

No. 629,645.

Patented July 25, 1899.

J. S. BAYNARD.
TELEGRAPH SOUNDER.

(Application filed Apr. 22, 1898.)

(No Model.)

Fig. 1.

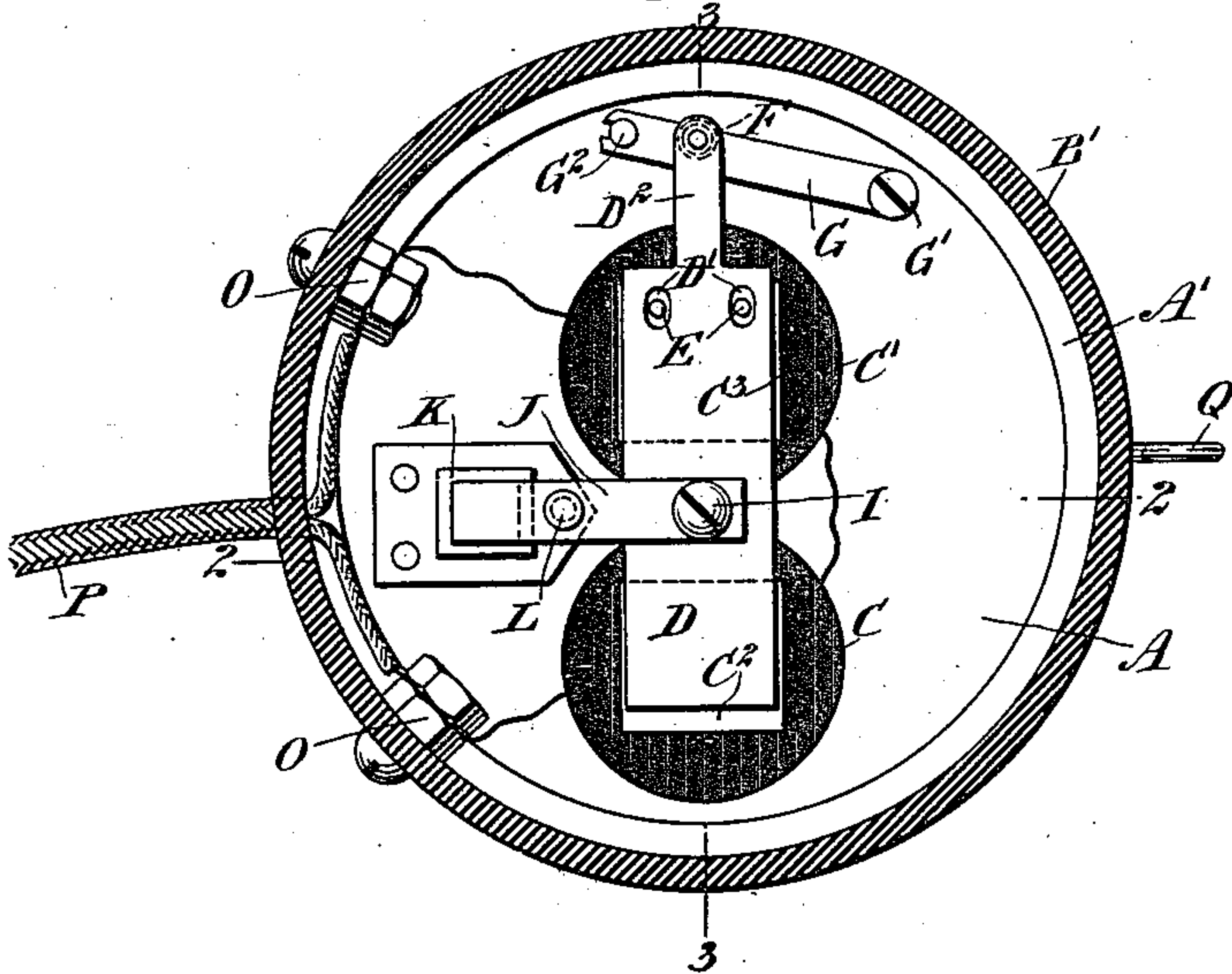


Fig. 2.

