.

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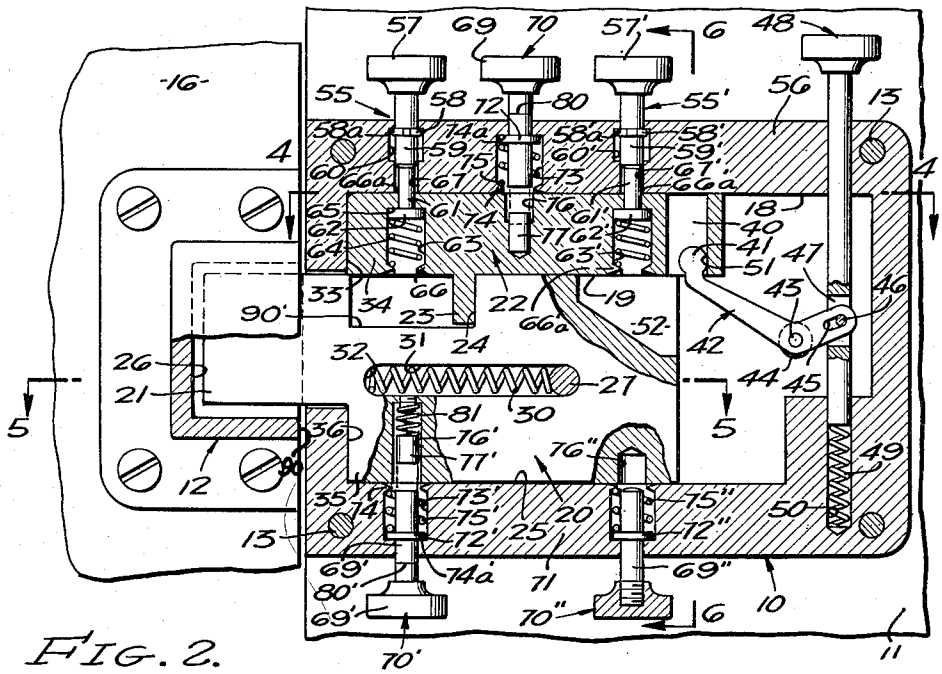


FIG. 2.

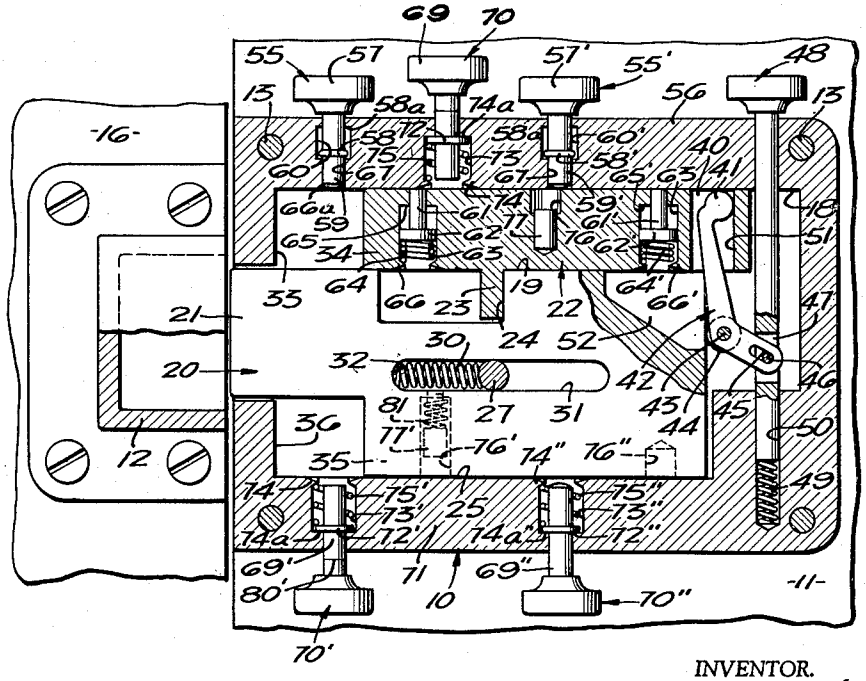


FIG. 3.

