Sept. 29, 1936. J. MENCHEN 2,055,906

PORTABLE LOCKING DEVICE

Filed April 4, 1934 3 Sheets-Sheet 1

Fig. 1.

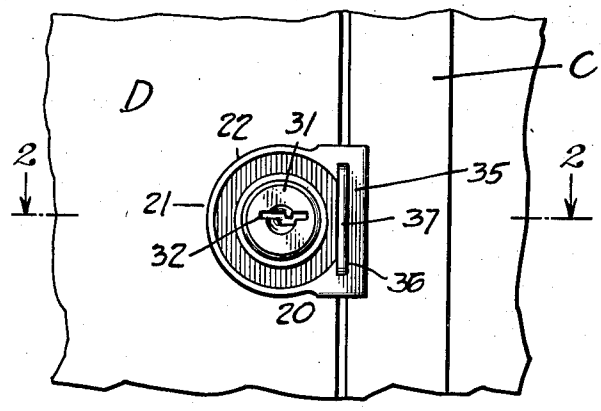
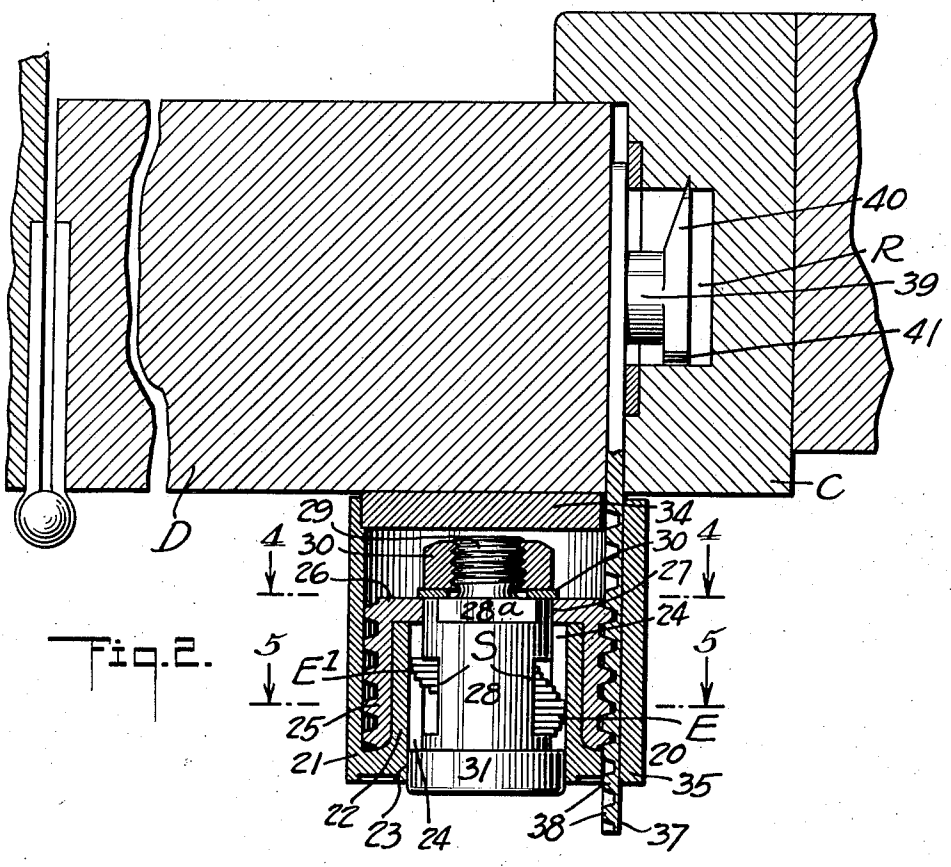


Fig. 2.



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Fig. 3.

