4. Block insulators, named for their shape, were made of porcelain. Williams 1876, 4.


6. Painted wire resisted rust and corrosion, which was especially important if the wire was exposed to large quantities of coal and coal gas fumes. Maver 1912, 511.

7. Regarding compound wire, see Doc. 44.

8. Probably Edison's magnetograph.

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Receipt from Charles Williams, Jr.

Boston Mar 31 1869

$180— Received of T. A. Edison One Hundred and Eighty Dollars X100 on account

C. Williams Jr

ADS, NJWOE, DF (TAEM 12:35). “X” written above “100”. “Boston”, “186”, “$”, “Received of”, and “Dollars 100 on account” preprinted. Canceled 2e Internal Revenue stamp at left.

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Section from Franklin Pope’s Modern Practice of the Electric Telegraph

New York, March 2, 1869

161. Edison’s Button Repeater. This is a very simple and ingenious arrangement of connections for a button repeater, which has been found to work well in practice. It will often be found very convenient in cases where it is required to fit up a repeater in an emergency, with the ordinary instruments used in every office. Fig. 57 is a plan of the apparatus.
M is the western and \( M' \) the eastern relay. E is the main battery, which, with its ground connection \( G \), is common to both lines. \( E' \) is the local battery, and L the sounder. S is a common "ground switch," turning on two points, 2 and 3. In the diagram the switch is turned to 2, and the eastern relay, therefore, repeats into the western circuit, while the western relay operates the sounder, the circuit between 1 and 2 through the sounder and local battery being common to both the main and local currents. If the western operator breaks the relay \( M \) opens, and consequently the sounder, L, ceases to work. The operator in charge then turns the switch to 3, and the reverse operation takes place; the western relay repeats into the eastern circuit, and the eastern relay operates the sounder. The sounder being of coarse wire, offers but a slight resistance to the passage of the main current.

PD, Pope 1869, 107–8.


2. Taken from the preface to Pope's book.

3. See Doc. 15.

4. Opens the circuit.

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**To Joel Hills**

Mr Hills

The Transmitters\(^1\) will be done by Tuesday next—

These instruments which I intend to put in are good ones but are out of order and look quite dirty The Bases which they are on have been altered so many times that They are all full of Holes and Look bad I would advise taking the instruments all apart clean and adjust them and make an alteration in the Paper Cam. And placing Instrument and Transmitter all on one Base Black walnut or Mahogany The Cost of cleaning altering and fixing up the Instruments in

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**January–June 1869**

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