March 13, 1928.

1,662,344

E. M. SORENG

LOCK SWITCH

Filed May 2, 1923

2 Sheets-Sheet 1

FIG. 1

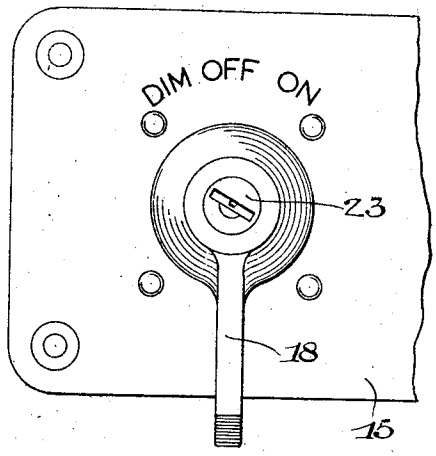


FIG. 2

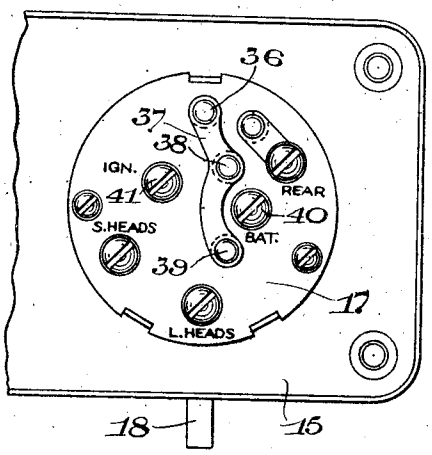


FIG. 4

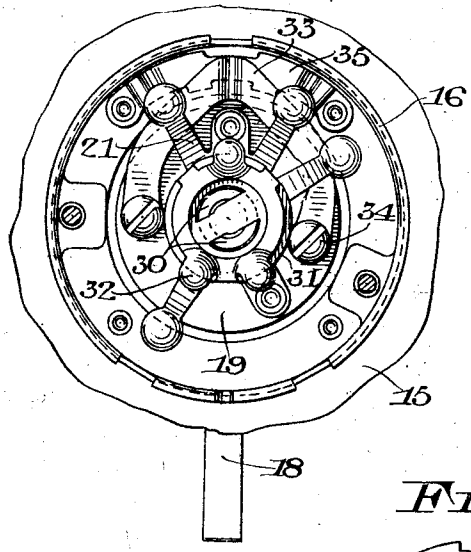


FIG. 5

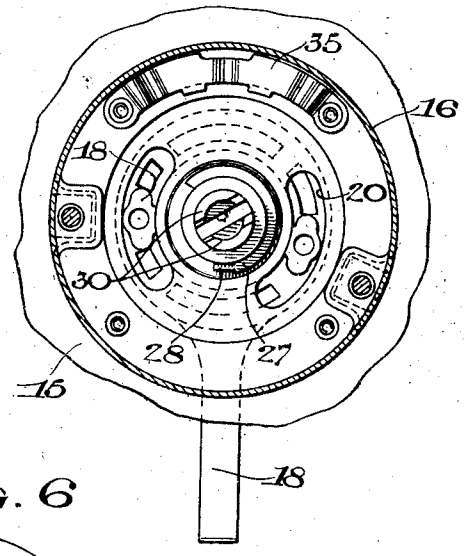
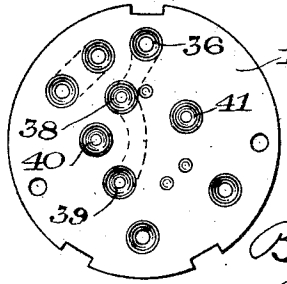


FIG. 6



WITNESSES

M. E. Downey

C. L. Neal

INVENTOR

Edgar M. Soreng

By R. S. Caldwell

ATTORNEY

March 13, 1928.

