

(No Model.)

E. A. SCHOETTEL.

ELECTRIC CALL BELL.

No. 248,113.

Patented Oct. 11, 1881.

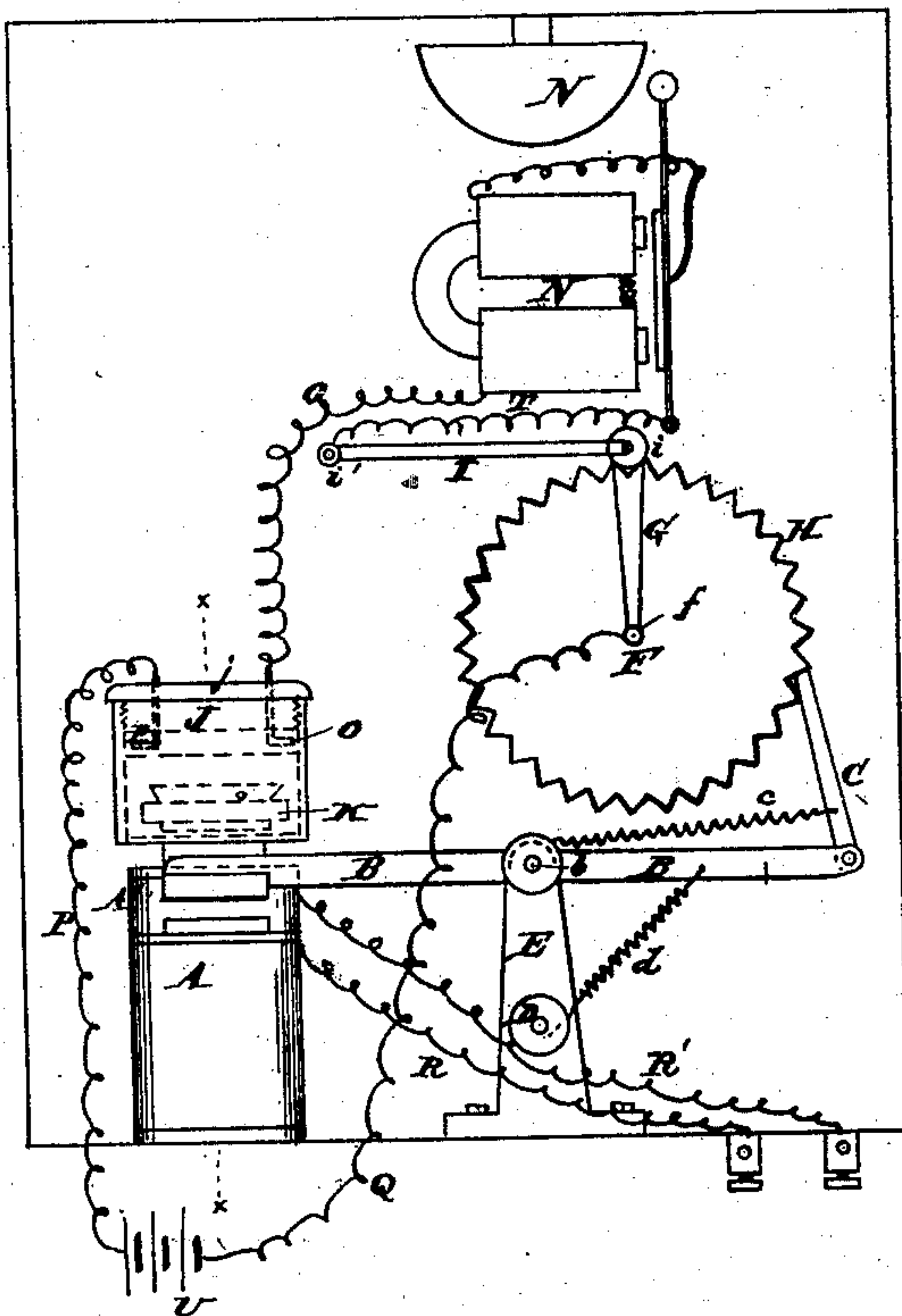


Fig. 1

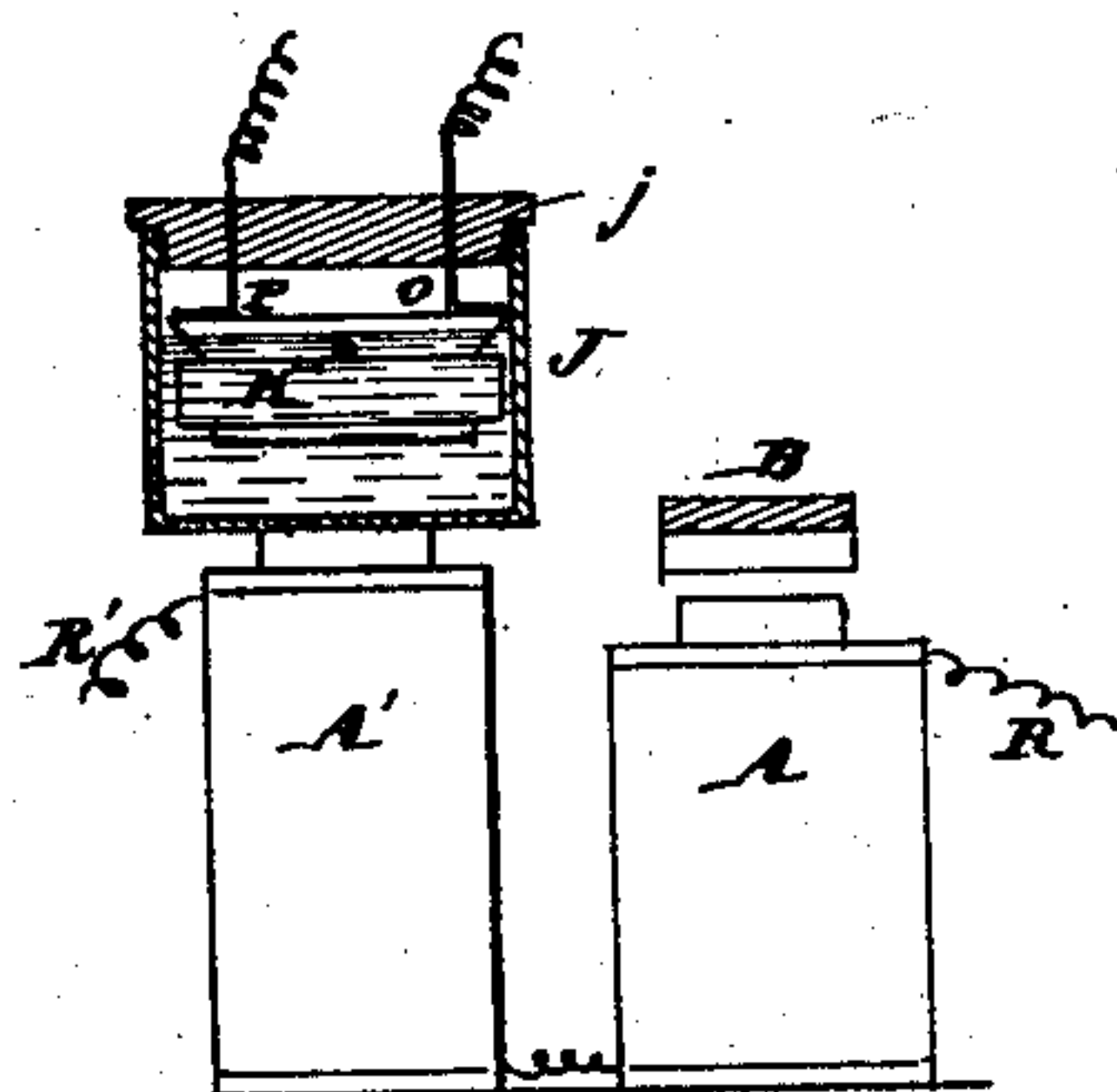


Fig. 2

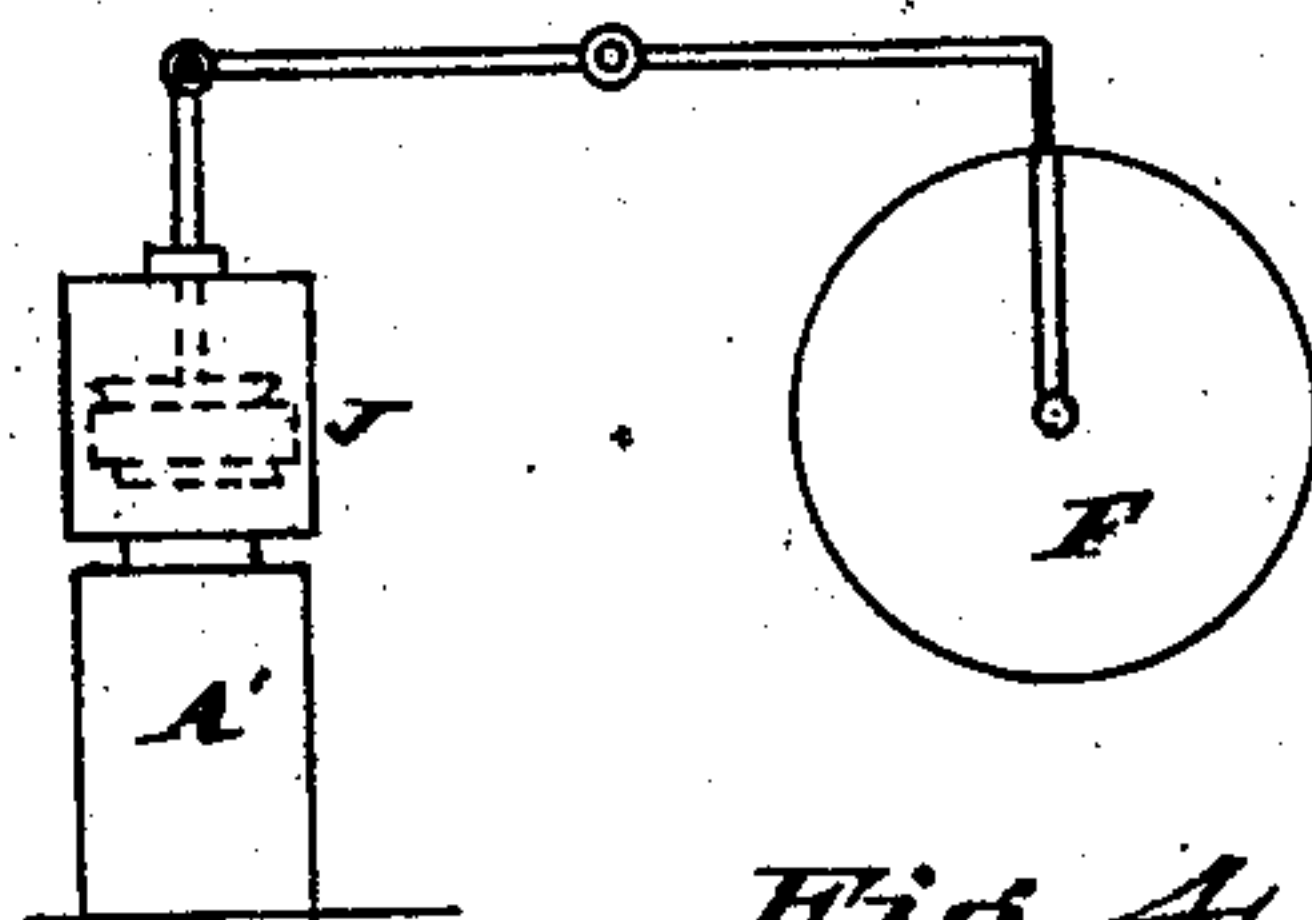


Fig. 4.

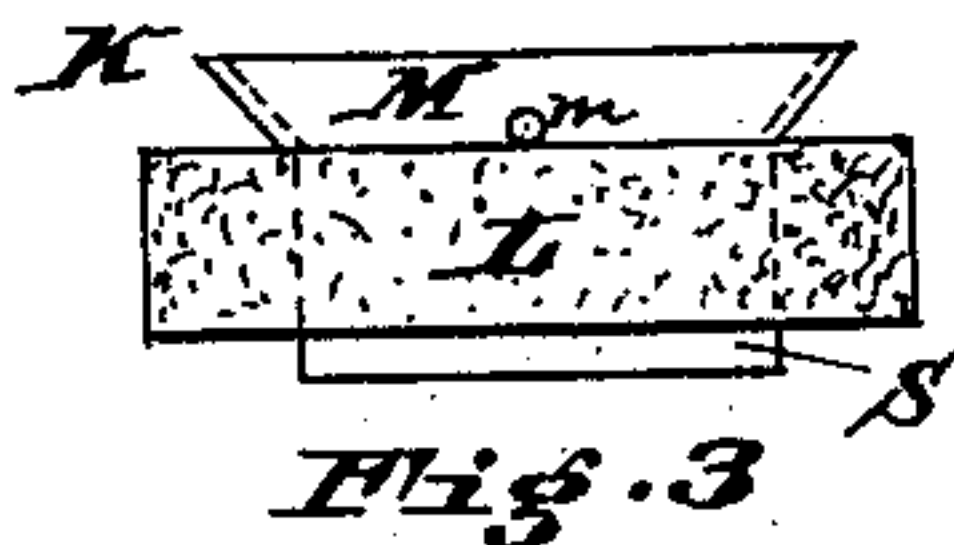


Fig. 3

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ELECTRIC CALL-BELL.

SPECIFICATION forming part of Letters Patent No. 248,113, dated October 11, 1881.

Application filed July 9, 1881. (No model.)

To all whom it may concern:

Be it known that I, EDWARD A. SCHOETTEL, of the city of Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Electric Call-Bells, of which the following is a specification.

My invention relates to bell-calls or electric signaling apparatus for telegraphic and telephonic purposes; and it consists in the usual electric bell and a rotating contact-wheel operated intermittently by an electro-magnet, in combination with a retarding-contact device in circuit with the electric bell, said device being controlled by the electro-magnet and adapted to control the time of ringing of the call-bell, all of which is more fully set forth in the following specification, and shown in the accompanying drawings, which form part thereof.

