

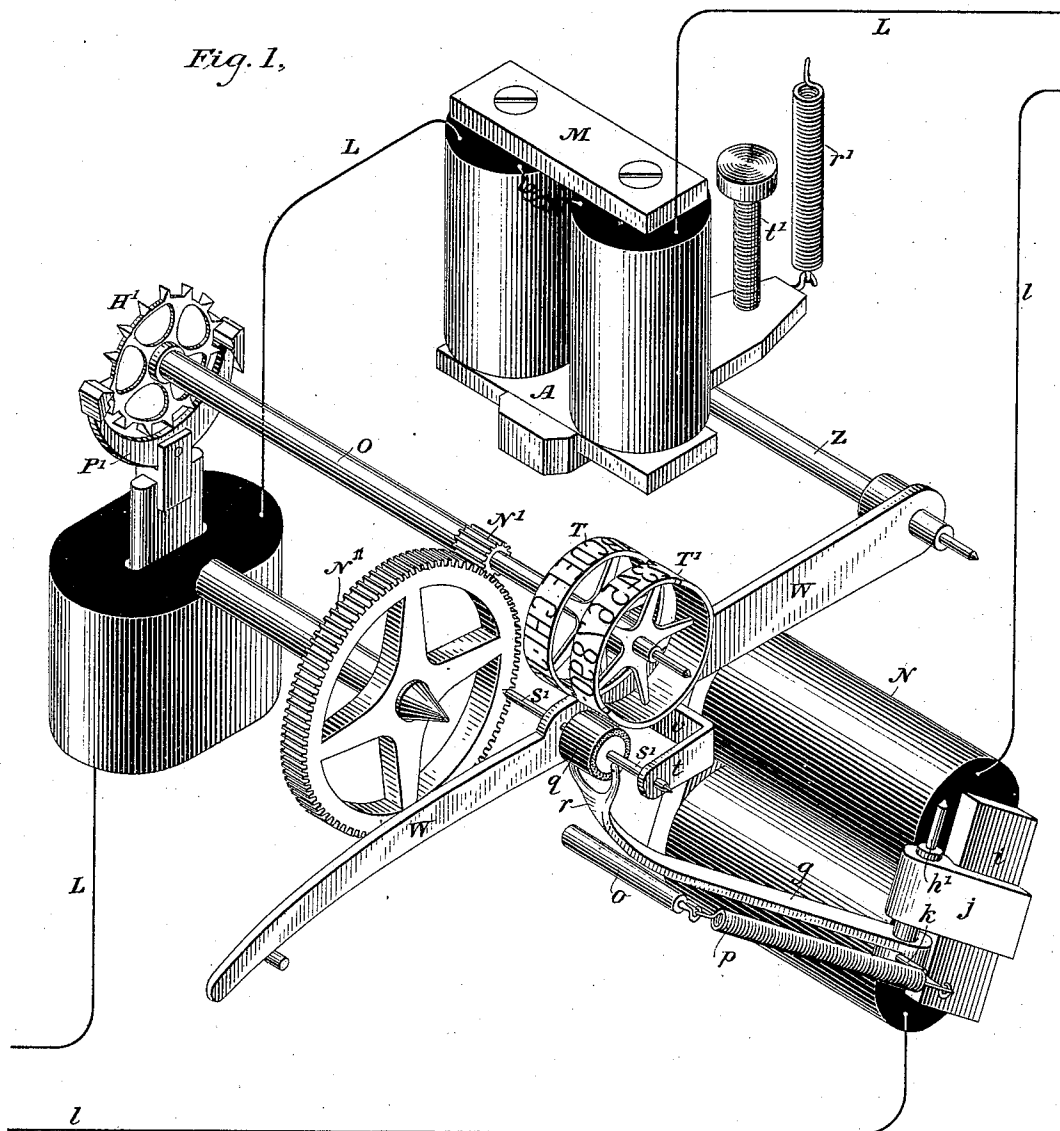
(No Model.)

2 Sheets—Sheet 1.

G. B. SCOTT.
PRINTING TELEGRAPH.

No. 319,855.

Patented June 9, 1885.



