

B. VON UGRIMOFF.
 COOLING DEVICE FOR ELECTRICAL SLIDING CONTACTS.
 APPLICATION FILED JULY 12, 1909.

970,407.

Patented Sept. 13, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

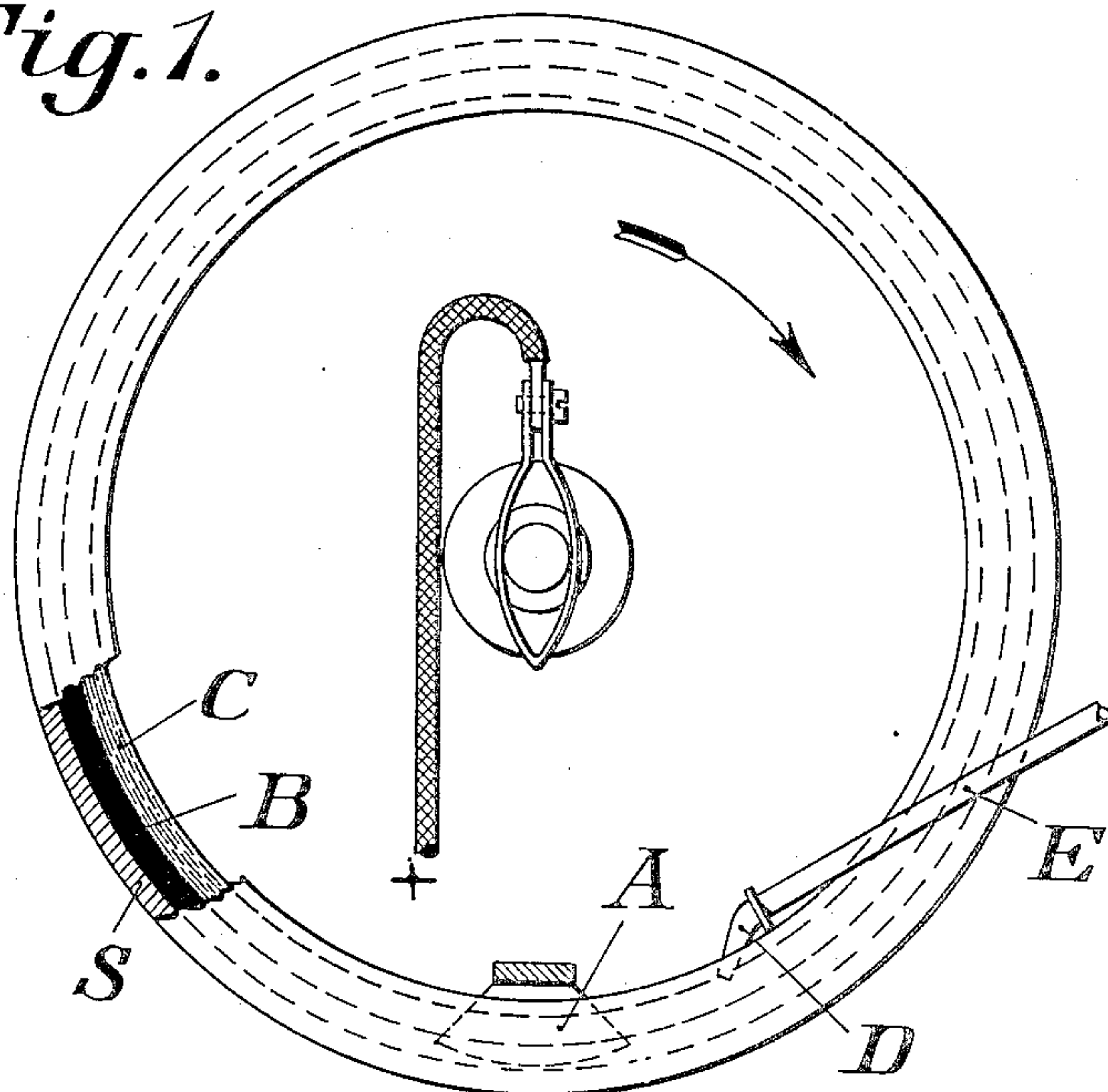


Fig. 2.