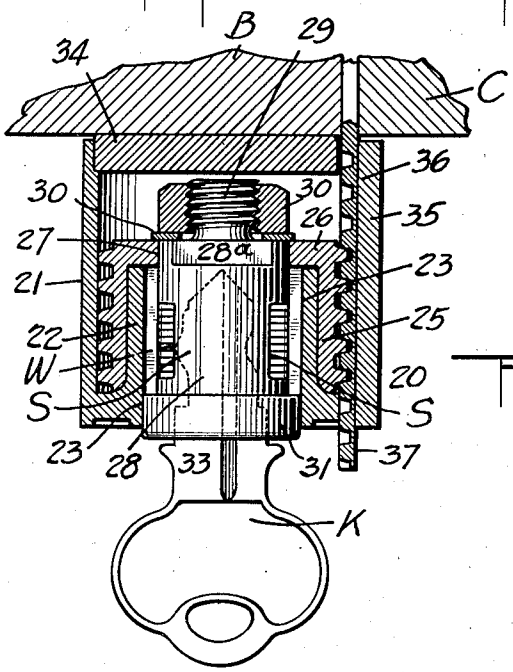


Fig. 4.

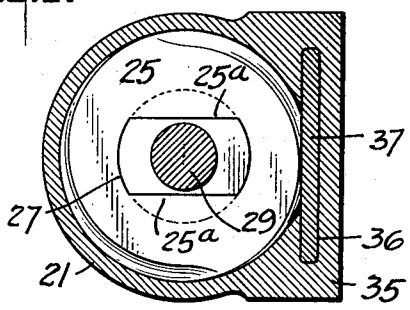


Fig. 5.

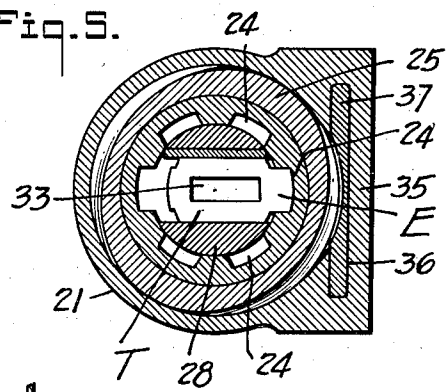


Fig. 6.

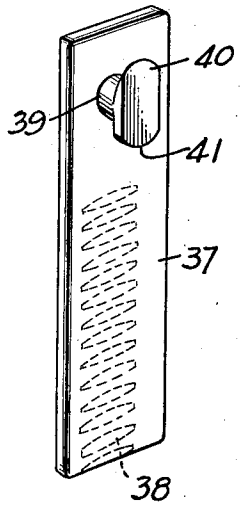


Fig. 7.

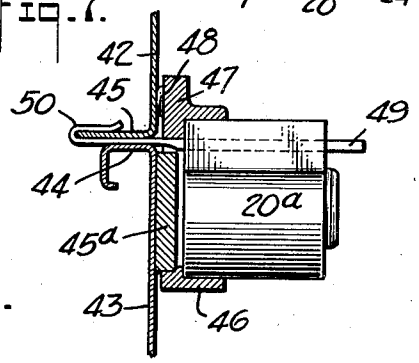
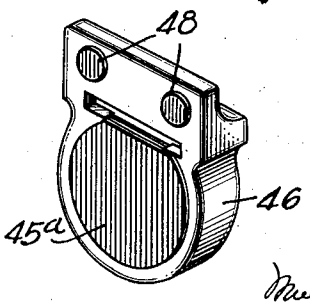


Fig. 8.



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Fig. 9.

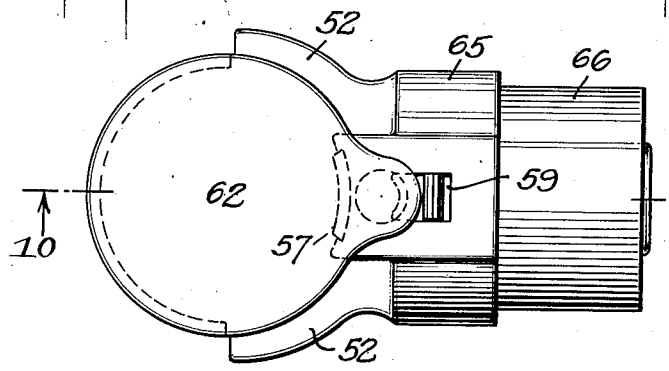


Fig. 14.

