

B. P. SWYERS.
ELECTRIC SWITCH.
APPLICATION FILED SEPT. 17, 1912.

1,106,593.

Patented Aug. 11, 1914.

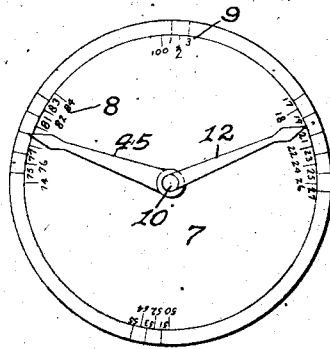


Fig. 1.

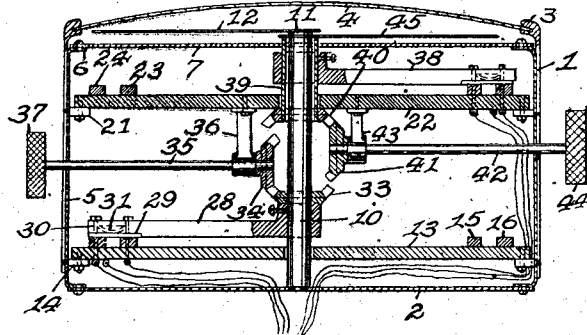


Fig. 2.

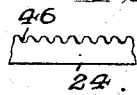


Fig. 4.

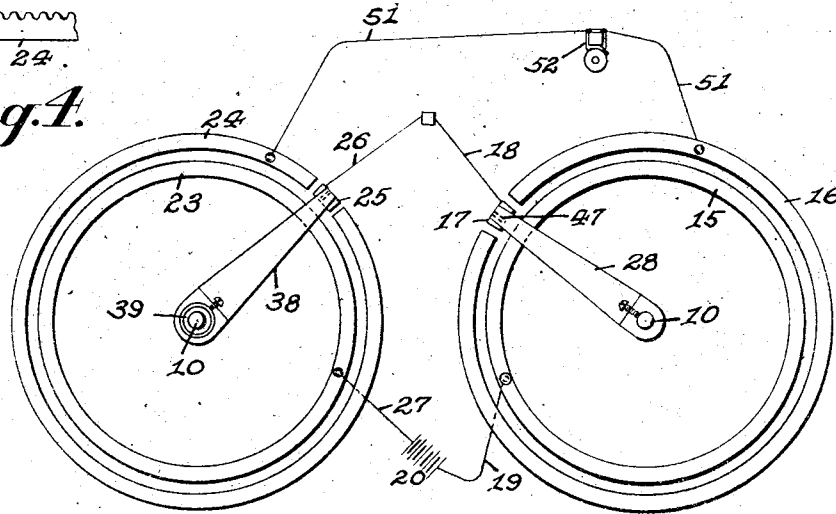


Fig. 3.

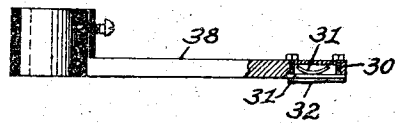


Fig. 5.

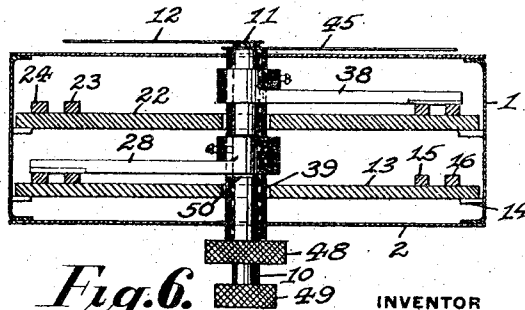


Fig. 6.

WITNESSES
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W. C. Cooke

INVENTOR
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UNITED STATES PATENT OFFICE.

BRICE P. SWYERS, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR. BY DIRECT AND MESNE ASSIGNMENTS, OF EIGHT THIRTY-SECONDS TO BRICE P. SWYERS, SEVEN THIRTY-SECONDS TO GEORGE E. LORCH, FOUR THIRTY-SECONDS TO GEORGE M. DAVIS, TWO THIRTY-SECONDS TO MARGARET MAUL, AND SEVEN THIRTY-SECONDS TO LOUIS LORCH, JR., ALL OF PITTSBURGH, PENNSYLVANIA, AND FOUR THIRTY-SECONDS TO JOHN H. WAGNER, OF MOUNT OLIVER BOROUGH, PENNSYLVANIA.

ELECTRIC SWITCH

1,106,593.

Specification of Letters Patent.

Patented Aug. 11, 1914.

Application filed September 17, 1912. Serial No. 720,745.

To all whom it may concern:

Be it known that I, BRICE P. SWYERS, a resident of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Electric Switches; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to locks, or electric switches for use with internal combustion engines and has special reference to electric switches for motor vehicles, wherein the engines cannot be started unless the operator understands the operation and combination of the switch.