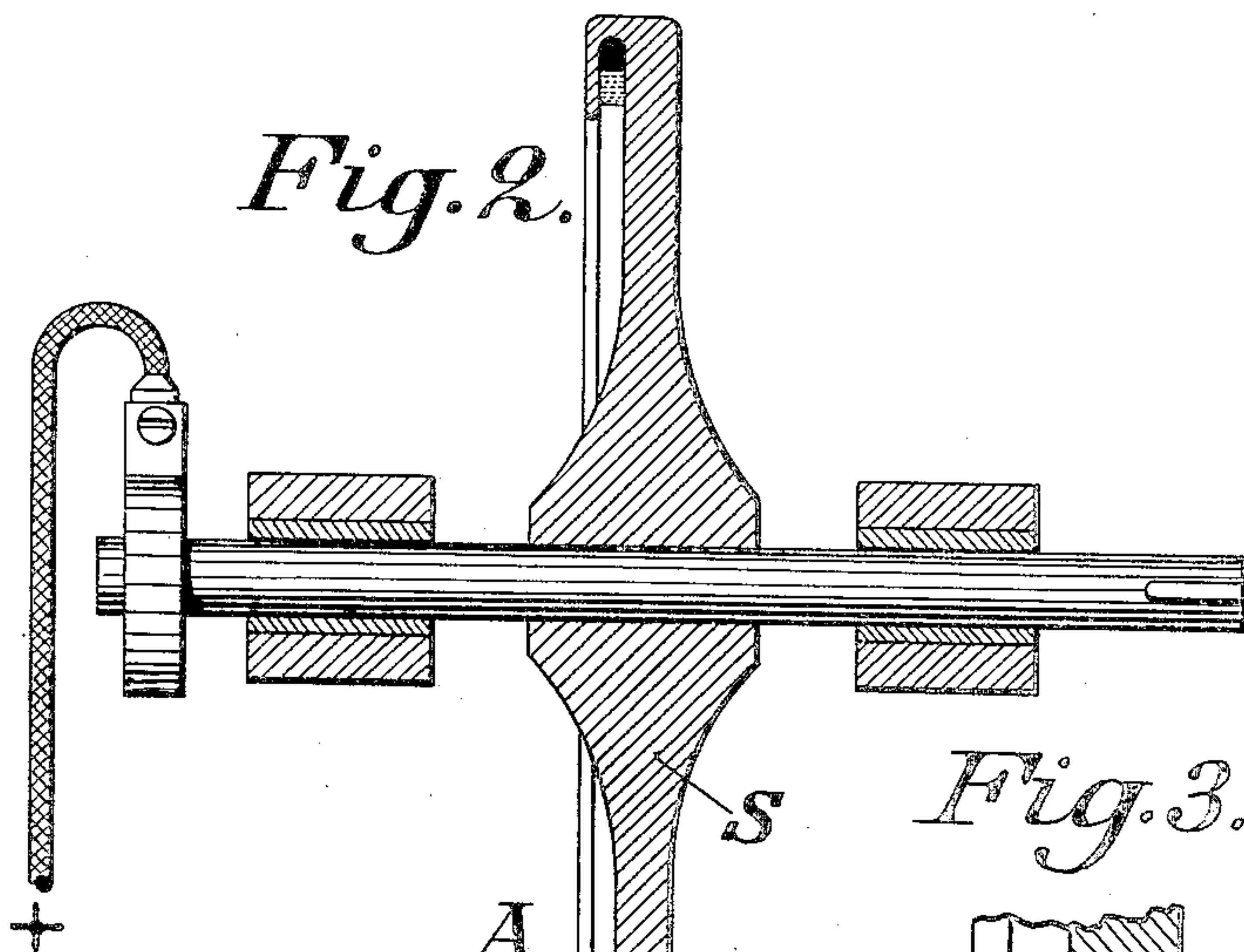
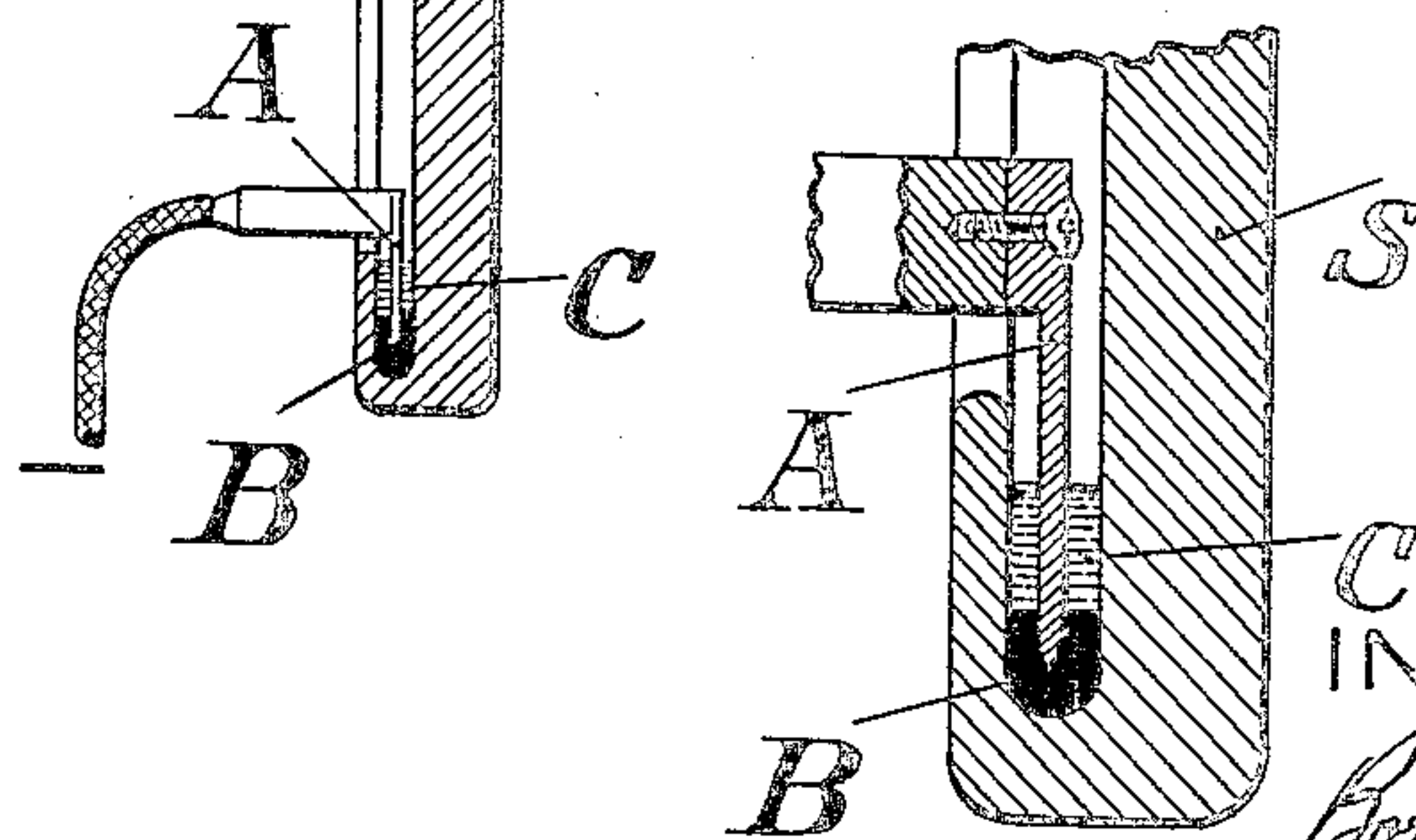