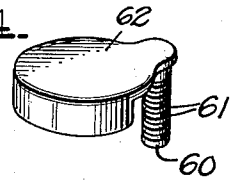


Fig. 13.

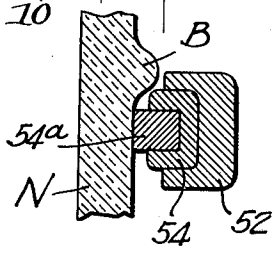


Fig. 11.

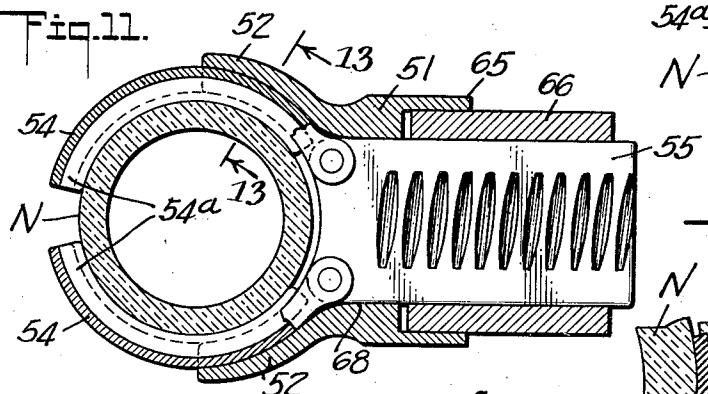


Fig. 12.

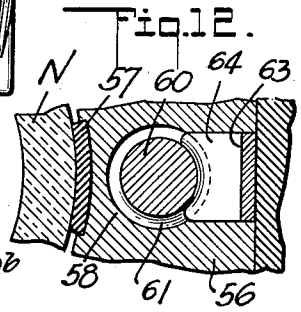


Fig. 10.

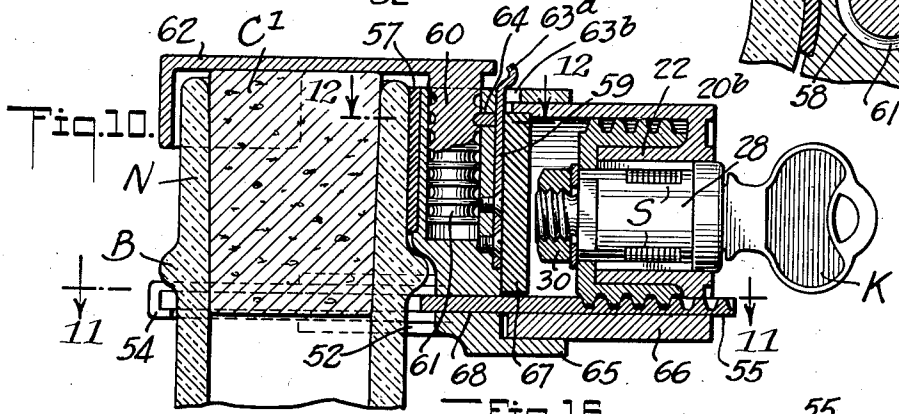


Fig. 16.

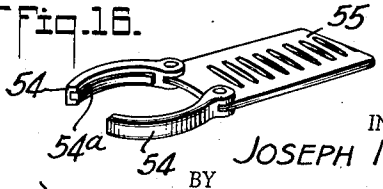
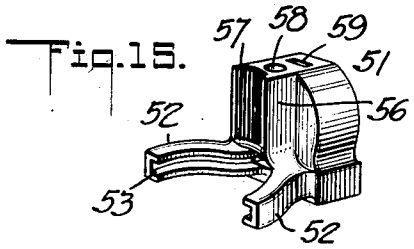


Fig. 15.



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UNITED STATES PATENT OFFICE

2,055,906

PORTABLE LOCKING DEVICE

Joseph Menchen, Los Angeles, Calif.

Application April 4, 1934, Serial No. 718,995

11 Claims. (Cl. 70—14)

This invention relates to portable locking devices, and same has particular reference to a form of device designed primarily for use in the work of securely locking a movable object to prevent, ordinarily speaking, the release of such object from an intended position of adjustment, except by a duly authorized person.

