July 7, 1936. C. B. LOWE 2,046,831

LOCK

Filed July 6, 1931

Fig. 3

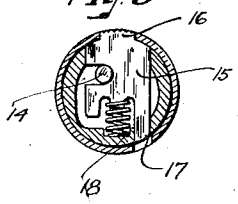


Fig. 1

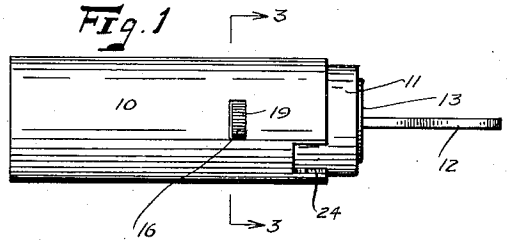


Fig. 2



Fig. 6

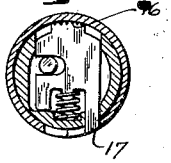


Fig. 4

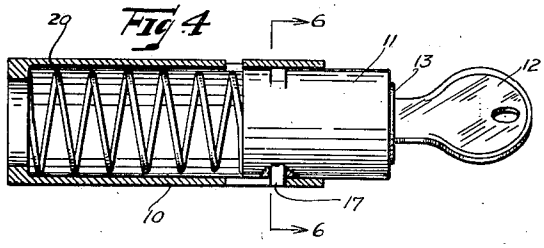


Fig. 5

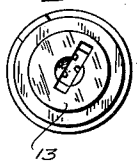


Fig. 8

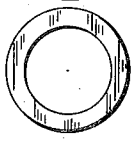


Fig. 7

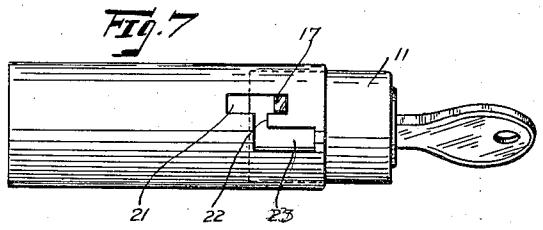


Fig. 10

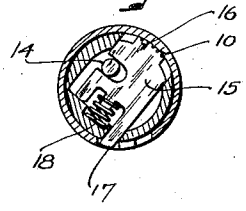


Fig. 9

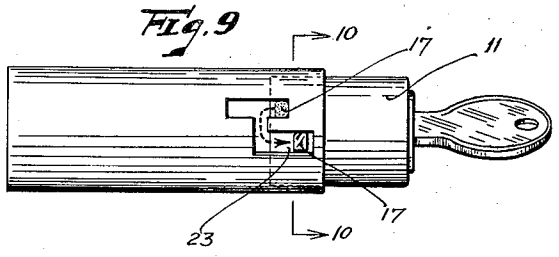


Fig. 11

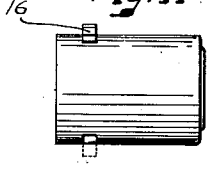


Fig. 12

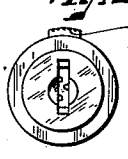
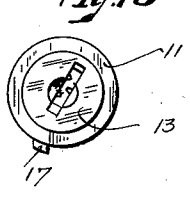


Fig. 13



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LOCK

Charles B. Lowe, Stamford, Conn., assignor to The Yale & Towne Manufacturing Company, Stamford, Conn.

Application July 6, 1931, Serial No. 548,769

13 Claims. (Cl. 70—46)

This invention relates to a cylinder lock of the type in which a cylinder is mounted for sliding movement relatively to a housing for the purpose of controlling certain other mechanism also carried by the housing. More particularly, my invention comprises means for locking the cylinder against a controlling movement in the housing, and for retaining the cylinder in the housing, and for facilitating the insertion of the cylinder into the housing and its removal therefrom when desirable.

For a description of my invention, I shall refer to the following drawing wherein a particular modification of the same is shown, and wherein Fig. 1 is a plan view showing my cylinder lock in the housing provided therefor. Fig. 2 is a front view of the cylinder illustrated in Fig. 1 while Fig. 3 is a section along the lines 3—3 of Fig. 1. Fig. 4 is a section longitudinally through Fig. 1, illustrating the position of the cylinder relatively to the housing when it has been released and moved longitudinally relatively to the housing. Fig. 5 illustrates the relation of the front end of the cylinder to the housing in its rotated and extended position, while Fig. 6 is a section along the lines 6—6 of Fig. 4. Fig. 7 is an outside view of the cylinder and the housing taken in the side reverse to that of Fig. 1 and showing the cylinder in a released position. Fig. 8 is an end view of the housing end of Fig. 7. Fig. 9 is a view similar to Fig. 7 illustrating the movement of the cylinder from its released position to a position wherein it is removable from the housing. Fig. 10 is a sectional view along the line 10—10 of Fig. 9. Fig. 11 is a side view of the cylinder showing the bolt in a projected locking position, and its retaining end shown dotted in the position it occupies when the bolt is in an unlocking position. Fig. 12 illustrates the bolt in the locked position, while Fig. 13 illustrates it in the unlocked position, looking endwise at Fig. 11.

