

Jan. 28, 1969

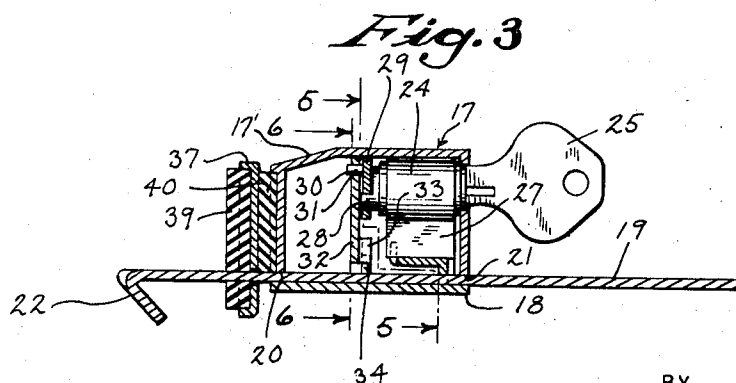
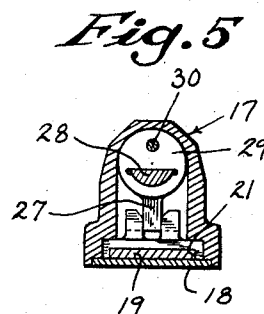
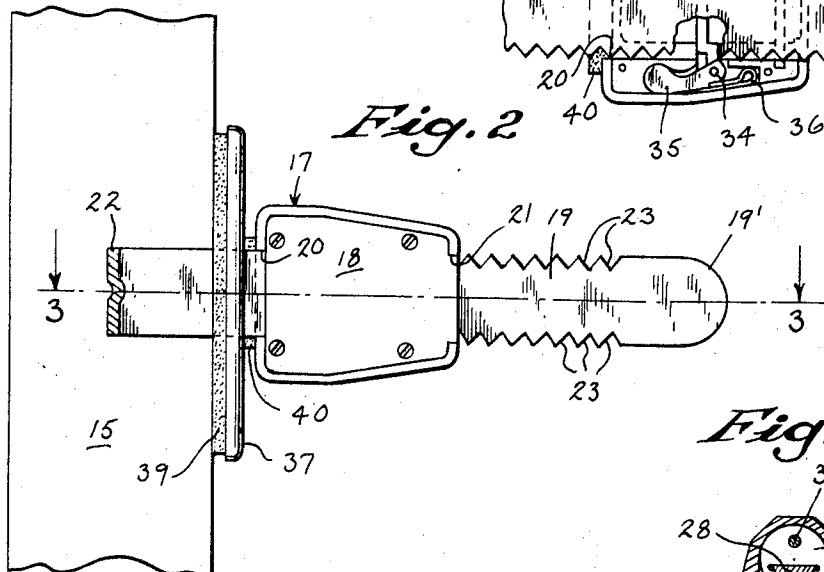
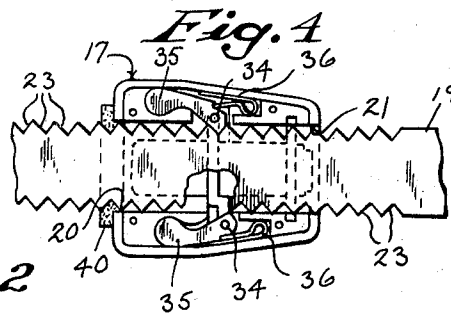
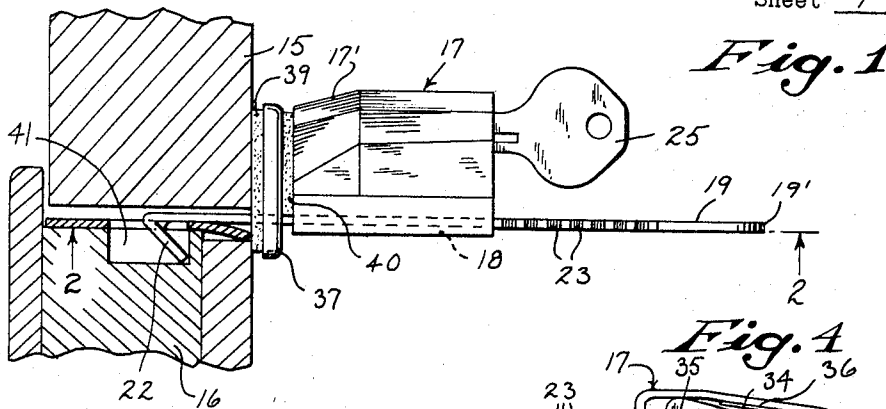
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3,423,968