The device finds expression in the employment of means applicable to well known articles and objects of furniture, doors of rooms, vaults, safety deposit boxes, and the like, or in any instance where it is intended or desired to hold a movable object in a fixed position of adjustment and against being released by unauthorized persons, and certain objects of the invention are to provide a simple and positively acting device of this nature which is of light weight and, therefore, capable of being conveniently handled and readily carried on the person of the user, one which is exceedingly strong and durable and one which may be quickly applied to or removed from the article with which it is to be used.

With the above and other objects in view, which will appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangements of parts which will hereinafter be fully described and particularly pointed out in the claims.

In the accompanying drawings have been illustrated several forms of the invention, it being understood that no limitations are necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the claims may be resorted to when desired.

In the said drawings,

Figure 1 is a view in front elevation showing same applied;

Figure 2 is a section on line 2—2 of Figure 1;

Figure 3 is a view somewhat like Figure 2, but with the tumblers retracted;

Figure 4 is a section on line 4—4 of Figure 2;

Figure 5 is a section on line 5—5 of Figure 2;

Figure 6 is a perspective view of the locking bolt;

Figure 7 is a view in elevation of a slightly modified form of the invention;

Figure 8 is a detail perspective view of the adapter employed in connection with the device shown in Figure 7;

Figure 9 is a plan view of a still further form of the invention;

Figure 10 is a section on line 10—10 of Figure 9, showing the device applied;

Figure 11 is a section on line 11—11 of Figure 10;

Figure 12 is a detail section on line 12—12 of Figure 10;

Figure 13 is a section on line 13—13 of Figure 11;

Figure 14 is a perspective view of the cover;

Figure 15 is a perspective view of the adapter employed in connection with the form shown in Figure 9;

Figure 16 is a similar view of the locking bolt and its mating neck engaging jaws.

In Figures 1 to 6, inclusive, I have illustrated a form of lock mechanism 20 in which certain of the parts employed are designed for use in connection with a conventional swinging door D and correlated casing C, the latter having a bolt or latch recess R formed therein.

The lock mechanism 20 comprises a hollow, substantially cylindrical casing 21, formed with a relatively short cylindrical bearing or integral extension 22 whose external face is concentrically spaced apart from the internal walls of said casing and whose axially positioned barrel passage 23 has formed therein longitudinally extending tumbler receiving grooves 24. The said grooves are of even number, there being six thereof herein illustrated, and they are arranged so that two each thereof are diametrically related to each other. I, of course, shall have it clearly understood that I do not propose to be limited to any precise number of such grooves, as this shall be clearly optional.

The bearing or extension 22 is somewhat shorter than the body portion of the casing 21, and mounted to turn about the bearing is a worm screw 25, the same having a head 26 formed axially of the casing with a passage 27. A rotary barrel 28 is mounted in the bearing 22, and same is of a length sufficient to seat at its inner end in the passage 27 in said head 26. Said inner end is formed with a threaded stem 29 over which is placed a lock washer 30, the latter adapted to be securely engaged against the adjacent face of the head 26 by means of a nut 30 on said stem. The casing 21 is so proportioned that all of the essential parts of the lock mechanism are situated wholly within said casing as will be appreciated on reference to Figures 2 and 3 of the drawings. The outer end of the barrel is provided with an enlarged cylindrical portion 31 whose major part loosely fits in the axial passageway of the bearing 22, and same is formed with a key slot 32 for the accommodation of a co-acting key K of the type employing a flat shank 33. The barrel 28 is of the

