

No. 622,657.

Patented Apr. 11, 1899.

H. E. ANDERSSON.
CIRCUIT BREAKER.

(Application filed Feb. 14, 1899.)

(No Model.)

Fig. 1.

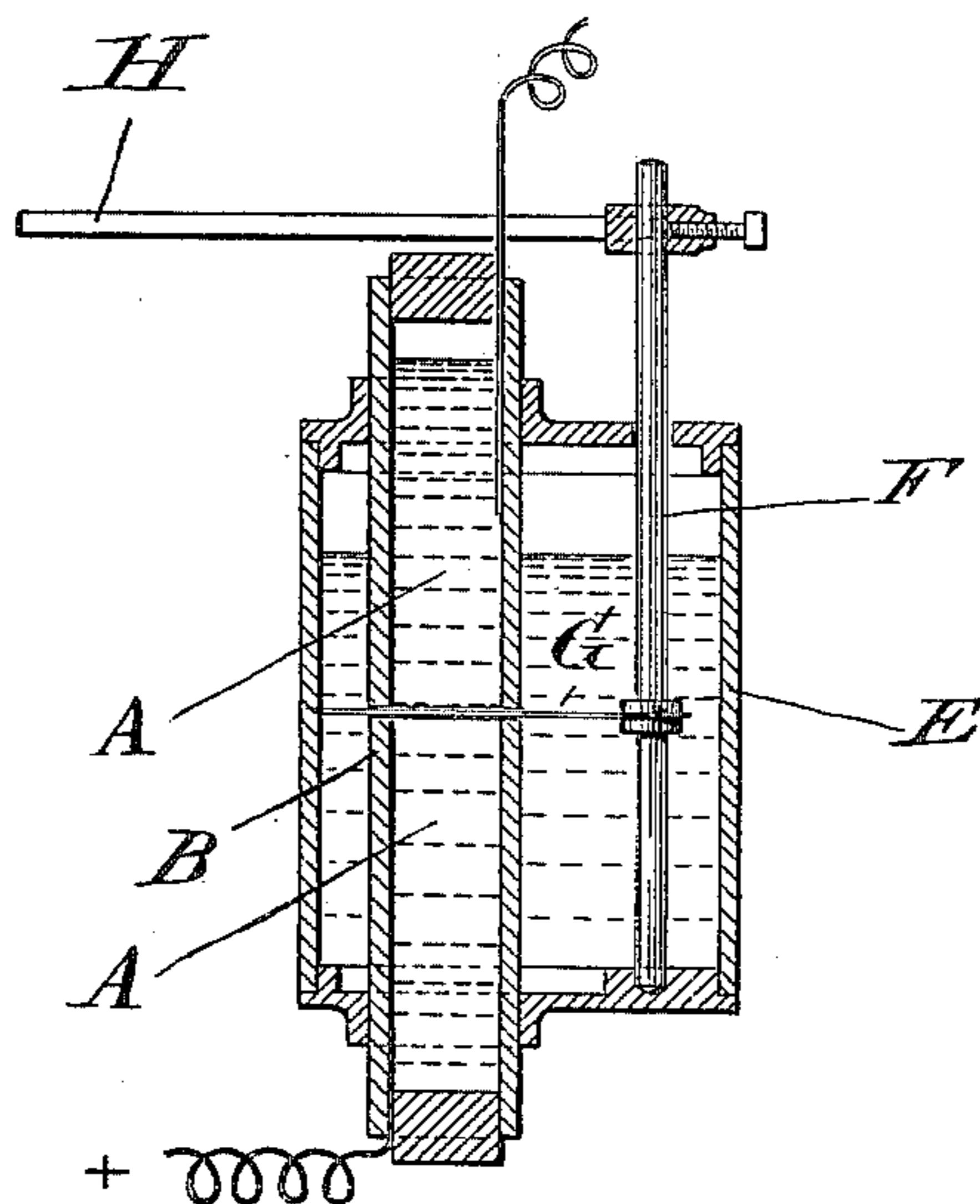
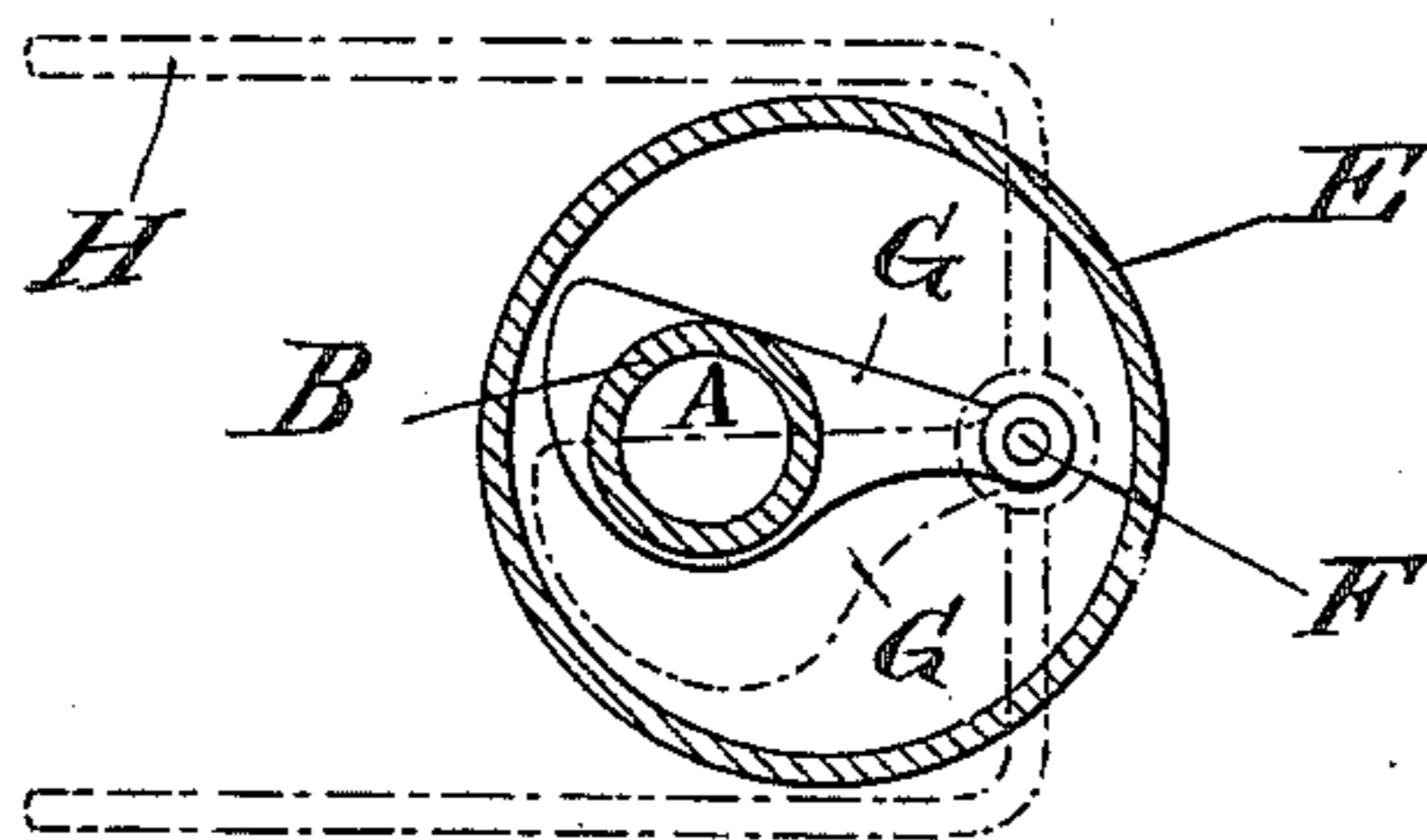


Fig. 2.