DETACHABLE LOCKING DEVICES

Filed April 10, 1967

Sheet 1 of 2



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Fig. 6

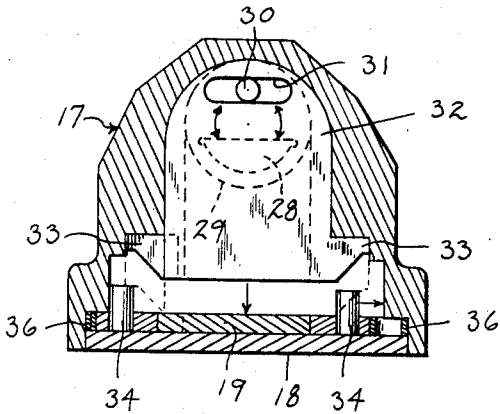


Fig. 7

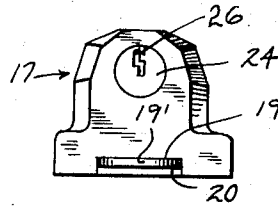


Fig. 8

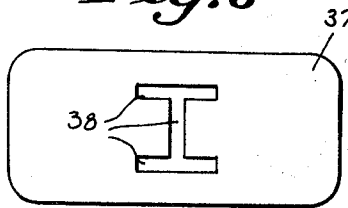


Fig. 9

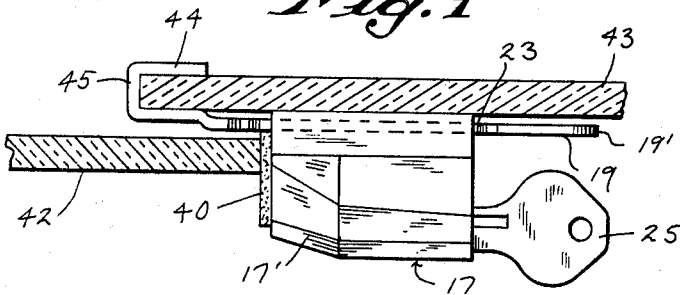
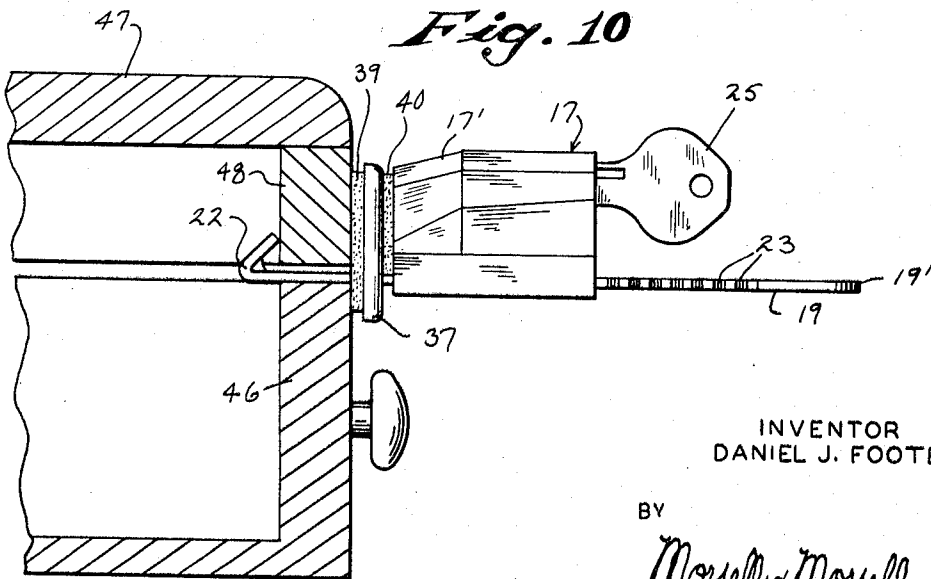