Referring now more particularly to the drawing, reference numeral 10 indicates a housing in which is adapted to slide, a cylinder 11 operable by a usual key 12, which controls a plug 13, which in turn through a cam pin 14, actuates a locking bolt 15, having the locking portion 16 and a retaining portion 17, the operation of which will be described presently. The locking bolt is adapted to be projected in a locking direction by the spring 18 and is retractable at will by the operation of the plug 13 by the key 12, as is quite readily understood by those skilled in the art.

As illustrated in Fig. 1, the locking portion 16 of the bolt 15, normally cooperates with a slot 19 of the housing for maintaining the plug within the housing in a particular designated locked position. A spring 20 is adapted to impinge against cylinder 11 for urging the same outwardly from the housing for the purpose of controlling any desired mechanism which is preferably unlocked when the cylinder is in an outward position, and which is locked when the cylinder is in its inward position illustrated in Fig. 1. For the purpose of this description, it is thought not necessary to describe in detail the particular apparatus the cylinder controls since the general construction is quite well known to those skilled in the art.

As will be readily understood by reference to Fig. 4, the rotation of the key 12 and its plug 13 from the position of Fig. 1 to the position of Fig. 4, will remove the bolt portion 16 from the slot 19 and will permit the spring 20 to project the cylinder outwardly to the position occupied in Fig. 4. In this latter position, the retaining portion 17 of the bolt 15 will have been moved outwardly from the position of Fig. 3 to the position of Figs. 6 and 13, wherein it will occupy a position in the slot 21, which is the retaining slot forming a portion of the general bayonet joint slot 22.

As will be readily understood, this retaining portion of the bolt 17 will cooperate with the slot 21 to maintain the cylinder 11 within the housing and in the extended unlocked position illustrated in Fig. 7. If it be desired to remove the cylinder from the housing when that cylinder has been released to occupy the position of Fig. 7, it is merely necessary to move the cylinder as illustrated by the arrow of Fig. 9, which designates the movement of the retaining portion 17 from the unlocked position of Fig. 7 to the removable position of Fig. 9. When the cylinder 11 has been moved to this position of Fig. 9, the retaining portion 17 occupies the position illustrated in that figure, and the locking portion 16 of the bolt will be positioned opposite the cut-out portion 24 (Fig. 1) of the cylinder housing illustrated in Fig. 1. The bolt portion 16 will be readily depressible into the cut-out portion 24, so as to permit movement of the retaining portion 17 out of its position within the releasing portion 23 of the bayonet slot 22, and the removal of the cylinder will then be quite easy as is readily understood.

By this construction I am thus able to provide a cylinder movable in a housing, and having retaining means cooperable with a bayonet joint

in that housing, so that predetermined movement of the cylinder will move it into retaining engagement with the bayonet slot or out of such engagement with the bayonet slot. I provide, further, means for locking the cylinder against movement relatively to the housing, so that the bayonet joint cannot be released, there being the further possible limitation in my invention that I may utilize a single bolt for retaining and locking the cylinder in the housing.

While I have thus described a particular modification of my invention, it should be understood that variations of the same within the scope of the appended claims will readily occur to those skilled in the art.

I claim:

1. In a lock, a housing, a cylinder slidable in said housing, a locking bolt carried by the cylinder and cooperable with the housing to lock the cylinder against movement in the housing, means for moving the bolt to release the cylinder for sliding movement in the housing, a retaining portion of said bolt being cooperable with the housing for retaining said cylinder and limiting its movement in the housing when it is released for movement, said cylinder being movable in a predetermined manner relatively to said housing from its release position to move said retaining portion of the bolt from retaining relation to said housing and permit removal of the cylinder from said housing.

2. In a lock, a housing, a cylinder slidable in said housing, a locking bolt carried by the cylinder and cooperable with the housing to lock the cylinder against movement in the housing, a portion of said bolt being cooperable with a bayonet slot in the housing for retaining said cylinder and limiting its movement in the housing when it is released for movement in said housing, said cylinder and bolt portion being movable in a predetermined manner relatively to said housing to release said bolt portion from the bayonet slot and permit removal of the cylinder from the housing.

