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C. W. BLOSSOM ET AL

AUTOMOBILE LOCKING MECHANISM

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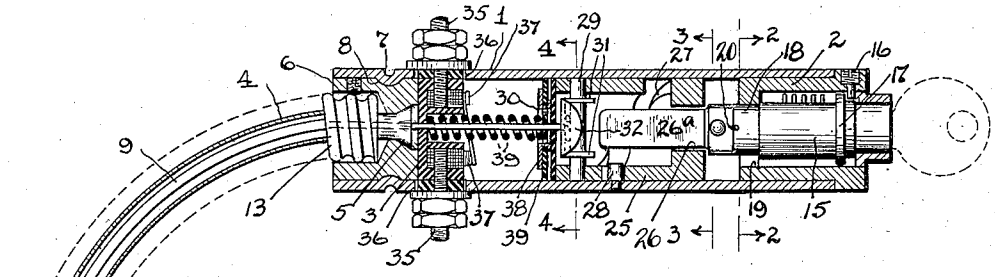


Fig. 1

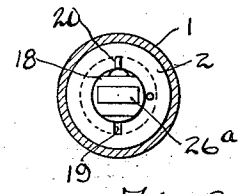
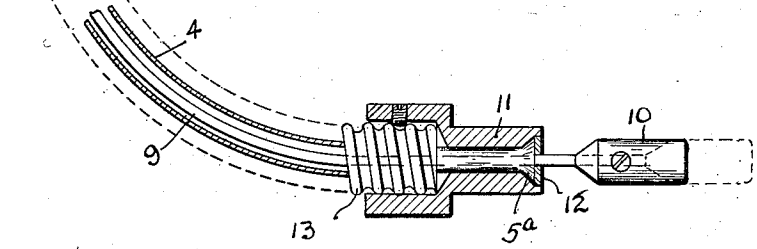


Fig. 2



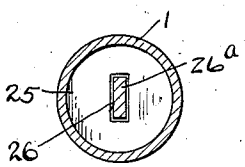


Fig. 3

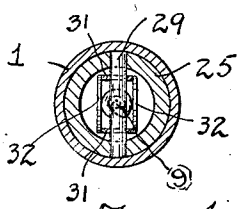


Fig. 4.

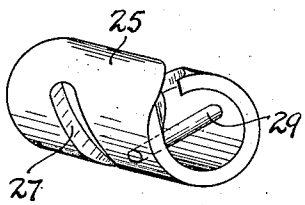


Fig. 5

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UNITED STATES PATENT OFFICE.

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AUTOMOBILE LOCKING MECHANISM.

Application filed June 29, 1927. Serial No. 202,210.

The present improvements relating, as indicated, to automobile locking mechanism, have more particular regard to automobile locks of the so-called coincidental type; thus, the present device incorporates means for conjointly locking the transmission mechanism and the switch that controls the ignition circuit. The object of the invention is to provide a simple and compact device for the purpose stated, whereby a single key or permutation controlled element may be utilized to secure an ignition switch of the usual type in open position and to actuate a keeper, for example, in the transmission gear box, so as to prevent shifting of the transmission gears. Such keeper, however, may obviously be arranged as desired to prevent movement of any other part of the driving mechanism of the automobile. A further object of the invention is to provide means for the ready interchange of one lock barrel or cylinder for another without, however, detracting from the security afforded by the device when in assembled condition.

To the accomplishment of the foregoing and related ends, the invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims, the annexed drawing and the following description setting forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:—

Fig. 1 is a central longitudinal section of the device, including the locking mechanism proper and the keeper actuated thereby, as well as the conduit housing the wire which serves operatively to connect the switch mechanism with such keeper; Figs. 2, 3, and 4 are transverse sections of the device taken on the planes respectively indicated by the lines 2—2, 3—3 and 4—4, Fig. 1; and Fig. 5 is a perspective view of the actuating element that forms a part of the device.

The main supporting member for the various operative parts that compose the actuating part of the device is a casing in the form of a shell 1, preferably cylindrical in form, made of a hard metal. This shell at the same time serves as a casing for the removable lock cylinder assembly, the housing 2 of which is received in one end of said shell, and for the ignition switch support 3.

Permanently secured to the end of the shell 1 adjacent such switch support 3 is one end of a flexible steel conduit 4. In order thus to secure the conduit end to the shell, such end is upset to form a flaring head 5 adapted to engage a thick washer 6 of complementary form. The latter is in turn held in place in shell 1 by an encircling depression 7 formed in such shell so as to engage with a corresponding groove 8 in the washer. Conduit 4 may be of any desired length, its function being to receive, guide and protect a small steel wire 9 that serves operatively to connect the lock and actuating mechanism in shell 1 with a keeper 10, the latter being located in the transmission gear box or elsewhere in proper relation to one of the operating or moving parts of the motor vehicle so as to retain the same against movement when desired. The end of conduit 4 adjacent such keeper 10 is, like the first mentioned end, formed with a flaring head 5^a that is secured in place in a sleeve 11 by means of a washer 12. Such sleeve is then in turn permanently secured in any suitable way to the gear box or other housing within which the keeper 10 projects. As an additional protection to the flexible wire 9, the steel conduit 4 is preferably surrounded with a second flexible metal tube 13, preferably of the type formed of one or more interlocking spirally wound strips.