Fig. 10



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3,423,968

DETACHABLE LOCKING DEVICES

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Filed Apr. 10, 1967, Ser. No. 629,706

U.S. Cl. 70-14

Int. Cl. E05b 65/08, 65/44

4 Claims

ABSTRACT OF THE DISCLOSURE

For protection against the unauthorized opening of room or closet doors, desk and cabinet drawers, sliding glass doors and windows, and the like, a detachable lock is provided that can be easily transported from place to place and which can be readily attached to and be removed from the closure devices concerning which anti-theft protection is desired.

BACKGROUND OF THE INVENTION

Field of the invention

The present detachable locking device is of the type which can be carried from place to place and be detachably applied to doors, desk drawers, sliding glass showcase doors, or windows to prevent unauthorized entrance, pilferage and theft, the present detachable lock being susceptible of use independently of or in addition to the usual knob or lock with which the closure device such as a door, window, or the like is normally provided. Additionally, the lock may be easily installed and adjusted so as to fit various sizes of doors, drawers, windows, etc. without marring or defacing the latter. The detachable lock is of the type in which there is relative sliding movement between the lock body and a bar, with the latter being formed with an angled or hooked end portion for engagement with one of the members to be locked, the bar on which the lock body is mounted being of considerable length so that the lock body can be locked thereon in various positions whereby the lock is adjustable to suit the particular requirements.

Description of the prior art

Prior Patent No. 2,720,102 to Spain, while functioning similarly to the present detachable locking mechanism, differs materially therefrom in respect to structural details and the manner in which the locking bar is engaged, and the locking device of the present invention, whether applied to the right or to the left of the closing device, is arranged so that the operating key is always in the center for free operations and can be turned in either direction to operate the locking mechanism.

Patent No. 3,124,949 to Friedman differs mechanically from the detachable locking device of the present invention in many respects previously mentioned in connection with the Spain patent and is furthermore designed for application only to the sliding doors of a showcase.

U. S. Patent No. 3,262,292 is designed for locking sliding glass doors, but the locking bar is devoid of ratchet teeth along its side margins and would not permit the fine graduated adjustments afforded by the locking device of the present invention.

As far as applicant is aware there is nothing presently available to fully accomplish applicant's intended purposes nor similar in precise design and structural details to those of the instant detachable locking device.

SUMMARY OF THE INVENTION

The detachable locking device of the present invention includes a locking bar having a hooked or angled inner end which is attachable to one of the members to be locked

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and on which the lock body or case is slidable so as to be locked thereon in a desired position of adjustment to abut one of the elements to be locked, and to hold it in closed position, with the locking action being controlled through a key plug which turns within the lock body or casing and sets or releases the lock bar engaging mechanism there-within.

The present detachable locking device can be carried from place to place in a pocket, handbag or suitcase, and is ideal for travelers or vacationers who desire to specially lock room or closet doors, dresser drawers, and the like to secure their clothes, jewelry, and other valuables against being stolen, or to prevent unauthorized entry into a room or compartment. Said locking device is also applicable to the sliding glass doors of showcases, or to sliding glass doors and windows of offices, showrooms, boats, yachts, etc.

The locking bar on which the lock body or case is relatively slidable is formed with ratchet teeth along both longitudinal margins which are engaged by opposed, staggered, spring-loaded levers so that the levers can selectively interlock in one side or the other of the marginal, transversely-aligned ratchet teeth in the locking bar.

