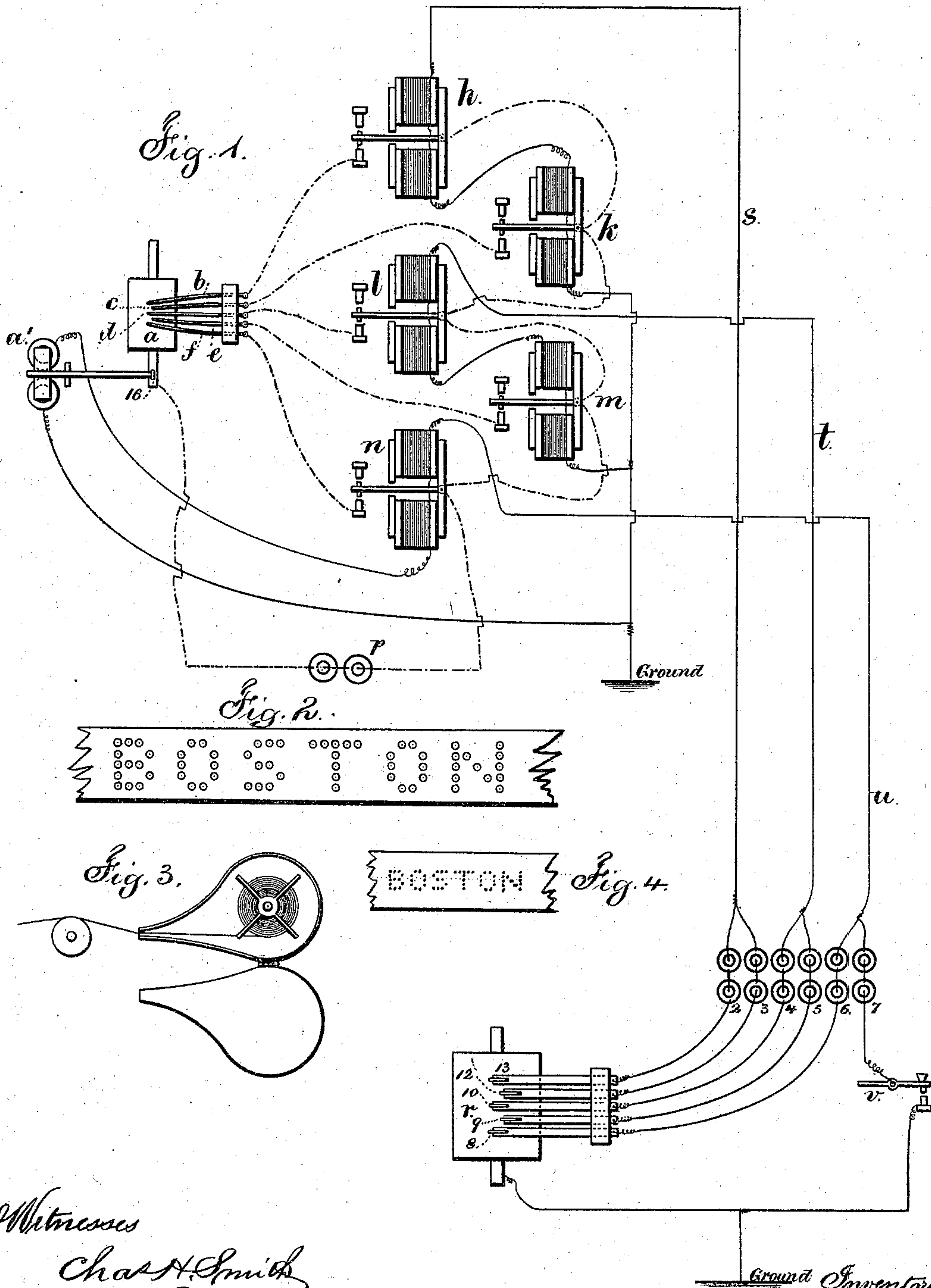


C. BATCHELOR.

AUTOMATIC ROMAN-CHARACTER TELEGRAPH.

No. 173,754.

Patented Feb. 22, 1876.



Witnesses

Chas. H. Smith  
Geo. J. Imckney

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# UNITED STATES PATENT OFFICE.

CHARLES BATCHELOR, OF NEWARK, NEW JERSEY.

## IMPROVEMENT IN AUTOMATIC ROMAN-CHARACTER TELEGRAPHS.

Specification forming part of Letters Patent No. **173,754**, dated February 22, 1876; application filed September 15, 1875.

*To all whom it may concern:*

Be it known that I, CHARLES BATCHELOR, of Newark, in the county of Essex and State of New Jersey, have invented an Improvement in Automatic Telegraphs, of which the following is a specification:

The object of this invention is to transmit and record Roman letters upon chemically-prepared paper over several wires, at a distance, for the purpose of reporting the price of stocks, gold, &c.