The object of this invention is to provide several calls in one line, and to so construct the devices that an operator at any station may call up an operator at any other station desired without interfering with the call-bells of the remaining stations.

This device is particularly adapted to closed line-circuits or a signal-line in which a current is constantly flowing, as in the case of telegraphic lines.

In the drawings, Figure 1 is a side elevation of my improved electrical call or signal apparatus. Fig. 2 is a cross-section of same on line *xx*. Fig. 3 is an enlarged view of the floating armature, and Fig. 4 is a side elevation of a modified form of apparatus.

A and A' are the electro-magnets, and are in circuit, through wires R and R', with the operating-key, &c., of the line. The armature B, pivoted at *b* to the standard E, carries on one end a pivoted finger or pawl, C, which is kept against a contact-wheel, F, by a spring, *c*, or equivalent device, and the lever B is kept away from the electro-magnet by a spring, *d*, and adjusting-screw D when no current is passing through said electro-magnets. The contact-wheel F is pivoted at *f*, and is provided on its periphery with teeth H, into which the pawl C engages to rotate said wheel intermittently. The axle *f* of the wheel is electrically connected with one pole of a local battery, U, by a wire, Q, and with a portion of the periphery of said wheel by a conductor, G.

Pivoted at *i'* is a lever, I, which is provided on its end with a contact and friction roller, *i*, which rests upon the teeth H of the contact-wheel F. This lever I is electrically connected by wire T with the electric bell N.

Situated over the core of the electro-magnet A' is a thin cup, J, of any material which will contain a liquid, as glycerine, which is kept clean and from speedy evaporation by a cover, *j*, through which the ends of two wires, O and P, are inserted, said wires being respectively connected with the electric bell N and the remaining pole of the local battery U.

Floating in the liquid in cup J is an armature, K, (best shown in Fig. 3,) in which the iron armature S is surrounded by a piece of cork, L, or other floating body, or the armature may be made hollow, and is provided on the top with a cup or dish, M, provided with a small hole, *m*, at the bottom. It is not absolutely necessary that the cup or dish and small hole be used, as it would work without them.

If desired, one electro-magnet may be used to work both the armatures in place of two, though I prefer the latter number.

The operation is as follows: The current passing continuously through the electro-magnets A and A', the armature-lever B is held down against the electro-magnet A, and the floating armature K is held down to the bottom of the cup J. Now, if it is desired to call up another station, the key is worked quickly, which action rotates the contact-wheel F until the required number is at a given position; then, upon leaving the key open for a short time, the float K is allowed to rise to the surface and close the local circuit through the electric bell N by means of the said float and the wires O and P. When the signal is sounded the key is again closed and the line is again ready for action or use of the telephones in the usual way. While operating the key fast the float has no chance to rise, owing to the almost constant attraction of the armature K by its electro-magnet. The conductor G is set at a different place at every station. By this means one contact can only be completed at one station at a time, and the other contact can be made at all the stations at the same time, so the signal is only made at the station at which the two contacts are completed.

If desired, the floating armature K may be attached to one end of a lever, as shown in Fig. 4, in which case the other end of the lever would complete the local circuit and only one contact, instead of two, would be required.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an electric call apparatus, means to control a local circuit, consisting of an electro-magnet, a cup or vessel situated above said electro-magnet and adapted to contain a liquid, a floating armature arranged in said cup, and the ends of two wires in said circuit, said wires projecting downward in the path of the armature, substantially as and for the purpose specified.

2. In an electric call, an armature consisting of a piece of iron surrounded with a ring of cork or its equivalent, and adapted to float upon a liquid, in combination with a cup or receptacle to contain the liquid, said armature operating to control a local circuit, substantially as and for the purpose specified.

3. In an electric call, a contact-wheel provided with one contact in a local circuit, an electro-magnet and its armature adapted to intermittently rotate said contact-wheel, in combination with a floating armature, a vessel con-

taining a liquid in which said armature floats, and an electro-magnet to control the actions of said floating armature, the actions of said armature and the contact-wheel being to control a local circuit and its electric bell, substantially as and for the purpose specified.

4. In an electric call, the combination of electro-magnets A and A', armature-lever B, pawl C or its equivalent, toothed contact-wheel F, provided with conductor G, lever I, electric bell N, cup J, containing a liquid, floating armature K, and wires O, P, Q, and T, substantially as and for the purpose specified.

5. The floating armature K, consisting of the iron piece S, provided with a dish, M, on top having a hole, m, in combination with a float, L, substantially as and for the purpose specified.

6. In a floating armature, the combination of the iron piece S with the cork L or its equivalent, substantially as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

EDWARD A. SCHOETTEL

Witnesses:

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