A sponge rubber cushion or bumper interposed between the inner end of the adjustable lock body or casing and a surface of the member to be locked permits the device to be locked relatively tightly against the surface of one of the members without marring or scratching the latter or without breaking or impairing the wood or glass of the door or panel. The locking device of the present invention is such that the key enters the lock or keyway parallel to the lower surface of the lock body and parallel to the locking bar, making for easy operation and manipulation for installing or disengaging the lock. With applicant's locking bar formed with transversely-aligned ratchet teeth along its opposite longitudinal margins engaged by a bar of opposed, spring-loaded, staggered levers, which interlock on one side margin or the other of the locking bar, the locking bar can only enter the lock housing or body from the proper end of the latter. The turning or operating movements of the proper key applied to the locking device of the present invention is effective to operate the staggered levers by cam action so that the same may pivot away when the locking bar is inserted into the lock casing with the levers then clearing the notches or teeth, but movement in the other direction ensures a tight or strong engagement as between the lever ends and the locking bar teeth, thereby augmenting the strength or holding power of the lock should pressure or unusual force be applied to the closure locked thereby by an unauthorized person attempting to break in or gain unlawful entry without the use of the proper key.

Still further features of the present invention reside in the characteristics which render the detachable locking device relatively simple in design and construction, reliable and effective in operation, and otherwise well adapted for its intended purposes.

BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings, wherein the same reference characters designate the same or similar parts in all of the views:

FIG. 1 is a horizontal sectional view through a door and door jamb showing the improved detachable locking device adjustably applied thereto for door locking purposes;

FIG. 2 is a view taken substantially along the line 2-2 of FIG. 1;

FIG. 3 is a sectional view of the detachable locking device including the adjustable locking bar, taken along the line 3-3 of FIG. 2;

FIG. 4 is a fragmentary view of a portion of the showing in FIG. 2, only with the bottom cover of the lock housing removed to show internal mechanism and the manner in which the notched edge portions of the locking bar are engaged;

FIG. 5 is a transverse sectional view taken along the line 5—5 of FIG. 3;

FIG. 6 is a transverse sectional view taken along the line 6—6 of FIG. 3 and on a larger scale;

FIG. 7 is an end view of the lock housing showing the lock cylinder therein;

FIG. 8 is a detailed plan view of a resilient insert or pad adapted to be carried by the inner end of the locking bar for interposition between the inner end of the lock housing and the door or other member to which the locking device is applied;

FIG. 9 is a side view of the improved locking device as applied to a pair of sliding glass doors or windows with the hooked end portion of the locking bar being of slightly modified formation and with the companion sliding elements being shown in section; and

FIG. 10 is a sectional view through that portion of a desk which houses a drawer, showing the improved locking device applied thereto for drawer locking purposes.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Reference will first be made to FIGS. 1—8, inclusive, of the drawings and it will be observed that a vertical door 15 operates within a door jamb 16, both being of conventional construction and equipped with normal hardware. The improved locking device, which is a unit entirely independent of the member to be locked, can be carried to the place of usage by a traveler or vacationer, and it is susceptible of being applied to a room door, or other closure device, to protect the contents of the room or a closet, or other container, against pilferage by a burglar or thief. Similarly, the locking device is equally applicable to doors, cabinets, or the like, in a person's home or office, or in a showroom.

A major unit of the locking device assemblage is a lock housing or body generally indicated by the numeral 17 and shaped as shown, with a slightly reduced or tapered inner portion or nose 17'. One side of said housing, which would correspond to the bottom relative to the showings in FIGS. 1, 3, 6 and 7, is normally closed by a secured-in-place cover plate 18 on the inner surface of which an elongated flat locking bar 19 is supported for relative sliding movement. The opposite end walls of the housing 17 adjacent the cover plate 18 are formed with rectangular slots 20 and 21 which slidably accommodate the extended portions of the locking bar 19. From a point inwardly of the rounded outer end portion 19' of the locking bar to a point slightly inwardly of the hooked or angled inner end portion 22 of the locking bar 19, the opposite side longitudinal margins are formed with series of transversely-aligned teeth or notches 23.