Witnesses

Wm A. Slinko
Carrie O. Ashley

Inventor

George B. Scott,

By his Attorney

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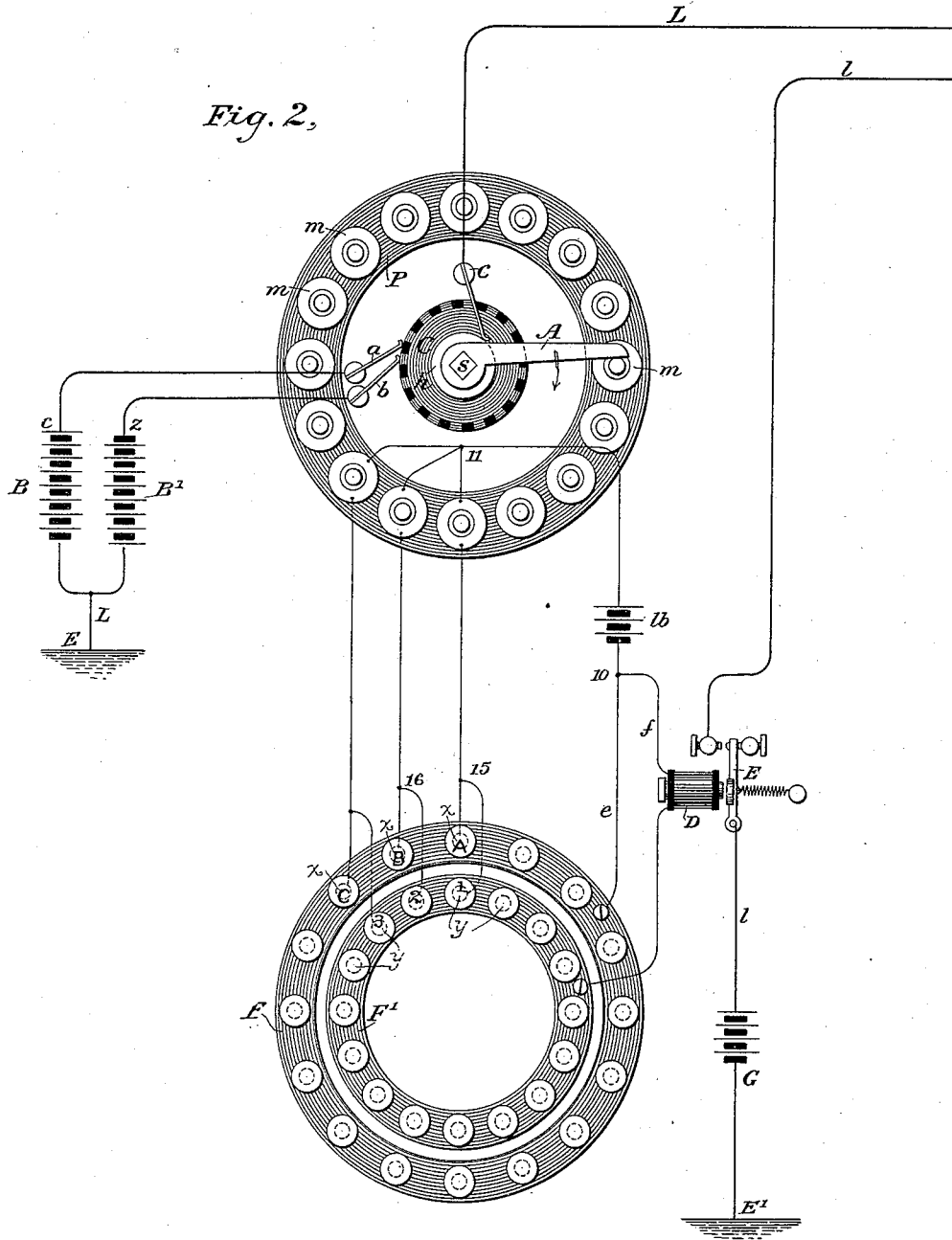
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UNITED STATES PATENT OFFICE.

GEORGE B. SCOTT, OF BROOKLYN, ASSIGNOR TO THE WESTERN UNION TELEGRAPH COMPANY, OF NEW YORK, N. Y.

PRINTING-TELEGRAPH.

SPECIFICATION forming part of Letters Patent No. 319,855, dated June 9, 1885.

Application filed September 20, 1884. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. SCOTT, of the city of Brooklyn, county of Kings, and State of New York, a citizen of the United States of America, have made a new and useful Improvement in Printing-Telegraphs, of which the following is a specification.

My improvement relates to double type-wheel printers, by which groups of letters and figures are alternately printed in two lines near the margins of a single strip of paper. Where a single press-pad is employed to accomplish this result, it is either usual to have two independently-rotated type-wheels or else, if the two type-wheels are rigidly connected together, that they be rotated to a predetermined position, where, upon the operation of the press mechanism, the press-pad is thrown to one side or the other to print from either the letter or figure wheel, at the will of the transmitting operator.

The object of my invention is to enable the printing of letters after figures, and vice versa, without first rotating the type-wheels to a predetermined position, by means of mechanism of greater efficiency, and which is less intricate than any heretofore employed for that purpose.

My invention is here shown as applied to a printer in which the step-by-step rotation of the type-wheels is controlled by short electrical impulses alternately of positive and negative polarity. The escapement electro-magnet for controlling the rotation of the type-wheels is in the same circuit with a neutral electro-magnet, which is only brought into action to effect printing upon a prolongation of one of the short impulses employed to rotate the type-wheels.

