

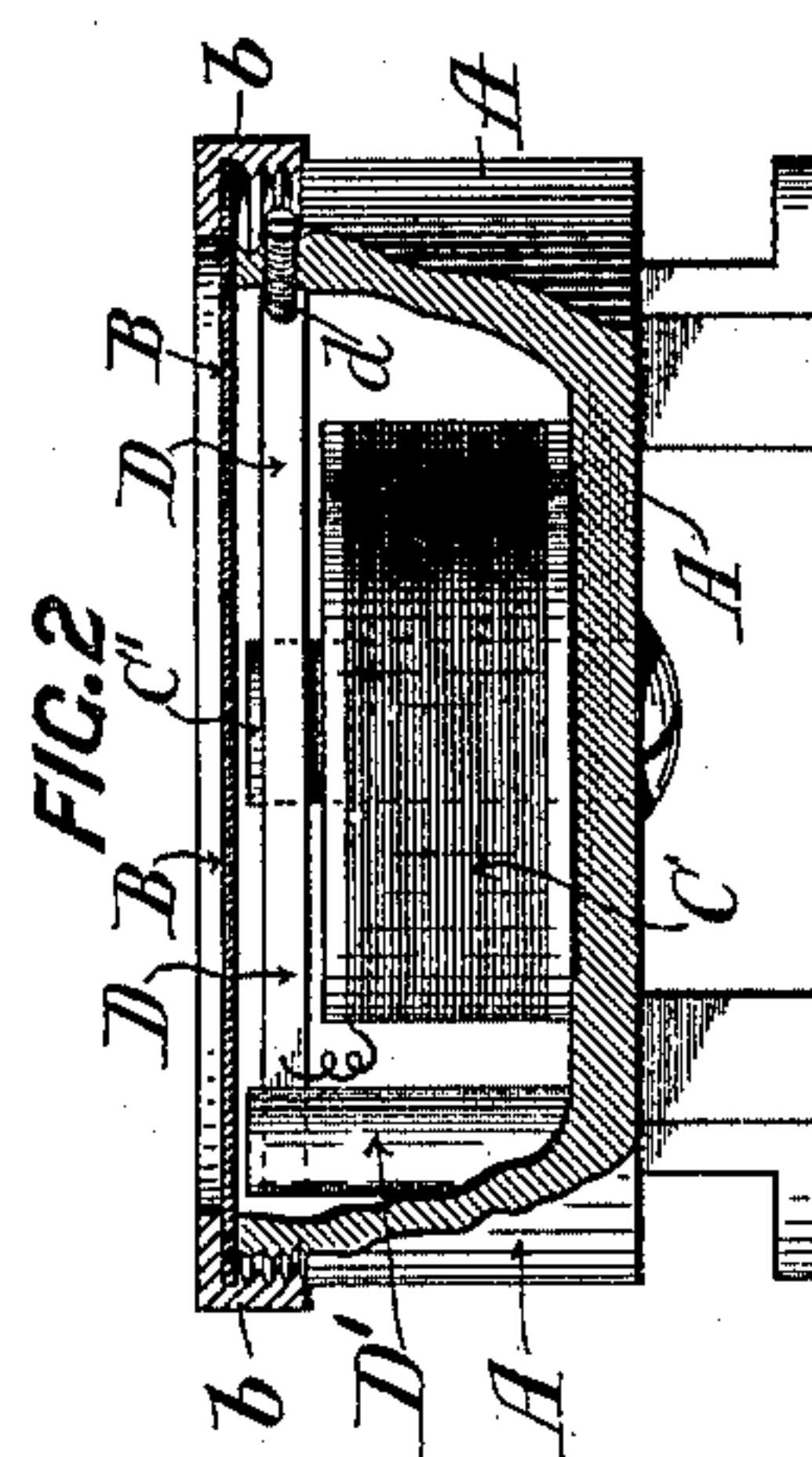