E. M. SORENG

1,662,344

LOCK SWITCH

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FIG. 3

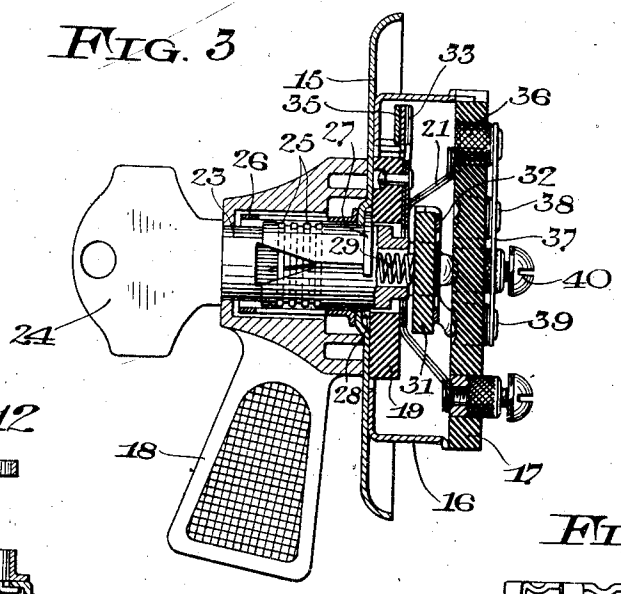


FIG. 12

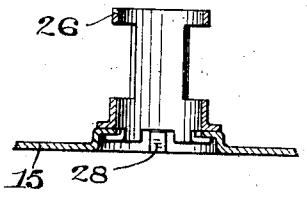


FIG. 13

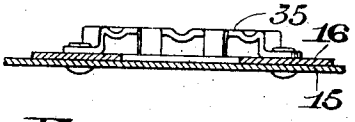


FIG. 7

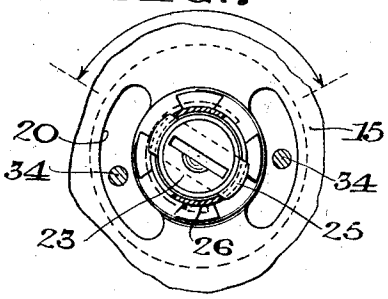


FIG. 8

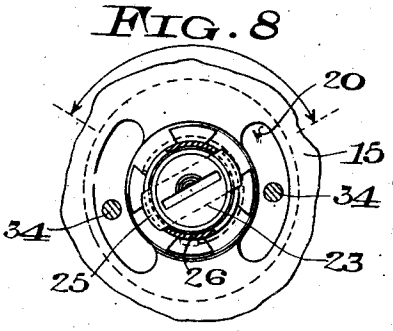


FIG. 9

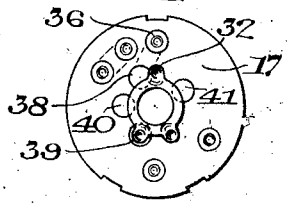


FIG. 10

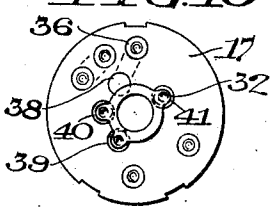
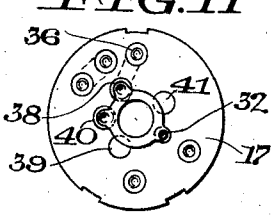


FIG. 11



WITNESSES

M. E. Downey

C. L. Waal

INVENTOR

Edgar M. Soreng

By R. S. Caldwell

ATTORNEY

Patented Mar. 13, 1928.

1,662,344

UNITED STATES PATENT OFFICE.

EDGAR M. SORENG, OF CHICAGO, ILLINOIS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO BRIGGS & STRATTON CORPORATION, OF MILWAUKEE, WISCONSIN, A CORPORATION OF DELAWARE.

LOCK SWITCH.

Application filed May 2, 1923. Serial No. 636,164.

This invention has for its object to provide a lock switch suitable for use in controlling the lighting or ignition circuits of automobiles, or both of them, and for various other purposes, and in which the locking operation is not a means for preventing the operation of the switch handle but serves to electrically prevent the performance of the switching functions controlled by such handle.

Another object of the invention is to provide such a switch as a combination lighting and ignition switch wherein the locking mechanism has two locked positions and one unlocked position and in one of its locked positions and in its unlocked position it serves to complete the circuit to the lighting switch and in its unlocked position it serves to render effective an ignition circuit, while in its other locked position it serves to interrupt the circuit to the lighting switch and render the ignition circuit ineffective.

With the above and other objects in view the invention consists in the lock switch as herein claimed and all equivalents.

Referring to the accompanying drawings, in which like characters of reference indicate the same parts in different views,

Fig. 1 is a front view of a switch constructed in accordance with this invention;

Fig. 2 is a rear view thereof;

Fig. 3 is a central sectional view thereof;

Fig. 4 is a rear view with the terminal head removed;

Fig. 5 is a similar view with the switch members removed;

Fig. 6 is an inside view of the terminal head;

Fig. 7 is a view showing the position of the locking mechanism in one locked position thereof;

Fig. 8 is a similar view in the other locked position:

Figs. 9, 10 and 11 are views showing the relation of the lock operated contacts in the three positions of the locking mechanism;

Fig. 12 is a sectional view of the front plate with the locking sleeve attached, and

Fig. 13 is a detail view of the stationary detent member.

In these drawings, 15 indicates a front plate to which is secured a cylindrical switch case 16 having an insulating terminal head 17 secured to its end.

A lighting switch handle 18 on the front of plate 15 operates an insulating switch member 19 on the back of the plate, having connection therewith through arc-shaped slots 20. A contact spider 21 carried by said insulating switch member 19 has its projecting contact fingers bearing on the terminal head to engage an outer series of contact studs thereof for controlling lighting circuits, the various positions of the switch handle for such control being indicated on the front plate.

Passing through an opening in the front plate and through an opening in the handle is a lock barrel 23 having a slot to receive a key 24 to withdraw its tumblers 25 from engagement with openings in a stationary lock sleeve 26 so as to permit said lock barrel to be turned by means of the key. The lock sleeve is anchored to the front plate by having a flange at its end slit radially to form projections which alternately engage above and below the bent edge of the opening of the front plate and are embedded therein by pressure so as to securely hold the lock sleeve in place against rotation.