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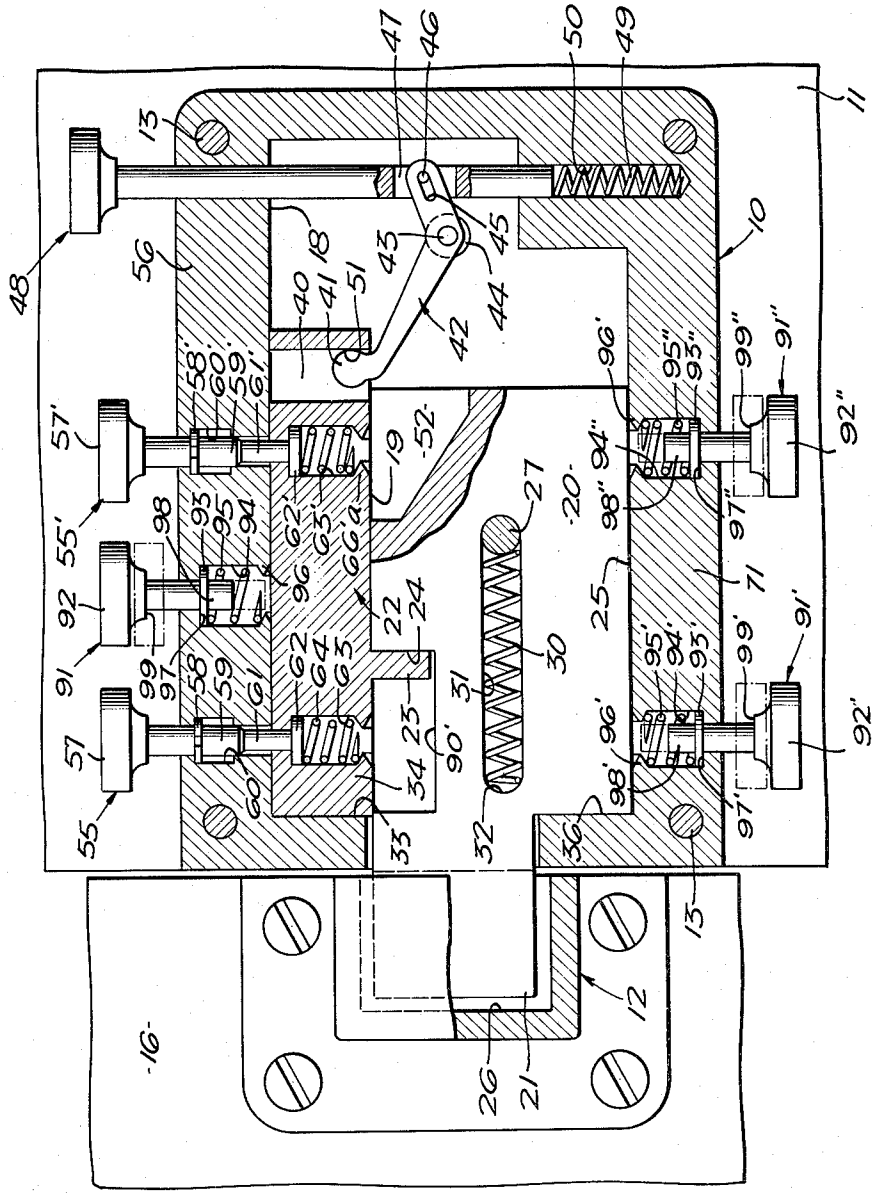


FIG. 7.

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United States Patent Office 2,997,872 Patented Aug. 29, 1961

2,997,872

LOCK

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Filed Oct. 2, 1958, Ser. No. 764,796
15 Claims. (Cl. 70—156)

This invention relates to a lock mechanism and is particularly concerned with a lock having digitally operated tumblers.

It is often desirable where children are concerned, that a door latch be provided which cannot be operated easily by a child, yet which can be readily actuated by an adult. With conventional door latches, the latch can generally be operated by a child who has the normal muscular coordination. Hence, when it is desired that a child should not be allowed to open a door, generally the latch must be locked, for example, by a key. This is usually inconvenient when it is desired to open the door fairly often, for example, in the case of a door on a medicine chest.

Accordingly, the object of this invention is to design a lock or latch which requires a degree of digital dexterity for operation, which most children ordinarily do not have, but which adults do possess, so that it can be operated readily by an adult but cannot be operated ordinarily by infants or children.

I have found that the above objects can be accomplished by providing a lock structure having a plurality of digitally operated tumblers, only a portion of which, hereinafter referred to as the active tumblers, are required to be actuated simultaneously for operating a mechanism to withdraw removable interferences to open the lock. Preferably several tumblers are required to be simultaneously or serially actuated for opening the lock. The lock is designed so that if any of the other tumblers provided, hereinafter referred to as the inactive tumblers, are manipulated, the lock will not operate. The inactive tumblers may be in the nature of decoys which have no operative connection with the movable elements of the locking structure but function only to confuse a child and make it more difficult for the child to manipulate the active tumblers in proper sequence to operate the lock. In a preferred embodiment if the inactive tumblers are manipulated, they will provide an interference against movement of the lock mechanism to prevent operation thereof. Under these circumstances, the inactive tumblers can be designed, but need not necessarily, to require further manipulation before the lock is again operable. The tumblers are particularly located and purposely intermingled in a coded manner so that proper operation of the lock first of all requires a knowledge of which ones of the plurality of tumblers must be actuated and which of the tumblers should not be manipulated, in order to operate the lock. It then requires a certain degree of digital dexterity to manipulate those active tumblers in the coded sequence which must be actuated while refraining from touching those tumblers which should not be handled.

