

months ago, the inventor, at New York, sent his compliments to the operators in all the principal cities along the route, and received a distinct and intelligible reply from every one of them in *five minutes!*

We give, as above, a wood-cut, representing the position of the Electro-Magnetic Batteries, &c., at both ends of the wire, which is supposed to be extended from Toronto to Boston, and shall endeavour to give our readers an idea of its operation. It is well known that a piece of steel may, in various ways, be made magnetic; that is, it will attract and repel certain substances like the needle of a compass; but it is not so generally known that a piece of soft iron may, by wrapping it round with wire in a particular manner, be made a most powerful magnet, *at pleasure*, by bringing the ends of the wire in contact with the poles of a Galvanic Battery. This Battery may be made with a few plates of zinc and copper placed near to, but not touching one another, and then immersing them in a solution of blue vitriol, which immediately acts upon the plates, and produces Electricity or Galvanism, a principle identical with Lightning. A Battery of this kind is placed anywhere on the line of the wire. The end of the wire at Boston is fastened to a large sheet of copper, which is sunk in the mud at one of their wharves, and the end at Toronto must be fastened to another sheet, and buried any where in a dry sandy part of the ground. All is now complete to allow of the passage of the Galvanic fluid or lightning, and all that is now wanted is the machinery to regulate its transmission. The moment the two wires from the two ends of the Battery are connected—the one with the wire extending over the ground to Toronto, and the other with the wire leading to the copper plate buried in the mud, a current of Galvanic fluid begins instantly to pass to Toronto along the wire, and from Toronto to Boston, *through the ground*, from the one buried plate to the other, in a manner which cannot be explained. The passage of the fluid can be closed or opened at once, by connecting or disconnecting one of the wires of the Battery. This forms the agency or power of the Telegraph. But the question arises, how can intelligible signs be produced by it? It is done thus:—A powerful magnet, such as we have described, is prepared at both ends, or, rather, the iron, which can be made a magnet at pleasure, is placed there: with this is connected a piece of clock-work, which, the moment the operator at Toronto opens a passage for the fluid, it charges the magnet at Boston, causes the machinery to move, and a small hammer to strike, which can be stopped or set in motion at his pleasure. By touching the key of this machine for one moment in Toronto, the hammer falls for one moment in Boston, and makes one dot with its steel point on a piece of soft paper; if he touch the key 2, or 10, or 20 times rapidly in succession, the hammer in Boston does the same; if he holds down the key for any time, the hammer at Boston is down also at the same time, and as the clock-work there is moving the paper, the point of the hammer, instead of producing a dot, produces a line upon it; and in this way, by an alphabet composed of *lines* and *dots*, any communication whatever can be sent as fast as the operator can regulate and move his key! The following is the Telegraphic Alphabet now in use in the United States. We congratulate our readers that there is a fair prospect of the advantages arising

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