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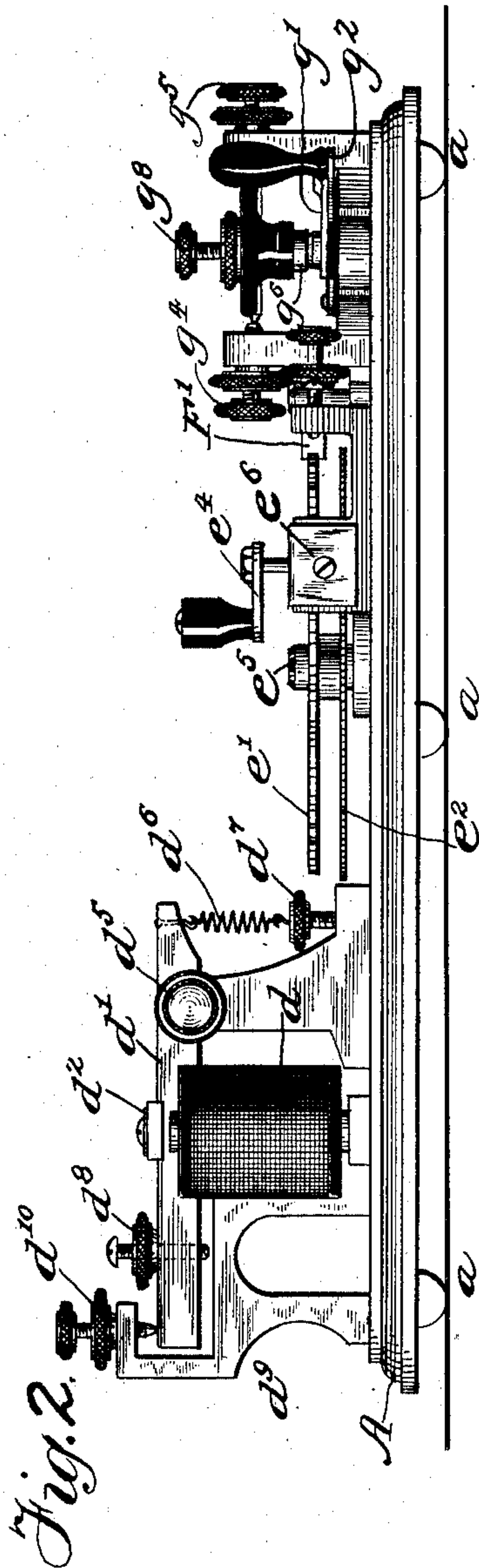
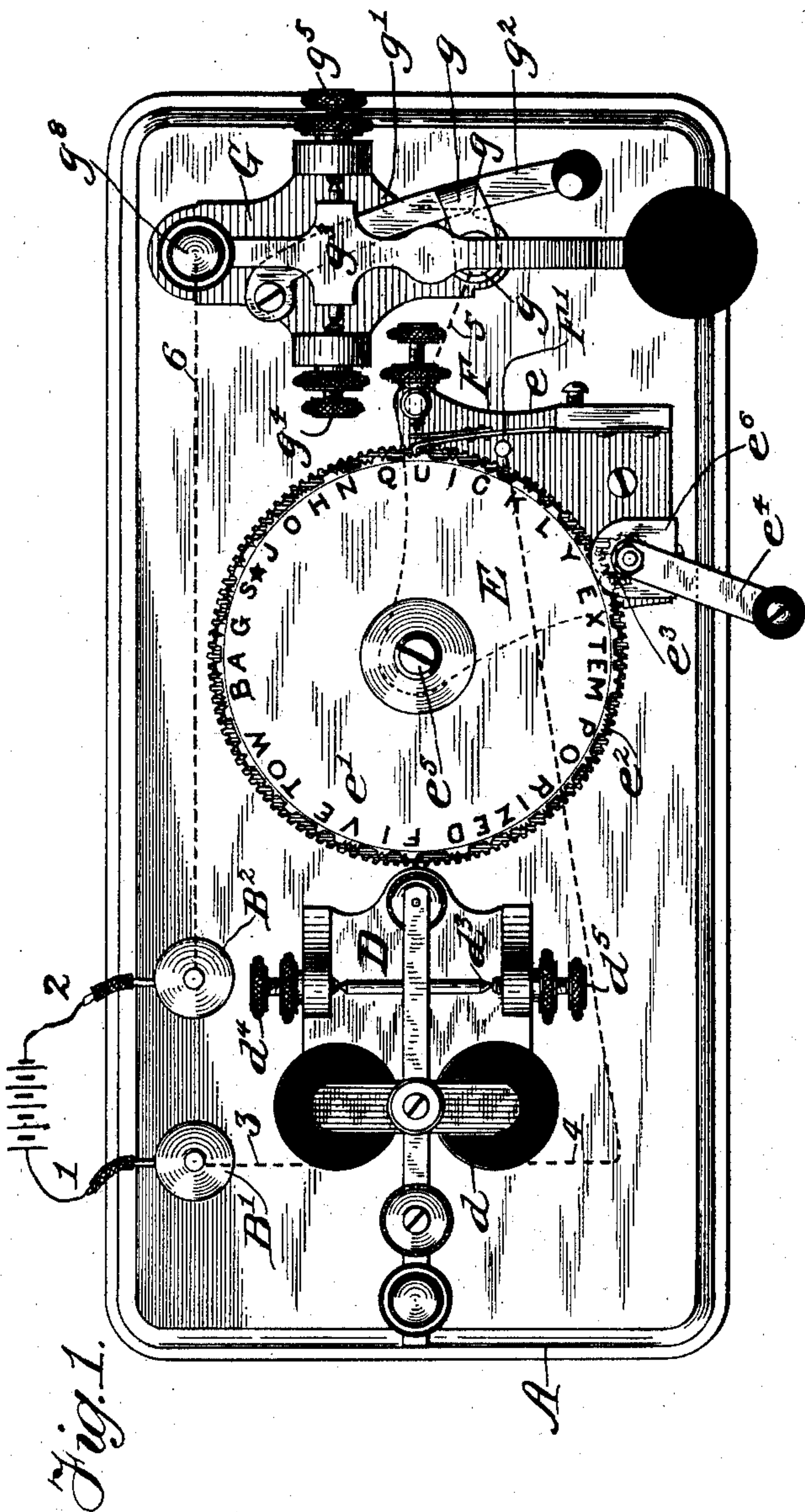
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INSTRUMENT FOR TEACHING AND PRACTICE OF TELEGRAPHY.