A flange 27 on the lock barrel contained in the space between the bent edge of the front plate opening and the switch member 19 forms a stop for limiting the movements of the lock barrel by engaging its ends with an inturned lug 28 on said edge of the front plate opening.

The inner end of the lock barrel is recessed to receive a coiled spring 29 and is slotted to form two arc-shaped projections 30 which fit in correspondingly shaped openings in an insulating switch member 31 carrying a contact ring 32 with projections to fit an inner series of contact studs in the terminal head.

To give the lighting switch handle a more decided detent action than is afforded by the engagement of the fingers of the contact spider 21, with the recessed contact studs, a U-shaped spring member 33 is secured to the switch member 19 by the screws 34 which connect it with the handle, and an angular bend in the center of said spring is adapted to engage in similar detent bends in an arched stationary member 35 fastened to the switch case.

The contact studs in the terminal head form binding posts in the usual manner which are marked on the terminal head in-

dicating the circuit wires to be connected therewith and it will be seen that, while the outer series of studs for the lighting circuits are marked for the various lighting connections such as "Small heads", "Large heads" and "Rear", it does not contain a battery stud for, with this switch construction, the battery connection of the lighting switch is derived from the ignition switch. However, there is a contact stud 36 in this outer series, which is connected by a metal strip 37 with two studs 38 and 39 of the inner series. The other contact studs 40 and 41 of the inner series are marked "Battery" and "Ignition" respectively, and the connections between them in the various positions of the lock barrel are shown in Figs. 9, 10 and 11, wherein Fig. 9 indicates one locked position in which no contact point of the contact ring 32 engages the battery stud 40 and consequently the ignition is ineffective and the lighting switch is inoperative for establishing any of the lighting circuits since it has no battery connection. In Fig. 10 is shown the unlocked position in which the contact points of the contact ring 32 engage the battery stud 40 and the ignition stud 41, rendering the ignition effective, and also stud 39, which, by reason of its strap connection with stud 36 of the outer series, establishes a battery connection for the lighting switch so that it becomes operative. In Fig. 11 is shown the other locking position in which the points of the contact ring 32 connect with the battery stud 40 and stud 38, thus retaining battery connection for the lighting switch but without connecting with the ignition stud 41 so that the ignition circuit is ineffective.

From these connections it will be seen that in the two extreme positions of the lock barrel in which the key may be removed, as indicated in Figs. 9 and 11, ignition is ineffective and the engine may not be operated, while in one position, Fig. 9, the lighting switch is also ineffective, having no battery connection, though in the other position, Fig. 11, the lighting switch is effective, permitting of the lighting arrangement being changed. In the unlocked position, Fig. 10, the ignition is effective and the lighting switch is operative.

This enables the switch to be locked so as to prevent theft of the automobile either with or without the lighting switch being locked in the sense that it is rendered ineffective.

While the invention is shown as embodied in a combination lighting and ignition switch mechanism, it will be understood that it is not limited thereto but may constitute switch mechanism for any purpose whether controlling one or more circuits.

What I claim as new and desire to secure by Letters Patent is:

1. A combination switch comprising a front plate, a switch handle mounted thereon, a switch member behind the front plate connected with the handle to be turned thereby, a contact spider carried by the switch member, a lock barrel mounted to turn in the switch handle, a stationary lock sleeve engaged by the tumblers of the lock barrel, said lock barrel passing through the switch member, a spring-pressed switch member carried by the lock barrel and having contacts, a terminal head having contact studs engaged by said contacts and the contact spider, there being connection between the contact studs for the two switch members whereby they interlock.

2. A combination lighting and ignition switch comprising a lighting switch having a handle, a lock member having an unlocked position and two locked positions, an ignition switch operated by the lock member with a contact connected with a contact of the lighting switch and arranged to establish battery connection for the lighting switch in the unlocked position and one locked position of the lock member and to close the ignition circuit only in the unlocked position of the lock member.

3. In a combination lighting and ignition switch, a key-controlled lock member having two locked positions and an unlocked position, an ignition circuit closed by the lock member in the unlocked position, and a battery connection for the lighting switch closed by the lock member in the unlocked position and in one locked position.

4. A combination lighting and ignition switch capable of being locked either with ignition ineffective or ignition and lighting ineffective consisting of a lighting switch having a handle, a lock member therein having an unlocked position and two locked positions, a battery connection and an ignition connection and a lighting switch connection controlled by the lock member, and a lighting circuit connection controlled by the lighting switch.

5. In a switch, a switch case, a switch member mounted to turn therein, an arched sheet metal detent strip secured to the switch case and provided with a wave-like surface forming detents, and a U-shaped spring member secured to the switch member and provided with an indentation to ride on the detent member and engage the indentations thereof for providing yielding stops or detents for the operative positions of the switch member.

In testimony whereof I affix my signature.

EDGAR M. SORENG.