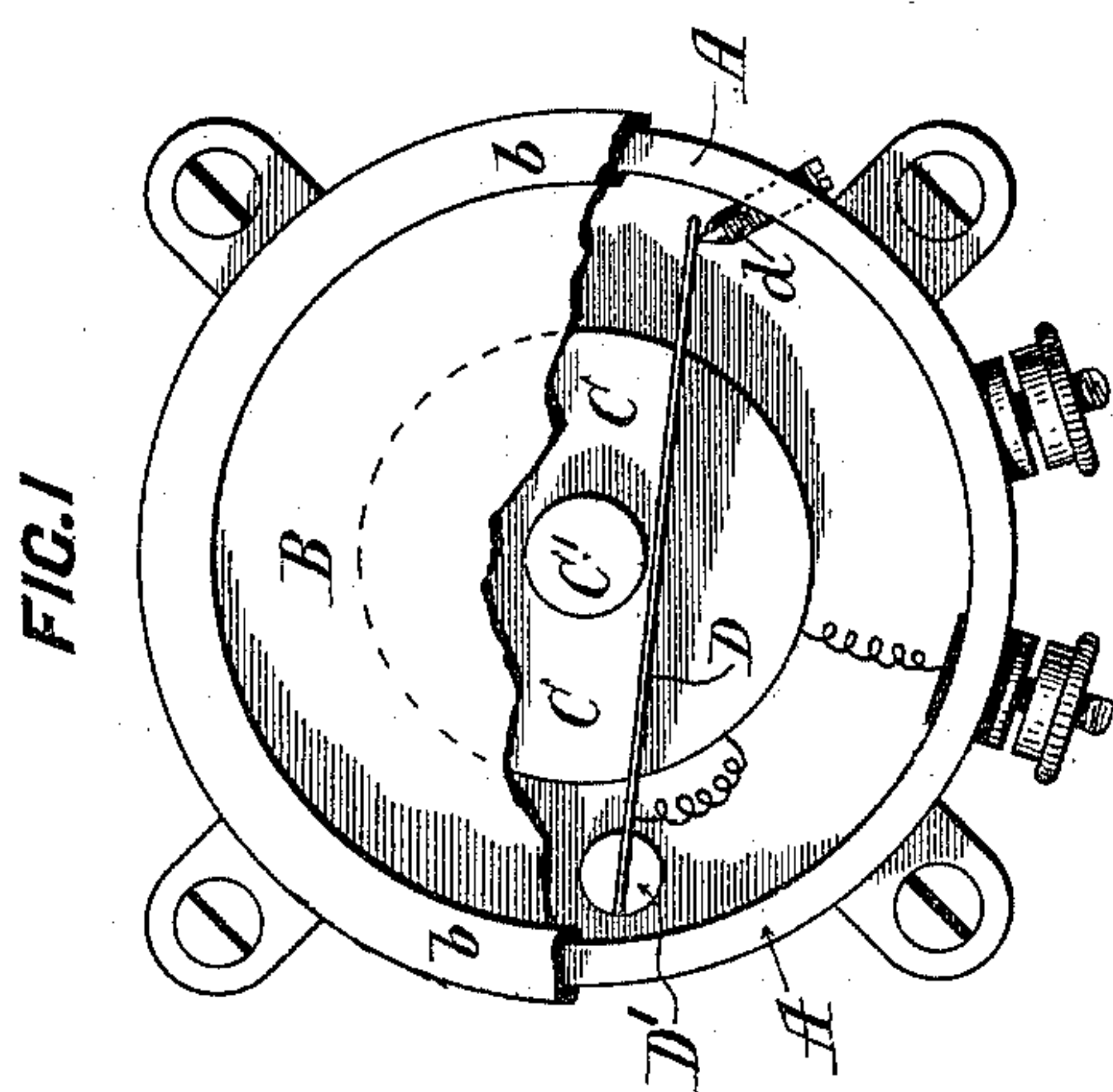
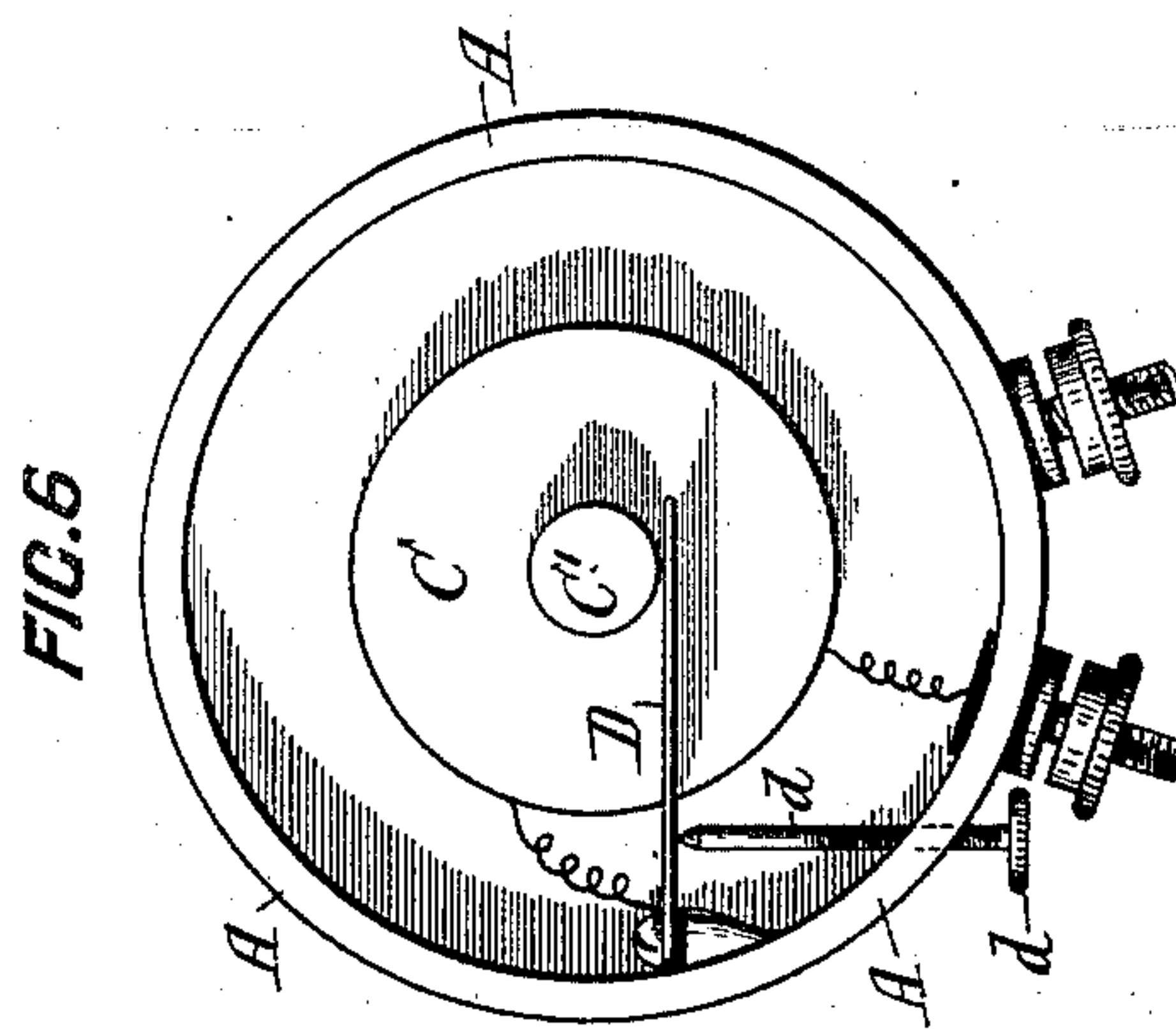