At the present time when the operator of an automobile happens to leave his car standing for a few moments while he enters a building or attends to other matters he has no assurance that he will find his car upon his return, as persons known as "joy riders" often times enter the machine and start the same, which in many cases results in serious injury to the machine, even if the same is ever located.

The object of my invention is to provide a cheap, simple and efficient form of electric switch, which when used with motor vehicles, such as automobiles, will overcome the above objections and thus eliminate the possibility of the car being started and stolen by mercenary persons, thereby insuring the owner or operator of finding the car upon his return.

My invention consists, generally stated, in the novel arrangement, construction and combination of parts as hereinafter more specifically set forth and described and particularly pointed out in the claims.

To enable others skilled in the art to which my invention appertains to construct and use my improved electric switch, I will describe the same more fully referring to the accompanying drawing, in which—

Figure 1 is a top plan view of my improved electric switch. Fig. 2 is a cross-sectional view of same. Fig. 3 is a developed plan view of the contact rings showing the connections between the same. Fig. 4 is a partial end view of one of the outer

contact rings. Fig. 5 is a side view of one of the contact arms. Fig. 6 is a cross-sectional view of a modified form of the switch.

Like symbols of reference herein indicate like parts in each of the figures of the drawing.

As illustrated in the drawing, my improved electric switch is preferably circular in form and has an outer metal casing or frame 1, to which is connected in any suitable way a base 2. The upper end of the metal casing 1 is provided with a double flange portion 3 into which is inserted a glass plate 4. Within the metal casing or frame 1 is an auxiliary wall 5, which has an upper flange 6 extending entirely around the same and a dial 7 is secured thereto in any suitable manner. The dial 7 has the odd numerals 9 around the outer edge of the same and the even numerals 8 immediately within the circle of the odd numerals. A shaft 10 is journaled at its lower end within the base 2 and at a point substantially near its upper end within the dial 7, while a small portion 11 on said shaft extends through the dial 7 and has a short hand 12 firmly secured thereto. At a point substantially near the bottom of the casing 1 is a fiber disk 13, which is connected to projections 14 on the side of the auxiliary wall 5, and such disk is provided with a contact ring 15 on the upper face of the same and a split contact ring 16 immediately without said first named ring, while between the ends of said split ring is a lug 17 which has a wire 18 leading to a spark plug, as later described. The ring 15 is also provided with a wire 19, which is connected at any convenient point on said ring and such wire leads to one side of the battery or magneto 20, which is used for energizing the electric circuit, later referred to. At a point not far distant from the top of the auxiliary wall 5, and firmly secured to flanges 21 on said wall, is another fiber disk 22, which is provided with an inner contact ring 23 and also an outer split contact ring 24. The split contact ring 24 has a lug 25 which has a wire 26 connected thereto and leading to the spark plug. The ring 23 is also pro-

vided with a wire 27, which is connected to any convenient point on the same, and such wire connects to one side of the battery or magneto 20, before referred to.

5 Immediately above the lower fiber disk 13 and connected securely to the shaft 10 is a fiber arm 28 which is provided at its outer end with a contact plate 29. This contact plate is held in place by means of pins 30
10 extending through the same and into the end of the arm while a small spring 31 rests between the end of said arm and said contact plate and has a tendency to press the contact plate away from the end of such
15 arm and in a vertical direction. The lower face of the contact plate is provided with a rib 32, as later explained. Immediately above the lower contact arm 28 is a small bevel gear 33, and such gear is firmly se-
20 cured to the shaft 10 and meshes with the bevel gear 34 on the end of the small shaft 35, such shaft being journaled in a housing 36 which is secured to the bottom of the upper fiber disk 22 and also journaled in
25 the side of the frame 1. The shaft 35 extends through the side of the frame 1 and has a small knurled thumb screw 37, on the end of the same. Immediately above the upper fiber disk 22 is another arm 38 which
30 is in every respect like the lower arm 28, except that such arm is secured to a small hollow shaft 39, which extends around the shaft 10 and has a sliding connection there-
35 with. The hollow shaft 39 extends below the upper fiber disk 22 and is provided with a bevel gear 40 upon the end of the same which meshes with the bevel gear 41 on the end of the shaft 42, and such shaft is suit-
40 ably journaled in a small journal 43 on the under side of the disk 22, and in the side of the frame 1. The shaft 42 extends through the frame 1 and has a small knurled thumb
45 screw 44 on the end thereof. The shafts 35 and 42 are practically on the same center line so that the knurled thumb screws 37 and 44 are diametrically opposite one an-
other and with the screw 37 slightly lower than the screw 44.

At the upper end of the hollow shaft 39
50 a long hand 45 is firmly secured thereto. The split contact rings 16 and 24 are provided with notches 46 throughout their en-
tire length so that the rib 32 on the bottom of the contact plate 29 will engage therein
55 as it passes over the same. The contact plugs 17 and 25 are also provided with a notch 47 in the same so that when the contact plate 29 passes through the ring and
60 lug it will be impossible to tell when the same is in contact with said lug.