These two requirements render it difficult for a child to actuate the lock since even if the child does have knowledge of the code, its muscular coordination is usually such that not only is it difficult for the child to operate all of those tumblers in the sequence required for opening the lock, but the location of those tumblers which should not be actuated among those which must be operated is such that in fumbling about the child will accidentally or otherwise manipulate the former and prevent actuation of the lock.

The invention will be more clearly understood by the following description of the invention taken in connection with the accompanying drawings wherein:

FIG. 1 is a perspective view in elevation of one embodiment of the lock structure of the invention;

FIG. 2 is a vertical section partly in elevation through the lock taken on line 2—2 of FIG. 1, showing the position of the tumblers when the lock is closed;

FIG. 3 is a view similar to FIG. 2, but showing the position of the tumblers when the lock is open;

FIG. 4 is a horizontal section taken on line 4—4 of FIG. 2;

FIG. 5 is a horizontal section taken on line 5—5 of FIG. 2;

FIG. 6 is a vertical section taken on line 6—6 of FIG. 2; and

FIG. 7 is a view similar to FIG. 2 of a modification of the lock structure of the invention.

Referring to the figures of the drawing, and particularly FIG. 1, the numeral 10 designates the case or housing of the lock structure of the invention which is mounted by means of screws 13 along the vertical edge of a door 11. The door may be a door of a medicine cabinet, or any other door. Positioned adjacent the housing 10 on the door frame 16 is a keeper housing 12 which is connected to the door frame 16 by means of screws 15.

Referring now more particularly to FIGS. 2 and 3 of the drawing, there is positioned within the housing 10 a slidable latch frame 20 having a tongue 21 integrally connected to one end of the latch frame. It will be noted that in the forward or locked position of the lock the tongue 21 is disposed within the interior of the keeper housing 12 and when the latch frame 20 is displaced to the right for opening the lock, the tongue 21 is displaced so that it is no longer within the interior 26 of the keeper housing 12.

Resting on the upper surface 19 of the latch frame 20 is a latch actuator 22 to which is integrally connected a depending dog 23. The dog 23 is in abutting relation with a vertical shoulder 24 formed on the latch frame 20. The latch actuator 22 is slidable along the lower surface 18 of the upper wall 56 of frame 10 and during such sliding movement to the right, the latch actuator carries with it the latch frame 20 which slides along the lower surface 25 of the lower wall 71 of the frame to the position shown in FIG. 3.

The latch frame 20 has a longitudinal slot 31 therein and in such slot is positioned a bar 27 (see FIGS. 2, 3 and 5), which bar 27 is connected to the outer wall 28 and the inner wall 29 of the lock housing 10. Positioned in slot 31 and connected at one end to the bar 27 is a compression spring 30 the opposite end of which is connected to the end wall 32 of the slot opposite the bar 27. It will be seen that in the normal locked position, the bar 27 is disposed at one end of the slot 31 as seen in FIG. 2 and the compression spring forces the latch frame 20 forward so that the forward end 34 of latch actuator 22 is in abutting relation with the upper vertical shoulder 33 of the housing 10, and the forward lower end 35 of the latch frame 20 is in abutting relation with the lower vertical shoulder 36 of the housing 10 in which position as aforementioned the tongue 21 is disposed within the interior 26 of the keeper housing 12. When the latch actuator 22 is operated to move the latch frame 20 to the right as shown in FIG. 3, the spring 30 is compressed and the bar 27 is displaced toward the forward end of slot 31 with respect to the latch frames 20.

In the body of the latch actuator 22 toward the rear end thereof is a slot 40 in which is positioned a roller 41 which is mounted at one end of a bell crank 42 pivoted on a pin 43 which is positioned on a bar 44 (see also FIG. 4) connected to the side walls 28 and 29 of the lock housing 10. The opposite short end of the bell crank 42

has a slot 45 which receives a pin 46 mounted across a vertical slot 47 of a plunger 48. The lower end of plunger 48 is disposed in a pocket 50 at the lower end of housing 10, and the plunger 48 is normally maintained in its upper position by a spring 49 positioned in the pocket 50. It will be seen in FIGS. 2 and 3 that when the plunger 48 is pressed down, the bell crank 42 will be rotated in a clockwise direction as indicated in FIG. 3 and the roller 41 of the bell crank which abuts the inner wall 51 of the slot 40 urges the latch actuator 22 to the right and carrying with it the latch frame 20 against the action of the spring 30. When the plunger 48 is released, the action of the compression spring 49 pushes the plunger up and causes the bell crank 42 to rotate counterclockwise from its position shown in FIG. 3 to that shown in FIG. 2 to urge the latch actuator 22 forward, that is, to the left, carrying with it the latch frame 20, such action being aided by the spring 30, until the latch frame 20 assumes its original position as shown in FIG. 2.