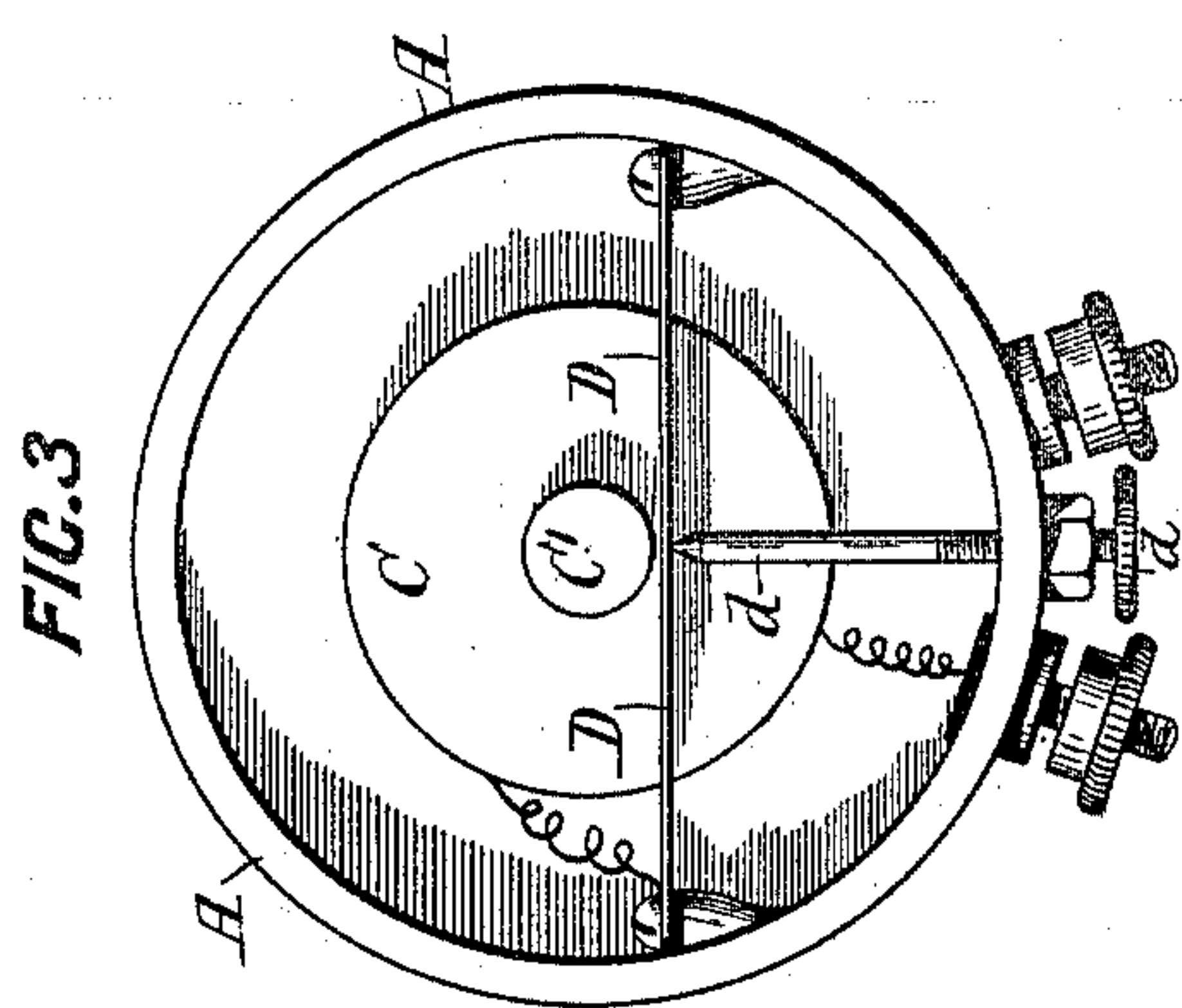
(No Model.)

