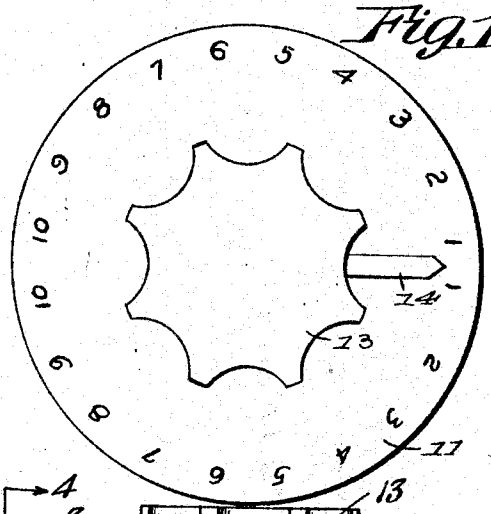
Nov. 24, 1925. 1,563,239

R. A. STEWMAN

COMBINATION AUTOMOBILE LOCK

Filed Aug. 25, 1922 2 Sheets-Sheet 1

Fig. 1.



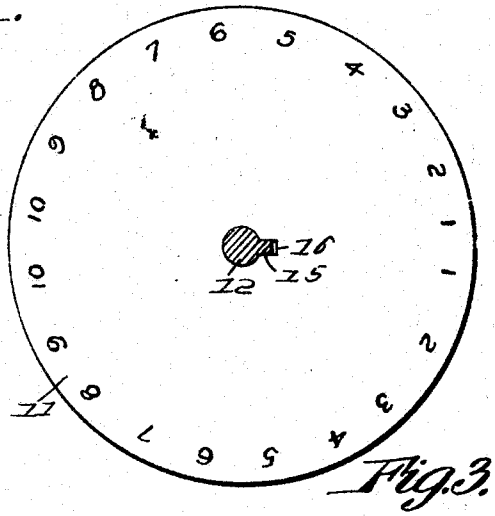


Fig. 3.

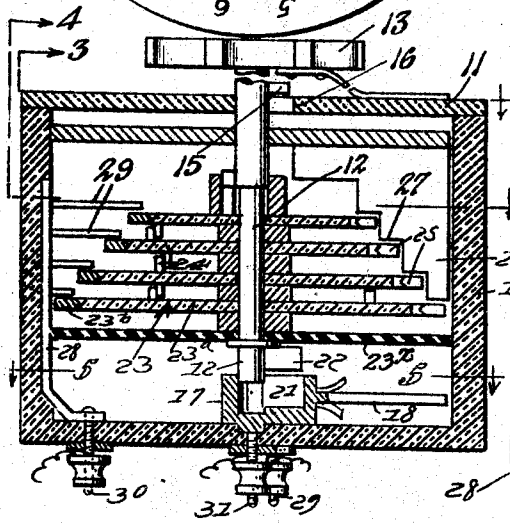


Fig. 2.

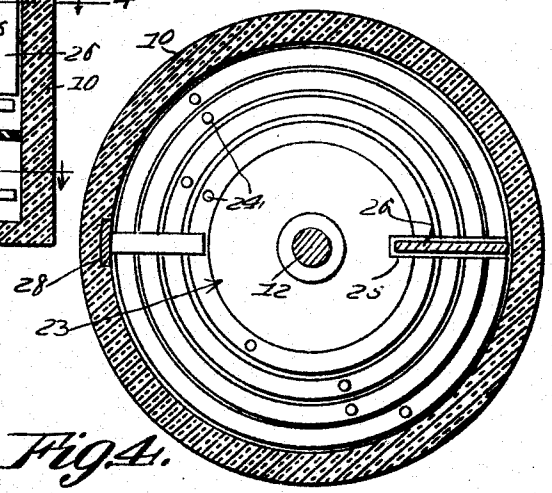


Fig. 4.

Inventor

Ralph A. Stewman,

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Attorney

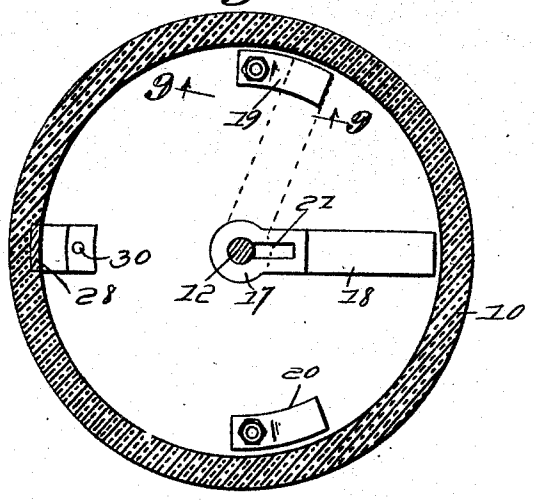
Nov. 24, 1925. 1,563,239

R. A. STEWMAN

COMBINATION AUTOMOBILE LOCK

Filed Aug. 25, 1922 2 Sheets-Sheet 2

Fig. 5.



