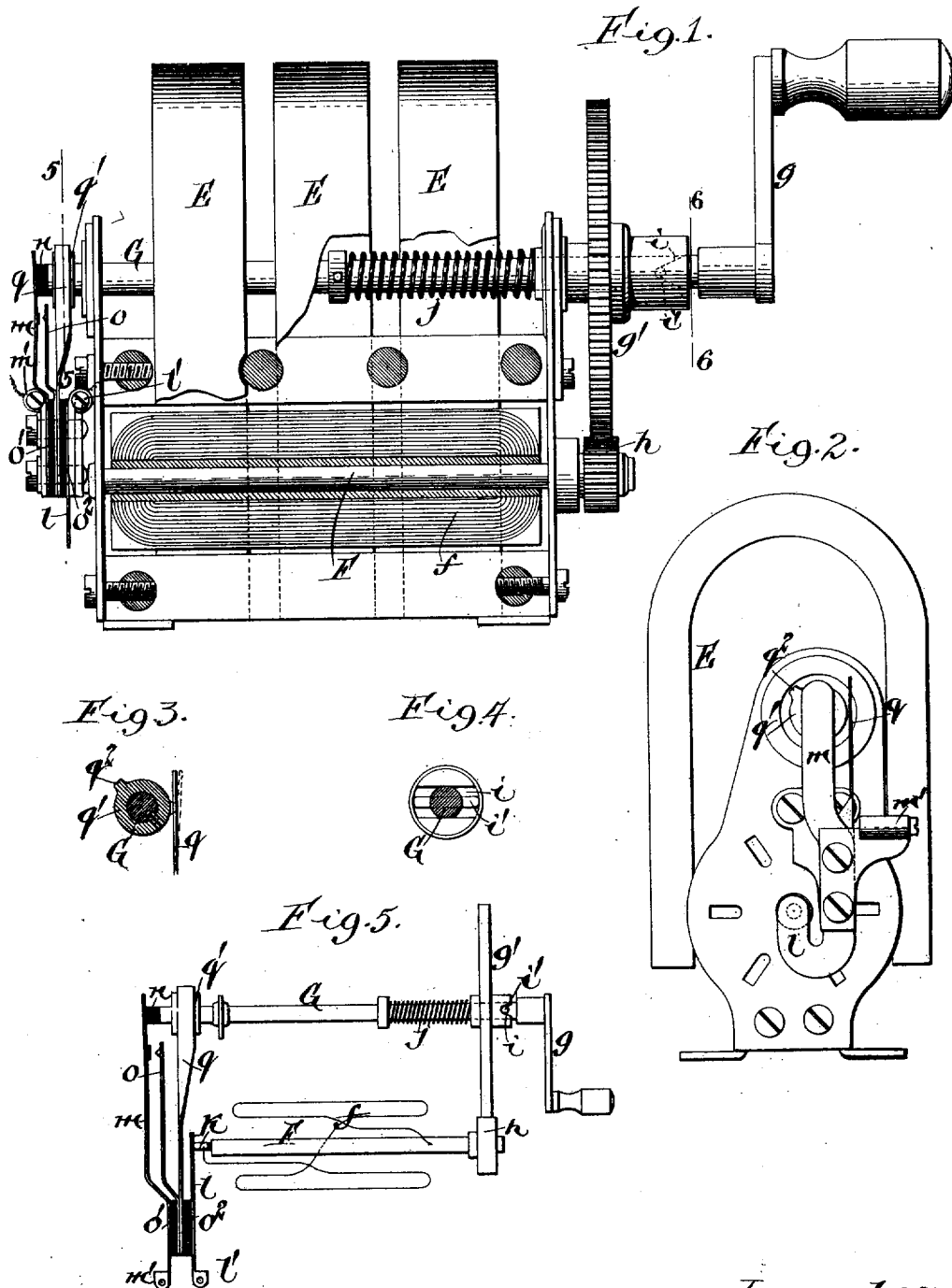


T. S. HEMENWAY.
MAGNETO ELECTRIC GENERATOR.
APPLICATION FILED MAY 25, 1908.

980,153.

Patented Dec. 27, 1910.



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UNITED STATES PATENT OFFICE.

THOMAS S. HEMENWAY, OF BUFFALO, NEW YORK, ASSIGNOR TO ERICSSON MANUFACTURING COMPANY, OF TONAWANDA, NEW YORK, A CORPORATION OF NEW YORK.

MAGNETO-ELECTRIC GENERATOR.

980,153.

Specification of Letters Patent.

Patented Dec. 27, 1910.

Application filed May 25, 1908. Serial No. 434,788.

To all whom it may concern:

Be it known that I, THOMAS S. HEMENWAY, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Magneto-Electric Generators, of which the following is a specification.

This invention relates to a signaling device for telephone magnet party-lines, and more particularly to the magneto electro generators by which subscribers call up the central office. Ordinarily, four parties are connected to a line, and the subscribers' call bells or ringers are usually either harmonic or biased.

