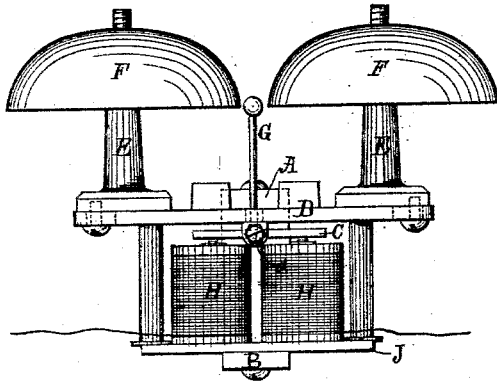
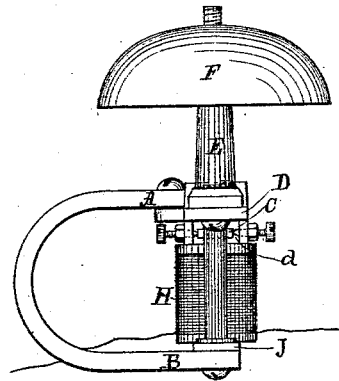


T. A. WATSON.  
Polarized Armature for Electric Bells.  
No. 210,886.      Patented Dec. 17, 1878.

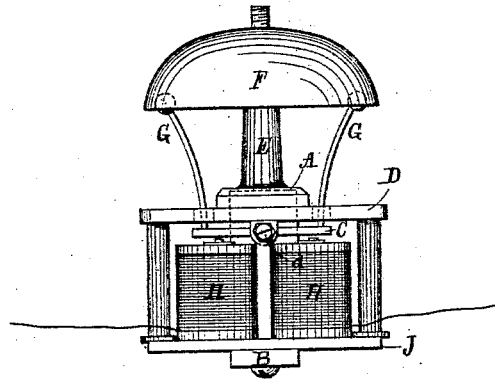
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Witnesses:

*E. A. Dick*  
*J. B. Carpenter*

Inventor:

*Thomas A. Watson*  
by *A. Pollok*  
*his attorney*

# UNITED STATES PATENT OFFICE.

THOMAS A. WATSON, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN POLARIZED ARMATURES FOR ELECTRIC BELLS.

Specification forming part of Letters Patent No. **210,886**, dated December 17, 1878; application filed August 1, 1878.

*To all whom it may concern:*

Be it known that I, THOMAS A. WATSON, of Boston, county of Suffolk, and State of Massachusetts, have invented a new and useful Improvement in Electric Bells, which improvement is fully set forth in the following specification.

My invention relates to, and is an improvement in, that class of electric bell strikers having their armatures and electro-magnets polarized by proximity to, or contact with, the poles of a permanent magnet, and which are operated by alternately reversed currents of electricity.

The object of my invention is to secure greater simplicity of construction and more powerful operation.

These ends I attain by having the soft-iron armature pivoted in and parallel with a metal frame, (preferably malleable cast-iron,) to which frame I also fasten the supports for the bells, the whole being secured firmly to one pole of a permanent magnet, preferably of the horseshoe form. To the other pole of this magnet is fastened the electro-magnet, with the cores parallel to each other and facing the armature. By this arrangement the armature comes directly over the poles of the electro-magnet and consequently is in the best position to be acted upon by the electric currents passing through the coils.

The armature has a hammer extending from the center of one side, which plays between two bells when the armature is vibrating. This will be seen clearly by reference to the accompanying drawing, in which—

Figure 1 represents a front, and Fig. 2 a side, elevation of my improved bell; and Fig. 3, a modification in which a single bell is used.

A is one pole of the permanent magnet, and B the other. C is the armature, pivoted at point *d* of the metal piece D, so that when one end is against the electro-magnet the other is away from it.

E E are the supports for the bells F F. These are attached to the metal piece D by screws passing through slotted holes, and the bells can thereby be adjusted in their relation to the hammer or striker G.

H H is an ordinary electro-magnet fastened to the pole B. Instead of the horseshoe-magnet A B, one or more straight-bar magnets may be used, extending from the metal piece D to the back piece, J, of the electro-magnet. A single bell may also be used, as in Fig. 3, by attaching a hammer or striker, G G, to each end of the armature C, and fastening the bell-support to the metal piece D directly over the center of the armature. The hammers can strike either on the inside or outside of the bells.

When a current passes in one direction through the coils of the electro-magnet, the armature is attracted at one end and repelled at the other. When a current passes in the opposite direction this action is reversed.

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

1. The combination of the centrally-pivoted soft-iron armature, metal frame, and permanent magnet or magnets, as and for the purpose set forth.

2. The combination of the electro-magnet, permanent magnet or magnets, and armature centrally pivoted and facing the ends of the electro-magnet, as and for the purpose set forth.

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

THOMAS A. WATSON.

Witnesses:

C. E. HUBBARD,  
RICHARD W. FINN.