Feb. 14, 1933. R. MARPLE 1,897,523

CONTROL HANDLE

Filed Nov. 8, 1928

FIG. 1

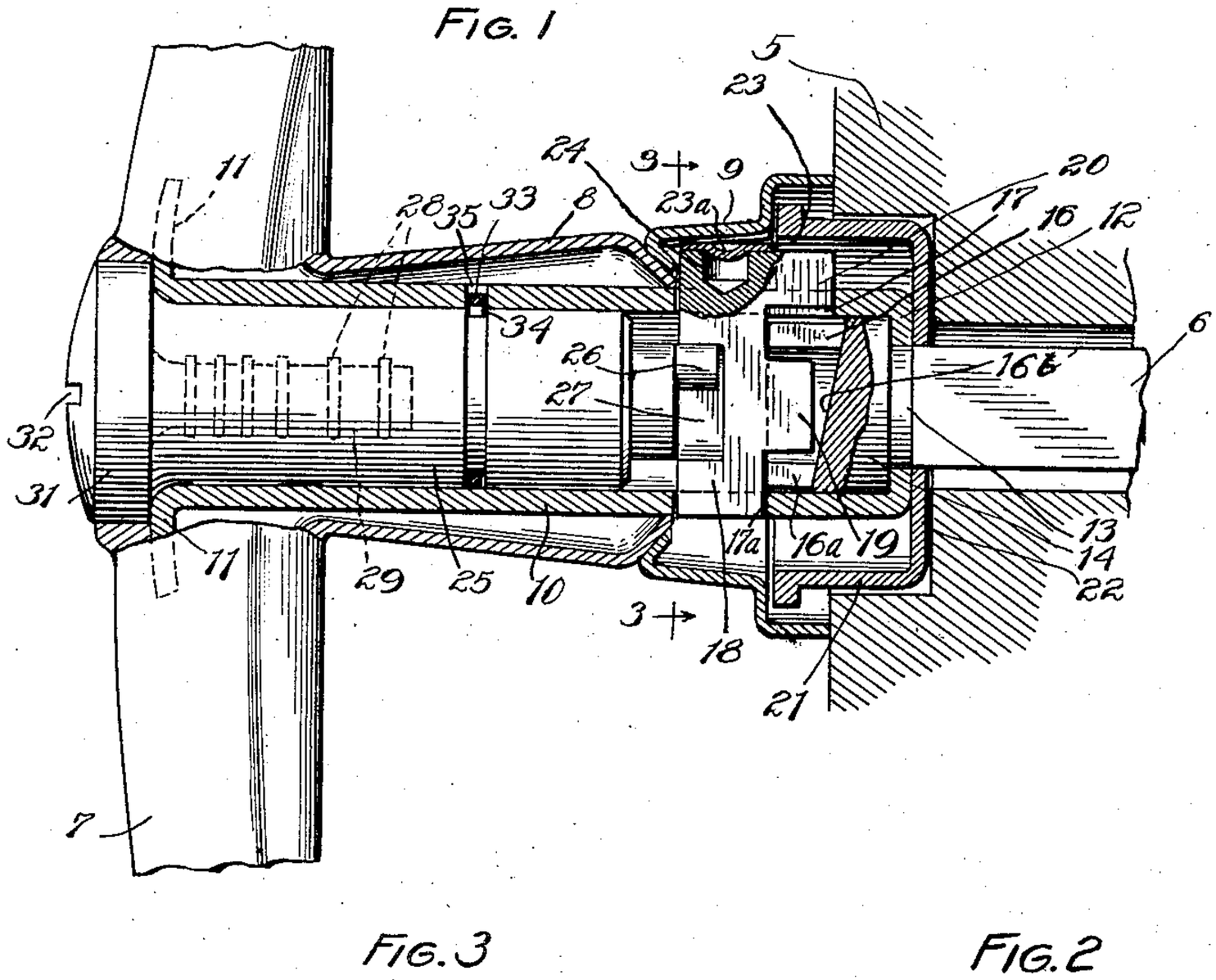


FIG. 3

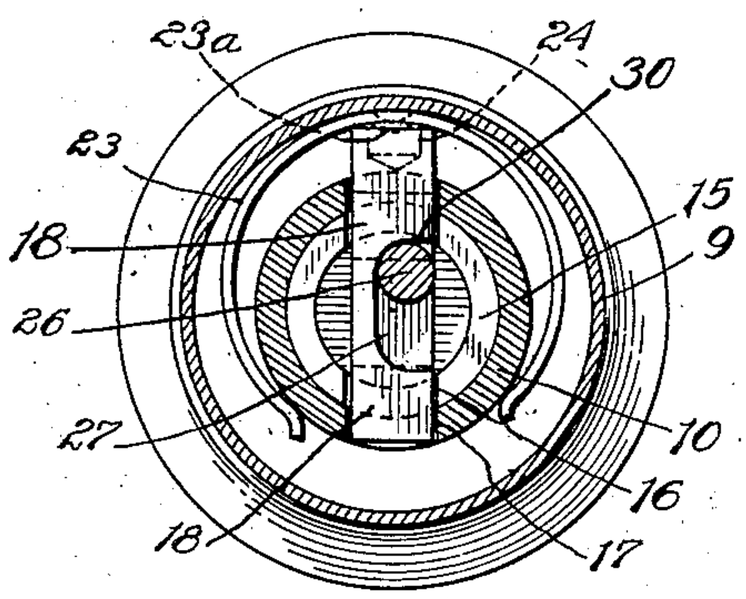


FIG. 2

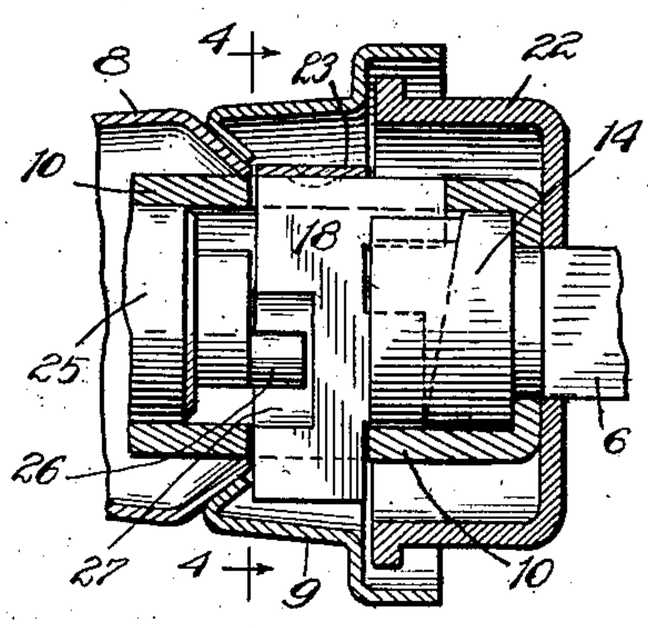
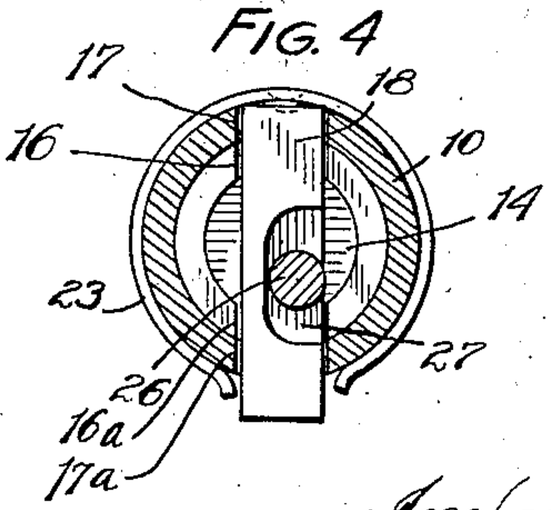


FIG. 4



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UNITED STATES PATENT OFFICE

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CONTROL HANDLE

Application filed November 8, 1928. Serial No. 318,081.