well known type which is chiefly characterized by a plurality of flat, yieldingly mounted, sliding tumblers T, arranged one against the other and adapted to be respectively retracted and projected from diametrically opposite slots S—S in the sides of said barrel, the said slots adapted to coincide with any pair of the diametrically disposed slots **24** in said bearing **22**, whereby to enable the effective locking ends E of one set of said tumblers to be projected into one of the grooves and the corresponding ends E' of the other set to be projected in like manner into the other one of said diametrically opposite grooves **24**, as shown in Figure 2. When the tumblers are disposed as just described, it is to be assumed that the key K is retracted from the seat **32** and in consequence thereof the barrel **28**; hence the worm screw **25** will be securely held against turning movement. Coincident with the key opening **32** and formed in the tumblers T are rectangular slots **33** for the sliding accommodation of the key K, and it is to be understood that an end wall of each tumbler of one set employed is adapted to be engaged by a co-acting ward W of the key, whereby to cause the effective locking ends of said tumblers to be operatively retracted from their co-acting groove **24**, when the key is fully inserted, thus enabling the barrel **22** and the aforementioned worm screw **25** to rotate together as a unit.

The casing **21** is provided at its inner end with a fiber disk **34**, the same adapted to engage flatwise against the front face of the door D at a point adjacent to the knob side thereof. It will be noted that the casing has formed thereon as a part thereof a lateral bolt guide and joint spanner **35**, the same having a rectangular slot **36** in which is removably and slidably mounted a bolt **37**. The inner face of this bolt, for a portion of its length, is formed with a longitudinal series of worm teeth **38**, the same adapted to mesh with the worm screw **25**. At one end, the bolt is formed with a lug **39**, the same having a spur or tooth **40** adapted, when the bolt is turned from a vertical position to a horizontal position, to bite into one wall of the recess R as clearly shown in Figure 2. It is to be borne in mind that when applying the lock to a door or other like object to be locked, the bolt **37** is first removed from the casing **21** and placed in a vertical position with its lug **37** coincident with the recess R. The lug is then inserted in said recess and the bolt swung downwardly to a horizontal position with the smooth foot or heel **41** of the spur **40** engaging one wall of the said recess and the point of the spur engaging the opposite wall of said recess. In so doing, the bolt will lie between the edge of the door D when closed and the adjacent face of the casing C. The free end of the bolt will project forwardly of the door as shown in Figures 2 and 3. The said free end of the bolt may now be passed into the slot **36** and the barrel turned by its key K until the disk **34** has been firmly advanced against the adjacent face of the door. During this adjustment of the casing on said bolt, the respective sets of tumblers of the lock will be fully retracted, but as soon as the key K is fully withdrawn from the lock, the effective locking ends of said spring projected tumblers will be operatively extended into their respective grooves **24**, making it impossible to again retract them except by an authorized person.

In order that the worm screw **25** may be made to turn with the barrel **28**, the inner end thereof is formed with parallel flat faces **28***a* against which the like faces **25***a* of the passage **27** in said worm screw are adapted to engage.

In Figures 7 and 8, assume that **42** is the body structure of an article of furniture, such as a file cabinet or the like, and that same includes a sliding drawer **43**. The drawer has an inwardly extending horizontal flange **44** at its upper front edge and the lower wall of the body structure **42** has a similar horizontal flange **45**, the latter disposed in parallel relation to and above said flange **44**. The lock mechanism **20***a* is like the mechanism **20** first above referred to. It is seated in an adapter or spanner element **46** of such proportions as to enable same to span the joint between the upper front edge of the drawer and the flange **45**. This adapter is provided with a non-metallic disk **45***a*, preferably of fiber, and same is firmly seated against the front face of the said drawer. The portion **47** of the adapter carries non-metallic lugs or buttons **48** whose inner flat faces lie in the vertical plane of the inner face of the disk **45***a*, and same are designed to firmly rest against the front face of the body structure, as shown in Figure 7. An adapter of this nature is such that it may be made in sizes to satisfy its use in connection with various well known articles of furniture and when applied as aforementioned same provides a strong and durable form of mounting for the lock, and same may be readily associated with the part to be locked and in a way that will afford an effective bridge across the joint between the movable part of the furniture and the fixed part or casing structure. The sliding key actuated bolt **49** of the lock mechanism **20***a* is substantially like the bolt **37**, but in this instance same is formed at its inner end with a hook **50** adapted to removably engage with the flange **45**, as shown in Figure 7. When the hook is fully engaged with said flange and the adapter snugly presented against the adjacent front faces of the part **42** and the drawer **43**, it follows that with the key of the lock removed, the drawer will be securely locked in a closed position of adjustment.