Mounted in spaced apart positions on the upper wall 56 of the housing 10 and extending into the latch actuator body 22, are a pair of active tumbler structures 55 and 55'. The construction of each of these tumbler structures is identical and hence a description of one will serve for describing the other, the primed part numbers on the tumbler structure 55' corresponding to the unprimed part numbers of tumbler structure 55. Tumbler 55 is composed of a plunger 57 which has an integral rib 58 positioned between the top and bottom of the plunger. The lower portion 59 of the plunger 57 is positioned in an aperture 60 in the wall 56. The rib 58 is adapted to abut the shoulder 58*a* formed at the top of aperture 60 to act as a stop for the upper position of the plunger. The end of the lower portion 59 of plunger 57 is in contact with the rod 61 of the piston 62 which is disposed in a pocket 63 of the latch actuator body 22. Rod 61 passes through an aperture 67 in wall 66, which is below and in communication with aperture 60. A spring 64 is disposed in the pocket 63, the upper end of the spring abutting the piston 62 and the lower end of the spring resting on a shoulder 66 formed at the bottom of the pocket 63. The spring 64 urges the piston 62 upward against shoulder 65 formed at the upper end of the pocket 63, to maintain the plunger 57 in an upper position shown in FIG. 2. In this position, rod 61 prevents any substantial movement of latch actuator 22 and functions as an interference against movement of the latch actuator 22.

When the plunger 57 is pushed downwardly against the action of spring 64, the lower end 59 of plunger 57 passes into aperture 67, and rests on a shoulder 66*a* at the bottom of aperture 67 and the upper end of the rod 61 is now level with the lower surface 18 of the upper wall 56 of case 10, as shown in FIG. 3. In this position, the rod 61 will no longer interfere with and prevent the latch actuator 22 from slidable movement.

Also mounted in the upper wall 56 of housing 10 and extending into latch actuator 22 is an inactive tumbler structure 70 which is positioned intermediate tumbler 55 and 55'. The tumbler structure 70 comprises a plunger 69 formed of a magnetically permeable material and having positioned along an intermediate portion thereof a flange 72 which is disposed in a pocket 73 of the upper wall 56 of the housing 10. A spring 75 is positioned at one end against the flange 72, the opposite end of the spring abutting a shoulder 74 formed at the bottom of the pocket 73. The spring 75 normally urges the flange 72 of the plunger 69 upward to a position where the flange abuts an upper shoulder 74*a* of the pocket 73. In the actuator body 22 directly below the pocket 73 is a recess 76 in the bottom of which is positioned a magnet 77 slidable in said pocket.

It will be noted that in the upper position of the plunger 69 shown in FIG. 2, the lower end of the plunger is disposed above the lower surface 18 of the wall 56 so that the plunger does not interfere with and prevent slidable movement of the latch actuator 22. However, if plunger 69 is pressed down so that the lower portion thereof enters the recess 76, it will strike the magnet 77 and when plunger 69 is released, the magnet 77 moves upward by the action of spring 75 carrying with it magnet 77 which adheres to the lower end of the plunger by magnetic attraction. The magnet 77 is now in the upper position shown in dotted lines in FIG. 2 and in this position, the upper end of the magnet being disposed in pocket 73 of the wall 56, the magnet prevents movement of the latch actuator 22. In order to remove magnet 77 from this interfering position, plunger 69 must be pushed down to a point where its lower end is level with the lower surface 18 of wall 56. The amount of downward movement required for this purpose is indicated by the mark 80 at the upper end of the plunger 69. Now the magnet 77 is disposed entirely within lower pocket 73 with its upper end flush with the lower surface 18 of wall 56, and lateral movement of latch actuator 22 as seen in FIG. 3, will by a shearing action, separate the magnet 77 from the lower end of the plunger 69, and cause the magnet to drop down into the pocket 73 to its inactive position shown in full lines in FIG. 2.

Another inactive tumbler structure 70' exactly the same as tumbler structure 70, is disposed in the lower wall 71 of the housing 10 and extends into the lower portion of the latch frame 20, the part numbers of tumbler structure 70' corresponding with those of tumbler 70, except that in the former case the numbers are primed. However, tumbler 70' also includes in recess 76' of the latch frame 20, a spring 81 on which the magnet 77' is suspended. The spring 81 is less stiff than spring 75' so that when the end of the plunger 69' contacts magnet 77' and the plunger is released, the magnet 77' will be carried down to its dotted line position shown in FIG. 2, where it will interfere with movement of the latch frame 20. However, when the magnet 77' is released by upward movement of the plunger 69', a distance indicated by the mark 80' on plunger 69', to move magnet 77' entirely back into recess 76', and the latch frame is moved laterally, the spring 81 will snap magnet 77' into its upper normal position shown in full lines in FIG. 2.

