

J. E. SMITH.  
ELECTROMAGNETIC TELEGRAPH.

No. 33,269.

Patented Sept. 10, 1861.

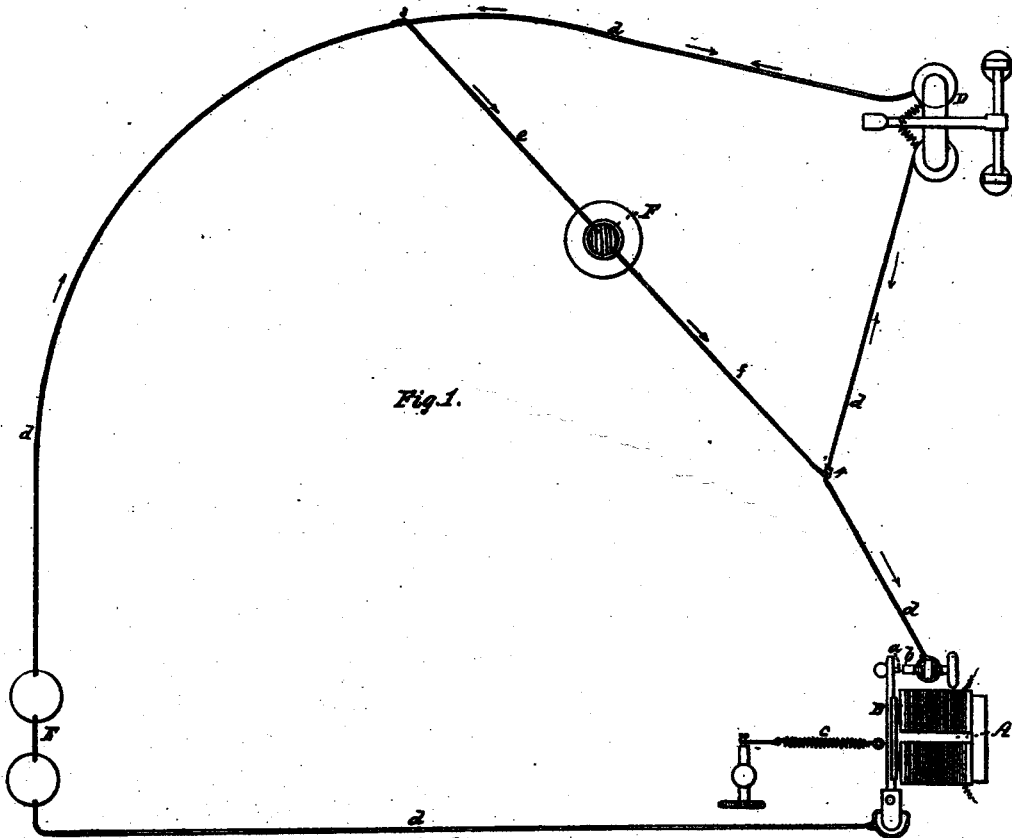


Fig. 1.



Fig. 2.

Witnesses  
J. C. Conely  
M. de L'Imprent.

Inventor.  
J. E. Smith  
per J. M. W. C. G.  
Attorney

# UNITED STATES PATENT OFFICE.

J. E. SMITH, OF POUGHKEEPSIE, NEW YORK.

## IMPROVEMENT IN ELECTRO-MAGNETIC TELEGRAPHS.

Specification forming part of Letters Patent No. 33,269, dated September 10, 1861.

*To all whom it may concern:*

Be it known that I, J. E. SMITH, of Poughkeepsie, in the county of Dutchess and State of New York, have invented a new and useful Improvement in Electro-Magnetic Telegraphs; 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 plan of the local circuit of a telegraph-line, illustrating the application of my invention. Fig. 2 is a vertical section of the principal portion of the supplemental conductor, which constitutes the essential feature of my invention.

Similar letters of reference indicate corresponding parts in both figures.

This invention relates to all electro-magnetic telegraphs in which a local circuit is used. Its object is to prevent the magneto-electric current induced in the local circuit from darting through the air between the relay-points and thereby disrupting the metal from the said points and transferring particles of it from one point to the other, and thus, by forming a flexible conductor between the said points, keeping the local circuit closed after the main circuit has been opened.

The invention consists in the application to the local circuit of a supplementary conductor composed wholly or in part of some substance of feeble conducting power, as water, through which but a very small portion of the local-battery current will pass when the local circuit is closed, but through which the induced magneto-electric current will pass, rather than dart through the air between the relay-points, when the said circuit is open, said conductor touching the local circuit in two places, one of which may be anywhere between one of the opening and closing points of the relay and the register or sounder magnet, and the other between the other of the said points and the other side of the said magnet. By the use of this conductor a less movement of the armature of the relay-magnet may be made effective, the armature may be brought closer to the poles of the magnet, and a finer adjustment of the armature, and a weaker armature-spring may be used, and the line may be made to work with a weaker main battery or better with a main battery of a given strength.

To enable others skilled in the art to make

and use my invention, I will proceed to describe it with reference to the drawings.

Fig. 1 represents the several parts of the local circuit arranged not so much with a view to practical convenience as to explain the application of my invention.

The arrangement of the parts is immaterial, so far as my invention is considered, and may be the same as is commonly adopted in telegraph-offices, or any other that is convenient.

A is the relay-magnet; B, its armature; *a* and *b*, the opening and closing points of the circuit; *c*, the armature-spring; D, the register; E, the local battery; and *d*, the ordinary conducting-wires of the local circuit.

F *ef* is the supplementary conductor, which constitutes my invention, consisting of a bottle of water, F, and two separate wires, *e* and *f*, passing through the cork and entering the water. These wires *e* and *f* are connected with the conductor *d* at the point 3 between the relay-point *a* and one side of the register-magnet, and at the point 4 between the relay-point *b* and the other side of the register-magnet. This conductor may be made more or less feeble by separating more or less the ends of the wires *e f*, which are in the water. When the main circuit is open and the armature B is held back by the spring *c*, keeping the points *a b* separated, the induced magneto-electric current in the local circuit takes the direction of the red arrows shown in Fig. 1 through the conductor F *ef*, and when the local circuit is closed in the points *a b* by the attraction of the armature B, produced by the closing of the main circuit, the local circuit is formed, as usual, by the conductor *d*, as indicated by the black arrows in Fig. 1, a quite inconsiderable portion of the local-battery current passing through the conductor F *ef*.

I do not confine myself in carrying out my invention to the use for the purpose specified of a conductor composed in part of water, as described, as any other poor conducting substance may be substituted for water; but

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

A supplementary conductor applied to the local circuit, to operate substantially as and for the purpose herein specified.

J. E. SMITH.

Witnesses:

F. H. LAWRENCE,  
HENRY A. REED.