W. A. KIRSCHT AND E. J. SODERGREN.

ELECTRIC SWITCH.

APPLICATION FILED JULY 17, 1917.

1,316,308.

Patented Sept. 16, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

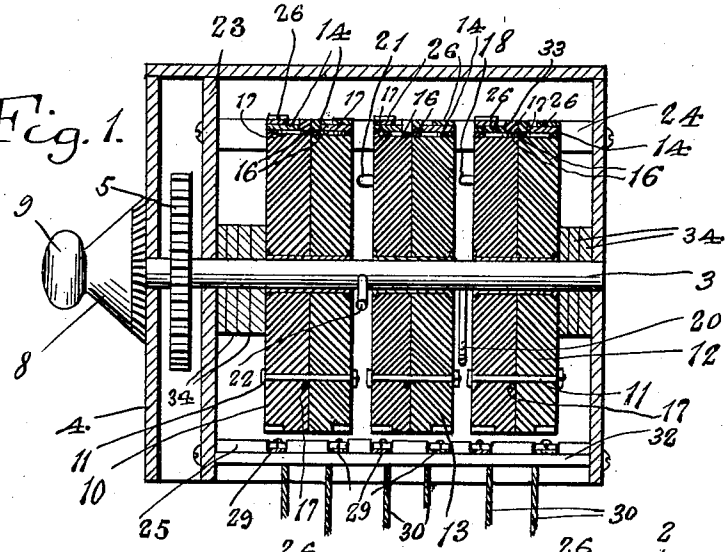


Fig. 6.

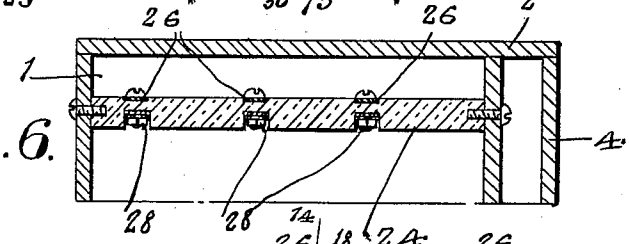
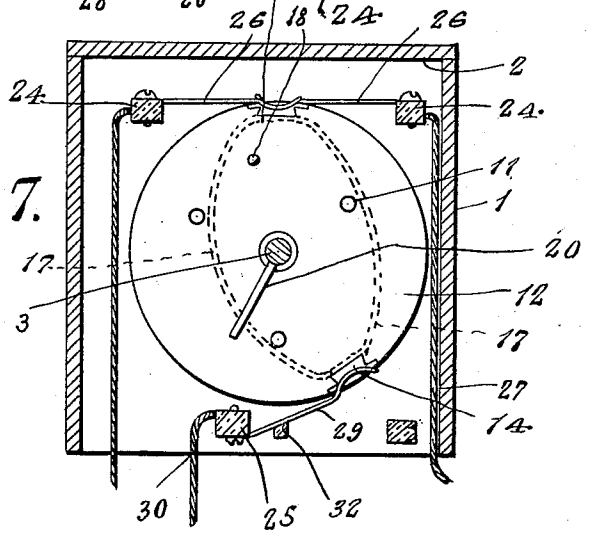


Fig. 7.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

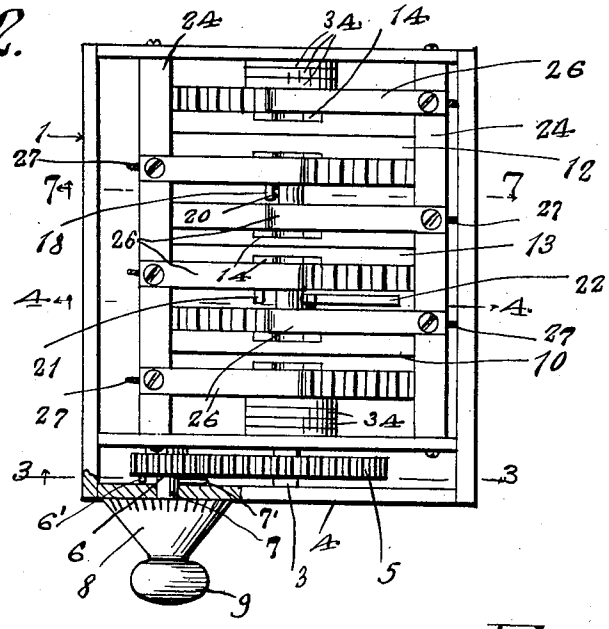


Fig. 3.