Still another inactive tumbler structure 70'' is positioned in the lower wall 71 of the main housing 10. Tumbler structure 70'' is spaced from tumbler structure 70' and also extends into the lower portion of the latch frame 20. The construction of tumbler 70'' is the same as tumbler structures 70 and 70', except that the recess 76'' in the latch frame body 20 does not contain a magnet such as magnets 77 and 77'. The part numbers of tumbler 70'' correspond to those of tumblers 70 and 70', except that they are double primed.

From the foregoing description of the lock, it will be seen that in its normal locked position, as shown in FIG. 2 with the tongue 21 of the latch frame disposed in the recess 26 of the keeper housing 12, the active tumblers 55 and 55' will prevent movement of the latch actuator 22 and hence of the latch frame 20, so that the tongue 21 will be maintained in the position shown in FIG. 2.

When it is desired to open the lock, that is, to move the tongue 21 out of the keeper housing 12, one presses simultaneously both of the spaced active plungers 57 and 57' downwardly until the ends of the lower portion 59 of plungers 57 and 57' strike the shoulders 66*a* and 66'*a* at the bottom of apertures 67 and 67', at which time the rods 61 and 61' will be clear of the upper wall 56 of the housing. The plunger 48 is then pushed down against spring 49 causing the bell crank 42 to rotate clockwise and to slide the latch actuator 22 and the latch frame 20, together with the tongue 21, to the right against the action of spring 30 until the tongue 21 has cleared the keeper housing 12. The door can now be opened. Hence it is seen that a three-finger operation of plungers

57, 57′ and 48 is required to open the lock, which is difficult for an infant or a child to accomplish, especially without touching one or more of plungers 69, 69′ or 69″ of inactive tumblers.

Thus, if during manipulation of plungers 57 and 57′, one should press down on one or more of plungers 69 and/or 69′ of the corresponding inactive tumbler structures, this will cause the magnet 77 or 77′ to move to their dotted line position shown in FIG. 2, and act as interferences against movement of the latch actuator 22 and latch frame 20, so that actuation of the plunger 48 downwardly will not produce any rotation of the bell crank 42 and the lock will remain in the locked position. Further, once the magnet 77 or 77′ has taken the interfering position, it requires just the proper amount of movement of plungers 69 and 69′ only to the marks 80 or 80′, followed by repeated proper manipulation first of plungers 57 and 57′ and then of plunger 48 to open the lock.

Also, if plunger 69″ is pushed in during manipulation of plungers 57 and 57′ for opening the lock, it will be seen that the end of the plunger will pass into recess 76″, causing interference of movement of the latch frame 20, and requiring release of plunger 70″ to return it to the full line position in FIG. 2 before the lock can be opened by proper manipulation of plungers 57, 67′ and 48.

Hence, it will be seen that it requires a knowledge of which plungers, that is 57, 57′ and 48, must be actuated for opening of the lock, as well as the knowledge that if any one or more of the plungers 69, 69′ or 69″ should be actuated during manipulation of the plungers 57 and 57′, the lock will not open. Also, it is seen that a certain degree of digital coordination and dexterity are required for handling the plungers 57 and 57′ and also plunger 48 in proper sequence without the manipulation of the plunger 69, 69′ or 69″, in order to properly unlock the lock. Any fumbling or pushing of any one of the plungers 69, 69′ or 69″ before the plunger 48 is actuated, will prevent the opening of the lock, and will, moreover, require a further manipulation of the plunger 69, 69′ and/or release of plunger 69″ before the lock can again be manipulated for opening.

For closing the lock, the plunger 48 is released, and on upward movement thereof, bell crank 42 rotates counter-clockwise and permits movement of the latch actuator 22 and latch frame 20 to the left, as viewed in FIG. 3, aided by spring 30, whereby the tongue 21 again enters the interior 26 of the keeper housing 12. When this locking position is reached, the springs 64 and 64′ of the active tumblers 55 and 55′ force the pistons 62 and 62′ upwardly against the lower portion 59 and 59′ of the plungers 57 and 57′, causing these plungers to rise until the ribs 58 and 58′ of the plungers abut the shoulders 58*a* and 58*a*′ at the upper end of the apertures 60 and 60′. Now the lock is again in locked position and requires the manipulation of the proper plungers of the active tumblers, as described above, for reopening.

It will be understood that I can rearrange the position of the active and inactive tumblers and/or increase or decrease the number of active and the number of inactive tumblers from that described above, as desired to achieve the results of the invention. Thus, for example, I can incorporate an additional active tumbler similar to tumbler structures 55 and 55′ in the lower wall 71 of housing 10 between the inactive tumblers 70′ and 70″.