This invention relates to improvements in control handles for latches and the like and more particularly to handles of the so-called free locking type in which the handle proper is normally disconnected from the latch to be actuated thereby so as to prevent unauthorized operation of the latch.

One object of the invention is to provide a new and improved handle of the above class in which the parts are of simple and inexpensive construction and so compactly arranged as to form an assembly of small dimensions capable of incorporation conveniently in door constructions for automobiles.

A further object is to provide a novel means of the free locking type for operatively connecting a latch spindle to an operating handle so as to prevent locking of the spindle and handle together except in one angular relationship.

Another object is to provide a novel and extremely rugged means for operatively connecting the handle proper of a free locking latch control device to its associated latch spindle.

The invention also aims to provide a new and improved construction of and mounting for the locking member in a control handle of the above character.

Still another object is to provide a new and improved spring device for actuating the locking member in a handle construction of the present type.

Other objects and advantages of the invention will become apparent from the following detailed description taken in connection with the accompanying drawing, in which

Figures 1 and 2 are fragmentary sectional views taken along a plane substantially through the rotational axis of a control handle embodying the features of the present invention and respectively showing the parts disconnected from and connected to a latch spindle.

Figs. 3 and 4 are sectional views taken along the lines 3—3 and 4—4 of Figs. 1 and 2 respectively.

While the invention is susceptible of various modifications and alternative constructions, I have shown in the drawing and will herein describe in detail the preferred embodiment, but it is to be understood that I do not thereby intend to limit the invention to the specific form disclosed, but intend to cover all modifications and alternative constructions falling within the spirit and scope of the invention as expressed in the appended claims.

In its exemplary form illustrated in the drawing the improved handle is mounted on the outer side of a door 5 and arranged to rotate a spindle 6 which extends into the door for operative association with the latch by which opening of the door is controlled. Actuation of the handle may be effected by gripping an elongated cross bar in the form of a shell 7 receiving intermediate its ends and secured to a tubular stem 8 of relatively small diameter. The end of the stem is seated in a socket provided by an escutcheon plate 9 secured to the door.

Extending through the stem 8 is a sleeve 10 of relatively small diameter constituting a casing in which are contained the parts for locking the cross bar 7 to the latch spindle 6. The outer end of the sleeve terminates within the shell 7 and has radially projecting lugs 11 which serve to secure the sleeve against rotation relative to the shell.

The sleeve projects beyond the end of the stem 8 and has an integral flange 12 at its inner end with a square opening therein through which the squared portion of the spindle 6 may move axially to permit assembly of the entire handle unit from the open or outer end of the sleeve. An annular groove 13 cut in the spindle permits of relative rotation between the sleeve and the spindle when in assembled relation as shown in Fig. 1.

Integrally formed on the outer end of the spindle adjacent the groove 13 is a head 14 of cylindrical external contour journaled in the sleeve 10 and abutting against the inner surface of the flange 12 so as to prevent withdrawal of the sleeve and the handle so long as the spindle is secured to the door against endwise movement. The head 14 is recessed at its end to form an annular flange 15 in which a pair of alined and longitudinally ex-

tending notches 16 and 16ª are cut on diametrically opposite sides thereof. To make these notches of different lengths the end recess in the head 14 is formed with an inclined end surface 16ᵇ as shown in Fig. 1.

Two elongated slots 17 and 17ª of rectangular shape are cut in the sleeve 10 beyond the end of the stem 8, the slot 17 being longer than the slot 17ª and overlapping the head 14 so as to register with the notch 16 when the handle and the spindle 6 are in a single predetermined angular relationship. The slot 17ª and the corresponding portion of the notch 16ª constitute a diametrical guideway for a locking member in the form of a slide 18 whose overall length is somewhat greater than the outside diameter of the sleeve 10 and whose width longitudinally of the spindle axis is slightly less than the distance between the end of the flange 15 and the outer end of the slots.

