H. SAVAGE & W. L. BAKER.

ELECTRIC SWITCH FOR AUTOMATIC PASSENGER FARE REGISTERING MECHANISM.

APPLICATION FILED SEPT. 8, 1914.

1,173,609. Patented Feb. 29, 1916.

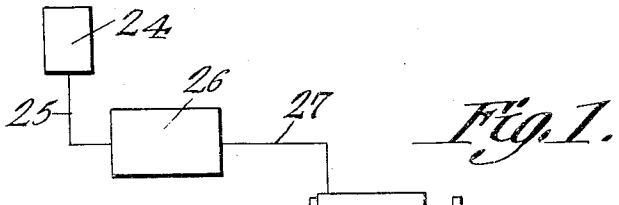


Fig. 1.

Fig. 2.

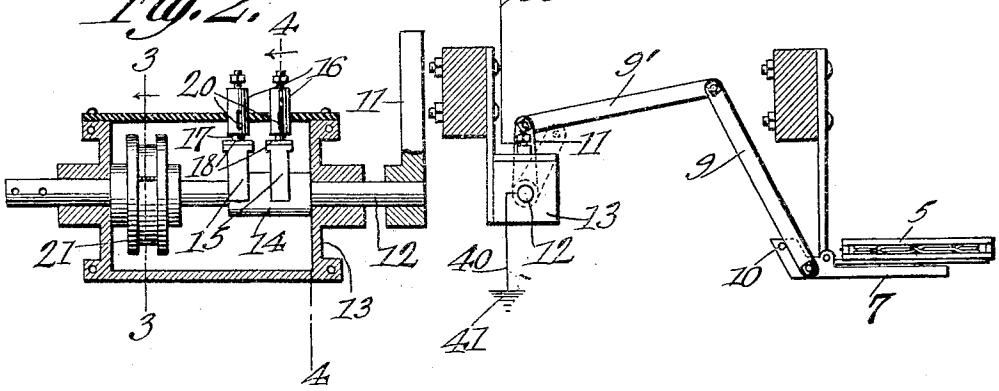


Fig. 3.

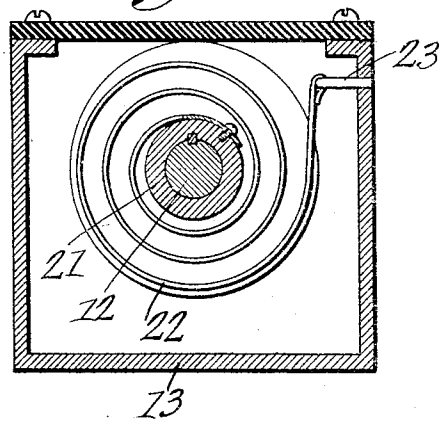
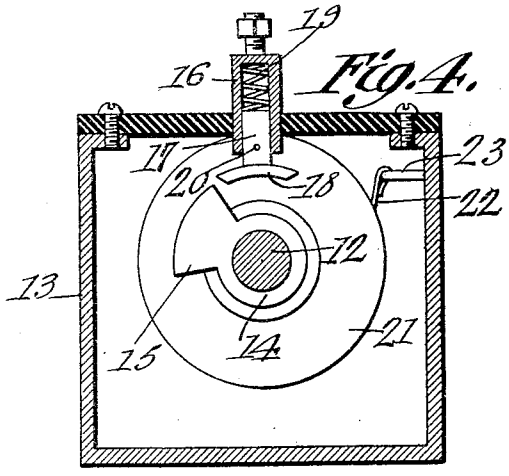


Fig. 4.



H. Savage
W. L. Baker AND
Inventors

Witnesses
J. P. Somers
M. E. McCarthy

by C. A. Snow & Co.
Attorneys

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HARRY SAVAGE AND WILLARD L. BAKER, OF SAN ANTONIO, TEXAS.

ELECTRIC SWITCH FOR AUTOMATIC PASSENGER-FARE-REGISTERING MECHANISM.

1,173,609. Specification of Letters Patent. Patented Feb. 29, 1916.

Original application filed June 10, 1913, Serial No. 772,867. Divided and this application filed September 8, 1914. Serial No. 860,732.

To all whom it may concern:

Be it known that we, HARRY SAVAGE and WILLARD L. BAKER, citizens of the United States, residing at San Antonio, in the county of Bexar, State of Texas, have invented a new and useful Electric Switch for Automatic Passenger-Fare-Registering Mechanism, of which the following is a specification.

The present invention relates to improvements in electric switches for automatic passenger fare registering mechanisms, the present application being a division of the application filed June 10, 1913, Serial No. 772,867, allowed February 9, 1914, for an improvement in an automatic passenger fare registering mechanism, one object of the present invention, being the provision of a novel construction of switch, which is readily operated and maintained in operative condition at all times, the same, as set forth in the above mentioned application, being operably connected to the step controlled mechanism so that as the passenger enters the car, and engages the step, a switch will be moved to closing position and be automatically returned to open position as soon as the step is released.