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NO MODEL.



Witnesses
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INSTRUMENT FOR TEACHING AND PRACTICE OF TELEGRAPHY.

SPECIFICATION forming part of Letters Patent No. 736,936, dated August 25, 1903.

Application filed April 27, 1901. Serial No. 57,712. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. CHINNOCK, of the borough of Brooklyn, Kings county, city and State of New York, have invented a new and useful Improvement in Instruments for Teaching and for the Practice of Telegraphy, of which the following is a specification.

The object of my improvement is to provide a simple, inexpensive, and easily-operated instrument for teaching and for the practice of telegraphy.

My improvement consists in the combination, with a telegraphic sounder, of an electric circuit comprising the sounder and a circuit-interrupter comprising a movable part adapted to interrupt the circuit so as to cause the annunciation of different letters by the sounder. Preferably this part will be in the form of a wheel, and whatever its character it will advantageously be capable of being moved at any desired speed and will also be capable of reversal, besides being capable of being started and stopped at will. It is also desirable that an instrument embodying my improvement shall be provided with a telegraphic key and that the circuit-interrupter before mentioned and the telegraphic key may be interchangeably introduced in an electric circuit.

I will describe an instrument embodying my invention and then point out the novel features in the claims.

In the accompanying drawings, Figure 1 is a top view of an instrument embodying my improvement. Fig. 2 is a side view.

Similar letters of reference designate corresponding parts in all the figures.

A designates a base of any suitable shape and material. It may advantageously be of an oblong quadrangular form and made of wood. It is shown as provided with feet *a* on its under side.

B¹ B² designate two binding-posts mounted upon the base A. With them are connected circuit-wires 1 2, leading to a battery C, which may advantageously be a dry battery. The circuit is extended from the binding-post B¹ by a circuit-wire 3 to one end of the coils of an electromagnet *d*, comprised in a telegraphic sounder D. The other end of the electromagnet-coils is connected by a wire 4 with the metallic base *e* of a circuit-inter-

rupter E. From this circuit-interrupter the circuit extends through a contact-post F to a wire 5, and from the latter it extends to the contact-piece *g* of a telegraphic key G. This contact-piece is insulated from the base *g'* of the telegraphic key. From the base of the telegraphic key the circuit is extended by a wire 6 to the binding-post B².

The telegraphic sounder D may be of any suitable form. As here shown it comprises the electromagnet *d* and a lever *d'*, carrying the armature *d''* of the electromagnet and having a fulcrum-pin *d'''* journaled in screw-bearings *d⁴ d⁵*, supported by brackets extending upward from the base of the sounder. With this lever *d'* is combined a retracting spring *d⁶*, which is connected at one end with said lever and at the other end with an adjusting screw *d⁷*, whereby tension may be varied. The lever is provided with a screw *d⁸*, which when the lever is attracted by the electromagnet strikes a bracket *d⁹*. The movement of the lever under the influence of the spring is terminated by a contact with a screw *d¹⁰*, arranged in a part of the bracket *d⁹* which overhangs the end of the lever.

When the circuit-interrupter E is operated, the telegraphic key G is inoperative. Either one or the other is made operative by means of a switch-lever *g²*, mounted upon the base *g'* of the telegraphic key, so as to be in electrical contact therewith and capable of being swung into or out of contact with the contact-piece *g*, which is insulated from the base *g'* of the key. When the switch-lever *g²* is adjusted against the contact-piece *g*, the key is rendered inoperative and the circuit-interrupter E is rendered operative, but when the switch-lever *g²* is moved away from the contact-piece *g* the circuit-interrupter E is rendered inoperative and the key is rendered operative.

The telegraphic key comprises a lever *g³*, supported by fulcrum-screws *g⁴ g⁵*, arranged in brackets extending upwardly from the base *g'* of the key. It is provided with a contact-piece *g⁶*, extending downwardly from the above contact-piece *g*, so that by depressing the forward end of the lever the circuit will be completed through these two contact-pieces, assuming that the switch-lever *g²* has been adjusted into that position where it will

not continue the circuit through the contact-piece g . A spring connected with the rear arm presses upward the forward arm of the key-lever g^3 , and consequently the rear arm of said lever downward. The extent of this movement may be regulated by a screw g^8 , fitted to the rear end of the lever and coacting with the base g' of the key.

The circuit-interrupter E , as already stated, comprises a base e . Upon it is mounted a movable part e' , preferably made in the form of a wheel. With this movable part I combine means for imparting movement to it. When said movable part is made in the form of a wheel, the means for imparting motion to it will preferably consist of a gear-wheel e^2 and a pinion e^3 , mounted upon a shaft provided with a crank e^4 . As here shown the movable part e' and the gear-wheel e^2 are mounted to turn in unison about a stud e^5 , rising from the base e of the circuit-interrupter E . The pinion-shaft is mounted in a bracket e^6 , forming an appurtenance of the base e .