Two lugs 19 and 20 projecting longitudinally of the sleeve 10 are formed integral with the slide 18 and so spaced relative to each other that the lug 19 will be disposed wholly within the end recess of the head 14 and the lug 20 will be exposed externally of the head when the parts are in disconnected relation as shown in Fig. 1. The longitudinal length of the lugs is slightly less than the depth of their corresponding notches 16 and 16ª into which the lugs may move as shown in Fig. 2 to provide a double lock for effectually locking the spindle 6 and the sleeve 10 against relative rotation. By thus blocking the spindle head at two points, an extremely rugged construction is provided by which the desired degree of resistance to torsional and shearing stresses is obtained, at the same time permitting the overall dimensions of the connecting parts to be reduced to a minimum. This feature is important in automobile handle constructions where there are fixed limitations on the sizes of the stem 8 and the escutcheon plate 9.

Preferably the lug 20 is longer than the length of the notch 16ª in the head 14 so that it cannot lock the handle and the latch spindle together when the notch 16ª registers with the slot 17, but only in such angular relation of the handle and spindle as will bring the notch 16 and the slot 17 into register, as is shown in Figs. 1 and 3. This is important in handle constructions for automobiles where it is desirable, in order to maintain a neat and artistic external appearance to have all of the door handles in a predetermined position when the handles and latch spindles are locked together. Furthermore, such a handle is more convenient to operate because of the natural tendency to grasp the elongated end of the handle shell 7 and because it avoids feeling for the locked position of the handle relative to the spindle.

The parts of the connecting mechanism which are disposed externally of the sleeve 10 are protected by a retaining member 21 seated in a recess in the door 5 and having a cylindrical portion telescoping with the escutcheon plate 9 and a flange 22 abutting against the end of the sleeve.

A novel means is provided for urging the slide 18 into its locking position (Fig. 2). This means comprises a spring clip 23 in the form of a relatively thin strip of resilient metal disposed externally of and extending substantially around the sleeve 10. The clip engages the lug 20 substantially intermediate its ends, this relation being maintained by a lug 23ª formed by an indentation in the clip and extending into a recess 24 in the lug 20. The spring is initially stressed so that it tends to contract and urge the slide 18 inwardly toward the position shown in Figs. 2 and 4.

The locking slide 18 is arranged for actuation by a key controlled means in the form of a barrel lock 25 rotatably mounted within the sleeve 10 and having at its inner end an eccentric stud 26 disposed in an elongated recess 27 in the slide 18. The usual tumblers 28 are carried by the barrel lock and are spring pressed outwardly so as to enter a longitudinal slot 29 in the sleeve 10 when the barrel is rotated from the position shown in Figs. 2 and 4 to that shown in Figs. 1 and 3, the barrel being thereby locked against rotation within the sleeve. In this movement the stud 26 acts as a cam on the end surface 30 of the recess 27 and moves the slide against the action of the spring 23 to position the lug 20 externally of the notch 16 and the lug 19 within the end recess of the head 14. In this position the sleeve 10 is free for rotation relative to the spindle head 14. When the barrel 25 is again released by the key the slide 18 tends to move inwardly under the action of the spring 23 and actually moves into locking position (Fig. 2) when the notch 16 registers with the lug 20.

The barrel lock is closed at its outer end by the usual cap 31 and has a hole 32 through which the proper key can be inserted to withdraw the lock tumblers from the slot 29 and permit turning of the barrel within the sleeve.

