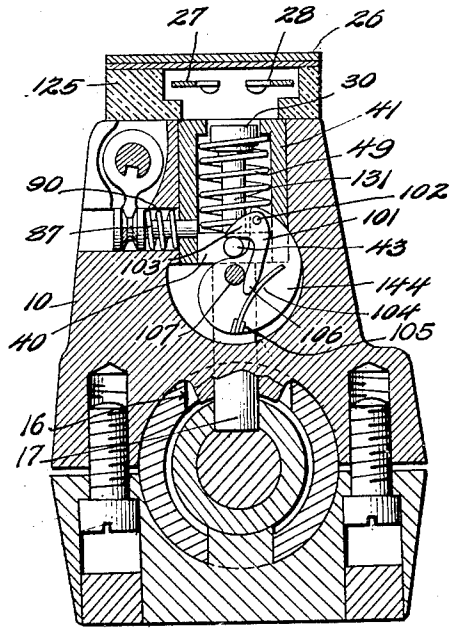
May 19, 1931. C. N. FAIRCHILD 1,806,253

CAM SNAP LOCK

Filed June 27, 1927

Fig. 1.



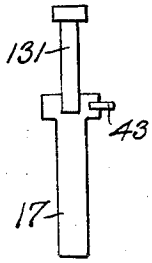


Fig. 2.

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UNITED STATES PATENT OFFICE

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CAM SNAP LOCK

Application filed June 27, 1927. Serial No. 201,781.

This invention relates to locks and has for its principal object the provision of a simple and efficient coincidental lock in which the movable contact of the ignition switch and the locking bolt are either integral or secured together for movement as a unit and in which means are provided whereby a thief may not lift the locking bolt by breaking off the switch box and attempting to lift the movable contact. A further object of the present invention is the provision of a lifting cam having a locking pawl.

In my Patent 1,592,091, July 13, 1926, I have shown a highly efficient coincidental lock which has, in addition to the usual features of such a lock, provision whereby the steering post may be unlocked so that the car may readily be moved about but the ignition still remains locked off, the additional provision being largely for convenience in shipping the automobile by rail or when leaving the car in a large public garage. The present invention contemplates the use of the device illustrated in the patent cited with slight changes, such for example, as that the ignition cup and the locking bolt shall be a single unit and that the lifting cam shall carry means whereby the bolt cannot be pushed or lifted up when the parts are in locked position, and as a necessary result either an increase in the height of the switch box equal to the distance the bolt of the patent travels before striking the ignition contact stem or preferably a lowering of the cup contact as shown.

In the drawings, Figure 1 is a vertical section.

Figure 2 is a view showing one construction of the stem and locking bolt.

Since my previous patent is relied upon to show the details of construction of the lock, the numerals used in the patent will apply also in this case and any new elements will be given numerals over 100. The housing 10 snugly engages the steering post casing and has a perforated boss 16 thru the center of which slides the steering post locking bolt 17 from the head 40 of which extends a laterally projecting pin 43 so as to be engaged by the lifting cam 144 secured to the revolving cylinder of a key operated lock. A spring 49 within a bore in the plug 41 urges the bolt 17 downward to locking position but the engagement between the pin 43 and the cam 144 prevents the bolt from moving to the position shown in the figures save when the lock cylinder has been rotated approximately a full revolution. The bolt does not move to locking position until key is withdrawn. It is immaterial in this locked position whether the pin rests upon or just clears the cam.

Instead of having the stem of the movable switch element separate and distinct from the bolt 17 I prefer that the stem, numbered 131 in the present case, extend to the bolt and be secured therein, this being a very much cheaper and also better proposition than making the two pieces integral. As a natural consequence any movement of the bolt is communicated to the metal cup 30 which is an electrically conducting member serving to close the automobile ignition circuit by bridging the contacts 27 and 28 located in the switch box 125, preferably of bakelite and conveniently secured to the housing 10.

If the parts were exactly as described so far a thief could pry off the cover 26 of the switch box, readily bend the contacts 27 and 28 out of the way and with an ordinary pair of pincers grasp the cup 30 and raise the locking bolt, holding it unlocked by wrapping wire about the stem 131 and using the same wire to connect the contacts 27 and 28. To prevent this I insert positive means for preventing the lifting of the lock by any agency that will not rotate the lifting cam. The most convenient manner of carrying out this provision is by adding a pawl, preferably to the cam. Such a pawl is shown at 101 pivoted near the point of greatest radius of the cam as 102, the cam having a projecting latch portion 103 which is yieldingly held in the position shown by a light spring 104 secured to the cam as at 105.

