

H. P. CLAUSEN.
MAGNETO HAND GENERATOR.
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1,159,359.

Patented Nov. 9, 1915.

Fig. 1.

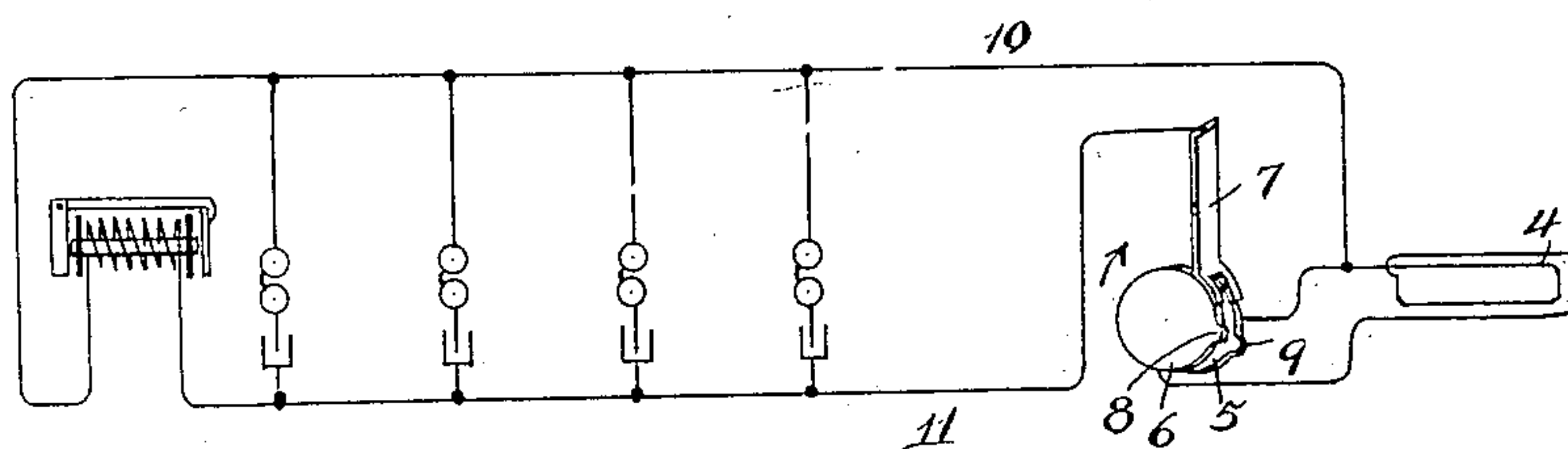
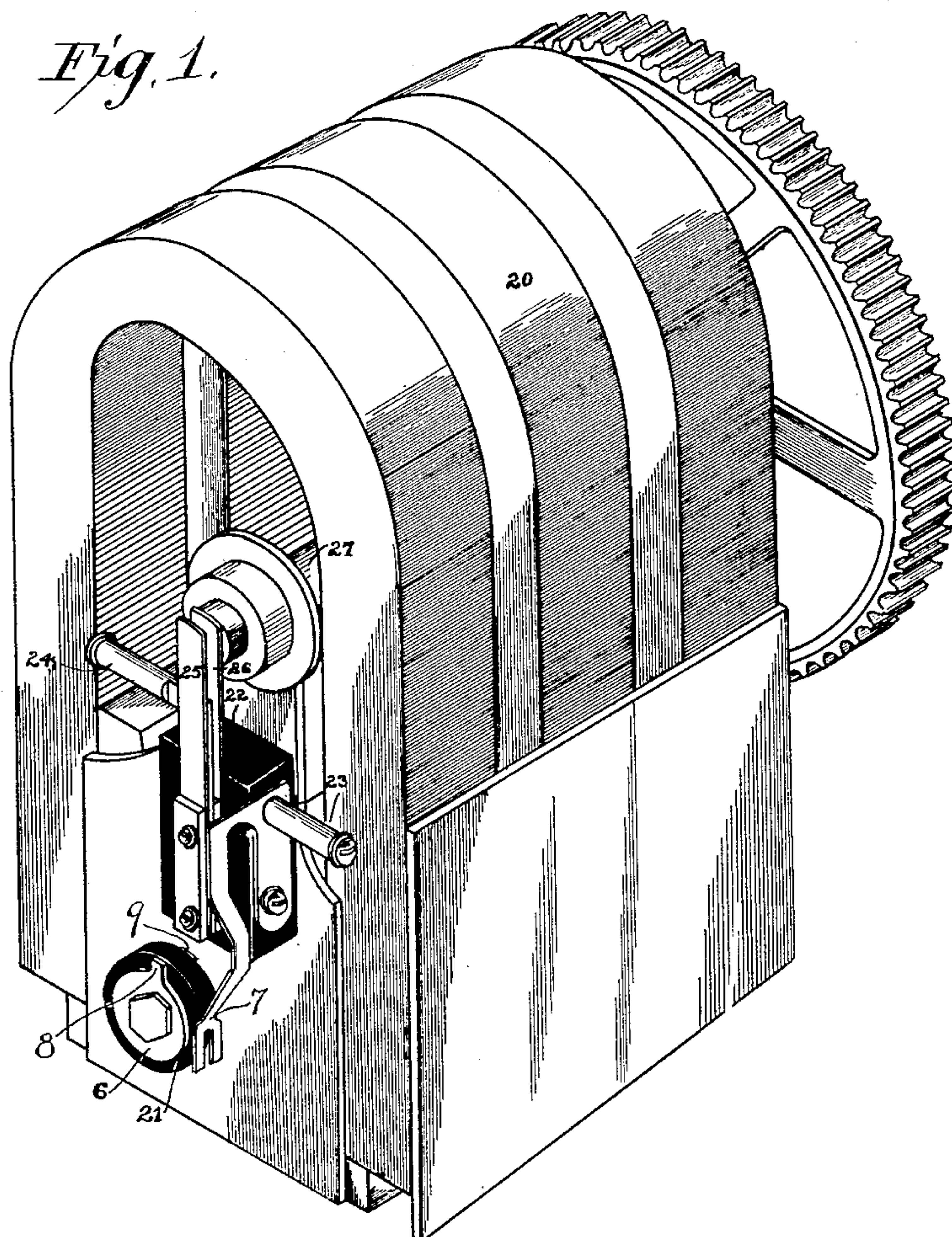