After the door has been opened and latch frame 20 has returned to its initial position by releasing plunger 48, with the tongue 21 extended, as shown in FIG. 2, it will be seen that latch actuator 22 is again in its locked position. Now, on closing the door, it will be seen that the tongue will first be retracted against the edge 90 of the keeper housing (see FIG. 1), causing latch frame 20 to move to the right as viewed in FIG. 2, out of contact with dog 23 of latch actuator 22, while the latch actuator 22 and bell crank 42 remain in locked position, as shown in FIG. 2. The cutout 90′ in the upper left portion of the latch frame 20 provides for a limited amount of free play or movement between members 20 and 22 for this purpose. During this movement of latch frame 20 with respect to latch actuator 22 the bell crank 42 is received in slot 52 of the latch frame 20. When the door is snapped shut, the latch frame 20 is again urged to the left by the action of spring 30 until it strikes the dog 23, at which time the tongue 21 is now in the keeper housing 12 and the lock is in closed position, as shown in FIG. 2.

In FIG. 7 is shown a lock structure similar to that shown in FIG. 2, except that in FIG. 7 the inactive tumblers 91, 91′ and 91″ are designed so that when manipulated they do not contact the latch actuator 22 or the latch frame 20 and do not interfere with movement of these members. The tumbler structures 91, 91′ and 91″ are of like design. Referring to tumbler 91, 92 is a plunger having a flange 93 positioned along an intermediate portion thereof, the flange being disposed in a pocket 94 of the upper wall 56 of housing 10. A spring 95 is positioned at one end against the flange 93, the opposite end of the spring abutting a shoulder 96 formed at the bottom of the pocket 94. The spring 95 normally urges the flange 93 of the plunger 92 upward to a position where the flange abuts an upper shoulder 97 of the pocket 94. The shank 98 of the plunger is designed short enough so that when plunger 92 is pressed down until the shoulder 99 of the plunger abuts the outer surface of wall 56, the end of the shank 98 is still in pocket 94, as shown in dotted lines in FIG. 7, and does not contact the latch actuator 22, and hence does not interfere with movement thereof. The parts of tumblers 91′ and 91″ corresponding to the parts of tumbler 91, are primed and double primed, respectively, and it will be noted that in the pressed in position of plungers 92′ and 92″, as shown in dotted lines in FIG. 7, the ends of the shanks 98′ and 98″ of these plungers also remain in their respective pockets 94′ and 94″, and do not make contact with the latch frame 20 and hence do not interfere with movement thereof. It is thus apparent that tumblers 91, 91′ and 91″ function as inactive or decoy tumblers which tend to confuse one unfamiliar with the lock as to the required code for actuation thereof.

While I have described particular embodiments of my invention for purposes of illustration, it should be understood that various modifications and adaptations thereof may be made within the spirit of the invention as set forth in the appended claims.

I claim:

1. A lock which comprises a housing, a latch member mounted for slidable movement in said housing, means normally maintaining said latch member in locked position in said housing, said means including a plurality of digitally movable members extending exteriorly of said housing, first interferences mounted in said latch member and extending into the wall of said housing, said interferences being in removable contact with said movable members and preventing slidable movement of said latch member, and stop means limiting maximum displacement of said movable members for a distance just sufficient to remove said interferences from the wall of said housing and out of the path of movement of said latch member, means connected to said latch member for slidably moving it transversely of said digitally movable members to open position in said housing on the removal of said interferences from the path of movement of said latch member, said interferences breaking contact with said movable members and shifting transversely with said latch member, biasing means urging said latch member into initial locking position when said moving means is released, at least one second digitally movable member extending exteriorly of said housing, a second interference mounted in said latch member in operative association with said second digitally movable member, said

second interference being in non-interfering relation with said latch member, but movable into interfering relation therewith, said second digitally movable member being movable into contact with said second interference to urge said second interference into the path of movement of said latch member.

2. A lock as defined in claim 1, including a plurality of second digitally movable members and a plurality of second interferences mounted in said latch member in operative association with said second digitally movable members.

3. A lock which comprises a housing, a latch body mounted for slidable movement in said housing, a tongue connected to said latch body for movement therewith, said tongue being adapted to be received in a case in locked position of said latch body, biasing means urging said latch body into locking position, a slidable latch actuator in said housing, removably connected to said latch body to urge said latch body into open position against the action of said biasing means, a plurality of first tumbler strucures in a wall of said housing adjacent said latch actuator, said structures each including a first plunger, extending through said wall, interference means mounted in said latch actuator and cooperating with each of said first plungers and normally extending into said housing wall in contact with the ends of said plungers for locking said latch actuator in position in said housing, said plungers being digitally operable to urge said interference means out of said housing wall to release said latch actuator from locking position, manually operable moving means connected to said latch actuator for slidably moving it and said latch body to open position in said housing against the action of said biasing means, said interference means being separated from said first plungers on movement of said latch actuator, a plurality of second tumbler structures in a wall of said housing, said second tumbler structures each including a second plunger, extending through said wall, second interference means mounted in said latch actuator and cooperating with said second plungers, said second interference means being normally disengaged from said second plungers, said last named plungers being digitally operable for engaging said second interference means to prevent movement of said latch body to its open position, said tongue and latch body being retractable from said latch actuator when said latch actuator is in locked position in said housing.

