Feb. 16, 1932. E. ELLINGSON 1,845,867

MASTER KEY LOCK

Filed Dec. 13, 1929 2 Sheets-Sheet 1

Fig. I.

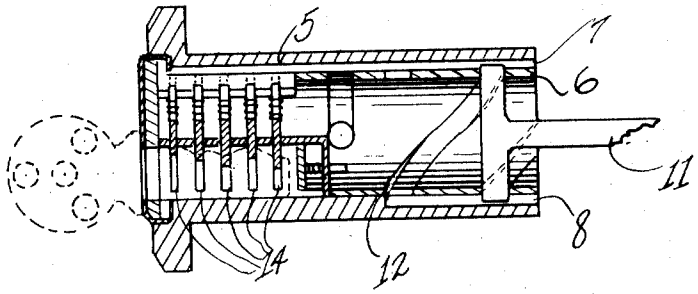


Fig. II.

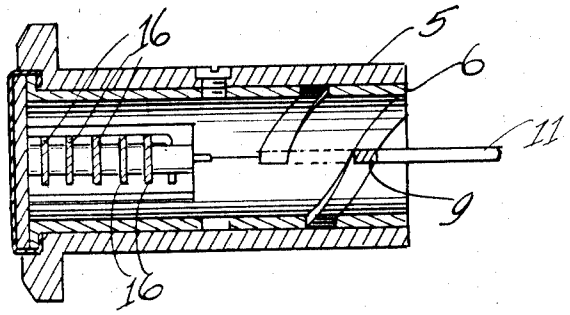


Fig. III.

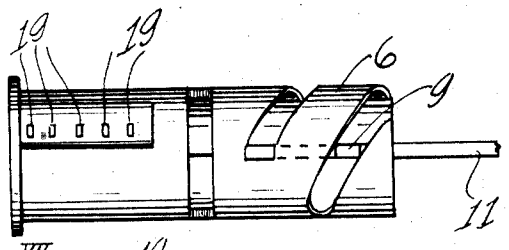
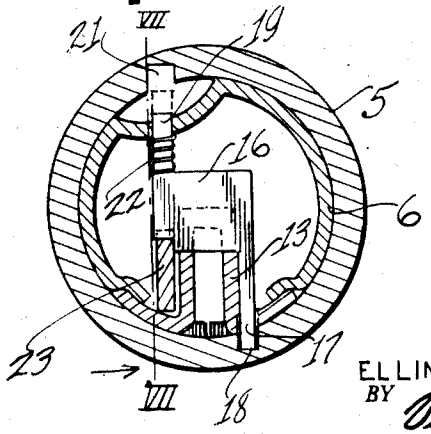


Fig. IV.



INVENTOR.

ELLING ELLINGSON

BY Victor J. Evans

ATTORNEYS.

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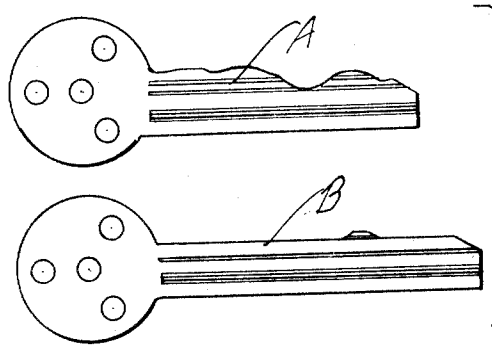


Fig. V.

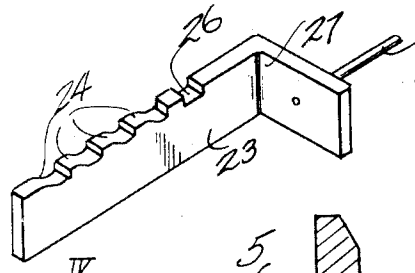


Fig. VI.

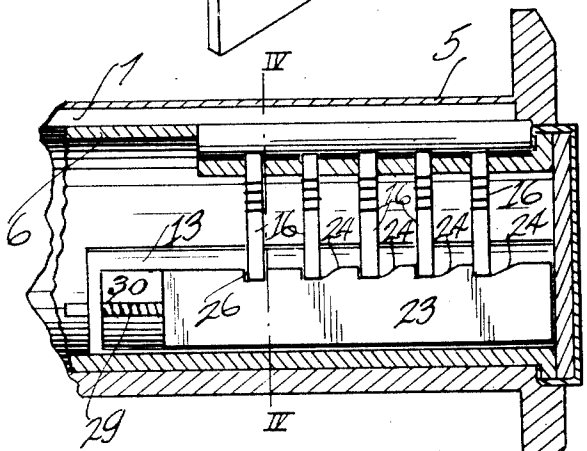


Fig. VII.

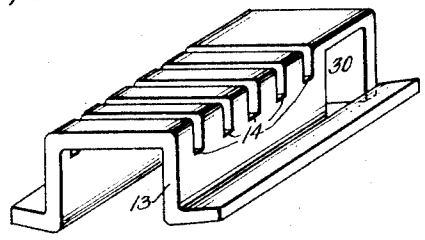


Fig. VIII

INVENTOR.

ELLING ELLINGSON

BY Victor J. Evans

ATTORNEYS.

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UNITED STATES PATENT OFFICE

ELLING ELLINGSON, OF SAN FRANCISCO, CALIFORNIA

MASTER-KEY LOCK

Application filed December 13, 1929. Serial No. 413,858.

This invention relates to improvements in locks and has particular reference to a lock constructed in accordance with my co-pending application to which a master key arrangement has been attached.