The periphery of the movable part e' is provided with a number of projections suitable for imparting such movements to the contact-piece F' , which coacts with the contact-piece F , as to send through the circuit electrical pulsations proper for sounding different letters of the alphabet through the agency of the telegraphic sounder. The contact-piece F' is affixed to a bracket extending upwardly from the base e of the circuit-interrupter E . The contact-piece F also extends upwardly from said base e , but it is insulated from the latter by a suitable bushing or washer.

It is a characteristic and important feature of the movable part e' of the circuit-interrupter E that it may be moved at any desired speed, for that enables a person endeavoring to learn the sounds of the telegraphical alphabet to have them annunciated slowly at the beginning of his effort to learn them and more and more rapidly thereafter until the attainment of the speed ordinarily used in telegraphy.

Another characteristic and important feature of the movable part e' is that it may be reversed at will. By this provision is afforded for repeating a letter over and over again until its sounds are thoroughly learned. The movable part e' may be moved back and forth for the whole or any portion of the length of its operative surface. When made in the form of a wheel, it may of course be moved continuously in one direction as long as may be desired. I deem it advantageous to have the operative projections of the movable part arranged for a message, and in the present instance they are arranged to produce as a message: "John quickly extemporized five tow bags." This message will be given by one complete movement of the movable part e' to the full extent in one direction. By operating the movable part e' for less than the whole possible extent in the direction to give

this message different portions of the message may be produced. Whenever the movable part e' is given a movement the reverse of that which is necessary for producing this message, a combination of letters usable as a cipher despatch will be sounded. As most of the letters when the movable part e' is reversed become different letters, telegraphic sounds will be given by each movement of the movable part e' . Some letters will be the same even upon the reversal of the movable part e' . Other letters, however, upon the reversal of the movable part will produce other symbols, such as punctuation-marks. The variations possible from different manipulations of the movable part e' prevent any learner, or even an expert, from anticipating the result of any manipulation of the movable part e' .

It is not at all essential to my improvement that the telegraphic key G should be used. It is, however, advantageous because after the sounds of the telegraphic letters have been learned by means of the circuit-interrupter E they may be practiced by means of the key G under the ordinary conditions of telegraphing.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a telegraphic sounder, of an electric circuit comprising the sounder, and a circuit-interrupter comprising a rotatable disk adapted to suitably interrupt the circuit for causing the annunciation of intelligence by the sounder, means for rotating said disk, and a contact-piece in circuit with the sounder and adapted to coact with the disk in either direction of rotation and at any speed.

2. The combination with a telegraphic sounder, of an electric circuit comprising the sounder, a rotary circuit-interrupter arranged upon the same base as the sounder and comprising a rotatable disk adapted to suitably interrupt the circuit for causing the annunciation of intelligence by the sounder, and means comprising intermeshing gears, one of which is driven by hand, for turning the circuit-interrupting disk in either direction and at any speed, and a telegraphic key and a switch for rendering either the said circuit-interrupter or the key inoperative.

3. The combination with a telegraphic sounder, of an electric circuit comprising the sounder, and a circuit-interrupter comprising a rotatable disk formed with projections upon its periphery, said projections adapted to suitably interrupt the circuit for causing the annunciation of intelligence by the sounder, a gear-wheel connected with and turning upon the same axis as said rotatable part, a pinion meshing with the gear-wheel, and a crank for operating the said pinion in either direction, and a contact-piece adapted to engage the projections upon the disk from either direction.

4. The combination with a telegraphic sounder, of an electric circuit comprising the sounder, a rotatable disk having on its periphery projections indicating the message, a beveled contact-piece adapted to coact with

the periphery of the disk for causing the annunciation of intelligence by the sounder and suitable circuit connections, a gear-wheel mounted upon the same axis as the disk, a
5 pinion meshing with said wheel, and means for turning said pinion, gear-wheel and disk in either direction.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES E. CHINNOCK.

Witnesses:

GEO. E. CRUSE,
ALFRED H. EVANS.