In the form of the invention shown in Figures 9 to 16, inclusive, I have provided an exceedingly novel and decidedly useful organization of elements for positively preventing the removal of liquids from bottles. To allow for such use of the invention, I do not make any material changes in the essential structural features of the device.

The letter N in the figures last referred to represents the neck of a bottle, the same having an annular bead B. Removably connected with the neck is an adapter **51**, the same having a pair of arcuate cams **52—52**, grooved on their inner faces as at **53**. These cams, when the adapter is operatively adjusted to the bottle neck occupy position in concentric relation to the neck as shown in Figure 11, and same are in corresponding relationship to the horizontally movable, arcuate locking dogs **54—54** of a sliding bolt **55**. Said adapter is formed with a vertical lug **56**, the inner face of which is transversely grooved and faced with an elastic material **57**, adapted to partly embrace the neck of the bottle as shown in Figure 12.

The lug **56** is formed with a vertical passage **58**, adjacent to which and also formed in said lug is a slot **59**. Mounted to slide in the passage **58** is a stem **60**, having a plurality of spaced apart annular grooves **61**. This stem carries a cover **62** adapted to extend over the cork C^1 of the bottle, as illustrated. Mounted in the slot **59** and secured at one of its ends to the adapter **51** is a leaf spring **63**, the same having a lug **64** adapted to engage in any one of the aforementioned annular grooves **61**, whereby to hold the cover **62**

in a desired position of lowered adjustment against the said cork of the bottle.

The adapter **51** has an annular portion or ring **65** in which is seated the inner end of the casing **66** of the lock mechanism **20***b*. The fiber disk or the like **67** of the lock casing is adapted to bear flatwise against the aforementioned leaf spring **63** when the device is fully applied, and it will be noted that because of this construction and arrangement of parts, the spring will be held in a relatively fixed or inflexible condition so as to prevent its lug **64** from being manually retracted from its co-acting groove **61** in said stem **60**. When, however, the disk **67** has been drawn away from said spring, the end **63***a* of the latter may be manually moved into the slot **63***b* in the adapter in order that the cover **62** may be readily moved in a vertical direction.

The lock mechanism **20***b* is virtually the same as the one first above described, at least so far as concerns the main structural features thereof. I shall not, therefore, describe same in detail but will merely state that the sliding bolt **55** thereof is operatively accommodated in a slot **68** in the base of the aforestated adapter **51**.

It follows, with respect to the form of my invention last described, that when the adapter is fully applied, as shown in Figures 10 and 11 of the drawings, the jaws **54—54** of the bolt **55** will be snugly held in embracing relation to the neck of the bottle at a point just beneath the bead B. The disk **67** will be so closely engaged with the spring **63** as to positively hold the cover in a fixed position, thus preventing access being had to the contents of said bottle. When, however, the lock mechanism is actuated in a manner to cause the disk **67** to become disengaged from the spring **63**, and the jaws **54** released from the neck, the entire device can be readily removed from the bottle.

The inner faces of the said jaws **54—54** are preferably lined with rubber, cork or other suitable pliable or yieldable material **54***a* that will prevent breakage of the neck when adjusting the device to the bottle.

I have illustrated and described the last mentioned form of the invention in order to make clear one of the many uses to which the invention may be usefully put.

A device constructed substantially according to either embodiment of the invention is readily portable and same may be satisfactorily employed either as an exclusive locking means for the particular article with which it is used, or it may be employed in coaction with any conventional lock as an additional means of security against access being had to articles whose protection it is desired shall be safeguarded.

The bearing extension **22** of the lock mechanism is so designed that it not only functions in the ways heretofore referred to, namely, both as a bearing for the worm screw **25** and as a receptacle and mounting for the barrel **28**, but same serves further as a means to prevent withdrawal of the barrel and said worm screw from said casing when the device is in a position of applied adjustment upon the object to be locked.