2 Sheets—Sheet 1

P. RABBIDGE.
ELECTROMAGNETIC ALARM.

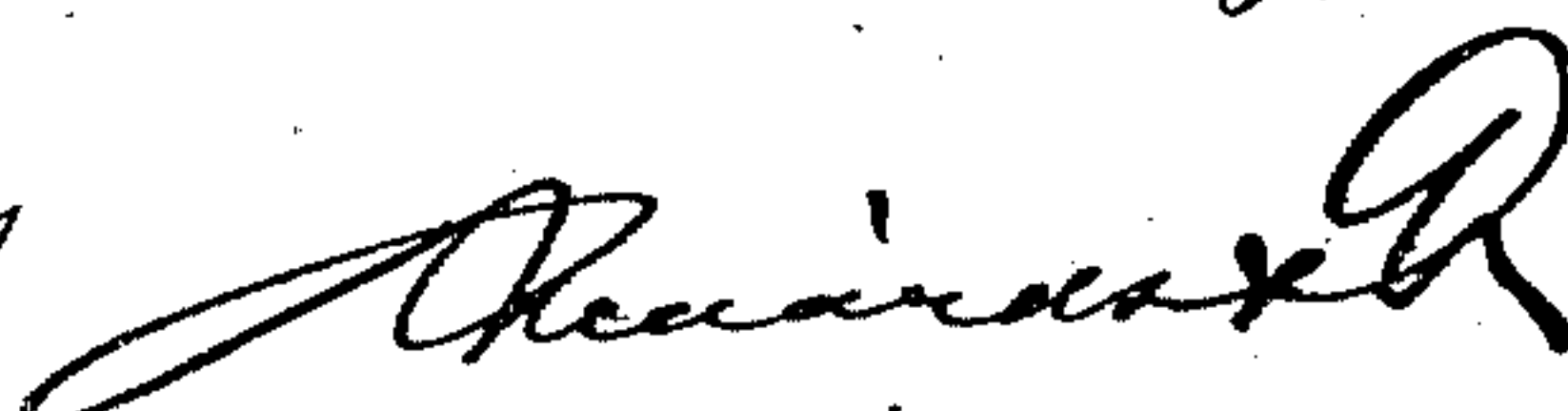
No. 509,680.