Fig. 2.

WITNESSES
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HENRY P. CLAUSEN, OF ROCHESTER, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO STROMBERG-CARLSON TELEPHONE MANUFACTURING COMPANY, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK, ORGANIZED 1914.

MAGNETO HAND-GENERATOR.

1,159,359.

Specification of Letters Patent.

Patented Nov. 9, 1915.

Application filed March 22, 1911. Serial No. 616,155.

To all whom it may concern:

Be it known that I, HENRY P. CLAUSEN, a citizen of the United States, and resident of Rochester, county of Monroe, State of New York, have invented certain new and useful Improvements in Magneto Hand-Generators, of which the following is a specification.

My invention relates to hand generators for use with telephone systems of the local battery or generator call type, and, particularly, for use with systems equipped with harmonic bells at the substations.

In systems of this type it is desirable that the subscribers may throw the drop at the central office to signal the operator without ringing the harmonic bells at the other subscribers' stations on the same line.

By use of the magnetos heretofore commonly used in telephone systems it has been possible to ring the bells at other subscribers' stations by rotating the generator crank at the proper speed to impress upon the limbs of the telephone line the particular frequency for sounding some particular annunciator, and it often happened that subscribers would be thus called to their telephones when one of the subscribers was attempting to signal the central office.

The object of my invention is to provide a generator so wired and connected that it impresses upon the line peaks of current of such short duration that they have practically no effect upon the various annunciators even when impressed at the frequencies at which the annunciators are adapted to ring, but have the desired effect upon the drop at the central office.

My invention is illustrated in the accompanying drawing, in which—

Figure 1 is a perspective illustration of a hand generator embodying the features of my invention, Fig. 2 illustrates my invention as applied to a telephone line.

Referring to Fig. 2, the armature coil 4 has its terminals connected to the conducting disks 5 and 6, which are insulated from one another and mounted upon the shaft of the generator. A brush 7 is supported adjacent the disks 5 and 6 but normally out of contact therewith, the projections 8 and 9 being the only portions of the disks which come into actual contact with the brush 7. Conductors 10 and 11 represent the main conductors leading from the generator.