Fig. 3.



WITNESSES

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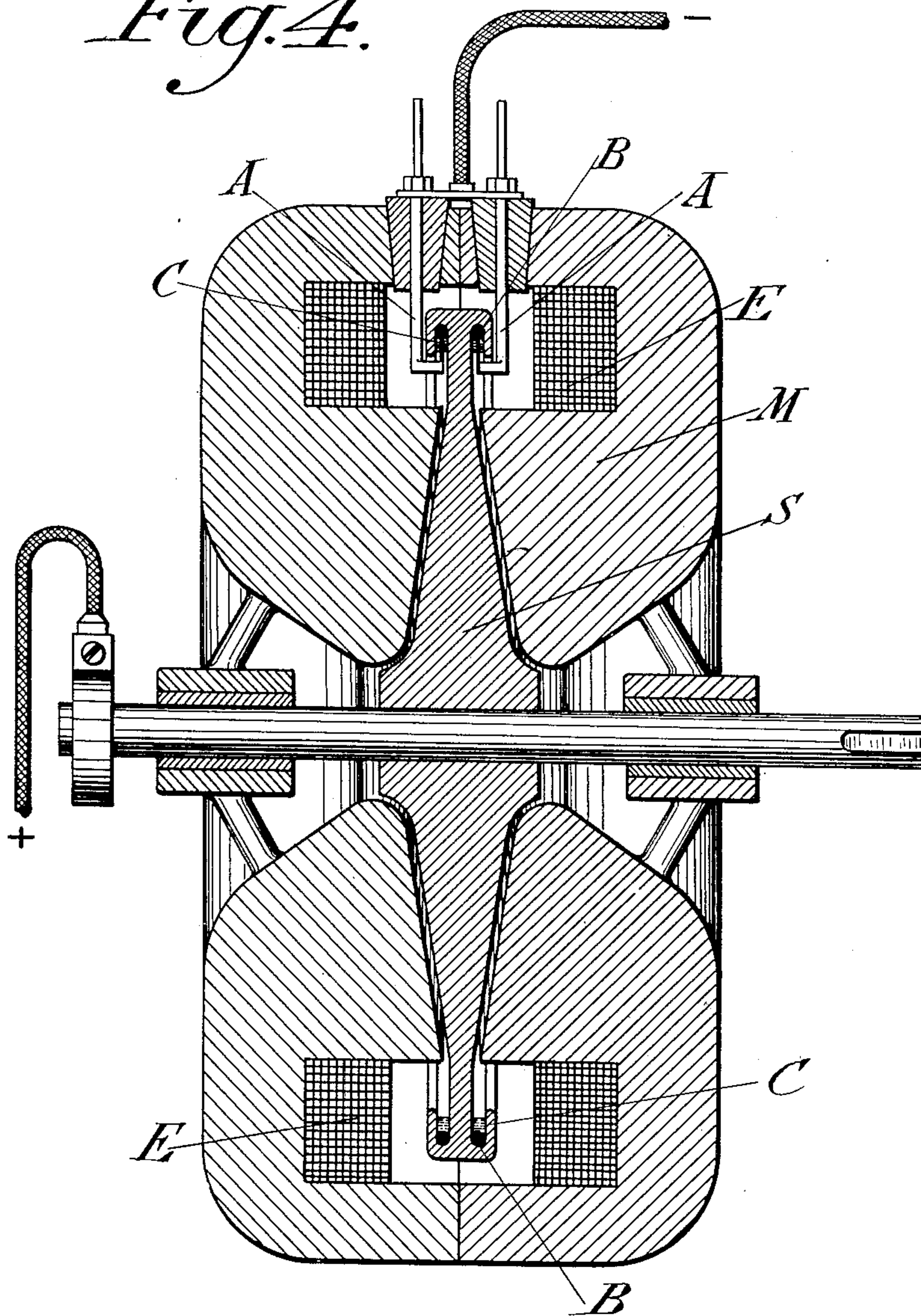
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2 SHEETS—SHEET 2.