4. A lock as defined in claim 3, wherein each of said first interference means comprises a piston, a recess in said latch actuator, said piston being disposed in said recess, an aperture in the wall of said housing in alignment with said recess, a rod connected to said piston and passing into said aperture into engagement with the lower end of a first plunger, a spring in said recess urging said piston in a direction to cause engagement of said rod with said first plunger, means limiting displacement of said first plunger by said rod and said spring, said first plunger being digitally operable to urge said rod out of said aperture against the action of said spring, said rod disengaging from said plunger during movement of said latch actuator.

5. A lock as defined in claim 3, wherein at least one of said second tumbler structures includes an aperture in the wall of said housing, said second plunger of said at least one of said tumbler structures being spring-biased, to urge said plunger outwardly from said wall, the end of said plunger being disposed in said aperture entirely within the wall of said housing, and including a recess in said latch actuator in alignment with said aperture, said second interference means comprising slidable magnetic interference means disposed in said recess and movable into said aperture for locking said latch actuator when said second plunger is digitally operated to bring said plunger into contact with said magnetic means.

6. A lock as defined in claim 3, wherein at least one of said second tumbler structures includes an aperture in the wall of said housing, a flange on said second plunger of said at least one of said tumbler structures, said flange being disposed in said aperture, a spring in said aperture abutting said flange to urge said second plunger outwardly from said wall, the end of said plunger being disposed in said aperture entirely within the wall of said housing, a recess in said latch actuator in alignment with said aperture, said second interference means comprising a slidable magnet in said recess and movable into said aperture to form an interference against movement of said latch actuator, when said second plunger is digitally actuated inward to cause entry of the inner end thereof into said recess and engagement of said second plunger with said magnet.

7. A device as defined in claim 3, including at least two of said first tumbler structures in spaced apart position in a wall portion of said housing, and at least one of said second tumbler structures positioned in said wall portion between said at least first two tumbler structures.

8. A lock which comprises a main housing, a keeper housing in alignment with and communicating with said main housing, a latch body mounted for slidable movement in said main housing, a tongue connected to said latch body and movable into locking position in said keeper housing, a first spring biasing means normally urging said latch body and tongue into locking position, a latch actuator removably connected to said latch body, a first recess in said latch actuator, a bell crank pivotally mounted in said main housing, an arm of said bell crank being disposed in said first recess, a plunger mounted in said main housing and extending exteriorly of said housing, spring means normally urging said plunger in outward position for maintaining said latch actuator in locked position, the other arm of said bell crank being connected to said plunger, digital pressure against said plunger producing rotation of said bell crank for movement of said actuator, latch body and tongue in a direction to withdraw said tongue from said keeper housing against the action of said first spring biasing means, a plurality of first tumbler structures positioned in a wall of said main housing, said structures each including a first plunger, extending through said wall, interference means mounted in said latch actuator and cooperating with each of said first plungers and normally extending into said housing wall in contact with the ends of said plungers for locking said latch actuator in position in said housing, said first plungers being digitally operable to urge said interference means out of said housing wall and release said latch actuator from locking position, said interference means being separated from said first plungers on movement of said latch actuator, a plurality of second tumbler structures in a wall of said housing, said second tumbler structures each including a second plunger extending through said wall, second interference means mounted in said latch actuator and cooperating with said second plungers, said second interference means being normally disengaged from said second plungers, said last named plungers being digitally operable for engaging said second interference means to prevent movement of said latch actuator and latch body to their open positions, said tongue and latch body being retractable from said latch actuator when said latch actuator is in locked position in said housing.

9. A lock which comprises a main housing, a keeper housing in alignment with and communicating with the main housing, a latch body mounted in slidable movement in said main housing, a tongue connected to said latch body and movable into locking position in said keeper housing, a first spring biasing means normally urging said latch body and tongue into locking position, a latch actuator removably connected to said latch body and operable to move said latch body and tongue against the action of said biasing means in a direction to withdraw said tongue from said keeper housing to open said lock, a pair of active tumbler structures mounted in spaced apart relation on one wall portion of said main housing, each of said tumbler structures including a

plunger mounted on said wall portion and extending exteriorly of said main housing, an aperture in said wall portion, said plunger having an inner portion extending into said aperture, a rib on said inner portion, a shoulder adjacent the outer end of said aperture, said inner portion of said plunger being disposed entirely within said aperture, a recess in said latch actuator in alignment with said aperture, a piston in said recess, a rod connected to said piston and abutting the end of said plunger, a spring in said recess urging said piston toward said plunger and forcing said piston rod into said aperture against the end of said plunger to urge said rib into engagement with said shoulder, stop means preventing movement of the inner end of said plunger out of said aperture, the piston rod being urged out of said aperture on digital compression of said plunger, to permit disengagement of said rod from the end of said plunger on slidable movement of said latch actuator and said latch body to open position in said housing, at least one second inactive tumbler structure mounted on said one wall portion of said main housing between said first tumbler structures, said at least one inactive tumbler structure including a second plunger, an aperture in the wall of said main housing, a flange on said second plunger disposed in said aperture, a spring in said aperture and abutting said flange to urge said plunger outwardly from said wall, a shoulder at one end of said aperture limiting outward movement of said plunger, the end portion of said plunger being disposed in said aperture entirely within the wall of said housing, a recess in said latch actuator and in alignment with said last named aperture, slidable magnetic means in said last named recess and movable into said last named aperture for locking said latch actuator when said second plunger is digitally actuated to bring said plunger into contact with said magnetic means, said tongue and latch body being retractable from said latch actuator when said latch actuator is in locked position in said main housing.

