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J. MENCHEN

2,055,907

PORTABLE LOCK

Original Filed Dec. 14, 1934

Fig. 1.

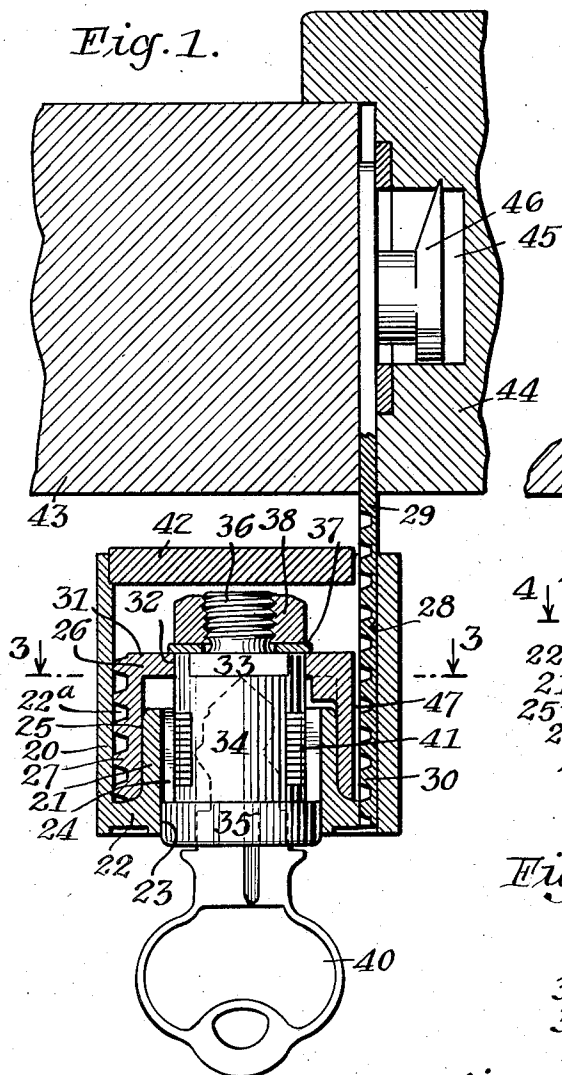


Fig. 2.

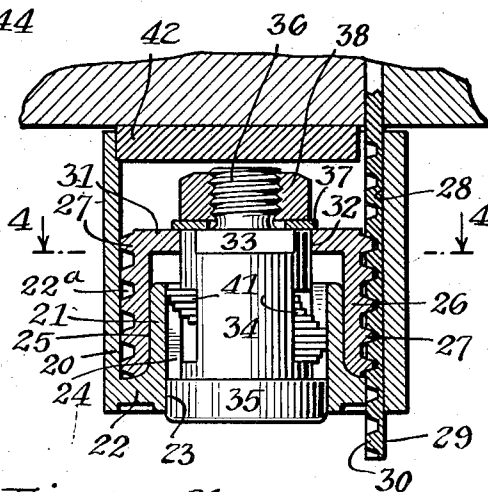


Fig. 4.

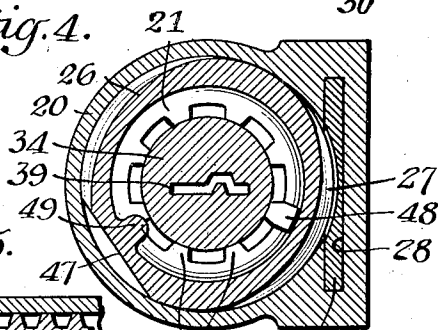


Fig. 3.