The parts of the handle thus provided are of extremely simple and inexpensive construction and can be conveniently assembled as a unit ready for mounting in a door construction. In the assembling operation the latch spindle 6 is inserted in the sleeve 10 from its open end, the squared portion being drawn through the end portion in the sleeve. Then with the spindle rotated to bring the notch 16 of the head into register with the slot 17 the slide is inserted, thereby locking the spindle against axial movement in the sleeve. With the spring clip 23 placed around the sleeve, the final operation is to enter the barrel lock from the open end of the sleeve with

an expansible spring clip 33 mounted in an annular groove 34 in the barrel. At the inner limit of travel of the barrel, the clip 33 expands into an internal notch 35 in the sleeve 10, thereby locking the barrel against withdrawal.

When mounted on a door or other closure it will be apparent that the handle thus described will be connected to the latch spindle so as to permit operation of the latter only when the slide 18 is positioned as shown in Figs. 2 and 4. In its other position (Figs. 1 and 3) the slide is locked in the sleeve in position to maintain the handle disconnected from the spindle. Unauthorized opening of the door is thus prevented and since the handle is free to rotate no damage can be done to the operating parts by unauthorized persons.

I claim as my invention:

1. A control handle for latches and the like having, in combination with a rotatable spindle, a tubular casing having a pair of diametrically alined openings, an integral head on said spindle journaled internally of said casing and having a notch arranged to register with one of said openings to form a transverse groove, a locking member slidably guided in said openings and movable into either of two positions in either of which one end of the member projects beyond the periphery of said casing, and means rigid with said member and positioned in said notch and one of said openings when said member is in one position and positioned out of said notch when said member is in its other position.

2. A control handle for latches and the like having, in combination with a rotatable spindle, a tubular casing having a pair of diametrically alined openings forming a transverse guideway, a locking slide mounted for reciprocation in and having a length greater than said guideway, a head integral with said spindle and rotatably mounted in said casing said head having a notch, means rigid with said slide and positioned for movement into said notch when the latter is, by relative rotational movement between said casing and said spindle, brought into register with said guideway, and key controlled means for governing the actuation of said slide.

3. A control handle for latches and the like having, in combination with a rotatable spindle, a casing having a radial opening, a head within said casing rigid with said spindle and having a notch adapted to register with said opening, a slide reciprocable transversely of said opening and said notch and adapted when in one position to lock said head and casing against relative rotation and when in another position to free said head, and a contracting band of resilient metal encircling said casing externally thereof and engaging said slide.

4. A control handle for latches and the like having, in combination with a rotatable spindle, a tubular casing having a pair of diametrically alined openings, a locking slide having its opposite ends projecting through said openings, a head within said casing rigid with said spindle and adapted to be locked against rotation within the casing when said slide is in one radial position and to be freed for rotation within the casing when the slide is moved into another radial position, and a spring band engaging one end of said slide and encircling said casing but spaced longitudinally from the opposite end of said slide.

5. A control handle for latches and the like having, in combination with a rotatable spindle, a tubular casing, a head on said spindle journaled in said casing and withdrawable from said casing by endwise movement of said spindle, an integral flange on said casing preventing removal of the casing from the spindle, and a member reciprocable transversely of said casing to lock the casing and head against relative rotary and axial movements but adapted in one position to free said head and casing for relative rotary movement.

6. A control handle for latches and the like having, in combination with a rotatable spindle, a sleeve having two diametrically disposed slots, a hollow head rigid with said spindle and journaled in said sleeve, said head having two diametrically disposed notches adapted to register with said slots, and a slide reciprocable transversely of said slots and having two lugs each positioned in one of said notches when said slide is in one position and out of the notches when said slide is in another position.

7. A control handle for latches and the like having, in combination with a rotatable spindle, a sleeve, a head rigid with said spindle and journaled in said sleeve, a slide reciprocable transversely of said sleeve and providing a two point locking engagement between said sleeve and head when in one position and permitting relative rotation between the head and sleeve when in another position, and key controlled means for governing the movement of said slide from one position to the other.