Fig. 4.



WITNESSES

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UNITED STATES PATENT OFFICE.

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COOLING DEVICE FOR ELECTRICAL SLIDING CONTACTS.

970,407.

Specification of Letters Patent.

Patented Sept. 13, 1910.

Application filed July 12, 1909. Serial No. 507,187.

To all whom it may concern:

Be it known that I, BORIS VON UGRIMOFF, professor, a subject of the Russian Emperor, residing at 6 Log. Haus Gusskoff, Tschisti Prudi, Moscow, Russia, have invented certain new and useful Improvements in or Relating to a Cooling Device for Electrical Sliding Contacts; and I 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 a device to be used in connection with electrical sliding contacts between liquid conductors in motion and bodies in a state of rest and enables the heat to be diminished which is developed in consequence of friction between the liquid conductor in motion and the conductor in a state of rest.

Figure 1 of the drawing is an end view of a construction according to this invention, partly in section. Fig. 2 is a longitudinal section and Fig. 3 a repetition of part of Fig. 2, on a larger scale. Fig. 4 is a longitudinal vertical section of a unipolar machine with the sliding contact applied thereto.

On the circumference of the rotating disk S a groove is turned, which is open toward the interior. Into the groove is introduced a liquid conductor B (for example, mercury) which owing to the centrifugal force acting upon it, tends to be uniformly distributed therein. In the liquid conductor a blade is immersed, which may be in the form shown, in Figs. 2 and 3. If a second contact is connected to the shaft an electric circuit can be closed from blade A through the liquid conductor B, disk S and the shaft. In cases of very high speeds, if the natural cooling is not sufficient to prevent the evapo-

ration of the liquid conductor which may result from the friction between the blade A and the liquid conductor B, another liquid C may be introduced so as to cover the liquid connector B, the boiling temperature of which is lower than that of the liquid conductor. This liquid, which must be lighter than the liquid conductor B, is also kept in position by the centrifugal force, and is continually renewed through a suitable nozzle D and the tube E. The arrangement described, therefore, renders it possible to produce a permanent sliding contact between the liquid conductor B in motion and the stationary blade A, at very high speeds, for example, 3—400 m/sec, also, during the motion, to replace the liquid conductor and the cooling liquid, which evaporates or is sprayed. The arrangement in question is particularly suitable for unipolar machines, as shown in Fig. 4. In this case the steel disk S moves at a very high circumferential speed between the surfaces of two disk-shaped poles M having coils E.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

An electrical sliding contact comprising an inwardly-opening, revolving annular container, a revolving liquid conductor therein, a stationary conductor immersed in said liquid, and a nozzle adapted to continuously spray a second liquid into said container and upon said liquid conductor.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

BORIS VON UGRIMOFF.

Witnesses:

P. SONOLOPP,
N. RORNEFF.