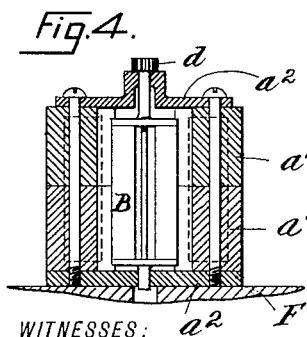
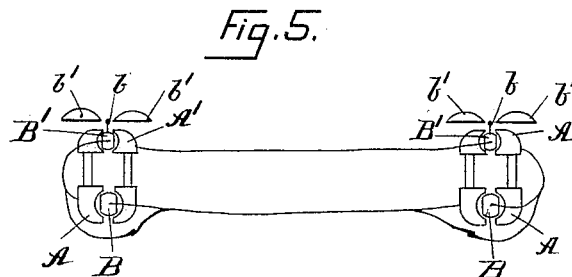
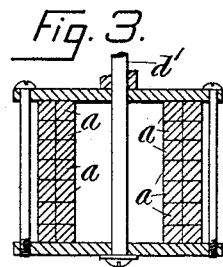
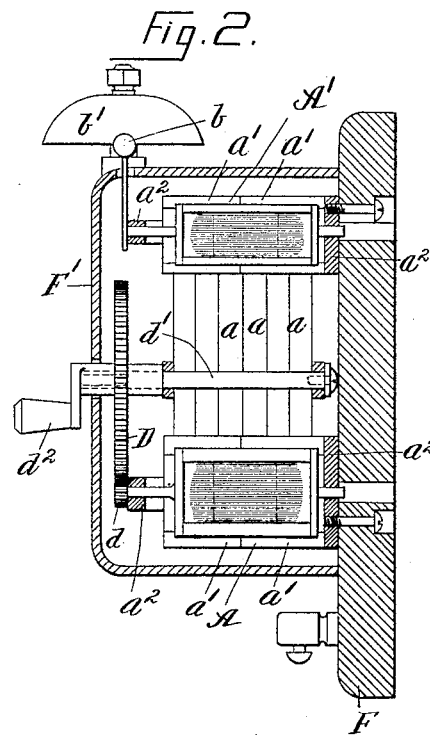
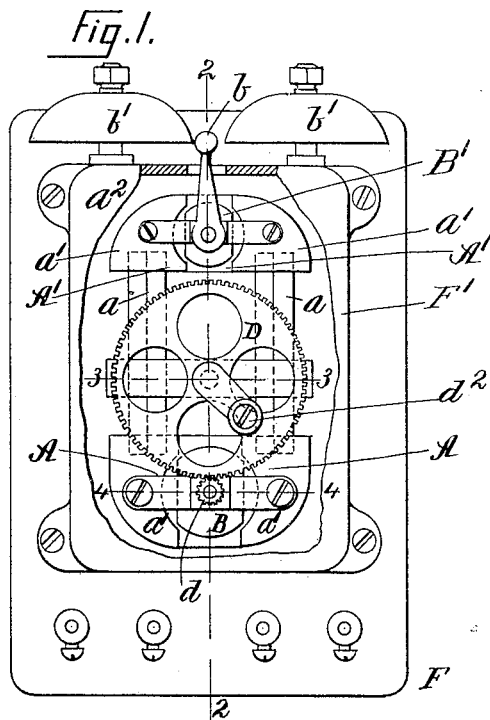


(No Model.)

H. H. ELDRED.  
MAGNETO APPARATUS.

No. 584,338.

Patented June 15, 1897.



WITNESSES:  
*H. P. Guillo.*  
*John R. Snow.*

INVENTOR  
*Horace Hamline Eldred*  
BY  
*Maynard & Mitchell,*  
ATTORNEYS.

# UNITED STATES PATENT OFFICE.

HORACE H. ELDRED, OF BROOKLYN, NEW YORK, ASSIGNOR TO HENRY B. METCALF, OF PAWTUCKET, RHODE ISLAND.

## MAGNETO APPARATUS.

SPECIFICATION forming part of Letters Patent No. 584,338, dated June 15, 1897.

Application filed April 4, 1896. Serial No. 586,231. (No model.)

*To all whom it may concern:*

Be it known that I, HORACE HAMLINE ELDRED, of Brooklyn, Kings county, and State of New York, have invented an Improved Magneto Apparatus, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is an elevation of my improved magneto apparatus, a portion of the cover being broken away. Fig. 2 is a section on line 2 2 of Fig. 1. Fig. 3 is a section on line 3 3 of Fig. 1. Fig. 4 is a section on line 4 4 of Fig. 1. Fig. 5 is a diagram illustrating the system.

My invention is a magneto instrument, which is both a magneto-generator and a magneto-bell—that is, an instrument consisting of two permanent magnets whose unlike poles are opposed with a bell-armature and its coils between two of the poles and a generating-armature and its coils between the other two poles, the coils of the two armatures being electrically connected in order that the current generated shall ring the bell.

In the drawings, A A' are the magnets, and B B' the armatures. The armature B is designed for generating currents over the line and the armature B' for receiving currents from the line, the whole instrument, as shown, being a magneto-generator and a magneto-bell with the magnets common to both. The armature B is revolved by means of gear D and pinion d, and the armature B' carries the bell-hammer b, which vibrates between the gongs b' when an alternating current flows through the coil of armature B'.

In practice two or more of these instruments are connected with their receiving-coils

in series and with their generating-coils shunted out in a manner too well known to need description and as indicated by the diagram Fig. 5. To send a signal, the generating-coil of one of the armatures B is cut in and that armature revolved, and the armatures B' are thereby oscillated and their gongs sounded by the current generated by the rotations of the armature B.

I prefer to make the magnets each of a plurality of steel rods *a*, with iron pole-pieces *a'* at their ends, as shown in the drawings, as that is the cheapest construction, and the steel rods are readily magnetized, and the pole-pieces serve to retain the steel rods in place. The pole-pieces are secured on a backboard F, and a sheet-metal cover F' (of non-magnetic metal) is secured to the backboard to complete the apparatus. The shaft *d'* of the gear D, projecting from the sheet-metal cover, receives winch *d''*, by which shaft *d* may be revolved. The cross-pieces *a''* serve as bearings for the journals of the armatures, and also aid in holding the opposite pole-pieces *a'* in proper relation to each other.

What I claim as my invention is—

The magneto instrument made up of two permanent magnets whose unlike poles are opposed; a generating-armature between one set of opposed poles; a bell-armature between the other set of opposed poles; and electric connections between the coils of the armatures, combined to operate substantially as described.

HORACE H. ELDRED.

Witnesses:

J. R. SNOW,  
WM. MAYNADIER.