Patented Nov. 28, 1893.



Witnesses:
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Eddie Kolypov.

Inventor:
Parnell Rabbidge,

by 
attorneys.

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FIG. 4

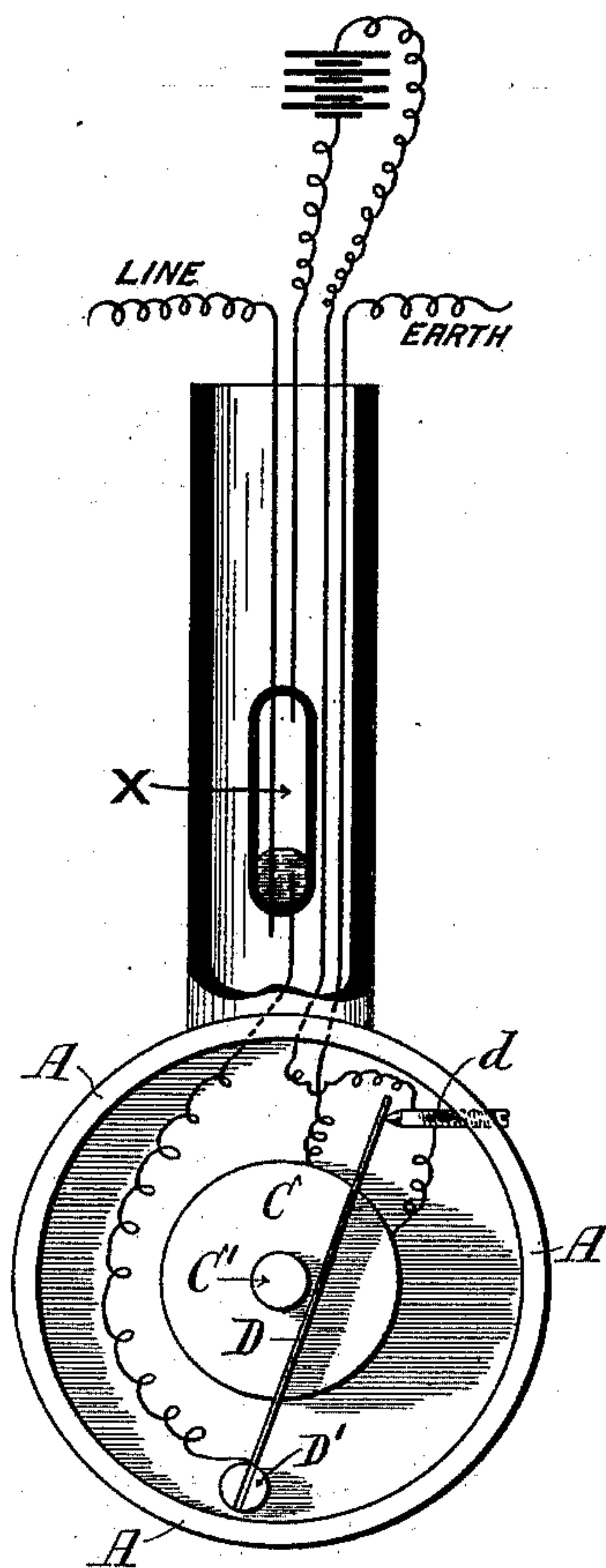
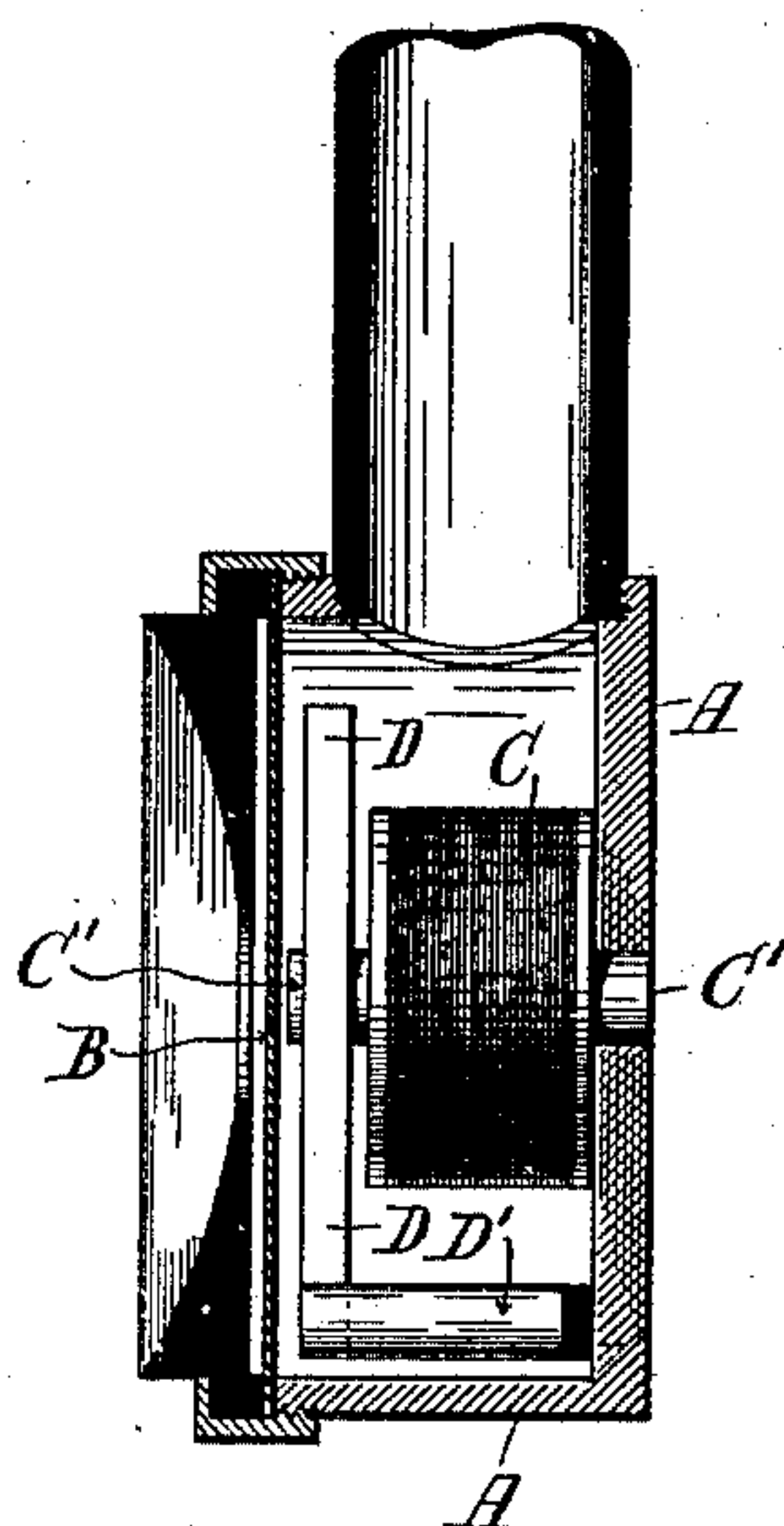


FIG. 5



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By *[Signature]*
Attorneys.

UNITED STATES PATENT OFFICE.

PARNELL RABBIDGE, OF SYDNEY, NEW SOUTH WALES.

ELECTRO-MAGNETIC ALARM.

SPECIFICATION forming part of Letters Patent No. 509,680, dated November 28, 1893.

