June 11, 1940. W. C. EDWARDS 2,203,949

STEERING COLUMN LOCK

Filed July 29, 1938

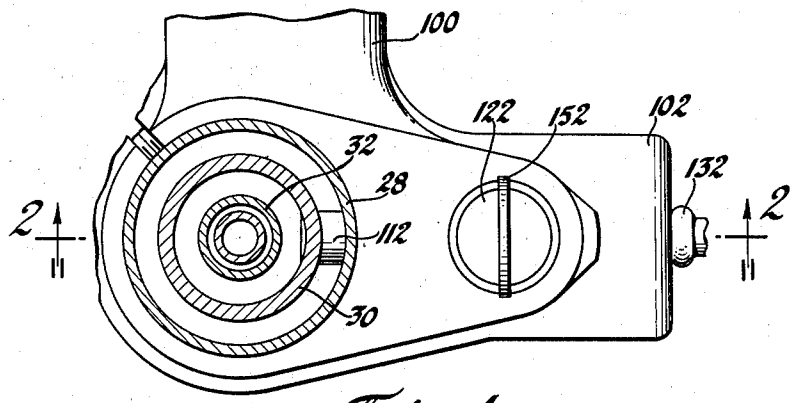


Fig. 1

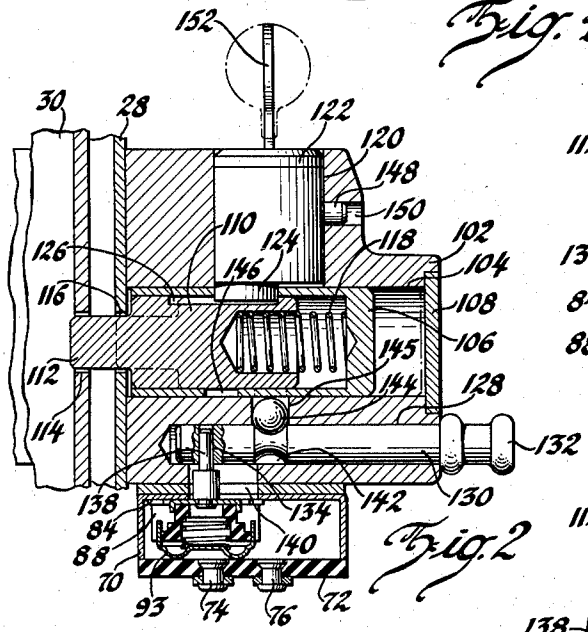


Fig. 2

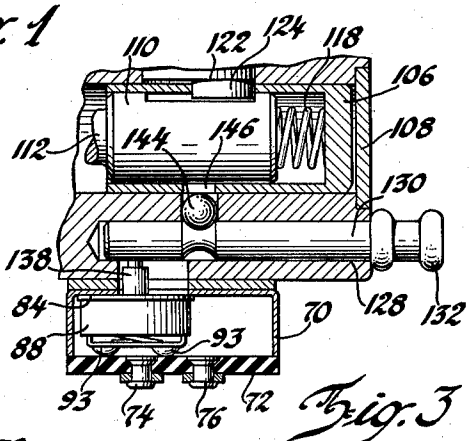


Fig. 3

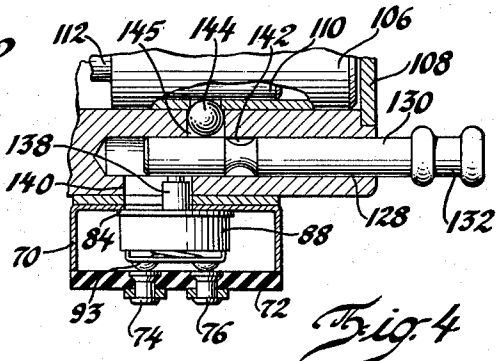


Fig. 4

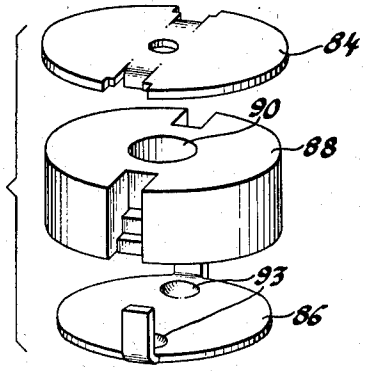


Fig. 5

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STEERING COLUMN LOCK

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Original application May 31, 1935, Serial No. 24,246. Divided and this application July 29, 1938, Serial No. 221,953

5 Claims. (Cl. 70—255)

This application is a division of my co-pending application, Serial No. 24,246, filed May 31, 1935, which has now matured into Patent No. 2,148,609, dated February 28, 1939.

This invention relates to automotive vehicle locks and more particularly to locks having a dual function of locking both the steering column against rotation and the ignition circuit in open condition with a single locking means.

It is an object of my invention to provide a simple, economical lock with the above dual functions.

It is a further object to provide a certain sequence of operation of the parts for purposes of safety.

For a better understanding of the nature and objects of this invention, reference is made to the following specification wherein there is described the embodiment of my invention which is illustrated in the accompanying drawing, in which

Figure 1 is a section through a steering column showing one form of my invention.

Figure 2 is a sectional view taken on the line 2—2 of Figure 1.

Figure 3 is a sectional view similar to Figure 2 showing the plunger in unlocked position but the ignition switch still open.

Figure 4 is a sectional view similar to Figure 3 showing the plunger in unlocked position and the switch closed.

Figure 5 is a perspective view showing parts of the switch in spaced relation.

In the form of my invention disclosed in Figures 1–4 inclusive the steering post or column is composed of a series of concentric tubes, the outer 28 of which is the outer casing which surrounds the next smaller size 30 which is the actuating or steering tube and which carries with it a series of tubes 32 which may be used as conductors for various control devices such as the electrical conduit for the horn, lights, etc. To the steering post or column is secured a casting 100 as shown in the drawing. The extended leg 102 has a bore 