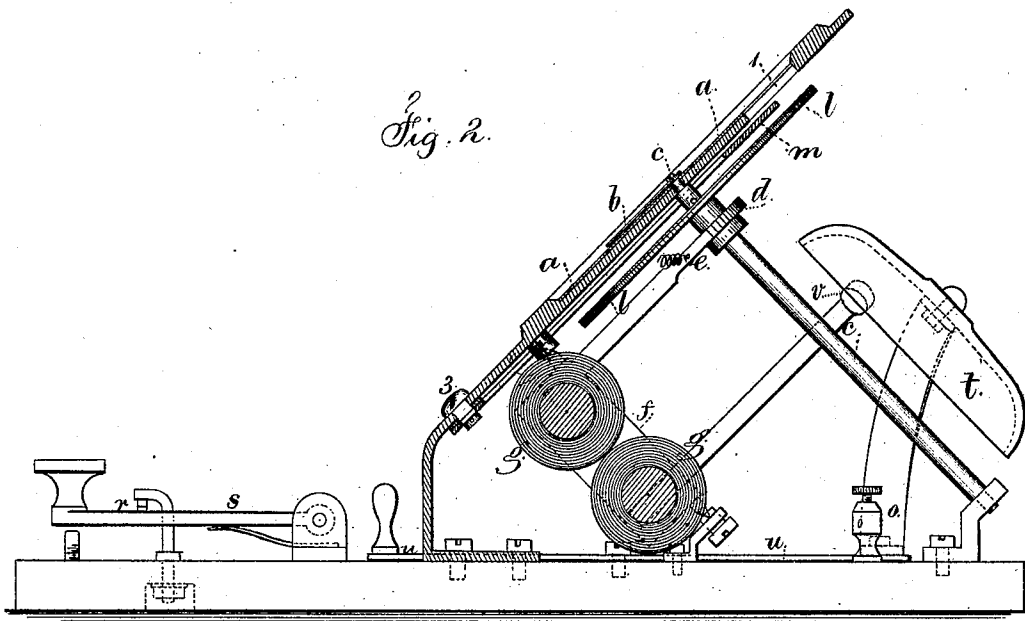


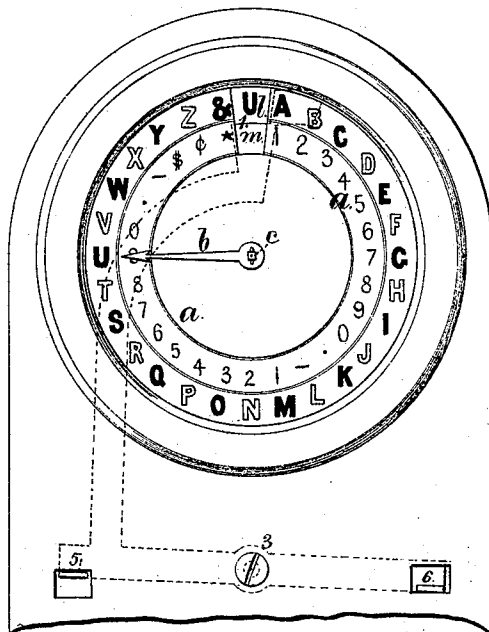
H. VAN HOEVENBERGH.  
DIAL TELEGRAPH.

No. 179,082.

Patented June 20, 1876.