The principal object of this invention is to produce a lock wherein a master key of a simple construction may be employed, the master key operating upon one tumbler instead of a plurality of tumblers as is the common construction.

Another object is to produce a device which is simple in construction, easy to assemble and therefore economical to manufacture.

A further object is to produce a lock which is exceedingly difficult to pick.

A still further object is to produce a lock which is capable of operating any preferred mechanism such as a door catch, bolt or similar device.

Other objects and advantages will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same,

Figure I is a vertical cross section of my lock,

Figure II is a horizontal cross section of Figure I,

Figure III is a top plan view of Figure I,

Figure IV is an enlarged detail cross section taken on the line 4—4 of Figure VII,

Figure V is a side elevation of an ordinary key and a master key,

Figure VI is a perspective view on an enlarged scale of a master control bar,

Figure VII is a cross sectional view taken on the line 7—7 of Figure IV and looking in the direction of the arrow, and

Fig. VIII is a perspective view of one portion of my lock.

In a co-pending application applicant describes a lock having a plurality of tumblers actuated by a key for the purpose of unlocking the lock in order that the mechanism to which the lock is attached may be actuated. It is to this type of lock that I apply a master key arrangement consisting of a master control bar mounted adjacent the tumblers and provided with a series of cam surfaces adapted to coincide with the tumblers and a notch which also coincides with one of the tumblers with the result that during the ordinary manipulation of the lock with a regulation key, the tumblers are raised out of contact with the master control bar and functions in the usual manner. When a master key is employed this key has a single raised portion thereon which actuates only one of the tumblers for the purpose of first raising that tumbler out of the notch in the control bar after which further insertion of the key into the lock causes the end thereof to engage the control bar so as to move it longitudinally of the lock with the result that the cam surfaces will raise the remaining tumblers out of locking position after which the lock may be actuated in the usual manner.

In the accompanying drawings wherein for the purpose of illustration is shown a preferred embodiment of my invention, the numeral 5 designates the barrel casing within which the customary barrel 6 is positioned and adapted to rotate. The barrel casing is provided with a groove 7 and a groove 8, for the purpose of receiving the T head 9 of a catch actuating bar 11. The barrel 6 has a thread 12 formed therein which thread engages the T head 9 with the result that when the barrel is rotated the head 9 will be moved longitudinally in the grooves 7 and 8. An upstanding U-shaped tumbler carrier 13 is formed within the barrel 6 and is provided with a series of slots 14 within which tumblers 16 are slidably positioned. Each of these tumblers have a leg 17 which extends downwardly into a slot 18 cut in the barrel casing 5. These tumblers also have an upwardly extending leg 19 which is normally in alignment with a slot 21 also cut in the barrel casing 5. A spring 22 surrounding each of the legs 19 tends to hold the tumblers in the position of Figure IV. The master control bar 23 is positioned adjacent the upstanding U-shaped portion 13 and has its upper edge provided with cam surfaces 24, (see Figures VI and VII) as well as a recess 26. These

cam surfaces and recess are so positioned that they underlie the tumblers 16. This control bar is provided with a bent end 27 which extends through openings 30 formed in the U-shaped member 13 which openings in the opposite sides of the U-shaped member form a guide for the movement of the control bar. A pin 28 extends through from the end 27 through the closed end of the U-shaped member and has a spring 29 formed thereon the purpose of which spring is to normally keep the control bar in the position of Figure VII.

In Figure V at A I have shown an ordinary key which when placed in the lock would assume the dotted line position of Figure I and at B I have shown a master key which when placed in the lock would cause the last of the tumblers 16 to raise out of the slot 26 in the master control bar so that when the end of this key which is longer than the key A comes into contact with the bent end 27 of the control bar, the whole control bar will be moved rearwardly or until each one of the tumblers has been moved by the cam surfaces 24 a distance sufficient to withdraw the legs 17 from the slot 18 after which the barrel may be rotated within the casing to accomplish the unbolting of the door or other device to which the lock may be attached.

It will thus be seen that by employing a key of a longer length than normal the edge having a single projection thereon, it is only necessary to adjust one tumbler in each barrel to accomplish the master keying of a large number of locks.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same and that various changes relative to the material, size, shape and arrangement of parts may be resorted to without departing from the spirit of the invention or the scope of the subjoined claims.

Having thus described my invention, I claim:—

1. In a key operated locking mechanism, having a barrel casing and a barrel rotatable therein, means for locking the barrel to the casing comprising a plurality of tumblers carried in the barrel and each having a leg projecting into a groove formed in the barrel, a master control bar positioned adjacent said tumblers whereby movement of said bar will cause all of the tumblers with the exception of one to be simultaneously moved for unlocking the barrel from said casing.

2. In a key operated locking mechanism, having a barrel casing, a barrel rotatable therein, means for locking the barrel to the casing, said means comprising a plurality of tumblers carried on the barrel and each having a leg projecting into a groove formed in the casing for locking the barrel against rotation, a master control bar positioned adjacent said tumblers, a slot formed in said master control bar, cam surfaces formed on said master control bar, said slot being engaged by one of said tumblers to lock said bar against movement in an endwise direction except when said tumbler in said slot is raised by a master key whereby said control bar may be moved through engagement with the master key to cause the remainder of said tumblers to be elevated by said cam surfaces.

3. In a locking mechanism, in combination with a barrel casing, a barrel rotatable therein, barrel locking tumblers carried in said barrel operable by a key for releasing said barrel, and means in said locking mechanism independent of the said key for simultaneously raising certain of said tumblers, whereby said barrel is unlocked from said barrel casing by a master key.

In testimony whereof I affix my signature.

ELLING ELLINGSON.