In addition to a portion of the locking bar 19, the interior of the lock housing 17 contains an operatively-mounted tumbler pin cylinder 24 (see FIGS. 3 and 7) which is adapted to be actuated by a properly-applied key 25 entered from the outer end portion of the housing 17 and tumbler pin cylinder 24 into a slot 26 in the latter. The tumbler pin cylinder 24 is rigidly held within the housing 17 by means of a clip 27 (see FIG. 3). It should also be observed that the operating key 25 enters parallel to the locking bar 19. The properly-applied key 25, when rotated a quarter of a turn in either direction, causes the cylinder plug 28 to similarly turn. The end of the cylinder plug 28 carries a disc 29 (see FIGS. 3 and 6) which, in turn, has an axially-projecting pin 30 engaged within an elongated slot 31 in a drive cam 32 which is adapted to move transversely to the axis of the housing 17. A downward movement imparted to the drive cam 32 causes a pair of angular posts 33 on the opposite lower sides of

the drive cam to contact a pair of upright pins 34. One of said pins is carried by each of a pair of pivotal levers 35 which are spring-loaded, as at 36, and which are mounted within the housing adjacent the opposite toothed margins of the locking bar 19 so that the nose portions of said levers may swing into and out of engagement with the adjacent teeth 23 of the locking bar 19, all as is shown in FIG. 4.

The locking bar may only be inserted into the housing by having its end portion 19 entered into the housing from the inner or nose end thereof, but the locking bar may be entered into the lock housing with the hooked end portion 22 of the locking bar positioned as shown in FIGS. 1 and 3, or reversed as shown in FIG. 10, depending upon the ultimate requirements. It has been observed that the teeth in the locking bar 19 are transversely aligned, but it should be observed from FIG. 4 that the spring-loaded levers 35 are slightly staggered. When the cylinder plug 28 is turned, by means of the applied key 25, to its unlocking position relative to the mechanism actuated thereby, the nose ends of the levers 35 will not lockingly engage in the teeth of the bar 19 so that the bar may be moved in either direction relative to the housing for adjustment purposes. However, when the key is manipulated a quarter of a turn in an opposite direction to move the cylinder plug 28 into its locking position, one or the other of the levers 35 will engage a locking bar tooth 23 to prevent relative movement of the housing 17 outwardly or toward the right relative to the drawings, but the housing may be moved on the bar inwardly or to the left relative to the drawings to effect fine adjustments for a tight fit of the assemblage against the door or door jamb. In so operating, the staggered levers 35 lock to one side or the other of the locking bar, one notch at a time. When this locking action is accomplished the drive cam 28 is moved upwardly, disengaging its posts 33 from the pins 34, whereby the springs 36 yieldingly force the nose ends of the levers 35 inwardly.

In use, the applied locking bar 19 is adapted to carry, forwardly of the nose end 17' of the lock housing 17, a rectangular mounting plate 37 shown in plan elevation in FIG. 8 and which has extended therethrough an H formation of slots 38, any one of which may selectively receive the locking bar 19 so as to correctly or conveniently position the mounting plate 37 relative to the surface or closure to which the improved locking device is applied. As will be seen most clearly from FIGS. 1 and 2, said mounting plate 37 has a cup portion to receive a pad 39 formed of soft rubber or other suitable resilient material whereby, when the mounting plate is carried by the assemblage as shown and the hooked end of the locking bar 19 is applied to an element of a closure to be locked, with the lock housing 17 being forcefully secured on the locking bar 19 tightly against the member 37, the resilient insert or pad 39 will compress against the surface to which the locking device is applied to render it secure without marring or scratching such surface. It should also be noted that the forward nose end of the housing 17 carries within a recess another resilient pad 40 which abuts the outer surface of the cupped portion of the mounting plate 37.