The systems now in use render it possible for the central operator to call any one of the parties on a line without disturbing or notifying the others, by the use of current impulses or frequencies suitable for actuating the respective ringers. When, however, a party calls the central office, difficulty has been experienced in doing so without operating the ringers of the other parties on the same line. Among other means, a generator and ringers of very high resistance have been employed to overcome this objection. It has also been attempted to remedy the difficulty by providing the usual commutator on the armature shaft with a comparatively short or narrow contact-segment, in order to use only a small part of the current waves or impulses, but these devices have proven unreliable and unsatisfactory.

The object of my invention is the provision of a simple generator of this class, which while furnishing the necessary current strength to operate the annunciator drop or other signaling device at the central office, generates current of a frequency so low compared with that for which the ringers are adapted that their clappers or hammers will not receive the necessary amplitude of vibration to strike the gongs, thereby overcoming the above-mentioned objection.

In the accompanying drawings: Figure 1 is a sectional elevation of the generator. Fig. 2 is an end elevation viewed from the end at which the current interrupter is located. Figs. 3 and 4 are cross sections in lines 5—5 and 6—6, Fig. 1. Fig. 5 is a diagrammatic side view of the generator.

Similar letters of reference indicate corresponding parts throughout the several views.

E indicates the customary magnets of the generator, F the shaft carrying the armature f , G the main or driving shaft having the usual hand-crank g and gear wheel g^1 , meshing with the pinion h on the armature shaft. The crank shaft is longitudinally-movable in its bearings in a manner common to this type of generators, the same being provided with the customary cam i and pin i^1 for shifting the shaft by its initial rotation, and with the spring j for returning the shaft to its normal position when released.

In the construction shown in the drawings, one end of the armature-winding is connected with the frame of the generator through the armature shaft, while its other end is connected to an insulated contact pin k projecting from the end of the armature-shaft. Bearing constantly against this pin is a contact-spring l connected with one of the binding posts or terminals l^1 of the generator.

m indicates the customary contact-spring connected to the other terminal or binding post m^1 of the generator and resting against the insulator n at the adjacent end of the driving shaft G, in the normal position of the latter. This spring coöperates with a contact spring o arranged on the inner side thereof and separated therefrom and from the spring l by insulators o^1, o^2 . The spring o is arranged in such close proximity to the spring m that when the driving shaft is rotated and withdrawn the spring m is allowed to come in contact with the spring o . The latter is electrically connected to or forms part of a brush or spring q which constitutes one member of a circuit interrupter, the other member preferably consisting of a metallic ring q^1 secured to and electrically connected to the driving shaft G and having a tooth or projection q^2 which makes contact with the coöperating brush q once during each rotation of said shaft, the brush being arranged to clear the ring except when engaged by said tooth, as shown in Fig. 3. When the driving shaft is rotated, it is automatically withdrawn from the contact spring m in the usual manner, allowing said spring to make contact with the spring o . The circuit is interrupted except when the tooth of the ring q^1 wipes over the brush q , and closes the circuit, the current then passing from the terminal m^1 through the contacting springs m and o , the brush q , ring q^1 , driving

shaft G, generator-frame, armature, pin h and spring l to the other terminal l' .

The gear wheel g^1 and pinion h are proportioned to drive the armature at a multiplied speed, in a manner common to such generators. It is evident that if, for instance, the proportion of the gears is five to one, the tooth g^2 of the driving shaft will contact with the brush every fifth revolution of the armature and only one current impulse or wave in five is utilized and sent over the line, while those of the other four revolutions of the armature are eliminated and rendered ineffective because the brush does not touch the ring q^1 during those remaining revolutions. It follows that the frequency of the current impulses is so low or different from that for which the ringers are adapted that the tongues or clappers of the ringers have time to resume their normal position after the effect of the first impulse which is insufficient to produce a full and effective stroke and before succeeding impulses can augment the first sufficiently for that purpose. In other words, although the clappers of the several ringers of a party line are vibrated to a limited extent when one of the parties calls central, yet the current impulses succeed one another so slowly that no cumulative effect such as is necessary to operate the ringers is obtained from them. The other subscribers on the same party-line are therefore not disturbed or notified of the call, thus insuring greater privacy in the use of the telephone. While obtaining this desirable result, the full strength of the generator is at the same time utilized.

This improved generator is applicable to lines equipped with biased ringers as well as lines having harmonic ringers.

I claim as my invention:—

1. In an electric generator, the combination of the armature-shaft, a longitudinally-movable driving shaft connected therewith, a circuit-interrupter comprising a member mounted on said driving-shaft and a brush coöperating with said member and a contact-spring connected with one terminal of the generator and coöperating with said brush, said driving shaft normally engaging the contact spring and holding it out of contact with said brush, substantially as set forth.

2. In an electric generator, the combination of the armature-shaft, a longitudinally-movable driving shaft, gearing for transmitting motion from the driving shaft to the armature shaft at a multiplied speed, a spring tending to shift the driving shaft to its normal position, means for automatically shifting said shaft in the opposite direction during its initial rotation, a circuit-interrupter comprising a projection carried by said driving shaft and a brush coöperating therewith and having a contact-spring, and a second contact-spring connected with one terminal of the generator and coöperating with the first-named contact-spring, the driving shaft being provided at its end with an insulator which bears normally against said second contact-spring to hold it out of engagement with the other contact-spring, substantially as set forth.

Witness my hand this 21st day of May, 1908.

THOMAS S. HEMENWAY.

Witnesses:

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