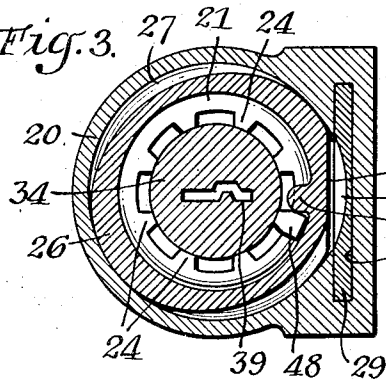
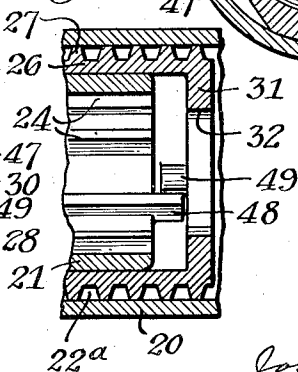


Fig. 5.



INVENTOR

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UNITED STATES PATENT OFFICE

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PORTABLE LOCK

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Application December 14, 1934, Serial No. 757,540

Renewed July 13, 1936

7 Claims. (Cl. 70-14)

This invention relates to a lock of the general character embodied in my co-pending application Serial No. 718,995 filed April 4th, 1934.

Specifically, the invention disclosed in the application above identified includes a casing enclosing a key controlled locking mechanism and a correlated feed screw operable upon rotation by the key for said mechanism, to be meshed with a locking bar so as to feed the casing along the bar to a position wherein the casing and bar can co-act in locking relatively movable parts together upon withdrawal of the key from said mechanism. With the key again applied to said mechanism and reversely rotated, the casing will be oppositely fed along the bar and finally released therefrom in order to unlock such relatively movable parts.

The object of the present invention is to provide in an organization of the above described character, means whereby the operation of applying the casing to and removing it from the locking bar will be greatly facilitated in order to enable the relatively movable parts with which the lock is to be associated, to be locked together and unlocked with the utmost ease and dispatch.

More specifically, the object of the present invention is to provide means which renders it unnecessary for the feed screw to be rotated through several revolutions in order to apply the casing to, or remove it from the locking bar, a portion of a revolution sufficing to operatively connect the screw to the bar and feed the casing along the bar to locking position, as well as to reversely feed the casing to disconnect the screw from the bar, all to the end of greatly expediting these operations.

With this and other objects in view, the invention consists in the combinations and arrangements of elements as described in the following specification and set forth in the appended claims.

In the accompanying drawing, Figure 1 is a longitudinal axial sectional view of the portable lock embodying this invention, and showing the unlocked position thereof in applying same to the locking bar.

Figure 2 is a view similar to Figure 1 and showing the lock in its locked position.

Figures 3 and 4 are transverse sectional views taken respectively on the lines 3-3 and 4-4 of Figures 1 and 2.

Figure 5 is a fragmentary longitudinal sectional view taken on the line 5-5 of Figure 3, and with the key controlled locking mechanism omitted for the sake of clearness.

Referring specifically to the drawing, the lock of

the above identified co-pending application to which the present invention is applied, comprises a generally cylindrical casing 20 having an internal and concentrically disposed annular projection 21 rigidly supported at one end by a transverse wall 22 at the front of the casing, so as to provide an annular space 22-a between the projection and the casing.

The bore 23 of the projection 21 is provided with a circular series of spaced apart and radially disposed locking projections 24, and the outer periphery of the projection 21 provides a journal 25 on which is rotatably mounted in the annular space 22-a, a feed screw 26 the spiral threads or teeth 27 of which are adapted to project into a longitudinal slot 28 formed in the casing to receive a locking bar 29, for meshing engagement of the teeth 27 with teeth 30 formed on the bar.

The feed screw 26 is cup shaped to provide a transverse wall 31 which seats against the inner free end of the projection 21 and is provided centrally with a non-circular opening 32 receiving a correspondingly shaped peripheral portion 33 on the barrel 34 of a cylinder type key controlled locking mechanism, the forward end 35 of the barrel being enlarged and journaled in the bore 23 of the projection 21.

The portion 33 of the barrel 34 co-acts with the opening 32 to connect the feed screw 26 to the barrel for rotation thereby; and in order to rigidly secure the barrel to the feed screw, the barrel is provided with a reduced threaded shank 36 receiving a washer 37 and a nut 38.