3. In a lock, a housing having retaining and limiting means, a cylinder slidable in said housing, a locking bolt carried by the cylinder and cooperable with the housing to lock the cylinder against movement in the housing, a portion of said bolt being adapted to move into cooperative engagement with the retaining and limiting means on the housing when the locking portion of the bolt is withdrawn from its locking cooperation with the housing, said cylinder and bolt being movable in a predetermined manner relatively to said housing means to disengage said bolt from said means and permit removal of the cylinder from the housing.

4. In a lock, a housing having a bayonet slot, a cylinder slidable in said housing, a locking bolt carried by the cylinder and cooperable with the housing to lock the cylinder against movement in the housing, a portion of said bolt being adapted to move into cooperative engagement with the bayonet slot in the housing when the locking portion of the bolt is retracted, said bolt and slot being cooperative to retain the cylinder in the housing, said cylinder being movable in a predetermined manner relatively to said housing to release said bolt portion from the bayonet slot and permit removal of the cylinder from the housing.

5. In a lock, a housing having a bayonet slot opening, a cylinder mounted in said housing, a retaining bolt carried by said cylinder and extending into the bayonet opening in said housing for retaining said cylinder in the housing, a key plug in said cylinder for controlling the movement of the cylinder relatively to said housing and of said bolt relatively to said bayonet opening, and means whereby said retaining bolt is releasable from said bayonet opening through movement of said cylinder and bolt relatively thereto when released for movement by operation of said key plug.

6. In a lock, a housing, a lock cylinder in said housing, means on said cylinder and housing forming a bayonet joint, said cylinder being movable relatively to said housing to make and unmake the bayonet joint, and a key operated plug in said cylinder for controlling the movement of the cylinder relatively to the housing.

7. In a lock, in combination, a cylinder housing, a lock cylinder movable in said housing, a locking bolt carried by said cylinder and cooperable with a slot in said housing for locking the cylinder against movement, and a second slot in said housing forming a bayonet joint with said cylinder for securing the cylinder against complete withdrawal from the housing when said locking bolt is released.

8. In a lock, in combination, a cylinder housing, a locking cylinder movably mounted in said housing, a key plug in said cylinder, a bolt carried by said cylinder for locking it against movement in said housing and operable by said plug to release the cylinder for movement in said housing, cooperative means on said housing and cylinder for retaining the cylinder in said housing, said cooperative means being arranged so that predetermined movement of said cylinder relatively to said housing when released by operation of said key plug will release said cylinder for removal from the housing.

9. In a lock, a housing having a locking portion, a cylinder movably mounted in said housing, a locking bolt carried by said cylinder and spring pressed into said locking portion to lock said cylinder against movement in said housing, a key plug carried by said cylinder and adapted to retract said locking bolt against its spring pressure, cooperative means on said housing and bolt for thereafter retaining the cylinder and limiting the movement of said cylinder in said housing, said cylinder being movable relatively to said housing when so released in a manner controlled by said retaining and limiting cooperative means, said cooperative means being arranged so that predetermined movement of said cylinder relatively to said housing will position said bolt for spring projection to release said cylinder for removal from said housing.

10. In a lock, a housing, a cylinder in said housing, cooperative means on said housing and cylinder in the nature of a bayonet joint for retaining and limiting the movement of said cylinder in said housing, said cylinder being movable relatively to the housing whereby to release said bayonet joint and permit removal of said cylinder from said housing, a locking plug in said cylinder, and means controlled by said locking plug to prevent movement of said cylinder relatively to said housing.

11. In a lock, a housing, a cylinder movably mounted in said housing, a locking and retaining bolt carried by said cylinder, a key plug in said cylinder for positioning said bolt, portions of said bolt being cooperable with the housing in one position thereof to lock the cylinder against movement, and in another position to retain and limit the movement of said cylinder in the housing,

said cylinder being movable in a predetermined manner relatively to said housing when released, and means whereby said bolt is actuable into a position by said predetermined movement to permit removal of the cylinder from the housing.

12. In a lock, a housing having a bayonet slot, a cylinder in said housing, a locking bolt carried by the cylinder and cooperable with the housing to lock the cylinder against movement in the housing and movable to release the cylinder for movement in said housing, a portion of said bolt being cooperable with the bayonet slot in the housing for retaining the cylinder and limiting the movement of said cylinder in the housing, said cylinder and bolt being movable in a predetermined manner relatively to said housing when said bolt is moved to release the cylinder for movement, whereby to remove said bolt portion from the bayonet slot to permit removal of the cylinder from the housing.

13. In a lock, a housing having a bayonet slot, a cylinder in said housing, a retaining bolt carried by said cylinder and extending into the bayonet slot in said housing for retaining said cylinder in the housing, said cylinder and bolt being movable relatively to said housing and bayonet slot for releasing the bolt from said slot and the cylinder from said housing, a key operated plug in said cylinder, and means releasable by said plug and normally adapted to prevent movement of the cylinder relatively to the housing.

CHARLES B. LOWE.