Witnesses
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HJALMAR EMANUEL ANDERSSON, OF STOCKHOLM, SWEDEN.

CIRCUIT-BREAKER.

SPECIFICATION forming part of Letters Patent No. 622,657, dated April 11, 1899.

Application filed February 14, 1899. Serial No. 705,467. (No model.)

To all whom it may concern:

Be it known that I, HJALMAR EMANUEL ANDERSSON, clock and watch maker, of Stockholm, Sweden, have invented certain new and useful Improvements in Circuit-Breakers; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The different hitherto-used electrical circuit-breakers have all the inconvenience that the contacts, usually so-called "friction-contacts," on account of the sparking produced by the interruption of the electrical connection, after any time are so destroyed that the circuit cannot pass the layer of oxid formed on the contact-surfaces.

By this invention the above inconvenience is entirely remedied, so that the circuit-breaker can work during an indefinite period of time without reducing its conducting power. The part of the cut-off which acts as an electric conductor is a column of mercury, which is divided by a non-conductor—say a small plate of mica, if it be desired to interrupt the circuit. The characteristic features of these cut-off devices reside in the fact that the column of mercury is formed with a large sectional area at the point of contact and that both ends—viz., the mercury and the mica—are surrounded by an oily liquid whereby an absolutely effective interruption of current is provided for, for in the circuit-breaking arrangements of this class hitherto known this drawback is noticeable that the mercury escapes through the slit or seam of the tube surrounding it, so that the column of mercury gradually shrinks. Also the mercury is apt to burn into and through the lamina of mica, which of course interferes with the proper interruption of the circuit. These defects are entirely remedied by the lubricating fluid, and owing to the large sectional area of the mercury column the further advantage is secured that the contact-surface at all times remains perfectly clean, inasmuch as the impurities produced by oxidation are displaced in the outward direction.

Figures 1 and 2 of the accompanying drawings show this circuit-breaker, being respectively a vertical section and a horizontal section thereof.

In the tube B is confined a column of mercury A, the conducting-wires entering the mercury at the two closed ends of such tube. In an outer cylinder E, tightly inclosing the tube A, a spindle or arbor F is revolvably mounted, said spindle having a plate G of insulating material, preferably mica, secured thereon. The said tube B is cut through on the level of the plate G, and the groove formed by such cut being just wide enough for the plate G to be moved backward and forward through it with perfect ease whenever the spindle or arbor is turned. When the plate has moved into the position shown in full lines in Fig. 2, it has thereby completely severed the column of mercury, and consequently interrupted the electrical connection, whereas when the said plate is turned back to the position indicated in the same figure in dotted lines the connection is restored, the two bodies of mercury which had been separated being thereby allowed to unite into one unbroken body again.

In the cylinder E is contained the lubricating liquid, by which the mercury is prevented from adhering to the mica plate.

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—

1. A circuit-breaker comprising two superposed tubes containing mercury, and an insulator consisting of a plate of insulating material movable between said tubes to divide said body of mercury, in combination with a vessel containing an oleaginous liquid in which the proximate ends of the two tubes and the cut-off plate are immersed, and means for connecting the mercury at opposite sides of the cut-off plate respectively with opposite poles of an electric circuit, for the purpose set forth.

2. A circuit-breaker comprising the fluid-tight casing E containing an oleaginous liquid, the two contiguous tubes A containing a body of mercury, said tubes projecting from opposite points of said casing, the insulating cut-off plate G having motion between the

proximate ends of said tubes, the spindle F
revoluble in the aforesaid casing to which the
cut-off plate is secured, and means for con-
necting the mercury in the tubes A on oppo-
5 site sides of said cut-off plate respectively
with opposite poles of an electric circuit, sub-
stantially as and for the purposes set forth.

In testimony that I claim the foregoing as
my invention I have signed my name in pres-
ence of two subscribing witnesses.

HJALMAR EMANUEL ANDERSSON.

Witnesses:

TH. WAWRINSKY,
M. GENBERG.