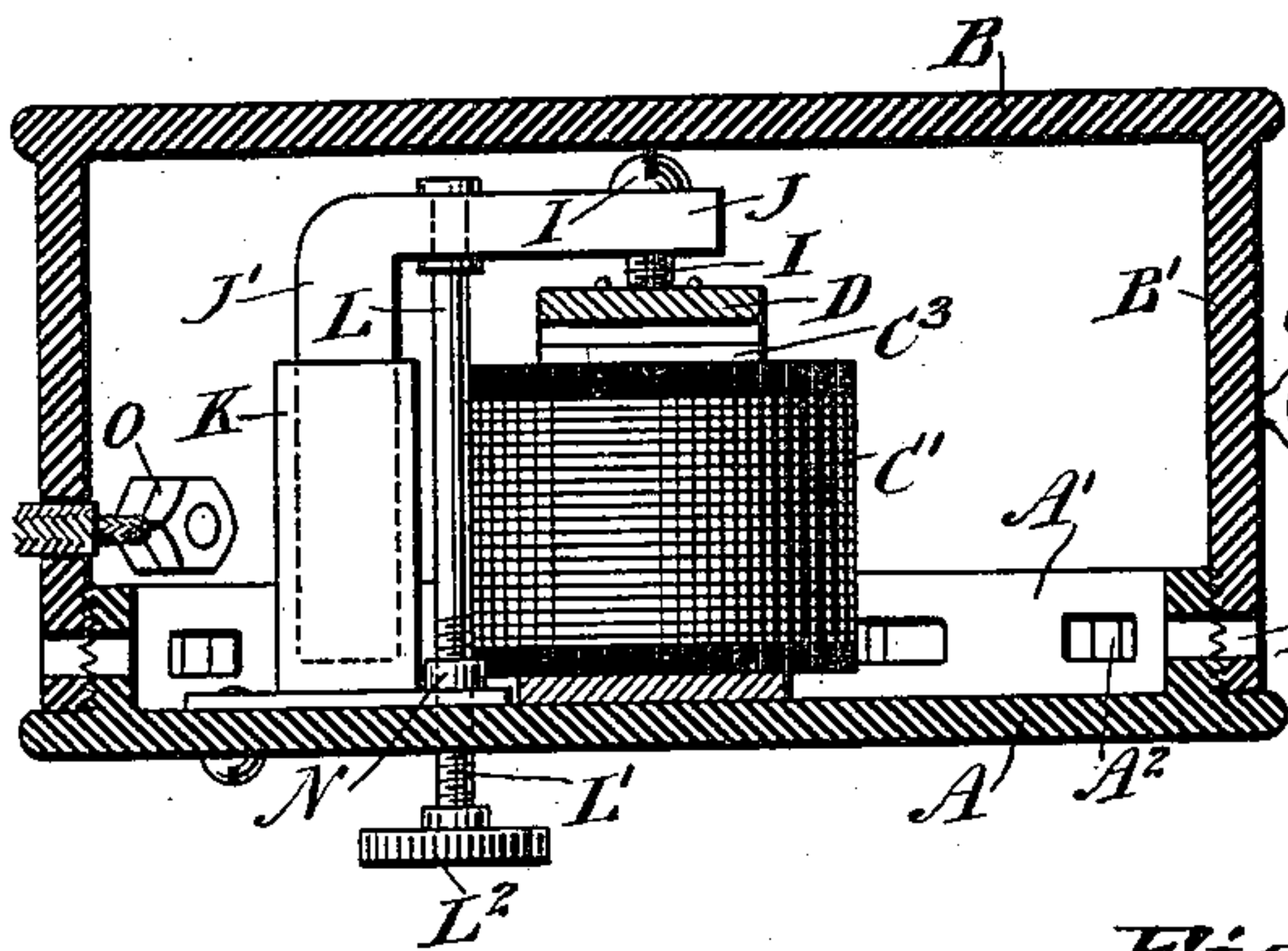


Fig. 3.