Application filed February 28, 1893. Serial No. 464,086. (No model.) Patented in New South Wales March 19, 1892, No. 3,666; in New Zealand April 7, 1892, No. 5,504, and in Victoria April 12, 1892, No. 9,571.

To all whom it may concern:

Be it known that I, PARNELL RABBIDGE, a subject of the Queen of Great Britain and Ireland, and a resident of Sydney, in the Colony of New South Wales, have invented certain Improvements in Electro-Magnetic Alarms or Calls, (for which I have obtained a New South Wales patent, No. 3,666, dated March 19, 1892; a New Zealand patent, No. 5,504, dated April 7, 1892, and a Victorian patent, No. 9,571, dated April 12, 1892,) of which the following is a specification.

This invention deals with that class of electro-magnetic alarms or calls, that are commonly known as electric trumpets, wherein a diaphragm is caused to rapidly vibrate, by means of an electro magnet that is provided with means, such as a contact breaker, whereby the current may be rapidly interrupted.

It is usual in electric trumpets to make the diaphragm itself a contact breaker, but this invention consists essentially in providing an independent contact breaker, so as to leave the diaphragm perfectly free. To this end, the pole of the electro magnet is elongated, so as to leave room between the diaphragm and the coil of the magnet for a metallic tongue or spring armature to vibrate transversely beneath the diaphragm. This metallic tongue or spring armature constitutes the contact breaker or current interrupter. The circuit is closed through a contact point against which the spring armature impinges or abuts in the usual manner.

This invention has been specially designed for use with telephones, whereby the receiver is adapted to act both as a receiver and as a call or alarm.

In the accompanying drawings:—Figure 1 is a plan view of one form of an improved electro-magnetic alarm, designed as a substitute for an electric bell. In this figure part of the diaphragm is broken away to exhibit the interior. Fig. 2 is a vertical section of the same. Fig. 3 is a modified form of spring armature or contact breaker. Fig. 4 shows the adaptation of my invention to a telephone receiver, whereby the diaphragm of the receiver is caused to act as the call or alarm. Fig. 5 is a vertical section of the same. Fig. 6 shows a modified form and arrangement of

the contact breaker or spring armature D as it is illustrated in the drawings at Figs. 1, 3 and 4.

A, is the circular box, that is preferably constructed of iron. A diaphragm B is secured on the top edge of the box A, by means of the screw cap *b*, or in any other suitable manner, and forms metallic contact with the box. The box A, contains an electro magnet C C', the core of which C', is secured to the bottom and forms metallic contact with the box. By this arrangement the diaphragm B, constitutes a pole as well as an armature, thus securing increased efficiency. The core C', projects from the bottom of the solenoid C thus leaving a space between the bottom C, and the diaphragm B, sufficient to allow of the free reception of a transverse spring armature or contact breaker D.

In Figs. 1, 2, 4 and 5, one end of the spring armature D is carried by an insulated pillar D', while the other end abuts or impinges against a contact point *d*. When a current passes through the solenoid C, the spring armature D, is attracted toward the periphery of the core C', and circuit is consequently broken at the contact point *d*, thus producing a rapid vibration of the armature D, and corresponding vibrations of the diaphragm B.

In Fig. 3 the spring armature D, is secured at each end to, and insulated from, the box A the contact point *d*, touching the armature at about its center, the same result being obtained. It is not necessary that the box A, should be of iron. Any other suitable material may be employed, such as wood, brass, &c. The shape also may be altered so as to obtain the greater effect of resonance. A horse shoe electro magnet may also be employed with advantage instead of the single bar core C. Figs. 4 and 5 show a telephone receiver constructed on the same lines as in Fig. 1.

The necessary circuits are switched in and out by means of a gravity switch X, that closes the different circuits (receiver and alarm) according to the position in which it is held or retained. In the drawings, the alarm circuit is closed. Any other suitable means to effect the switching in of the different circuits may be adopted.

Having now particularly described and as-

certained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

5 In combination, a casing A, a diaphragm, a solenoid C, a core C' having its end projecting beyond the solenoid, a laterally movable spring armature located between the diaphragm and solenoid and adapted to contact

with said core and a second contact point, substantially as described. 10

In witness whereof I have hereunto set my hand in presence of two witnesses.

PARNELL RABBIDGE.

Witnesses:

J. S. WHITELOCKE,

P. FAREBROTHER.