J. B. SCHUG.

AUTOMATIC SWITCH.

APPLICATION FILED JUNE 26, 1908.

985,069. **Patented Feb. 21, 1911.**

Fig. 1.

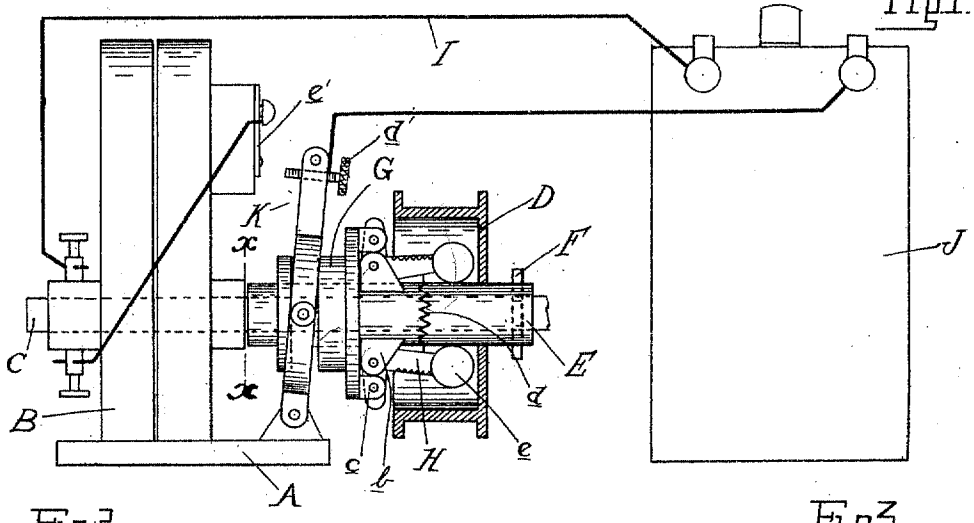


Fig. 2.

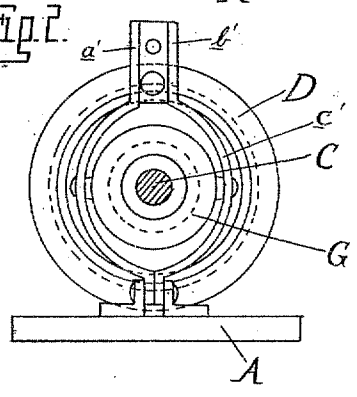


Fig. 3.

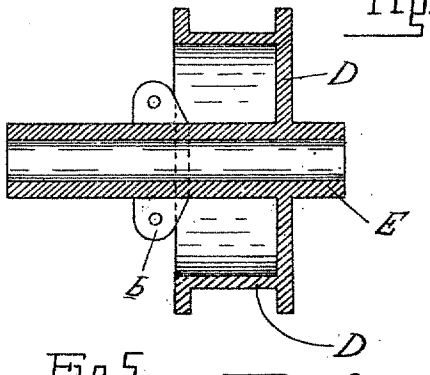


Fig. 4.

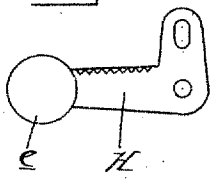
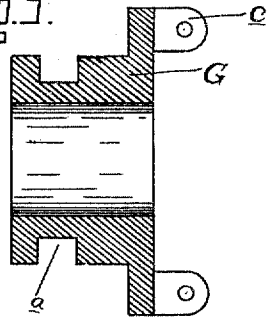


Fig. 5.



Witnesses
W. K. Ford
J. J. Belknap

Inventor
John. B. Schug
By Wetherow Hulbert & Wetherow
Attys

UNITED STATES PATENT OFFICE.

JOHN B. SCHUG, OF DETROIT, MICHIGAN.

AUTOMATIC SWITCH.

985,069. Specification of Letters Patent. **Patented Feb. 21, 1911.**

Application filed June 26, 1908. Serial No. 440,574.

To all whom it may concern:

Be it known that I, JOHN B. SCHUG, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Automatic Switches, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates generally to circuit breaking and closing mechanism for use in charging storage batteries, and particularly to an automatic switch controlled by the action of centrifugal force designed to establish a circuit between the battery and generator after the latter has developed the required voltage for charging and for breaking the circuit when the speed of the generator slackens so that its voltage is less than that of the battery, thereby preventing the return of the current to the dynamo or other generating device.

The invention consists in the novel construction of the mechanism, in the peculiar construction of the switch, and in various details of construction, as hereinafter set forth.

In the drawings,—Figure 1 is a view in side elevation of mechanism embodying my invention, with the circuit shown diagrammatically; Fig. 2 is a section taken on line *x*—*x* of Fig. 1; Fig. 3 is a detached sectional view of the driving member for the generator; and Figs. 4 and 5 are detached detail views of parts of the mechanism.

In the drawings thus briefly described, A represents a suitable base or support, upon which is mounted a generator B of any approved type, provided with the usual armature shaft C.

The shaft projects a considerable distance beyond the generator, as shown, and mounted fixedly upon its free end is a driving member D in the form of a drive pulley provided with an elongated hub section E. A pin F or any suitable connecting device is employed to prevent relative rotation between the shaft and member. Mounted loosely upon the hub intermediate the pulley and the generator is a collar G, grooved circumferentially, as at *a*, and pivoted to the collar and the driving member is an oppositely-disposed pair of governor arms, as H, which control through the action of centrifugal force the movements of the collar. As shown, these arms are angle-shaped in form, pivoted between oppositely-disposed pairs of ears *b* carried by the pulley hub, and at their upper ends between similar pairs of ears *c* upon the collar. A spring, as *d*, preferably connects the arms, as shown, and the latter carry at their extremities the usual weights *e*.

I represents the generator circuit, including in this instance a storage batery, as J, to be charged, and K is a circuit closer included in the circuit and adapted to make and break the same through the action of the governor.

The circuit closer is preferably in the form of a rock lever swiveled to the collar G and pivoted at its lower end upon the base A for rocking movement. The lever is preferably formed of two members *a′ b′*, each provided with a curved section, as *c′*, the curved portions being adapted to engage within the groove *a* in the collar, as shown. At its upper end the rock lever carries a contact pin *d′* adapted to engage a contact plate *e′* upon the generator, the plate as shown being included in the generator circuit.

In practice, the generator is operated by any suitable motor belted to the driving member D. As soon as the generator attains the requisite speed to produce a current for charging the battery, the governor through the action of centrifugal force causes the collar to move laterally, thereby operating the circuit closer and establishing the circuit. When the speed of the generator slackens, so that its voltage is less than that of the battery, the governor automatically operates the circuit closer in the reverse direction, thereby breaking the circuit and preventing the flow of the current from the battery to the generator.

What I claim as my invention is,—

The combination with a support, of a shaft mounted thereon, a pulley having an elongated hub sleeved upon and secured to the shaft to rotate therewith, lugs secured to the sleeve independent of the pulley, a grooved collar loose upon the sleeve, oppositely disposed governor arms pivoted each to a lug upon the sleeve and to the collar, a switch lever having one end pivoted to the support provided with a circular por-

tion intermediate its ends engaging the groove in the collar and swiveled to the latter, said circular portion terminating in a transversely-extending arm having a contact at its outer end, and a second contact in operative relation to said first-mentioned contact.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN B. SCHUG.

Witnesses:
NELLIE KINSELLA,
JAMES P. BARRY.