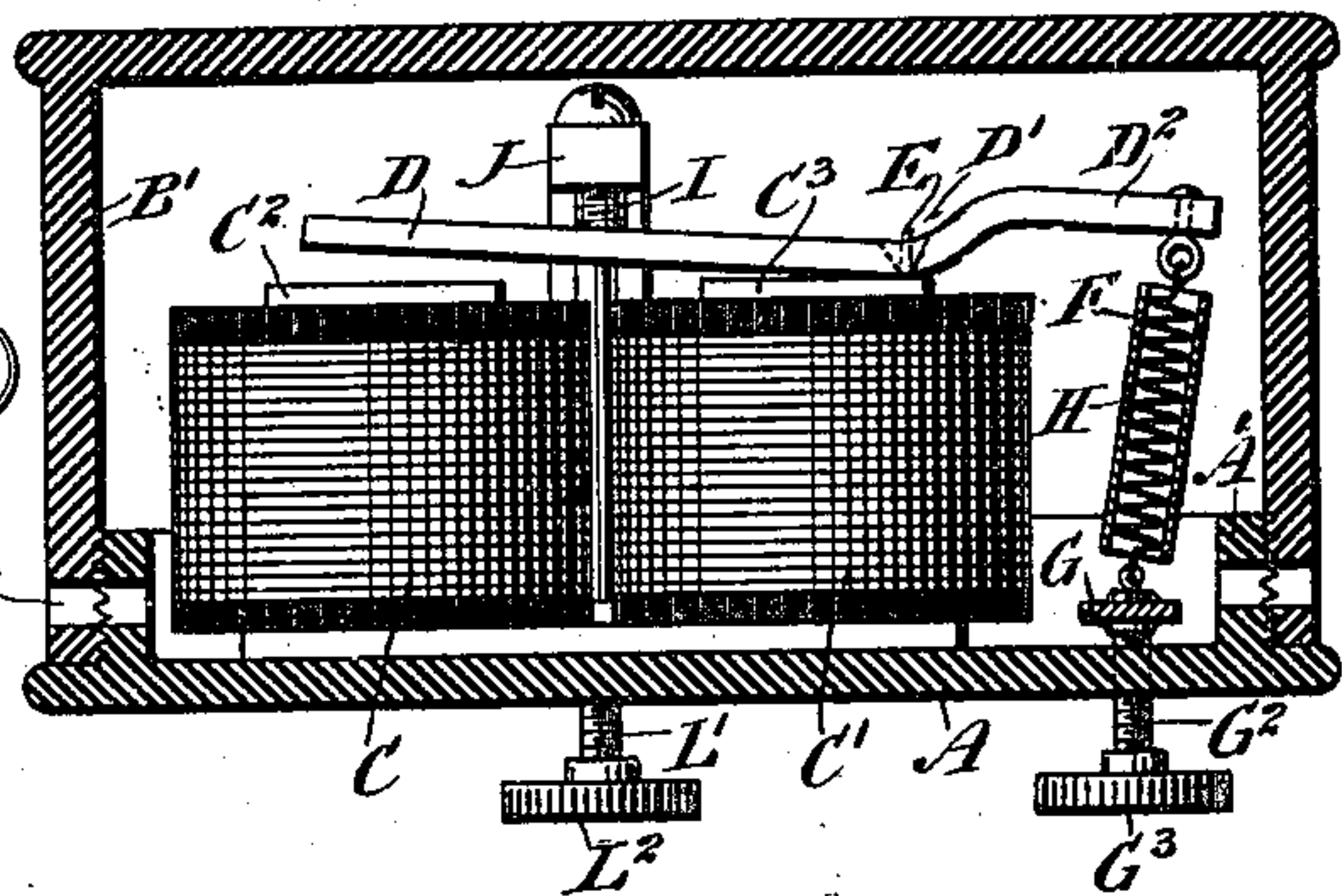
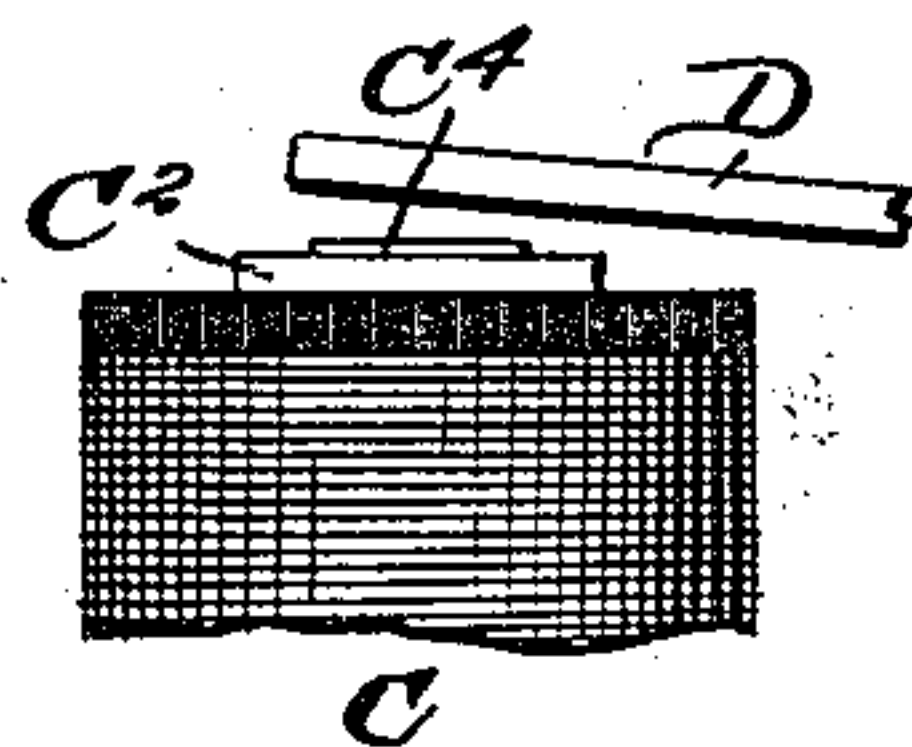