The strength of the pawl spring 104 is such that the downward movement of the laterally projecting pin 43 under urge of the spring 49 readily pushes the pawl aside with-

out offering substantial obstruction to the shooting of the bolt to locking position. An integral stop 106 of the pawl or latch is held against the member 107 which secures the cam to the lock cylinder. Any attempt to lift the cup 30 is met with the resistance of this stop 106 against the bolt or other fastening 107 and the strength of these parts is such that the stem 131 will be pulled out of its engagement with the locking bolt 17 before the stop will break, or if the stem 131 and bolt 17 are actually integral a weakened portion is provided which will break before any possible bending or destruction of the stop 106 occurs.

The operation of the device is described in my patent cited and is briefly that with the parts in the position shown in the figures the driver inserts the key in the slot of the cylinder and revolves it in the only direction possible, that is, clockwise as seen in the figures. Such movement takes the pawl out of the path of the pin 43 as the latter moves upwardly carrying with it the bolt and contact cup 30. Upon turning the lock cylinder substantially to 360°, that is, practically a full revolution of the key, the cam edge entirely leaves the pin 43 and the latter is free to descend save as held by the plunger 87 which remains into position until the key is withdrawn from the lock whereupon it is moved by its spring 90 to free the bolt which moves downward under urge of the spring 49 and readily snaps the pawl against its light spring but this light spring operates just as soon as the bolt is all the way down and the pawl then effectively holds the bolt and cup in locked position until the cam is again rotated.

What I claim is:—

1. In a coincidental lock, a locking bolt, an ignition circuit, a spring for urging said locking bolt to locking position, means for moving the bolt against the urge of the spring to unlocked position, means carried by the bolt for closing the ignition circuit upon movement of the bolt in one direction and for opening the ignition circuit upon movement of the bolt in the opposite direction, and means carried by said means for latching the bolt in locked position.

2. In a locking device, a locking bolt, means for moving said bolt in one direction, means for moving the bolt in opposite direction, and an inaccessible pawl carried by one of said means serving to prevent movement of the bolt.

3. In combination, a spring-pressed bolt, a rotating cam for withdrawing said bolt, and a pawl pivoted on an axis movable with respect to said bolt for preventing withdrawing of the bolt without rotating the cam.

4. In combination, a sliding locking bolt having a transverse pin, yielding means for urging said bolt in one direction, a cam engaging the pin for moving the bolt in the other direction, and a pawl pivotally carried by said cam.

5. In combination, a rotating lifting cam, a follower, means for holding the follower in constant contact with the cam, a spring pressed pivoted member acting while the cam is still to permit movement of the follower in one direction and to prevent movement in the opposite direction.

6. In an automobile lock, a locking bolt, a stem secured thereto but removable therefrom by direct heavy pull, means for moving the bolt in two directions, and a member holding the bolt in one position until said means are moved.

7. In a coincidental steering post lock, a locking member, an ignition circuit make and break mechanism, means for moving said locking member to locking position, rotary means for moving the locking member to unlocked position without closing the ignition circuit, means for closing the ignition circuit upon further movement of the rotary means, a member pivoted to the rotary means, a spring resiliently holding said pivoted member so as to be engaged by the locking member upon movement of said locking member to locking position, and means for preventing withdrawal of said locking member past said pivoted member without first rotating said rotary means.

8. In a lock, a bolt, a rigid member normally movable with the bolt but separable therefrom upon attempt to withdraw the bolt by movement of said member.

9. In a lock, a bolt, an electric circuit completing member normally movable with the bolt but separable therefrom upon attempt to withdraw the bolt by movement of said member.

10. In a coincidental lock, a steering post locking bolt, an ignition circuit completing member normally movable with the bolt but separable therefrom upon attempt to withdraw the bolt by movement of said member.

11. In a lock, a bolt, a rigid member carried by the bolt, a pivoted latch for holding the bolt in one position to prevent movement of the bolt by manipulation of the member, and means for moving the latch pivot independently of the bolt.

12. In a lock, a spring pressed bolt, a trip for releasing the bolt so that it may move to locking position under urge of its spring, and a latch permitting movement of the bolt to locking position when released by said trip but preventing movement of the bolt from locked position, and means to move the latch to permit movement of the bolt from locking position.

13. The device of claim 12 in which the bolt carries means for making and breaking an electric circuit.

14. The device of claim 12 in which the bolt is a cam operated steering post locking bolt and the latch is pivoted on an axis offset from and at right angles to the axis of the bolt.

In testimony whereof I affix my signature.

CHARLES N. FAIRCHILD.