10. A lock which comprises a housing, a latch member mounted for slidable movement in said housing, a tongue connected to said latch member for movement therewith, a case to receive said tongue when the latch member is in locked position, a plurality of first tumblers positioned in a wall of said housing, means mounted in said latch member and removably attached to said tumblers, said means normally blocking the path of movement of said latch member and maintaining said tumblers connected to said latch member for locking said latch member in said housing, said tumblers being digitally operable to remove said means from the path of movement of said latch member, manually operable moving means for slidably moving said latch member in said housing on removal of said first mentioned means from the path of movement of said latch member, said latch member carrying said first mentioned means out of engagement with said tumblers on movement of said latch member, biasing means urging said latch member into initial locking position when said moving means is released, at least one second tumbler mounted in a wall of said housing adjacent at least one of said first tumblers, an interference member mounted in said latch member in operative association with but disengaged from said at least one second tumbler, said at least one tumbler being movable into contact with said interference member to urge it into the path of movement of said latch member.

11. A lock which comprises a housing, a latch member mounted for slidable movement in said housing along a wall thereof, means normally maintaining said latch member in locked position in said housing, said means being digitally operable to release said latch member, means connected to said latch member for slidably moving it to open position in said housing on the release of said locking means, biasing means urging said latch member into initial locking position when said moving means is released, and means normally disengaged from said latch member, said last mentioned means being digitally operable for engaging and locking said latch member, said last mentioned means comprising at least one inactive plunger mounted in the wall of said housing, means normally biasing said at least one plunger outwardly with the inner end of said plunger disposed entirely within the wall of said housing, at least one interference member slidably mounted in said latch member in alignment with said at least one plunger, means for detachably connecting said at least one plunger and said interference member when said plunger is urged into engagement with said interference member, said interference member when thus engaged by said plunger being withdrawn partially into the wall of said housing on release of said plunger, locking said latch member against movement and preventing movement thereof regardless of operation of said first mentioned digitally operable means, said interference member being removable in shear when said at least one plunger is urged inward a distance placing the abutting ends of said plunger and interference member in alignment with the adjacent relative sliding surfaces of said housing wall and said latch member, and said latch member is placed in motion.

12. The lock as defined in claim 11, including a plurality of said inactive plungers and a like number of said interference members in operative association with the respective inactive plungers.

13. The lock as defined in claim 11, wherein said interference member is a slidable magnet.

14. A lock which comprises a housing, a latch member mounted for slidable movement in said housing along the inner wall of said housing, means normally maintaining said latch member in locked position in said housing, said means including a plurality of digitally movable plungers mounted in the wall of said housing and extending exteriorly of said housing, said plungers being biased outwardly with the inner end of said plungers within said wall, first interference pins each mounted in said latch member in alignment with said plungers, said pins each extending into the wall of said housing and being in removable contact with the inner ends of said plungers, preventing slidable movement of said latch member along said housing wall, said plungers being operable to force said pins out of said housing wall, means connected to said latch member for slidably moving it along the housing wall transversely of said plungers to open position in said housing when said pins are forced out of said housing wall, said pins breaking contact with said plungers and shifting transversely with said latch member, and means normally disengaged from said latch member, said last mentioned means being digitally operable for engaging and locking said latch member, said last mentioned means comprising at least one inactive plunger mounted in the wall of said housing, means normally biasing said at least one plunger outwardly with the inner end of said plunger disposed entirely within the wall of said housing, at least one interference member slidably mounted in said latch member in alignment with said at least one plunger, means for detachably connecting said at least one plunger and said interference member when said plunger is urged into engagement with said interference member, said interference member when thus engaged by said plunger being withdrawn partially into the wall of said housing on release of said plunger, locking said latch member against movement and preventing movement thereof regardless of operation of said first mentioned digitally operable means, said interference member being removable in shear when said at least one plunger is urged inward a distance placing the abutting ends of said plunger and interference member in alignment with the adjacent relative sliding surfaces of said housing wall and said latch member, and said latch member is placed in motion.

15. The lock as defined in claim 14, including a plurality of said inactive plungers and a like number of said interference members in operative association with the respective inactive plungers.

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