*Fig. 1.*



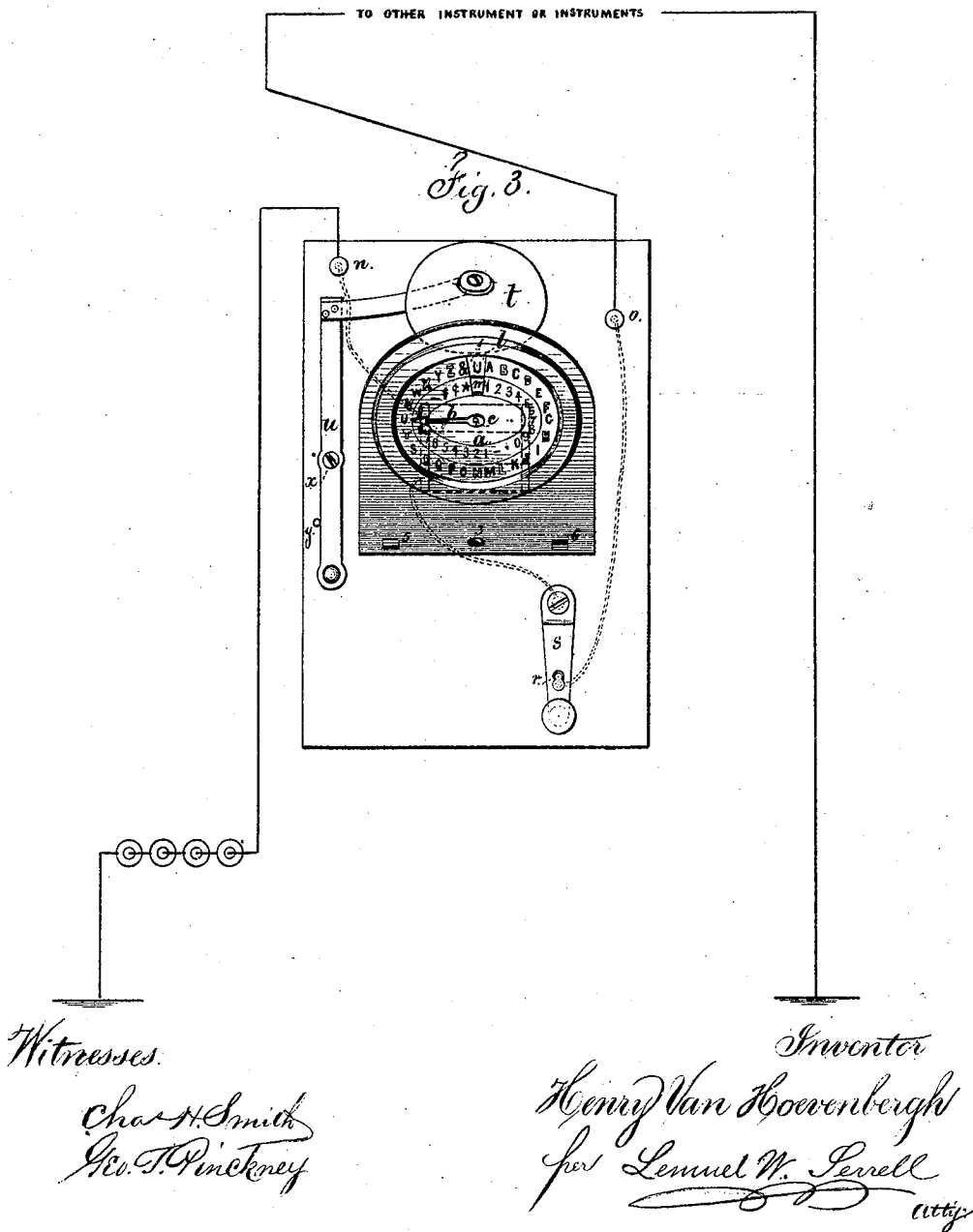
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att'y.

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DIAL TELEGRAPH.

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Patented June 20, 1876.



# UNITED STATES PATENT OFFICE.

HENRY VAN HOEVENBERGH, OF ELIZABETH, NEW JERSEY.

## IMPROVEMENT IN DIAL-TELEGRAPHS.

Specification forming part of Letters Patent No. **179,082**, dated June 20, 1876; application filed August 13, 1874.

*To all whom it may concern:*

Be it known that I, HENRY VAN HOEVENBERGH, of Elizabeth, in the county of Union and State of New Jersey, have invented an Improvement in Dial-Telegraphs, of which the following is a specification:

Dial-instruments in which a hand is operated by pallets and an electro-magnet are well known. My improvement relates to this general class of instruments, and has in view an increased capacity for the instrument without complicating the parts.