One application of the improved detachable locking device is shown in FIGS. 1 and 2, wherein the device is applied to the door of a room or closet. As so arranged, the hook end 22 of the locking bar 19 is engaged within the latch pocket or strike plate 41 of the door frame 16. The aforementioned mounting plate 37, as carried by the locking bar 19, is arranged so as to be forcefully resiliently held against the surfaces of the members 15 and 16 and to overlap both of the same.

In FIG. 9 the improved detachable locking device is shown as being applied to a pair of sliding glass door or window elements 42 and 43 to hold the same locked against unauthorized opening. For this type of usage the

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inner or hooked end of the locking bar 19 is slightly modified, having a reverse bend 44 to provide a slot 45 for the snug reception of an end edge of one of the sliding glass elements 43. In this arrangement the rectangular mounting plate 37 can be dispensed with and the resilient pad 40 on the nose end of the lock housing 17 affords protection against the end of the glass element 42 and is susceptible of some compression.

In FIG. 10 the improved detachable locking device is shown applied to the drawer of a desk or cabinet, wherein the drawer is indicated by the numeral 46, which normally slides relative to the adjacent desk portion 47. The hooked end portion 22 of the locking bar 19, which is of the form shown in FIGS. 1 and 3, engages behind the desk top lip 48. In this type of installation the previously described rectangular mounting plate 37 is again carried by the locking bar 19 and overlaps front face portions of the locked drawer and desk top. The locking device as used in FIGS. 9 and 10 can be manipulated, adjusted, locked and unlocked in the same manner as was described in connection with its application to a door.

From the foregoing description it will be seen that, according to the present invention, there is provided an improved detachable lock that may be carried by a person from place to place for use on a variety of closure devices to safeguard the same against unlawful entry and to protect the contents of the enclosure whose door, windows or drawers have the locking device applied thereto. The mechanism within the lock housing (the latter being relatively movable along a serrated locking bar) is simple and effective and controls a pair of pivotal spring-loaded locking levers engageable with teeth in the locking bar. The arrangement is furthermore such that such levers interlock on one side or the other of the locking bar, which ensures that the locking bar may enter the lock housing only from the proper end and, additionally, the arrangement makes for fine or close adjustment relative to the closure to ensure a tight fit.

It is to be understood that while preferred embodiments of the present invention have been illustrated and hereinabove described, numerous modifications therein will undoubtedly occur to those skilled in the art, and it is intended to include herein not only the illustrated forms of the invention but also any and all variations or modifications thereof as may come within the spirit of said invention.

What is claimed as the invention is:

1. In a detachable locking device including a hollow housing slotted at both ends and having an elongated,

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serrated locking bar extending through said housing slots adjacent a wall of the housing so that the housing is relatively slidable on the bar, a key-operated cylinder plug being movably mounted within the housing, the improvements which comprise: spring-loaded lever dog means pivotally mounted within the housing for normal engagement with housing bar serrations; and motion transmitting means operatively mounted within the housing between said cylinder plug and said lever dog means for yieldingly moving the latter in a direction to disengage the locking bar, said motion transmitting means including a disc carried by the cylinder plug, a drive cam, there being a pin and slot connection between the disc and the drive cam, pins projecting from said lever dog means, and protuberances on said drive cam engageable with said lever dog pins.

2. A detachable locking device comprising: an elongated locking bar having serrations along opposite marginal portions thereof; a lock housing having openings therethrough to receive the locking bar for longitudinal sliding movement of the housing relative to the bar; an independent lever dog adjacent each margin of the locking bar; means independently pivotally mounting each lever dog within the housing for movement into and out of engagement with locking bar serrations there adjacent; a manually turnable cylinder plug within the housing; and co-acting motion transmitting means extending between the plug and each lever dog for controlling movement of the latter.

3. A detachable locking device as claimed in claim 2 wherein each lever dog is individually spring loaded.

4. A detachable locking device as claimed in claim 2 wherein the cylinder plug is aligned with the longitudinal axis of the housing and the lever dogs are transversely staggered.

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U.S. Cl. X.R.

70—95