The barrel is formed with a keyhole 39 in which is insertable a key 40 the wards of which are adapted to co-act with radially movable spring pressed tumblers 41 in camming them inwardly from their locking positions in engagement with the locking projections 24 to their releasing positions within the diameter of the barrel as shown in Figures 2 and 1 respectively.

The inner open end of the casing 20 is closed except for the slot 28, by a disk 42 of fibre or other non-marring material; and the locking bar 29 in the present instance is adapted to be inserted between the free edge of a door 43 and the jamb 44 having the usual keeper recess 45 in which a head 46 on the locking bar is adapted to be received. The structure of the lock thus far described corresponds to that set forth in the co-pending application above referred to.

The present invention comprises the provision of a thread interrupting portion 47 on the feed screw 26 which is formed by cutting away a segment of the periphery of the screw to a flat plane

which when parallel to the confronting toothed side of the locking bar as shown in Figures 1 and 3, clears the latter so that in this position of rotational adjustment of the screw its threads 27 are out of meshing engagement with the teeth 30 of the locking bar thereby rendering the casing free to be shifted along the locking bar.

In conjunction with the thread interrupting portion 47 are stops 48 and 49 which co-act to limit rotational movement of the feed screw. The stop 48 is in the form of a lug projecting from the inner end of the annular projection 21 and disposed in the path of movement of the stop 49 which is also in the form of a lug projecting from the inner periphery of the feed screw at its transverse wall 31. In the direction of rotation of the feed screw to retract the casing on the locking bar, the movement of the screw is limited to the position shown in Figures 1 and 3 and wherein the feed screw clears the locking bar.

In the operation of the lock, let it be assumed that the key 40 is withdrawn from the barrel 34 and that the feed screw is locked by the tumblers 41 and locking projections 24 in the position as shown in Figures 1 and 3 so that with the locking bar associated with the door 43 and jamb 44 as shown in Figure 1, the casing 20 can be applied to the locking bar and advanced along the latter until the casing is in close proximity to the door. The key 40 is now inserted in the barrel 34 and rotated in a direction to cause the threads of the feed screw to mesh with the teeth of the locking bar and to advance the casing tightly against the door, following which the key is withdrawn from the barrel. As the feed screw is locked by the tumblers 41 to the casing and is meshing with the locking bar, the casing is thus locked to the latter, whereby the door is firmly secured in its closed position.

It will be clear that only a portion of a revolution is necessary to advance the casing tightly against the door from the position to which the casing is moved manually with the feed screw clear of the locking bar, and that by reversing the above described operation the casing can be removed from the bar with equal facility, thus materially expediting both the locking and unlocking operations of the casing relative to the locking bar.

It will be appreciated that the casing 20 and locking bar 29 broadly constitute two co-acting locking means arranged to be relatively advanced and retracted, or relatively adjustable rectilinearly; that the feed screw 26 broadly constitutes a feed member carried by one of the two means and co-acting with the other to adjust the two means relatively upon rotation of the feed member in either direction; that the cylinder lock constitutes a means for locking the feed member to the said one of the two means so as to secure the two means against relative adjustment; and that the thread interrupting portion 47 broadly constitutes a means correlated with the rotation limiting means provided by the co-acting stops 48 and 49, by which the feed member is rendered incapable of co-acting with the other of the two said means in one position of rotational adjustment of the feed member; all to the end of enabling quick adjustment of the two means relatively, to be effected in order to greatly facilitate the locking and unlocking operations.

What I claim is:

1. A lock comprising a casing; a feed screw journaled in the casing; a locking bar having teeth with which the threads of the feed screw

are disposed to mesh to advance or retract the locking bar relative to the casing according as the feed screw is rotated in one direction or the other; means for locking the feed screw to the casing so as to lock the latter and locking bar against relative movement; and means on the feed screw enabling the latter to clear the teeth of the locking bar in one position to rotational adjustment of the feed screw, whereby to enable the casing to be shifted along the locking bar without rotating the feed screw.