It will be seen that the hands 12 and 45 may be set at any combination of numbers so that the operator must have the hands
65 set at certain particular numbers so that the arms 28 and 38 will engage or make

contact with the lugs between the ends of the outer rings and their respective disks. In this way Fig. 3 showing the diagram-
matic view of the contact rings may be em- 70
ployed as the electric circuit passes from the battery out through the wire 19 along the contact ring 15 then on the contact plate 32 to the lug 17, while from the lug 17 the cir-
cuit passes through the wire 18 to the spark- 75
plug and from the spark plug along the wire 26 to the lug 25, and from the lug 25 through the contact plate 32 to the ring 23 along the wire 27 to the battery 20, thus
making a complete circuit. If desired, a wire 51 may be connected between the split 80
rings 16 and 24 and an alarm bell 52 placed in the circuit. In this way, when the con-
tact button on the machine is thrown off and the arms 28 and 38 are in a position for
making contact with the split rings 16 and 85
24, if the current was then introduced into the line by throwing the usual contact but-
ton or switch a complete electric circuit would be made from the battery 20 along
90 the wire 19, contact ring 15, contact plate 32, split ring 16, wire 51 to the alarm and con-
tinuing on the wire 51, split ring 24, contact plate 32, contact ring 23 and the wire 27 to the battery 20.

Fig. 6 shows a modified form of the elec- 95
tric switch wherein the bevel gears are eliminated and the mechanism simplified. In this construction the hollow shaft 39 will
extend entirely through the casing 2 and will be provided at its lower end with a 100
thumb screw 48 while the shaft 10 has a thumb screw 48. The lower fiber arm 28 is secured to the shaft 10 through a slot 59
in the hollow shaft 39 while the upper fiber arm 38 is secured to the hollow shaft 39 105
as in the construction described. It will thus be seen that with the use of my im-
proved electric switch, it will be impossible, as in the case of automobiles, to get a spark
in the combustion chamber of the engine un- 110
less the contact plates are in engagement or contact with the lugs 17 and 25, and as there
is practically no connection between the arms 35 and 38 many different combinations
could be applied without success. The com- 115
bination may be changed at any time by simply changing the position of the hands
in regard to the dial numbers.

Various other modifications and changes in the design, application and construction 120
of my improved electric switch may be resorted to without departing from the spirit of my invention or sacrificing any of its ad-
vantages.

What I claim as my invention and desire 125
to secure by Letters-Patent, is:—

1. A switch for electric circuits compris-
ing two pairs of contact rings, one ring of each pair being broken, a contact between 130
the ends of each broken ring, a shaft having

an arm attached thereto, a hollow shaft fitting around said first named shaft and having an arm attached thereto, each of said arms having a contact portion thereon for electrically connecting each pair of rings, and means for rotating said shafts and arms.

2. A switch for electric circuits comprising two pairs of contact rings, one ring of each pair being broken, a contact between the ends of each broken ring, a shaft having an arm attached thereto, a hollow shaft fitting around said first named shaft and having an arm attached thereto, each of said arms having a contact portion thereon for electrically connecting each pair of rings, and geared means for rotating said shafts and arms.

3. A switch for electric circuits comprising two pairs of contact rings, one ring of each pair being broken, a contact between the ends of each broken ring, a shaft having an arm attached thereto, a hollow shaft fitting around said first named shaft and having an arm attached thereto, each of said arms having a contact portion thereon for electrically connecting each pair of rings, means for rotating said shafts and arms, and means carried on each of said shafts for indicating the position of said arms.

4. A switch for electric circuits comprising two pairs of contact rings, one ring of each pair being broken, a contact between the ends of each broken ring, a shaft having an arm attached thereto, a hollow shaft fitting around said first named shaft and having an arm attached thereto, each of said

arms having a contact portion thereon for electrically connecting each pair of rings, geared means for rotating said shafts and arms, and means carried on each of said shafts for indicating the position of said arms.

5. A switch for electric circuits comprising two pairs of contact rings, one ring of each pair being broken, a contact between the ends of each broken ring, a shaft having an arm attached thereto, a hollow shaft fitting around said first named shaft and having an arm attached thereto, each of said arms having a contact portion thereon for electrically connecting each pair of rings, means for rotating said shafts and arms, and a hand carried on each of said shafts for indicating the position of said arms.

6. A switch for electric circuits comprising two pairs of contact rings, one ring of each pair being broken, a contact between the ends of each broken ring, a shaft having an arm attached thereto, a hollow shaft fitting around said first named shaft and having an arm attached thereto, each of said arms having a contact portion thereon for electrically connecting each pair of rings, geared means for rotating said shafts and arms, and a hand carried on each of said shafts for indicating the position of said arms.

In testimony whereof, I, the said BRICE P. SWYERS, have hereunto set my hand.

BRICE P. SWYERS.

Witnesses:

J. N. COOKE,

T. B. HUMPHRIES.