104 cut therein at right angles to the steering post in which is adapted to slide a hollow plunger 106. A plate 108 is secured across the outer end of the opening to prevent the plunger 106 from protruding therefrom. Within the hollow plunger 106 is slidably supported a second plunger 110 whose inner portion is of smaller diameter to provide a projecting nose 112 which passes through openings 114 and 116 in the actuating tube and outer casing, respectively, of the steering column. A spring 118 rests against the base of the hollow plunger 106 and also against the opposite base of the plunger 110 and tends to keep the two in spaced relation. A second bore 120 above the bore 104, and at right angles thereto, has positioned therein a cylindrical barrel lock 122 which has an eccentric projecting pin 124 in the lower face. This pin 124 projects through the upper wall of the hollow plunger 106 and engages a slot 126 in the upper face of the plunger 110. The lock barrel 122 has projecting from its periphery, a small retractible pin 148 which engages an opening 150 in the casting to lock the same and which may be retracted by turning the key.

The lower portion of the casting has a smaller bore 128 parallel to the bore 104 which carries a rod 130 therein and an operating knob 132 on the outer end. Adjacent the inner end is a diametrical hole 134 therethrough in which engages a pin 138 of a switch actuating mechanism which may be reciprocated back and forth in the elongated slot 140.

Pin 138 carries at its lower end a circular disc 84 by being riveted thereto. A second circular disc 86 is positioned directly below disc 84 and between the two is an insulated circular block 88 having therein two diametrically opposite notches in its periphery which engage inturned lips on both the circular discs to prevent rotation of the discs and to secure the assembly together. The center of the insulating block is cut out to form an opening 90 and in this opening is positioned a coil spring 92. The lower disc also has pressed out knobs 93 which act as contact points. When the pin 138 is reciprocated in slot 140 to the position seen in Figure 4 contacts 93 complete an electrical circuit across contacts 74 and 76, carried by a member 72 formed of insulating material. Member 72 is secured to the lower portion of a switch housing 70, which in turn is secured to the lower portion of the leg 102 in any convenient manner, such as welding for example.