What is claimed is:

1. A locking device comprising a casing having a bolt; rotary key-actuated means for moving the casing and bolt relatively to each other and for locking the bolt to the casing; and means carried by the bolt for removable attachment thereof to a fixed part of an object while maintaining a position of the casing against and in immovable relationship to a movable part of said object.

2. A locking device comprising a casing having a lateral portion formed with a slot; a bolt mounted in the slot and having an object engaging portion exposed therefrom; the casing having a portion disposed at right angles to the bolt and adapted to engage against a movable object; and key-controlled means within the casing for moving the latter linearly of the bolt and for locking the casing to the bolt.

3. A locking device comprising a casing having a movable bolt, rotary means in the casing, coacting with the bolt to move same and the casing relatively; key-controlled means co-operable with the rotary means for effecting the aforementioned relative movement of the bolt and said casing and for locking the casing to the bolt, and means by which the casing can be locked to the bolt in any one of a plurality of different circumferentially adjusted positions of the rotary means.

4. A locking device comprising a casing having an internal cylindrical portion; a worm screw mounted in the casing to turn on said portion, a movable bolt having a worm rack with which the screw is engageable, and rotary key actuated means co-operable with said portion and with said worm screw to move the casing and bolt relatively.

5. A locking device comprising a casing having an internal cylindrical portion; a worm screw mounted in the casing to turn on said portion; a movable bolt having a worm rack with which the screw is engageable, and rotary key actuated means co-operable with said portion and with said worm screw to move the casing and bolt relatively, the worm screw having a head co-operable with said cylindrical portion to hold the worm screw against removal from the casing.

6. A locking device comprising a casing having an internal cylindrical portion; a worm screw mounted in the casing to turn on said portion; a movable bolt having a worm rack with which the screw is engageable, and rotary key actuated means co-operable with said portion and with said worm screw to move the casing and bolt relatively, the cylindrical portion having tumbler receiving grooves therein and said rotary key-actuated means having tumblers engageable in said grooves to lock the rack to the casing.

7. A locking device comprising a casing, closed at one end and open at its other, a bolt removably insertable into the casing; rotary means in the casing, co-operable with the bolt to move the latter and the casing relatively to each other linearly and with the closed end of the casing disposed angularly relatively to the bolt; and key actuated means on which the rotary means is carried and with which the casing coacts to lock the casing on the bolt, the key actuated means including a barrel into which a key is insertable and tumblers adapted to be acted upon by the key and to engage with the casing to effect the aforementioned locking of the casing to the bolt.

8. A locking device comprising a casing provided with a removable bolt, the latter formed with a longitudinal series of rack teeth; a tumbler carrying barrel contained in the casing, the tumblers of which are adapted to coact therewith to hold the barrel against turning, and a worm screw carried by the barrel and coacting with the teeth of the bolt to move the latter and the casing relatively linearly.

9. In a device of the class described, a casing

having a hollow internal bearing, a bolt actuating worm screw mounted to turn on the bearing, a tumbler carrying barrel mounted to turn in the bearing and having tumblers engageable with the bearing, and means for connecting the worm screw with the barrel to enable the former to turn with the latter and to hold the screw from turning when the tumblers are engaged with said bearing.

10. A locking device comprising a casing; a worm screw journaled in the casing; a bolt having teeth with which the threads of the worm screw are adapted to mesh to feed the casing and bolt relatively upon rotation of said screw; a key receiving barrel in the casing for rotating the worm screw and having tumblers; and means in the casing with which the tumblers coact to lock the barrel to or release it from the casing according as a key is withdrawn from or inserted into the barrel, whereby to lock the worm screw to the casing against rotation or free the worm screw from the casing for rotation.

11. A locking device comprising a casing; a worm screw journaled in the casing; a bolt having teeth with which the threads of the worm screw are adapted to mesh to feed the casing and bolt relatively upon rotation of said screw; a key receiving barrel in the casing for rotating the worm screw and having tumblers; the casing having a circumferential series of grooves with which the tumblers coact to lock the barrel to or release it from the casing according as a key is withdrawn from or inserted into the barrel, whereby to lock the worm screw to the casing against rotation or free the worm screw from the casing for rotation.

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