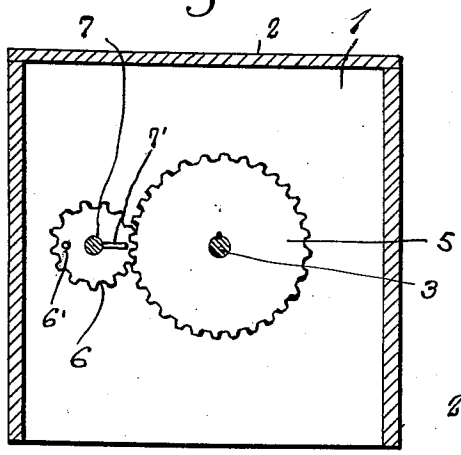


Fig. 4.

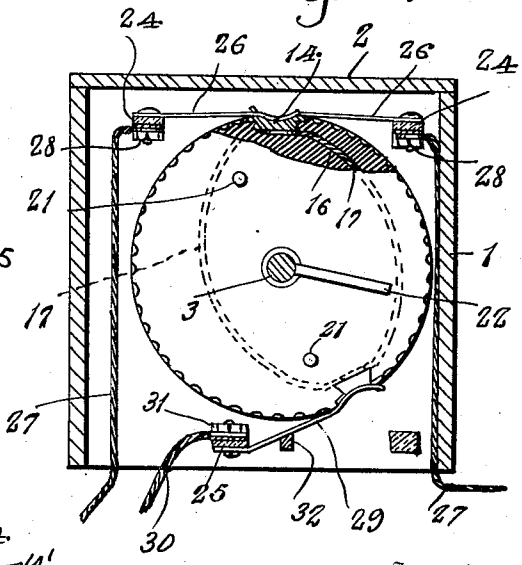
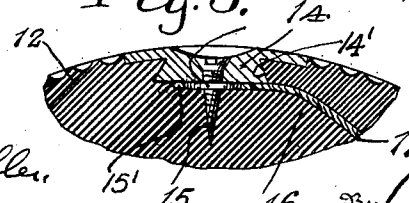


Fig. 5.



Witnesses

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WILLIAM A. KIRSCHT, OF ST. CLOUD, AND ERNEST J. SODERGREN, OF SAUK RAPIDS, MINNESOTA.

ELECTRIC SWITCH.

1,316,308. Specification of Letters Patent. Patented Sept. 16, 1919.

Application filed July 17, 1917. Serial No. 181,154.

To all whom it may concern:

Be it known that we, (1) WILLIAM A. KIRSCHT and (2) ERNEST J. SODERGREN, citizens of the United States, residing at (1) St. Cloud, (2) Sauk Rapids, in the county of (1) Stearns, (2) Benton, and State of Minnesota, have invented certain new and useful Improvements in Electric Switches; and they do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in a combination electric wire connecting and disconnecting device and more particular to a combination switch and has for one of its objects the provision of a device of this character, especially adapted for use upon an automobile, for the purpose of opening and closing a circuit to the engine and other electrical appliances thereon.

Another object of this invention is the provision of a casing having journaled therein, a plurality of disks having contacts, which are adapted to be so positioned as to engage permanent contacts for completing an electric circuit to the engine and other electrical appliances thereon.

A further object of this invention is the provision of a combination actuating means for properly setting and unsetting disks to move the contacts thereon in engagement with the contacts carried by the casing so as to complete and break the electric circuit to the engine when desired.

A still further object of this invention is the provision of a combination electric wire connecting and disconnecting device of the above stated character, which shall be simple, durable and efficient, and which may be manufactured and sold at a comparatively low cost.

With these and other objects in view as will become more apparent as the description proceeds, the invention consists in certain novel features of construction, combination and arrangement of parts as will be hereinafter more fully described and claimed.

For a complete understanding of our invention, reference is to be had to the following description and accompanying drawings, in which:

Figure 1 is a longitudinal view of a combination electric wire connecting and disconnecting device constructed in accordance with out invention,

Fig. 2 is a top plan view of the device with the cover of the casing removed,

Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 2,

Fig. 4 is a transverse sectional view taken on the line 4—4 of Fig. 2,

Fig. 5 is a fragmentary sectional view illustrating the means for securing one of the contacts to the disk,

Fig. 6 is a fragmentary detail sectional view illustrating the means for supporting stationary contacts to the casing,

Fig. 7 is a transverse sectional view taken on the line 7—7 of Fig. 2,

Referring to the drawings, the numeral 1 indicates a substantially rectangular casing having a removable cover 2. A shaft 3 is journaled in the front and rear walls of the casing 1 and has secured to its forward end, a gear 5, which meshes with a pinion 6 mounted upon a stub shaft 7 journaled in the front wall 4 of the casing. The shaft 7 has secured thereto a dial 8, on which may be printed or otherwise applied certain characters of a combination. The pinion 6 has a pin 6′ secured thereto, which is adapted to be engaged by a pin 7′ on the stub shaft for rotating the pinion by the dial 8.

