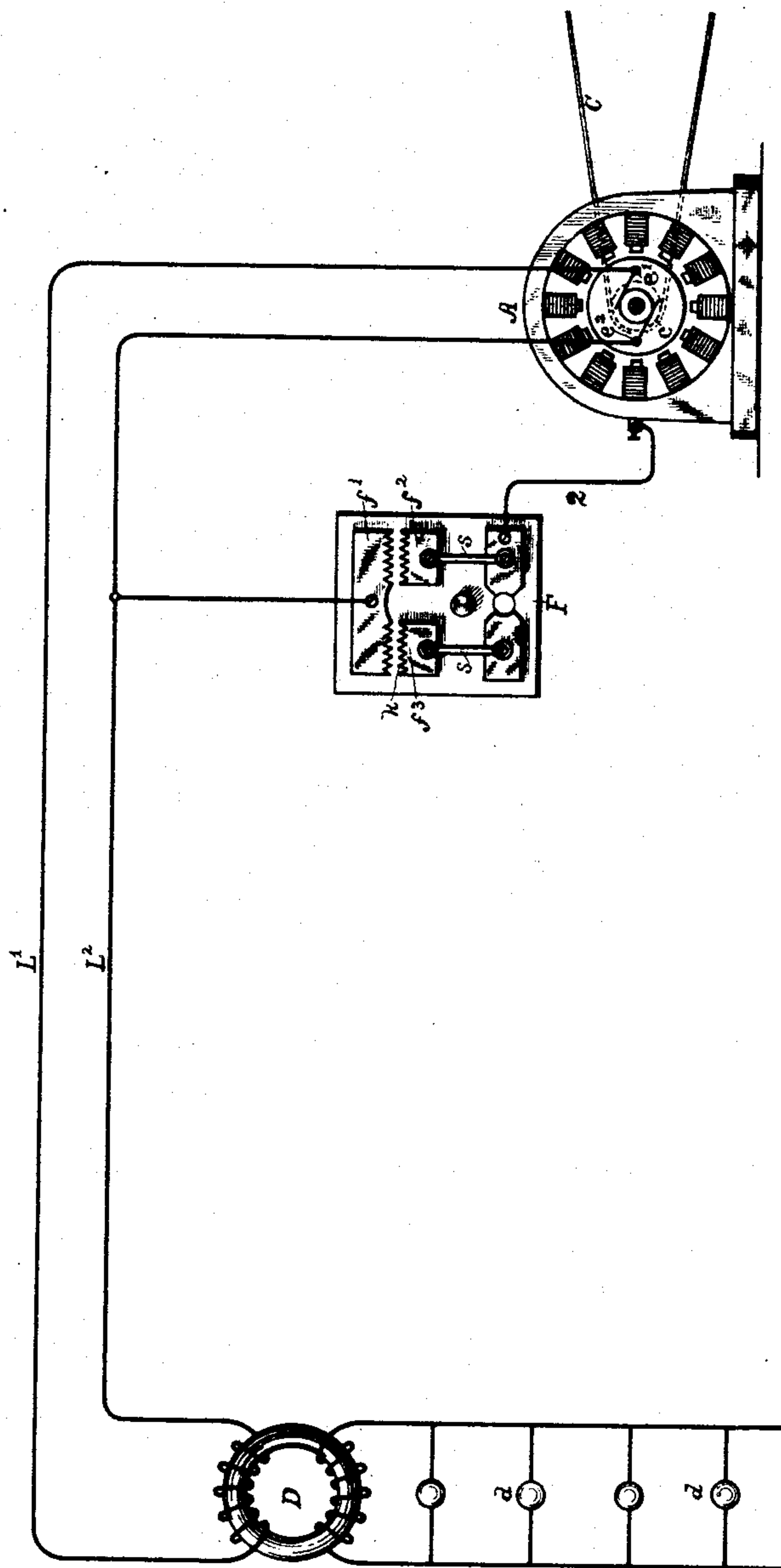


(No Model.)

O. B. SHALLENBERGER.
DISCHARGE DEVICE FOR DYNAMOS.

No. 412,933.

Patented Oct. 15, 1889.



WITNESSES:

George Brown Jr.
Whitcomb

INVENTOR,

OLIVER B. SHALLENBERGER.

Charles A. Terry.

Att'y.

UNITED STATES PATENT OFFICE.

OLIVER B. SHALLENBERGER, OF ROCHESTER, ASSIGNOR TO THE WESTINGHOUSE ELECTRIC COMPANY, OF PITTSBURG, PENNSYLVANIA.

DISCHARGE DEVICE FOR DYNAMOS.

SPECIFICATION forming part of Letters Patent No. 412,933, dated October 15, 1889.