A further object of the present invention, is the provision of a switch of this character, in which the main parts are submerged in oil, this being an insulating medium to prevent the arcing over of the contacts thereof and yet at the same time keep the parts thoroughly lubricated to prevent corrosion or stoppage thereof.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings—Figure 1 is a view partially in diagram and partially in section of the main members of the present invention, the switch being shown in end elevation. Fig. 2 is a longitudinal sectional view through the switch. Fig. 3 is a cross section taken on line 3—3 of Fig. 2. Fig. 4 is a cross section taken on line 4—4 of Fig. 2.

As shown in the before mentioned application, the step actuated mechanism which includes the links 9 and 9′ and the lever 7, is operably connected to the crank 11 which is keyed upon the transversely mounted shaft 12 carried in the switch block or casing 13. The shaft 12 within the casing 13 is provided with the cylindrical portion 14 having two upstanding projections 15, the outer portion of which is curved concentrically to the cylindrical portion 14 and forms a movable contact when operating electrical circuits, as illustrated in Fig. 1. Disposed removably in the cover of the casing, which is made of insulating material, are the two metal sleeves or socket members 16, the casing 13 being filled with oil so that the shaft is properly lubricated and properly insulated from the parts.

The socket members 16 have their open ends disposed inwardly, and studs or plungers 17 are slidable in said members, and are provided with curved contact shoes or faces 18 arranged to be engaged at the proper time by the curved edges of sector-shaped projections or contacts 15 of a cylindrical portion 14 upon the shaft 12. Springs 19 are disposed within the members 16 between the studs or plungers 17 and closed ends of the members 16, to project the shoes or portions 18. Each stud or plunger 17 has a pin or lug 20 working within a slot in the respective member 16, to limit the movement of the stud 17 properly. Two of these contacts 18 are provided to insure the proper closure of the circuit, the oil within the casing constituting an insulator to prevent the short circuiting between the contacts 15 and also between the two contacts 17.

In order to provide a means for automatically returning the shaft 12 and opening the switch members 15 and 17, and for maintaining the same in the normal position, as shown in Fig. 1, a spool 21 is keyed upon the shaft 12 within the casing 13, and has one terminal of the spiral spring 22 connected thereto, while the outer terminal of the spring is connected to the screw eye 23, and in such a position, that the normal tension of the spring is against the inward movement of the crank or arm 11 when the lever 7 is depressed due to the depression of the section 5 of the step. This depression will cause the outer end of the lever 7 to be depressed, while the pin 10 will be elevated to engage the link 9, and thus pull upon the

link 9′ and move the arm or crank 11 forwardly against the tension of the spring 22 bringing the contact members 15 into engagement with the contact members 18 and for closing the circuit through the cylindrical portion 14 of the shaft 12. In the diagram illustrated in Fig. 1, in which the propulsion current, as for instance in a trolley system, is employed to operate the register actuating solenoid 28, the main fuse 24 is connected to the propulsion current and enters the car, and has led therefrom, the conductor 25, said conductor 25 being connected to the resistance 26, which when the present invention is used with the propulsion current, will reduce the voltage from 500 to 110 volts, so that such current led through the conductor 27 to the solenoid 28, will not cause the burning out of the solenoid. The conductor 38 is led from the solenoid to the contacts 18, the circuit being completed through the contacts 18, the projections 15, the shaft 12, the conductor 40 and the ground 14.

It is apparent that any practical wiring may be used in connection with the switch operated mechanism, it being essential that when the section 5 is depressed, that the circuit for operating the register (not shown) controlled by the solenoid 28 will cause the energization of the solenoid and consequently the operation of the register, the spring 22 returning the switch to open position and deënergizing the electromagnet 28.

In this construction of switch, it is evident that the same may be disposed below the step or platform of the car, and thus be connected in any convenient manner so as to be operated from the step section 5, and that due to the fact that the same is an incasing member in which oil is contained, the parts are properly lubricated and need very little attention. It is also found with this construction, that the switch will normally be held out of contact and be operated only when the passenger is being registered.

What is claimed is:

A switch, including a casing having an insulating cover, a shaft journaled through the casing, a pair of sector-shaped contacts carried by the shaft within the casing, a pair of socket members engaged through said cover with their open ends disposed inwardly, plungers slidable in said socket members and having curved shoes to be engaged by the curved edges of said contacts, springs between said plungers and closed ends of said socket members, the socket members and plungers having coöperating means for limiting the movement of said plungers, a spool secured upon said shaft within the casing, and a spiral spring having its outer end attached to the casing and its inner end attached to said spool.

In testimony that we claim the foregoing as our own, we have hereto affixed our signatures in the presence of two witnesses.

HARRY SAVAGE.
WILLARD L. BAKER.

Witnesses:
JOSEPH RYAN,
EMMET PASCHAL.

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