A handle piece 9 is formed upon the stub shaft 7 for the purpose of rotating the shaft 3.

A disk 10 constructed from insulated material is secured on the shaft 3 adjacent its forward end and consists of a pair of sections secured together by fasteners 11. Disks 12 and 13 are journaled upon the shaft 3 as clearly shown in Fig. 1 and each consists of a pair of sections, which are held together by suitable fasteners. The disks 12 and 13 are also constructed from insulated material. The disks each are provided with oppositely disposed recesses in the peripheries thereof in which are positioned pairs of contacts 14. The contacts 14 are secured to the disks by fasteners or screws 15. The adjoining faces of the sections of each of the disks are provided with opposite extending grooves 16, in which are positioned wires or conductors 17 that are connected to the screws or fasteners 15 of the contacts 14. One contact of the pair of contacts upon one side of the disks is connected to the contacts

upon the opposite side of the peripheries of the disks. As indicated in Fig. 5 the end portions of the conductors are provided with eyes 17′ receiving the screws 15. The eyes 17′ are mounted in recesses 15′ in the bottom walls of the dove-tail recesses 14′. The arrangement of the eyes 17′ within the recesses 15′ and the particular manner of connecting the same to the contacts provides a positive electrical connection between the conductors and the contacts. The location of the conductors between the opposed faces of the disk sections also prevent short circuiting of the device through the conductors. A pin 18 is secured to the disk 12 and is adapted to be engaged by a pin 20 carried by the shaft 3 for causing said disk to rotate with the shaft. The disk 13 is provided with a pair of pins 21, which are engaged by a pin 22 carried by the shaft 3 for the purpose of causing the disk 13 to rotate with the shaft.

A partition 23 is secured within the casing in the end thereof for the purpose of supporting upper and lower bars 24 and 25, while their opposite ends are secured to the rear wall of the casing.

Stationary contacts 26 are secured to the bars 24 and have their free ends curved to engage the contacts 14 of the disks. Conductors 27 are connected to the contacts 26 by nuts 28. The bar 25 has secured thereto contacts 29, which have their free ends curved to engage the contacts 14 of the disks. Conductors 30 are connected to the contacts 29 by nuts 31. The contacts 29 are further supported in engagement with the peripheries of the disks and contacts upon the disks by a bar 32 carried by the casing.

The contacts upon each of the disks 11, 12 and 13 and which are arranged in pairs are spaced or insulated from each other by portions 33 of the disks being disposed between the pairs of contacts to prevent short circuiting of the device when in operation.

The front wall of the casing 1 is provided around the dial with characters for coöperation with the characters upon the dial in solving the combination of the device or switch. Mounted upon the shaft 3 is a plurality of washers 34, which engage the walls of the casing for the purpose of properly positioning the disks upon the shaft 3.

In applying a device of the above described character upon an automobile, the conductors 27 are usually connected to the spark plugs of an engine, while the conductors 30 are connected to an electrical source, which electrical source is grounded to the chassis of the automobile. When it is desired to complete an electric circuit to the engine or spark plugs thereof, the disks are so moved within the casing that the contacts 26 and 29 engage their respective contacts upon the disks so that the electric circuit will be completed to the disks by way of the conductors 17 that connect the contacts 14 of the disks. It will therefore be seen that in order to complete the electric circuit to the engine, it is necessary for the person to know the combination of the device so as to properly position the disks to permit the contacts thereon to engage the contacts carried by the bars 24 and 25. If desired, the self starter of the automobile, which starters are now customary upon most of the automobiles upon the market, may be provided with the contacts upon the bars 24 and 25 and an extra set of contacts 14 upon either of the disks, making it necessary to operate the combination or properly position the disks before the self starter can be operated to start the engine.

While we have shown and described the preferred embodiment of our invention, it will be understood that minor changes in construction, combination and arrangement of parts may be made without departing from the spirit and scope of the invention as claimed and that any number of disks and contacts may be employed.

Having thus described our invention, what we claim is:

An electric switch including a casing, a shaft carried thereby, an insulated disk arranged on the shaft and including a pair of contacting circular sections having grooves traversing their inner contacting sides, the peripheral portions of the sections being provided with transverse dove-tail recesses, electrical conductors arranged in said grooves and having their end portions provided with eyes, the bottom walls of said dove-tail recesses being provided with a second set of recesses receiving the eyes of said conductors, contacts mounted in said dove-tail recesses, screws extending through said contacts and said eyes and forcing the contacts in engagement with said eyes, a second set of contacts carried by the casing, and means for causing engagement between the first and second named contacts.

In testimony whereof we affix our signatures in presence of two witnesses.

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ERNEST J. SODERGREN.

Witnesses:
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ELLA M. KIRSCHT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."