Application filed March 6, 1889. Serial No. 302,142. (No model.)

To all whom it may concern:

Be it known that I, OLIVER B. SHALLENBERGER, a citizen of the United States, residing in Rochester, in the county of Beaver and State of Pennsylvania, have invented a certain new and useful Improvement in Discharge Devices for Electric Generators, (Case No. 284,) of which the following is a specification.

10 The object of my invention is to provide means for preventing the occurrence of disruptive discharges between the armature-coils of an electric generator and the core upon which the coils are wound.

15 In driving the armatures of electric generators by means of pulleys and belts it is found that a considerable difference of potential is sometimes established between the body of the armature and the main-line conductors or the coils of the armature from which they lead. This is in a great measure due to the friction of the belt upon the pulley. Owing to the high difference of potential thus produced, an electric discharge sometimes takes place from the armature-body to the coils of the armature through the intermediate insulation, thereby injuring or destroying the armature.

30 My invention consists in interposing a discharge device between the main lines and the generator in such a manner as to prevent a difference of potential of such abnormal value as to cause a harmful disruptive discharge by causing a discharge to occur at lower potential difference through a discharge device.

40 In carrying out the invention I connect one of the main-line conductors leading from the machine with a discharge-plate. A second discharge-plate directed toward this is connected with the body of the machine, and thus with the armature. If, now, a high difference of potential should exist between the armature-coils and the armature-core, a path will be open for it through the discharge device by way of the main lines and the intermediate plate. The application of the discharge device to either pole of the armature-circuit is sufficient; but both main lines may be provided with a discharge device, the armature then being more fully guarded. A second or

reserve plate may be connected to the armature in case the first is destroyed.

In the accompanying drawing there is shown in diagram an organization of apparatus for carrying out the invention.

Referring to the figure, A represents an electric generator. In this instance it is an alternating-current generator provided with an armature *b*. The invention is, however, applicable to continuous-current generators. The belt-wheel *c* of the generator is driven by means of the belt C. The commutator-brushes have their terminals at *e'* and *e''*, and the main lines *L'* and *L''* are derived from these points. A converter D is shown having its primary coil connected between the lines *L'* and *L''* and its secondary supplying translating devices *d*. Other converters may be similarly connected, or any other required system of distribution may be employed in connection with the lines *L'* *L''*.

The discharge device is shown at F, and it consists of a discharge-plate *f'*, connected with the line *L''*, and a plate *f''*, connected by a conductor 2 with the frame of the machine A, and thus through the bearings with the core of the armature. The discharge device here represented consists of plates having teeth *k*, which are placed opposite each other, but do not come into actual contact. It is well known that a high difference of potential will cause a discharge across the air-space intervening between such teeth.

If, now, an abnormal difference of potential should occur between the core of the armature and the armature-coils, instead of causing a disruptive discharge to take place through the insulation of the armature, a silent discharge will take place through the discharge device.

To avoid any possible injury to the machine by the occurrence of an accidental short circuit between the plates of the discharge device themselves, a suitable fusible strip *s* may be interposed between the plate *f''* and the machine. Then if a short circuit should occur between the plates *f'* and *f''* the fusible strip will be burned out by the continuous flowing of the current, and thus prevent the armature from being permanently

short-circuited. A second plate f^3 may be provided as a reserve in case the plate f^2 and the confronting portion of the plate f' should be destroyed. This may be connected with the line 2 by a switch-plug when desired. It is provided with a safety-fuse s.

I claim as my invention—

1. The combination, with an electric generator, of main-line conductors leading therefrom, a discharge-plate connected with one of the main-line conductors, and a discharge-plate electrically connected with the generator.

2. The combination, with the armature of an electric generator and its contact-brushes, of discharge-plates electrically connected with the armature-circuit and a discharge-plate directed toward the same, but insulated therefrom and electrically connected with the body of the armature, substantially as described.

3. The combination, with the armature of an electric generator and its circuit, of a discharge-plate connected with the circuit, a second discharge-plate directed toward but insulated from the same and electrically con-

nected with the body of the armature, and a fusible strip in circuit with one of the plates, substantially as described.

4. The combination, with an electric generator, of a discharge-plate in proximity to the armature-circuit and electrically connected to the frame of the generator.

5. The combination, with the armature of an electric generator and its contact-brushes, of a discharge-plate electrically connected with the armature-circuit, a discharge-plate directed toward the same, but insulated therefrom and electrically connected with the body of the armature, a reserve discharge-plate directed toward a different portion of the first plate, and means for connecting it with the armature.

In testimony whereof I have hereunto subscribed my name this 4th day of March, A. D. 1889.

OLIVER B. SHALLENBERGER.

Witnesses:

CHARLES A. TERRY,
W. D. UPTEGRAFF.