The instrument is operated by opening and closing the circuit, and the escapement-pallets are such that one letter is indicated upon an open circuit, and the next upon the closed circuit. Hence, I make the telegraphic characters on the dial, or marks thereon, alternating—one to indicate an open and the next a closed circuit—so that the operator, in sending a message, glances his eye around the dial, and (by the peculiarity of the letter to be stopped at) so he knows whether the key will be kept open or closed at the last moment, and thereby risk of error is lessened in finally stopping the hand at the given letter. The revolving hand and stationary dial are the most convenient in transmitting; but a revolving dial, seen through an opening, is the best for receiving, because the eye is intent only on the one letter or character so visible. I employ both a dial and a hand by mounting upon the shaft of the hand a dial of mica, with the figures and letters near the edge, and an opening is made in the stationary dial, through which to observe the revolving dial. I also provide, in connection with this opening, a compound cover, which, when moved one way, allows the letters to be seen, and when moved the other way uncovers the figures and covers the letters, so that risk of error in receiving is lessened. The electric circuit in which the instruments are placed is provided with keys that remain closed in a normal position; hence, all the instruments will be operated simultaneously by opening any one key in said circuit. The armature of the magnet has a hammer upon it, and a bell is fitted upon a movable arm, so that the operator, after receiving a message, moves the bell into position to be struck by

the hammer; hence, the bell becomes a call, and the noise thereof is instantly stopped by moving the bell away from the hammer.

In the drawing, Figure 1 is an elevation of the dial. Fig. 2 is a side view, with the dial in section; and Fig. 3 is a plan, in reduced size, of the instrument with the circuit-connection.

The stationary dial *a* is provided, preferably, with two annular rows of characters—one being letters, the other figures or signs. The letters are shown as alternating block and skeleton characters, the one indicating that the hand will be arrested at that character on an open circuit, and the other on a closed circuit, so that the operator will be assisted and acquire the habit of pausing at the intended letter, with the key either depressed or raised. An indication for the same object may be made upon the dial by means of radial lines or marks at every other character. The hand *b* is upon a shaft, *c*, and upon this shaft *c* is a wheel, *d*, that is actuated by pallets *e* upon the lever-arm of the armature *f*; and *g* is an electro-magnet to move the parts. Upon the shaft *c* is a dial, *l*, that, by preference, is made of mica, secured at the center by a disk or washer, and having around such dial characters corresponding to those on the dial *a*. These characters may be upon the mica itself, or upon paper affixed thereto, and in the dial *a* is an opening at 1, through which the characters on the dial *l* can be seen, and the position of the hand and revolving dial correspond, so that the character indicated on *a* by the hand will be visible on the dial *l* through the opening 1. In this manner the dial *a* will generally be employed in transmitting, and the dial *l* in receiving, for the reasons before named.

The cover *m* is made with an offset, (see dotted lines, Fig. 1,) and it is upon an arm centered at 3, and having the finger-pieces 5 and 6, so that the cover *m* can be swung to close either the lower or the upper part of the opening 1, and allow only the inner or the outer row of figures or characters to be visible.

The circuit-connections are made at the binders *n* and *o*, the metallic circuit passing through the magnet *g*, anvil *r*, and key *s*, to the binder *o*. This key *s* remains closed in a

normal condition, and the circuit is broken when the key is depressed. All the instruments in the line hence stand with the armature attracted by the magnet, and upon any one finger-key being depressed, and the circuit broken, all the instruments respond, and can be set around to any point.

The dial *a*, instead of having letters and numbers upon it, can be provided with words or short sentences, or these in addition, so as to be used as a domestic telegraph from room to room.

The bell *t* will be operated at the same time as an alarm or call by the hammer *v* upon the armature; but this bell *t*, being upon the swinging arm *u*, can be turned aside, so as not to be struck by the hammer; or the bell may be brought back to position at will, the arm *u* swinging upon the screw *x*, and being arrested by the stop *y*.

The parts may be so arranged that the escapement-lever *e* will strike the bell, and thus dispense with the hammer *v*.

I claim as my invention—

1. A dial provided with characters or marks to denote, on inspection, that the circuit is to be opened or closed at that point, in combination with a pointer, an electro-magnet, and pallets, substantially as set forth.

2. The stationary dial *a*, with an opening, 1, in it, in combination with a hand, *c*, and a second dial, *m*, revolving behind the opening, and revolved by the shaft of the hand *c*, substantially as set forth.

3. The dial *a*, with opening 1, in combination with the shifting cover *m* and dial *l*, substantially as set forth.

4. The bell *t*, mounted upon an arm, and movable therewith, in combination with the swinging armature and hammer, substantially as set forth.

Signed by me this 27th day of July, A. D. 1874.

HENRY VAN HOEVENBERGH.

Witnesses:

GEO. T. PINCKNEY,  
CHAS. H. SMITH.