The invention consists in the combination of a roller for giving motion to the chemically-prepared paper with a number of recording points, wires, or styluses, and a number of polarized relays placed in the various circuits, the tongues of which connect and disconnect the current from the local battery with the recording points. It further consists in the arrangement of circuits for forming letters and numerals by the transmission of positive and negative currents by groups of perforations in a strip of paper at the transmitting station, which currents give motion to the tongues of polarized relays placed in the several circuits which open and close a local circuit connected to the recording-pens.

In the diagram, Figure 1, *a* is the drum, which serves to carry forward the chemically-prepared paper, upon which the characters are to be recorded by chemical decomposition. This drum is rotated by clock-work, and constructed in the usual manner, with the exception that one of the shafts, which rotates slower than the drum, is provided with a worm or cam, whereby the clock-work is automatically stopped after *a* has made a certain number of revolutions, should the lever of the magnet *a'* fail to arrest its rotations by coming in the path of the pin 16. *b c d e f* are the recording-points, tipped, preferably, with platinum, resting upon the chemically-prepared paper. *b, d,* and *f* are placed slightly in advance of *c* and *e*, the former recording by positive currents sent on the various circuits containing the polarized relays *h k l m n*, and *c e* recording on negative currents, which immediately follow the positive ones, and vice versa. The decomposition of the chemical in the moistened strip is effected by the current from

a local battery, *p*, the positive pole of which is connected to all the tongues of the polarized relays, while the negative pole is connected to the drum *a*. The polarized relays *h k* are placed in one circuit, *s*, and are so adjusted that when no current is passing over the circuit the tongues are not in connection with their contact-points. The relays *l m* are placed in the main *t*, and their tongues also do not connect with their contact-points. The relay *n* is placed with the releasing-magnet *a'* in the third main circuit *u*, its tongue remaining in the same position as the other relays. In this position the local current from *p* is broken at all points, and no marks are made on the chemical paper. If, now, the first portion of a letter is transmitted over the circuits *t s*, the currents will be negative, and the tongues of the relays *k m* will come in connection with their contact-points, and put the recording-points *c e* in connection with the battery *p*, recording a portion of the letter. Immediately the negative current is discontinued the tongues of *k n* fly away from their contact-point, and at the instant the marks made by *c e* have, by the rotation of the drum *a*, reached a point just opposite the points *b d f*, a series of positive currents are sent over *s t u*, and the tongues of *h l n*, which do not respond to the previous negative current, come in connection with the contact-points, placing the local battery in connection with *b d f*, recording another portion of the letter, and so on until the letter has been recorded.

I will now describe the method which I adopt to transmit positive and negative currents from perforated paper. *r* is the drum, which serves to carry the paper forward. Resting upon the drum are five contact-rollers. The roller 13 is connected to a battery, 2, with its positive pole to the line *s*. 12 is connected to a battery, 3, having its negative pole to the line *s*. 9 and 10 are connected to batteries 4 and 5, with the poles connected, as 2 and 3, to the line *t*, while the roller 8 is connected to the battery 6, which has its positive pole connected to the line *u*. The battery 7 has its negative pole to the line *u*, and is connected and disconnected by opening and closing the key *v*. The current from this battery, acting



on the polarized magnet  $a'$ , moves its armature, and allows the clock-work to move the drum  $a$ .

In Fig. 2 is shown a Roman letter formed of groups of holes, the passage of which, under the rollers upon  $r$ , will readily show the manner in which the alternate positive and negative currents are sent, and corresponding letters made upon the chemical paper, as indicated in Fig. 4.

The drum  $r$  may either be rotated by hand or any suitable source of power.

The circuits at the transmitting-instrument, and the key to close the line-circuit and liberate the mechanism that rotates the receiving-drum, may be used with stylus-points and circuits adapted to receive without the relays and local circuits.

If the chemical paper is dispensed with, and the levers of the polarized relays massed together over the drum  $a$ , provided with ink-wheels inked by an inking-disk, or in any suitable manner, the record can be in ink, instead of the levers closing circuit and recording by chemical decomposition.

Fig. 3 shows a case made with a lid for holding the roll of moistened chemical paper, so as

to lessen the evaporation and maintain the paper in condition for use.

I do not wish to confine myself to any particular number of circuits, as the employment of an additional circuit will allow of the use of two more recording-pens, and consequently more perfect Roman characters can be formed.

I claim as my invention—

1. The receiving-drum for the chemical paper, and the range of styluses, some of which are in advance of the others, in combination with the relay electro-magnets, local circuits, and line-connections, substantially as set forth.

2. In combination with the range of transmitting points or rollers and the circuits from the batteries, the finger-key at the sending-station, and the electro-magnet at the receiving-station, to liberate the receiving mechanism and allow the same to revolve, substantially as set forth.

Signed by me this 31st day of August, A. D. 1875.

CHAS. BATCHELOR.

Witnesses:

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