The housing 2 of the lock cylinder assembly is press-fitted, brazed or otherwise permanently secured in the end of shell 1 opposite to that to which the one end of conduit 4 is attached in the manner just described. Such assembly includes, in the illustrated construction, the barrel 15 of a key actuated lock, such barrel being rotatably held in the housing 2 by means of a set screw 16 that engages a shoulder 17 on the barrel. The inner end of the housing closely surrounds the corresponding, reduced end 18 of the barrel and is formed with a slot 19 wherewith in one rotative position of the barrel about its axis a radially projecting pin or stud 20 on such reduced end is adapted to register. The pin is brought into such registering position only by turning the lock

through the medium of the appropriate key to unlocked position, and in such position, and such position only, it is possible by removing set screw 16 to withdraw the barrel 15 from its housing.

Slidably and rotatably mounted within the shell 1 between the inner end of the lock assembly and the switch support 3 is a cylindrical member 25, shown by itself in perspective view in Fig. 5, open at its one end but closed at the other, i. e., the end adjacent the lock assembly, save for a rectangular slot 26 in such end, with which an axial projection 26a of corresponding cross-section on the reduced end of lock barrel 15 has engagement. Member 25 is also formed in its cylindrical surface with a cam element in the form of a helical slot or groove 27 wherewith a stud 28, that projects inwardly from the wall of shell 1, has engagement.

As a result of the foregoing construction it will be seen that rotation of lock barrel 15, which of course can only be effected through the medium of the appropriate key, will impart a corresponding rotative movement to member 25 and this movement is in turn translated into a longitudinal movement of said member by reason of the engagement between the stationary stud 28 and the slot 27 in the latter.

The slot or groove 27 extends through to the open end of member 25 so as to facilitate the assembly of the latter in the shell 1, but terminates short of the closed end of said shell, as shown in Fig. 5. Extending diametrically across and secured in such open end of the member is a pin 29, to which is attached the inner end of flexible wire 9, preferably by means of a stamping 30 of the form shown, such stamping having two oppositely located ears 31 by means of which it is swiveled on the pin and two other ears 32 that laterally enclose the upset end of the wire which enters the stamping in alignment with the axis of member 25, and so is held against movement relatively to the latter.

As shown in Fig. 1, two diametrically oppositely located binding posts 35, 35, project outwardly through suitable openings 36, 36, in shell 1, such posts being mounted in the supporting base 3, previously referred to, which base of course is made of suitable insulating material and fills the openings through which the posts thus project so as thoroughly to insulate such posts. The inner ends of the latter are electrically continuous with two corresponding contacts 37, 37, one of which (the upper, as shown in Fig. 1) is slightly shorter than the other. Closure of the circuit through posts 35, 35, is effected by bridging these contacts with an annular metal plate or washer 38 that is secured to a disk 39 of insulating material slidably fitted in the space within shell 1 lying between support 3 and the open end of member 25 (see Fig. 5). Such disk with attached plate is resiliently pressed against the open end of said member by means of a compression spring 39 that surrounds the corresponding portion of the wire 9, one end of the spring being received in a suitable recess in the base 3 and the other pressing against the central portion of the disk 39 so as to avoid any contact with plate 38 carried by the latter.

As a result of the construction just described, it will be seen that when the member 25 is moved longitudinally to the left, as viewed in Fig. 1, incidentally to rotation of the lock barrel 15 in the proper direction, the plate 38 will be brought first to bear against contact 37 and then against contact 36, thus closing the circuit. Conversely, upon rotation of the barrel in the opposite direction, thereby causing retraction of member 25 to the right, the spring 39 will cause the plate first to break away from the upper contact 37 and then the lower contact, until finally the parts assume the position shown in Fig. 1, which represents the normal or locked position of the device. In such locked position, not only is the circuit broken but coincidentally, through the medium of the wire 9, the keeper 10 will be moved from its inoperative position, that shown in dotted lines in Fig. 1, to its operative position, shown in full lines, meaning thereby that in such last mentioned position, said keeper is placed where it will obstruct the movement of the part which it is designed to control, such for example as one of the shifter elements of the transmission gear mechanism.

Other modes of applying the principle of our invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

We therefore particularly point out and distinctly claim as our invention:—

1. In mechanism of the character described, the combination with a casing; of switch and keeper actuating means mounted within said casing; and a lock assembly for operating said means mounted in one end of said casing, said assembly including a rotatable barrel, a pin on said barrel, and a slotted retaining member preventing removal of said barrel save when in unlocked position.

2. In mechanism of the character described, the combination with a casing; of switch and keeper actuating means mounted within said casing; and a lock assembly for operating said means mounted in one end of said casing, said assembly including a rotatable barrel, a shoulder on said barrel, a set screw normally engaging said shoulder to prevent endwise movement of said barrel.

a pin on said barrel, and a slotted retaining member preventing removal of said barrel save when in unlocked position.

3. In mechanism of the character described, the combination with a casing; of switch and keeper actuating means mounted within said casing; and a lock assembly for operating said means mounted in one end of said casing, said assembly including a rotatable barrel having a reduced inner end, a housing in said casing surrounding such inner end of said barrel and formed with a slot, a pin on said barrel end preventing removal of said barrel save when rotated into unlocked position, a shoulder adjacent the outer end of said barrel, and a set screw projecting through said housing into engagement with said shoulder so as normally to prevent endwise movement of said barrel.

4. In mechanism of the character described, the combination with a casing; of switch and keeper actuating means mounted within said casing; and a lock assembly for operating said means mounted in one end of said casing, said assembly including a rotatable barrel, a retaining member therefor, and a pin and slot connection between said barrel and said retaining member preventing removal of said barrel save when in unlocked position.

Signed by us this 27th day of June, 1927.

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ELMER C. PETERSON.