

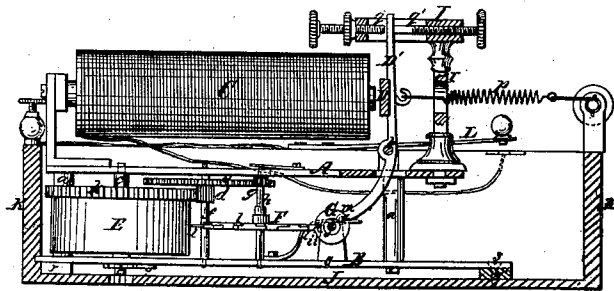
*D. Flanery.*

*Relay Instrument.*

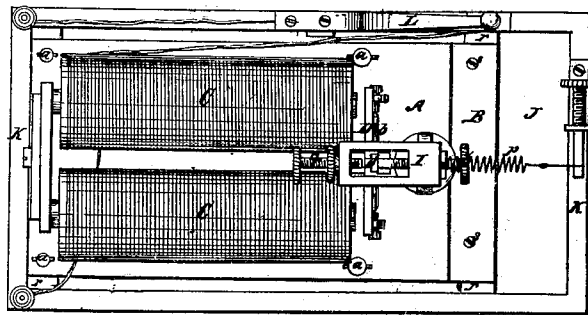
*N<sup>o</sup> 29,686.*

*Patented Aug. 21, 1860.*

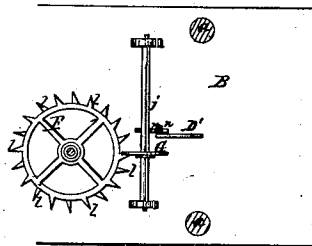
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



*Witnesses.*  
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# UNITED STATES PATENT OFFICE.

DAVID FLANERY, OF JACKSON, MISSISSIPPI.

## IMPROVEMENT IN TELEGRAPH-INSTRUMENTS.

Specification forming part of Letters Patent No. 29,686, dated August 21, 1860.

*To all whom it may concern:*

Be it known that I, DAVID FLANERY, of Jackson, in the county of Hinds and State of Mississippi, have invented a new and Improved Magnetic Telegraph Instrument; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a vertical section of my instrument, larger than the real size. Fig. 2 is a plan of the same. Fig. 3 is a plan of the escapement.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists in the arrangement of an electro-magnet and armature, a clock movement and escapement, and a resonance-box, as hereinafter described, to constitute a simple and cheap instrument for the production of sounds alone, or sounds and marks, at long or short distances, without the aid of a local battery.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A and B are two horizontal plates connected by posts *a a*, which keep them at proper distances apart, to make them constitute a frame for the clock movement and escapement and a base for the electro-magnet and armature.

C C is the electro-magnet, secured to the top of the plate A, and D is its armature, attached to a lever, D', working on a fulcrum, *b*, above the upper plate, A, and extending downward through an opening in the said plate.

E is a spring-barrel, containing the main-spring of the clock-movement, fitted to an upright arbor, *c*, which is fitted to bearings in the plates A and B, and carrying the driving-wheel *k*, which is geared by a pinion, *d*, and wheel *e* on a shaft, *f*, with a pinion, *g*, on the escape-wheel shaft *h*. The escape-wheel F has its teeth *l l* beveled on opposite sides alternately, as shown in Fig. 1.

The pallets *i i* of the escapement are so formed on a plate, G, or verge attached to a vibrating horizontal shaft, *j*, that when the said plate or verge is in a position to let one tooth of the escape-wheel escape between the pallets it will stop the next tooth, as will readily be understood by reference to Fig. 1.

The verge-shaft *j* has a forked arm, *m*, which receives within its fork a stud, *n*, attached to the lower end of the armature-lever D', and which enables the necessary oscillation of the verge to permit the revolution of the escape-wheel, tooth by tooth, to be produced by the movement of the armature-lever consequent upon the opening and closing of the circuit through the electro-magnet, the armature being attracted by the magnet when the circuit is closed, and drawn away again by a spring, *p*, when the circuit is opened.

The length of vibration of the armature-lever is controlled by two adjustable stop-screws, *q q'*, fitted to a post, I, erected on the plate H.

J K is what I call the "resonance-box," consisting of an open wooden box of a form and size suitable to receive within it the plates A B. The bottom J of this box is made thin, like the sound-board of a musical instrument, and two cleats, *r r*, are placed upon it to support the ends of the plate A, leaving the whole of the remainder of the said plate at a short distance from the said bottom, to which the said plate is secured by screws *s s* screwing into or through the cleats *r r*. This resonance-box should be so supported as to leave the greater part of its bottom free to vibrate.

On one side of the box is a spring-key, L, for opening and closing the circuit, and at suitable points on the margin of the box are screw-cups for the connection of the electro-magnet with the line-wire.

The arrangement of the connections with the magnet and key are shown in Figs. 1 and 2, but need no particular description, as no other parts of the instrument but the magnet and key require to be in the circuit.

This instrument may be placed and operated at any point in a telegraph-line without a local battery, as the force required to work it, being merely what is sufficient to attract the armature D, is very slight. The striking of the teeth of the escape-wheel against the pallets as they are liberated one by one by the oscillation of the verge, produced by the opening and closing of the circuit, is caused by the arrangement of the working parts of the instrument.

The instrument, on account of its small size and simplicity and its not requiring a local battery, is specially adapted for the use of tele-

graph and railroad superintendents, railroad-conductors, and all others who may find it desirable to attach an instrument temporarily in any part of a line of telegraph.

By attaching a pen to the armature-lever and furnishing the instrument with suitable means of moving paper the instrument may be made to record as well as to produce sounds.

I do not confine myself to the particular construction of the escapement as herein specified; but

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

The arrangement of an electro-magnet and armature, a clock movement and escapement, and a resonance-box, substantially as herein described.

DAVID FLANERY.

Witnesses:

L. SHEPHERD,  
P. M. DOHERTY.