2. A lock comprising a casing; a feed screw journaled in the casing; a locking bar having teeth with which the threads of the feed screw are disposed to mesh to advance or retract the locking bar relative to the casing according as the feed screw is rotated in one direction or the other; means for locking the feed screw to the casing so as to lock the latter and locking bar against relative movement; the feed screw having a portion interrupting its threads for a sufficient distance circumferentially to enable the feed screw to clear the teeth of the locking bar in one position of rotational adjustment of the feed screw, whereby to render the casing free for adjustment on the locking bar without rotating the feed screw.

3. A lock comprising a casing; a feed screw journaled in the casing; a locking bar having teeth with which the threads of the feed screw are disposed to mesh to advance or retract the locking bar relative to the casing according as the feed screw is rotated in one direction or the other; means for locking the feed screw to the casing so as to lock the latter and locking bar against relative movement; means on the feed screw enabling the latter to clear the teeth of the locking bar in one position of rotational adjustment of the feed screw, whereby to enable the casing to be shifted along the locking bar without rotating the feed screw; and means for limiting rotational movement of the feed screw to the aforesaid position of rotational adjustment in the direction of rotation of the screw to retract the casing relative to the locking bar.

4. A lock comprising a casing; a feed screw journaled in the casing; a locking bar having teeth with which the threads of the feed screw are disposed to mesh to advance or retract the locking bar relative to the casing according as the feed screw is rotated in one direction or the other; means for locking the feed screw to the casing so as to lock the latter and locking bar against relative movement; the feed screw having a portion interrupting its threads for a sufficient distance circumferentially to enable the feed screw to clear the teeth of the locking bar in one position of rotational adjustment of the feed screw, whereby to render the casing free for adjustment on the locking bar without rotating the feed screw; and co-acting stops on the casing and feed screw for limiting rotational movement of the feed screw to the aforesaid position of rotation adjustment in that direction of rotation of the screw necessary to retract the casing relative to the locking bar.

5. A lock comprising two co-acting locking means relatively adjustable rectilinearly; one of said means having a rotary feed member co-acting with the other of said means to relatively adjust the two means rectilinearly upon rotation of the feed member in either direction; means for locking the feed member to said one of the two means so as to secure the two means against relative adjustment; and means whereby the feed

member is rendered incapable of co-acting with the other of said two means as aforestated, in one position of rotational adjustment of the feed member so that in said one position the two means can be relatively adjusted without rotating the feed member.

6. A lock comprising two co-acting locking means arranged to be relatively advanced and retracted; one of said means having a rotary feed screw the threads of which co-act with the other of said two means to relatively advance or retract the latter upon rotation of the feed screw in one direction or the other; means for locking the feed screw to said one of the two means for co-action of the threads of the feed screw with the other of the two means in securing the two means against relative adjustment; and means defining a thread interrupting portion on the feed screw enabling the latter to clear the other of said two means in one position of rotational adjustment of the feed screw so as to render the two means relatively adjustable as aforestated without rotating the feed screw.

7. A lock comprising two co-acting locking means arranged to be relatively advanced and retracted; one of said means having a rotary feed screw the threads of which co-act with the other of said two means to relatively advance or retract the latter upon rotation of the feed screw in one direction or the other; means for locking the feed screw to said one of the two means for co-action of the threads of the feed screw with the other of the two means in securing the two means against relative adjustment; means defining a thread interrupting portion on the feed screw enabling the latter to clear the other of said two means in one position of rotational adjustment of the feed screw so as to render the two means relatively adjustable as aforestated without rotating the feed screw; and co-acting means on said one of the two means and the feed screw by which rotation of the latter in a direction to cause relative retraction of the two means will be limited to said one position of rotational adjustment of the feed member.

JOSEPH MENCHEN.