In the rotation of the armature in a clockwise direction the projection 9 first comes in contact with the brush 7 and immediately thereafter the projection 8 comes in contact with the brush 7; thus the armature winding 4 is short-circuited during the passage of the projections under the brush. The projection 9, being the first to connect with the brush, is also the first to disconnect therefrom, at which instant the armature circuit is completed to line through the disk 6, projection 8 and brush 7 to conductor 11, and directly from the other terminal of the armature winding to conductor 10.

The disks 5 and 6 are set in such a position upon the shaft that the short-circuiting of the armature occurs just before the reversal of magnetism has occurred through the armature core. The short-circuiting of the armature opposes the dying out or reversal of the magnetic lines, and, therefore, the rotation of the armature carries the magnetic lines into a distorted position so that, upon the interruption of the short circuit, the magnetic flux in the armature very quickly reverses its direction, thus sending upon the line an instantaneous peak of current at a very high voltage. This current is of such short duration that the harmonic bells on the line, whose armatures are provided with considerable inertia, are not affected, but the central office drop, whose armature is light, is readily operated.

In Fig. 1 the generator illustrated is provided with permanent magnets 20, forming the magnetic field for the armature which is supported upon the shaft carrying the disks 5 and 6. One terminal of the armature is grounded to the shaft and the metal parts of the generator, and the disk 5 is likewise electrically connected to and carried directly upon the shaft. The disk 6 is separated from the disk 5 by means of an insulating disk 21, the disk 6 being electrically connected with the second terminal of the armature winding by means of a pin carried through the center of the shaft in an insulated manner to a point within the bearing in which the shaft rotates.

The brush 7 is secured to the insulating block 22, and is provided with connection terminal 23, to which one of the line conductors may be attached. The other line conductor may be attached to the connec-

tion terminal 24, which becomes electrically connected with the frame of the generator through the contact of springs 25 and 26 when the generator is in motion, this being
 5 accomplished by a cam in the shaft 27, which effects a movement of the spring 26 into engagement with the spring 25 whenever the shaft is rotated.

Other features of the device and system
 10 to which my invention has been applied, which are not specifically described herein, are well known in the art, and their detailed description is unnecessary to the complete understanding of my invention.

15 While my improvement is described in respect to the specific modification herein illustrated, it is to be understood that I do not wish to be unduly limited thereto, other modifications being possible without departing from the spirit and scope of my invention.
 20

I claim—

1. In a hand generator for telephone lines, the combination with an armature and
 25 its windings, of a pair of contact pieces connected with the terminals of said winding and rotatable with the armature, a brush adapted to be engaged by both of said contacting pieces in the rotation of the armature
 30 and to be shortly thereafter disengaged by said contact pieces, the disengagement from one contact piece occurring slightly before the disengagement from the other contact piece, contacting means permanently connecting the first of said contact pieces to be
 35 disengaged with one side of an external circuit, said brush being connected with the other side of said external circuit whereby an impulse of current from said armature
 40 will be delivered to the external circuit, the

duration of said impulse being equal to the time between the breaking of the connection between the brush and the first contact piece and the breaking of the connection between
 45 said brush and the second contact piece.

2. A hand generator provided with an armature, a pinion gear for the armature, a larger gear engaging therewith, a handle for driving the larger gear, a winding for the armature, a pair of terminals for the
 50 winding, a brush arranged for engagement with said terminals in the rotation of the armature, the period of engagement of said brush with said terminals being of short duration whereby the short circuit of the ar-
 55 mature winding does not materially retard the armature, said terminals being so positioned as to disconnect from said brush, one slightly in advance of the other, said brush and the first of said terminals from which
 60 it disconnects serving for connection with an external circuit.

3. A generator provided with an armature winding, rotating segmental terminals for said winding, conducting means engaging
 65 said segmental terminals to short circuit the armature, said segmental terminals being arranged to disengage said conducting means one in advance of the other, and an external circuit connected between said con-
 70 ducting means and the first of said segmental terminals to be disengaged thereby.

Signed by me at Rochester, county of Monroe, and State of New York, in the presence of two witnesses.

HENRY P. CLAUSEN.

Witnesses:

CHARLES E. HAGUE,
 TERESA A. BUCKLEY.