Between opening 134 and the outer end of the rod 130 is a circular groove 142 in the outer periphery which engages with a small ball bearing 144 supported in an opening 145 in the casting between bore 104 and 128 which acts as a locking member for the same. In the lower periphery of the plunger 106 is an opening 146 which when in alignment with the small ball bearing will allow the same to go upwardly a sufficient amount to allow actuation of the rod and its attached switch assembly.

In this embodiment the operation is as follows:

As shown in Figure 2, when the tongue 112 is in place in the opening 114 to lock the steering

column against rotation, and the ball bearing is seated in the groove 142 to lock the switch assembly, the key 152 will then be turned which first pulls the retractible pin 148 out of engagement with the opening 150 and upon further rotation the eccentric pin will pull the plunger 110 and the hollow plunger 106 to the right until it reaches the position as shown in Figure 3, where the tongue 112 will be retracted from the opening 114 and unlock the steering column. This places the opening 146 directly above the ball 144 and upon pulling upon the knob 132 the ball will be forced up into the opening 146 and the switch member placed in such position that the knobs 93 will bridge the contacts 76 and 74 to complete the ignition circuit, as have best been shown in Fig. 4.

From the foregoing it is evident that I have provided a simple and economical locking means for locking two portions of the car, that is, the steering column and ignition circuit with a device which may be easily applied and of such size that it is not particularly noticeable.

While I have shown and disclosed one form of mechanical means for carrying out my invention, it is apparent that there may be other ways of accomplishing the same result and therefore I do not wish my invention to be limited to the device as disclosed, but only by the appended claims.

I claim:

1. In a unitary lock structure, a body, a pair of parallel bores into the body, means axially slidable in each bore to accomplish locking and switching functions, and interlocking means between the slidable means whereby it will be necessary to actuate the two in a given sequence of operation, said interlocking means comprising a detent supported in the body between the two slidable means and indentures in each of these slidable means into which the detent may move to allow the remaining member to be moved thus interlocking the two slidable means so that they must be moved in a given sequence.

2. In a unitary lock structure, a body, a pair of parallel bores into the body, means axially slidable in each bore, a locking bolt actuated by one means, an ignition switch actuated by the other means, a ball supported in the body between the two slidable means and indentures in each of the means into which the ball may move to allow the remaining member to be moved thus interlocking the two means so that they must be moved in a given sequence.

3. In a unitary lock structure, a body, a plurality of parallel bores in the body, cylinders reciprocable in each bore, a locking bolt connected with one cylinder, an electric switch actuated by the second cylinder, and interlocking means between the two cylinders to prevent one from moving unless the other is in a given position, said interlocking means comprising a detent supported in the body between the two slidable means and indentures in each of these slidable means into which the detent may move to allow the remaining member to be moved thus interlocking the two slidable means so that they must be moved in a given sequence.

4. In a unitary lock structure, a body, a plurality of parallel bores in the body, cylinders reciprocable in each bore, a locking bolt connected with one cylinder, an electric switching means secured to the body and connected to the second cylinder, interlocking means between the two cylinders to cause sequence operation, another bore at right angles to the others, a cylinder lock positioned in the bore and having an eccentric operating pin engaging one of the cylinders to reciprocate the same.

5. In a unitary lock structure, a body, a pair of parallel bores in said body, means axially slidable in each bore, a locking bolt movable with one of said slidable means, an ignition switch actuated by the other of said slidable means, a detent supported in the body between the two slidable means and indentures in each of the means into which the detent may move to allow the remaining member to be moved thus interlocking the two means so that they must be moved in a given sequence.

WILLIAM C. EDWARDS.