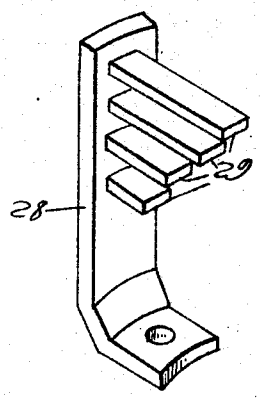


Fig. 7.

Fig. 6.

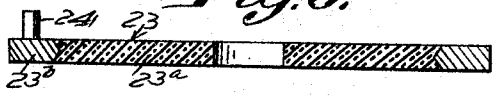


Fig. 8.

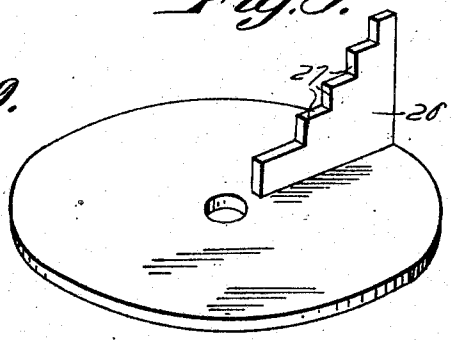
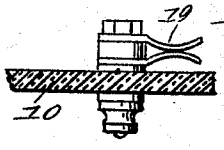


Fig. 9.



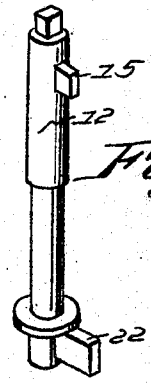


Fig. 10.

Inventor

Ralph A. Stewman,

By

Attorney

Patented Nov. 24, 1925. 1,563,239

UNITED STATES PATENT OFFICE.

RALPH A. STEWMAN, OF AKRON, OHIO.

COMBINATION AUTOMOBILE LOCK.

Application filed August 25, 1922. Serial No. 584,245.

To all whom it may concern:

Be it known that RALPH A. STEWMAN, a citizen of the United States of America, residing at Akron, in the county of Summit and State of Ohio, has invented new and useful Improvements in Combination Automobile Locks, of which the following is a specification.

The object of the invention is to provide a lock of the combination or permutation type suitable for use in connection with automobiles and similar motor-driven vehicles for controlling the ignition switch and in that connection to provide an alarm mechanism whereby an unauthorized attempt to operate the switch will result in the actuation of an audible alarm as a warning or notification of such attempt; and with this object in view the invention consists in a construction and combination of parts of which a preferred embodiment is shown in the accompanying drawings, wherein:—

Figure 1 is a plan view of the invention.

Figure 2 is a central vertical sectional view of the same.

Figure 3 is a section on the line 3—3 of Figure 2.

Figure 4 is a section on the line 4—4 of Figure 2.

Figure 5 is a section on the line 5—5 of Figure 2.

Figure 6 is a vertical diametrical section of one of the tumbler disks.

Figure 7 is a detail perspective view showing the fixed alarm contact member.

Figure 8 is a detail perspective view illustrating the follower.

Figure 9 is a detail elevational view illustrating one of the contact members, the bottom wall of the casing being shown in section.

Figure 10 is a perspective view of the operating shaft.

Within a suitable casing 10 having a cover plate consisting of a dial 11 suitably graduated and provided with combination symbols, either letters or numerals as may be preferred, is mounted a revoluble spindle 12 having an exterior operating knob 13 and carrying a pointer or indicator 14 for traversing the dial. The spindle is also provided with a key ward 15 adapted for registration with a key slot 16 in the dial to permit of longitudinal movement of the spindle in opposition to the tension of the pointer or indicator 14 which is constructed as a spring with one end secured to the under side of the knob and the free end thereof in contact with the surface of the dial and tending to yieldingly hold the spindle in its withdrawn position and with the ward 15 outside of the plane of the dial.

Mounted within the casing and carried by a suitable hub 17 is a switch arm 18 adapted for engagement selectively with contacts 19 and 20 forming the terminals respectively for the contacts or magneto and battery circuits. Obviously additional contacts may be provided as for example where the combination of battery and magneto circuit is employed. The hub of the switch arm is provided with a seat 21 for the reception of a lug 22 on the operating or knob spindle to form an interlocking connection between the spindle and the switch arm necessary in order to effect the movement of the switch arm from the neutral position indicated in full lines in Figure 5 to one or the other of the adjusted or operated positions of which one is indicated in dotted lines in said figure. Mounted revolubly and independently within the casing is a series of tumbler disks 23 of graduated diameters provided with motion transmitting and interfering pins or studs 24 with the uppermost disk, which is of the smallest diameter as the structure is illustrated, operatively connected to the operating spindle 12 so as to be turned thereby and thus communicate motion consecutively to the other disks to permit of their successive arrangement to register the tumbler slots 25 thereof with the path of movement of a follower 26 which is mounted for movement in a path parallel with the operating spindle and by said spindle when the tumbler disks are properly arranged. The operative connection between the operating spindle and the uppermost or smallest of the tumbler disks consists of a pin key on the former movable in a slot formed in the latter. Thus longitudinal movement of the spindle relative to the disk is provided but relative angular movement precludes it. Said follower of which the body disk is frictionally held on the spindle is provided with a series of stepped shoulders 27 for respectively passing through the slots 24 of the tumbler disks when the latter are in registered position. Normally the said shoulders rest upon the disks which serve to support the follower and prevent its movement and hence the movement of the