8. A control handle for latches and the like having, in combination with a rotatable spindle, a sleeve having two diametrically disposed slots, a hollow head rigid with said spindle and journaled in said sleeve said head having two diametrically disposed notches adapted to register with said slots, a slide reciprocable transversely of said slots and having two lugs respectively positioned within and externally of said head in one position of said slide and in said notches in another position of the slide, and key controlled means governing the movement of said slide.

9. A control handle for latches and the like having, in combination with a rotatable spin-

dle, a casing into which said spindle extends, a movable connecting member operable when in one position to lock said spindle and casing together and when in another position to permit of relative rotation between said casing and spindle, said member protruding from said casing when in one of said positions, and spring means engaging the protruding portion of said member and operable to urge the member into one of said positions.

10. A control handle for latches and the like having, in combination with a rotatable spindle, a cylindrical casing into which said spindle extends, a radially movable member protruding from said casing and operable to lock said spindle and said casing together, and a contracting spring band partially encircling said casing and having a portion intermediate its ends engaging said member to urge the member inwardly.

11. A control handle for latches and the like having, in combination with a rotatable spindle, a casing into which said spindle extends, a member rigid with said spindle within said casing and having two radially spaced notches, a locking member movable transversely of said casing and adapted to enter said notches in only one angular relationship of the casing and spindle whereby to lock the spindle and casing against relative rotation.

12. A control handle for latches and the like having, in combination with a rotatable spindle, a casing into which said spindle extends, a member rigid with said spindle within said casing and having two radially spaced notches, a locking member movable transversely of said casing and having two lugs one adapted to enter one of said notches and the other adapted to enter the other notch when said casing and spindle are in a predetermined angular relationship, said first mentioned lug being prevented from entering said last mentioned notch when the latter is positioned opposite the lug.

13. A control handle for latches and the like having, in combination with a rotatable spindle, a casing into which said spindle extends, a member movable transversely of said casing and adapted when in one position to engage said spindle at two points spaced transversely with respect to said spindle and when in said position to engage said casing at two points spaced transversely with respect to said spindle and thereby lock the spindle and casing against relative rotation, said member being adapted for locking engagement only in one angular relationship of said casing and spindle.

14. A control handle for latches and the like having, in combination with a rotatable spindle, a sleeve enclosing one end of said spindle, a locking member movable within said sleeve between two positions and adapted when in one position to lock said sleeve and spindle against relative angular movement and when in the other position to free said sleeve for rotation about the spindle, a spring tending to move said locking member into said first mentioned position, and a barrel lock for actuating said member rotatable within said sleeve and having means engaging said sleeve when said member is in said other position and acting positively to hold said member in the latter position against the action of said spring, said lock when freed from said sleeve permitting said spring to move said locking member into locking position.

15. In a handle construction of the free locking type for operating the latch of an automobile door, the combination of an escutcheon plate secured to the outside of said door and having an outwardly projecting annular flange, a tubular casing having a handle at one end, the other end of said casing projecting through the opening defined by said flange, a spindle rotatably journaled in said casing within said flange and projecting from the casing into said door for connection with the latch to be operated, a locking member within said casing and movable into one position to lock said spindle and casing against relative angular movement and into another position to free them, spring means disposed within the annular space between said casing and said flange and acting to urge said member toward one of said positions, and a key controlled lock operable from the outer end of said casing and arranged to move said member into the other of said positions.

16. The combination with a handle having a shank and a lock actuating spindle, of a bolt upon said shank and movable transversely thereof, and a driving member non-rotatably secured to said spindle, said driving member having an outwardly opening slot for engaging said bolt in one of its positions of adjustment and said bolt having an inwardly opening slot for registering with said driving member in another of the positions of adjustment of said bolt.

17. The combination with a handle having a shank and a lock actuating spindle, of a bolt upon said handle and movable transversely thereof, and a driving member non-rotatably secured to said spindle, said driving member having a slot for engagement with said bolt in one of its positions and said bolt having a slot for registering with said driving member in another of the positions of adjustment of said bolt.

In testimony whereof, I have hereunto affixed my signature.

ROLLO MARPLE.