Fig. 4.



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TELEGRAPH-SOUNDER.

SPECIFICATION forming part of Letters Patent No. 629,645, dated July 25, 1899.

Application filed April 22, 1898. Serial No. 678,449. (No model.)

To all whom it may concern:

Be it known that I, JAMES SWINTON BAYNARD, of the city of New York, borough of Manhattan, in the county and State of New York, have invented certain new and useful Improvements in Telegraph-Sounders, of which the following is a full, clear, and exact description.

The invention relates to telegraph-sounders such as shown and described in the Letters Patent of the United States No. 357,789, granted to R. C. Rutherford on February 15, 1887.

The object of the invention is to provide certain new and useful improvements in telegraph-sounders, whereby the messages are received very distinctly by the operator and without confusion of elementary motions, at the same time permitting such minute adjustment that the sounds produced are not in the least harsh or disagreeable to the ear, as is so frequently the case in sounders as heretofore constructed.

The invention consists of novel features and parts and combinations of the same, as will be described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional plan view of the improvement. Fig. 2 is a sectional side elevation of the same on the line 2 2 of Fig. 1. Fig. 3 is a transverse section of the same on the line 3 3 of Fig. 1, and Fig. 4 is a detail view illustrating a modification in the construction of the cores of the electromagnet.

The improved telegraph-sounder is provided with a casing, preferably made of hard rubber or like material and formed of two sections A and B, of which the bottom section A is provided with an annular flange A', formed with an external thread engaged by an internal thread on the side B' of the other section or cover B. In the flange A' are formed openings A², adapted to register with corresponding openings B² in the side B' of the cover B to emit the sounds to a greater or lesser degree, according to the position of

the side B' on the flange A'—that is, by screwing the cover B more or less on the flange A' the sound-emitting openings A² and B² may be brought more or less in register with each other for the purpose mentioned.

In the bottom of the section A is mounted an electromagnet C C', having square cores C² C³, over which operates an armature-lever D, fulcrumed on pins E, projecting from the core C³ into apertures D', formed in the armature-lever D. Now by reference to Figs. 1 and 3 it will be seen that the fulcrum-forming pins E are located near the outer edge of the core C³, so that the armature-lever is at all times in contact with this core near the outer edge thereof and is free to swing downward in contact with the surfaces of both cores C² C³ when attracted by the electromagnet in the usual manner.

The armature-lever D is provided with an extension D², on which is secured one end of a spring F, secured at its other end on an arm G, secured at one end at G' to the bottom section A, the other end of said arm being engaged by a screw G², screwing in the section A and extending to the outside thereof to be within convenient reach of the operator. When the operator turns the head G³ of the screw G², the arm G is moved inward or outward to decrease or increase the tension of the spring F, as desired.

In order to deaden all noise incident to the action of the spring F when the armature-lever D is attracted or released, I prefer to cover the said spring with a casing H, of cotton or other suitable sound-deadening material. The upward-swinging motion of the armature-lever D when released by the electromagnet is limited by a screw I, of brass or other material different from the soft-metal cores C² C³. The screw I is secured in an arm J, having an angular extension J', fitted to slide in a bearing K, secured to the section A. A rod L is mounted to turn loosely in the arm J and is provided with a screw-thread L', screwing in a nut N, carried, preferably, on the bearing K, the threaded portion of the rod L extending to the outside of the casing, there being a knob L² on the extreme outer end of the rod. Now it is evident that when the

operator turns the knob I² the screw-rod I moves the arm J outward or inward from or toward the armature-lever D to regulate the throw of the armature-lever D accordingly.