spindle sufficiently to effect an interlocking engagement thereof with the switch arm so as to permit of the adjustment of the switch. A bridge 23^x spans the casing below the tumbler disks and serves as a support for the same, this bridge being made preferably of insulating material.

In order that an alarm may be sounded in the event that an unauthorized or surreptitious attempt should be made to operate the lock and should be accompanied by an effort on the part of the operator to press the knob inwardly to effect engagement with the switch arm without properly setting the tumbler disks, there is employed an alarm mechanism including an alarm contact 28 having a series of arms 29 extending inward into overlapping relation with the peripheries of the tumbler disks and having a terminal 30 for an electrical connection with a suitable alarm bell or its equivalent (not shown). Each tumbler disk consists of a body portion 23^a of fibre or other suitable insulating material and a rim 23^b of brass or like conductive material having an interlocked engagement with the periphery of the body disk 23^a as shown in detail in Figure 7. One terminal of the ignition circuit being shown at 31 in connection with the switch arm. It is obvious that any attempt to depress the knob 13 without properly registering the slots of the tumbler disks will close a circuit between the switch arm, the operating spindle, the follower, the rims of the tumbler disks and the arms of the alarm contact 28 and thence to the terminal 30 by the tilting of the tumblers through the pressure applied thereto by the follower, so that anyone within hearing distance of the alarm will be notified of the unauthorized attempt to close the ignition circuit of the vehicle without knowing the combination and therefore without being able to properly set the lock to permit of a proper operation of the switch.

Having described the invention, what is claimed as new and useful is:—

1. A lock for the purpose indicated having a switch arm, an operating spindle axially movable for interlocking engagement with the switch arm, tumbler disks arranged in co-axial relation with the spindle and actuable thereby, and a follower actuable by the spindle in the axial movement of the latter and normally impeded in its movement by the tumbler disks.

2. A lock for the purpose indicated having a switch arm, an operating spindle axially movable for interlocking engagement with the switch arm, tumbler disks arranged in co-axial relation with the spindle and actuable thereby, and a follower actuable by the spindle in the axial movement of the latter and normally impeded in its movement by the tumbler disks, said operating spindle having an interposed manually actuable knob and a spring pointer for traversing a dial and serving to yieldingly hold the spindle in disengaged relation with the switch arm.

3. A lock for the purpose indicated having a switch arm, an operating spindle axially movable for interlocking engagement with the switch arm, tumbler disks arranged in co-axial relation with the spindle and actuable thereby, and a follower actuable by the spindle in the axial movement of the latter and normally impeded in its movement by the tumbler disks, the switch arm having a socket and the spindle having a lock for interlocking engagement with the socket when the spindle is impelled axially.

4. A lock for the purpose indicated having a switch arm, an operating spindle axially movable for interlocking engagement with the switch arm, tumbler disks arranged in co-axial relation with the spindle and actuable thereby, and a follower actuable by the spindle in the axial movement of the latter and normally impeded in its movement by the tumbler disks, the tumbler disks being provided with peripheral notches and the follower having a series of shoulders for respective contact with the tumbler disks and adapted to pass through said notches when the disks are adjusted to effect the registration thereof.

5. A lock for the purpose indicated having a switch arm, an operating spindle axially movable for interlocking engagement with the switch arm, tiltable tumbler disks arranged in co-axial relation with the spindle and actuable thereby, and a follower actuable by the spindle in the axial movement of the latter and normally impeded in its movement by the tumbler disks, and an alarm contact having fingers arranged in the paths of tilting movement of the tumbler disks.

6. A lock for the purpose indicated having a switch arm, an operating spindle axially movable for interlocking engagement with the switch arm, tumbler disks arranged in co-axial relation with the spindle and actuable thereby, and a follower actuable by the spindle in the axial movement of the latter and normally impeded in its movement by the tumbler disks, the tumbler disks being provided with electrically conductive rims carried by insulating body portions, and a contact provided with fingers arranged in overlapping relation respectively with the rims of the tumbler disks.

In testimony whereof he affixes his signature.

RALPH A. STEWMAN.