5 The arm J may be moved outward to such an extent that the head of the screw I abuts against the inside of the cover B, so that the force of the blow of the armature-lever D on the screw I is transmitted to the cover B, 10 and as this is the widest range of the armature-lever the sound produced is very loud and is mainly desired when the device is hung up for receiving calls or signals.

The casing is provided with the usual binding-posts O, connected with the coils of the 15 electromagnet and having a receiving-cable P of usual form.

The operation is as follows: When the sounder is hung up, then the arm J is in its 20 outermost position, the head of the screw being in engagement with the cover B, so that when a signal or call is sent through the instrument a very loud sound is produced, owing to the full force of the blow of the armature-lever being exerted on the core C² and 25 the screw I. The operator now turns the rod L, so as to move the arm J inwardly and reduce the movement of the armature-lever D to a minimum for receiving secret messages, the sounds being very distinct and clear, especially as the sound emitted by the lever D 30 striking the cores C² C³ is different from that when the lever D strikes the screw I on its return release movement. Thus by the arrangement described confusion of elementary motions is completely avoided, and the 35 sounds are not in the least harsh or disagreeable to the ear.

The entire device is very simple and durable 40 in construction and is not liable to get out of order.

In order to increase the difference in sound on the attraction and release of the armature-lever D, I may provide the cores C² and C³ 45 with hard-wood plugs C⁴, extending a hair's breadth above the surface of the soft-iron cores. Fig. 4 shows one of the cores having this modified construction.

The arm J, bearing K, screw I, and rod L 50 form an adjustable back-stop for the armature-lever to regulate the loudness of the sounds on the armature-lever striking the cores on the attraction of the lever and the screw I on the release of the armature-lever.

55 Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A telegraph-sounder of the class described, provided with an electromagnet, a 60 spring-pressed armature-lever for the same, an adjustable back-stop for said armature-lever, and of a different material than the electromagnet-cores, for producing distinguishing sounds upon the attraction and release of the 65 armature-lever, the loudness of the sound being governed by the position of the adjustable

back-stop, and a resonant casing containing said electromagnet, armature-lever and back-stop, the adjustment of the latter permitting 70 of contacting the back-stop with the casing at the point farthest from the armature-lever, to transmit the sound given by the armature-lever to the back-stop to the casing, for producing sound calls or signals, substantially as shown and described.

2. A telegraph-sounder of the class described, provided with an electromagnet, an armature-lever for the same, a back-stop for the armature-lever, a spring for the armature-lever, and a casing of a sound-deadening material and inclosing said spring, substantially 80 as shown and described.

3. A telegraph-sounder, provided with a casing made in two sections screwing one on the other, and having openings in the threaded 85 parts and adapted to register with each other, substantially as shown and described.

4. A telegraph-sounder of the class described provided with an electromagnet, and a spring-pressed armature-lever for the same 90 and fulcrumed on one of the cores of the electromagnet and adapted when attracted to sound on the other core, the cores of the said magnet being provided with plugs of a hard material and extending slightly above the surface 95 of the soft-iron cores, substantially as described.

5. A telegraph-sounder of the class described provided with an electromagnet, a spring-pressed armature-lever for the same 100 fulcrumed on one of the cores of the electromagnet and adapted when attracted to sound on the other core, an adjustable back-stop for the armature-lever and a resonant casing containing said electromagnet, armature-lever 105 and back-stop, the said back-stop being adapted to be adjusted to permit of contacting the same with the casing, substantially as described.

6. A telegraph-sounder provided with a casing 110 formed in two sections, the bottom section being formed with an annular flange to which the upper section or cover is adjustably secured, the flange of the lower section and the side of the upper section being formed with 115 openings adapted to be brought more or less into register with each other, substantially as described.

7. A telegraph-sounder of the class described provided with an electromagnet, an 120 armature-lever for the same, a back-stop for said armature-lever, and a resonant casing containing said electromagnet, armature-lever and back-stop, the said back-stop being adapted to be adjusted to move the same into 125 contact with the inside of the resonant casing, as and for the purpose set forth.

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Witnesses:

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