The controlling of the rotation of the type-wheels and the taking of impressions upon a strip of paper are effected solely by electrical currents transmitted over one main line. To determine, however, from which of the two type-wheels an impression shall be taken, a second and independent main line, burdened with no other condition of operation, is employed. The second line includes at each instrument, preferably, a neutral electro-mag-

net, which serves to shift the press pad from one side to the other under either type-wheel at the will of the transmitting operator. This second main line is normally opened, and remains so at all times during the printing of letters, and the armature-lever of the electro-magnet therein is normally held in such a position by a retracting-spring as to retain the press-pad under the letter-wheel while no current is flowing over said line; but when it is desired to print a figure instead of a letter a current is transmitted over the second main line at the same time that the type-wheels are being rotated to a position to print. Thus, while the type-wheels are being rotated, the press-pad is shifted under the figure-wheel by the attraction of the armature of the electro-magnet in the second line, and upon a prolongation of current on the first line the impression of a figure will be taken.

I will now describe my invention by a reference to the accompanying drawings.

Figure 1 represents a view of that part of a receiving-instrument to which my invention relates. Fig. 2 represents a diagram of the transmitter.

T T' are type-wheels, respectively provided upon their peripheries with letters and figures, which are subject to a constant tendency to rotation through a pinion, N', and a clock-motor connected therewith by a spur-wheel, N". Upon the same shaft O with the type-wheels is an escapement-wheel, H', whose step-by-step rotation is controlled by escapement-pallet P', actuated by an electro-magnet whose coils are in the circuit L with those of magnet M, for controlling the operation of the press-lever. Press-lever W is pivoted upon a shaft, Z, and connected to armature A, to which is attached a tail-piece and a retracting-spring, r'.

t is an adjustable stop for limiting the retracted position of the press-lever.

The press-lever W under the type-wheels is provided with a bracket, v, to which is attached an arm, t, at right angles thereto and parallel with arm W. A spindle, s', having a press-roller, q, rigidly attached thereto, is loosely journaled in arm t and lever W, there-

by enabling said press-roller to be laterally shifted to one side or the other immediately under either type-wheel.

N is an electro-magnet, whose coils are included in a second main line, *l*.

i is an armature attached to an armature-lever, *j'*, which is pivoted at *h'*. Forked arm *g* is rigidly attached to *j*, and carries at its pendulous or free end *r* two prongs pressing, respectively, against the opposite disk-faces of press-roller *q*. Lever *g* is provided with an arm, *k*, which is connected by means of a retracting-spring, *p*, to the fixed post *o*. When no current is passing over line *l*, under the influence of retracting-spring *p*, lever *g* holds press-roller *q* to the right or directly under the letter type-wheel. On the other hand, if a current is flowing over line *l*, armature *i* is attracted and lever *g* holds the press-roller to the left or under the figure type-wheel.

Instead of the prongs of lever *g* for operating press-roller *q*, the free end of *g* could be connected to spindle *s'* by any ordinary joint which would permit said arm to give the press-roller a to-and-fro movement.

I do not intend to limit my invention to any particular means of connecting lever *g* to the press-roller *q*; but I wish to broadly claim the laterally-shifting press-roller and the armature-lever *g* for controlling the same.

In the transmitter shown in Fig. 2, C is a circuit-reversing wheel, whose periphery is provided with conducting and non-conducting spaces, with which two conducting-brushes, *a* and *b*, respectively connected to the copper pole of battery B and zinc-pole of battery B', make frictional contact. The conducting and non-conducting spaces are of equal length, and the free ends of brushes *a b* rest upon the periphery of said wheel, a distance apart equal to one space, thus enabling a current to alternately flow from a copper and zinc pole. Wheel C has a metallic hub, *h*, and a contact-brush, *c*, connected with the main line L.

P is a base-board carrying a circular series of electro-magnets, which are equal to the characters upon each type-wheel, for arresting rotating arm A, which is rigidly connected with the circuit-breaking wheel C by means of shaft *s*. Shaft *s* is geared with a constantly-moving motor, and its rotation is continuous as long as the arm A is not arrested by any one of the circular range of electro-magnets *m'*. When, however, the armature of an electro-magnet, *m*, is projected into the path of A, the circuit-breaking wheel C is arrested and a prolonged positive or negative current is transmitted to line, according as the spring *a* or *b* happens to be in contact with a conducting portion of said wheel.

F F' are two circular rings, of conducting material, insulated from each other, carrying finger-keys, which respectively represent the letters of the alphabet upon the periphery of one type-wheel, and numerals and various other characters upon the periphery of the other type-wheel.

x is a series of anvils or stops forming electrical contacts for the letter-keys, and *y* is a series of anvils or stops forming electrical contacts for the figure-keys. If the letter A on one type-wheel is abreast of the figure 1 on the other type-wheel, and B is abreast of figure 2, &c., it is obvious that the depression of the finger-key A should cause arm A to be arrested in the same position as would the numeral-key representing the figure 1, and likewise that letter-key B and figure-key 2 should arrest arm A in the same position. To accomplish this result, the anvils of letter-key A and figure-key 1 are connected together at point 15, and thence by a common wire through one of the electro-magnets *m*, thence to point 11 and battery Lb, point 10, to the key-frames F F' by branches *e f*. In like manner the letter and figure keys are connected in pairs to the other electro-magnets, *m*. By depressing letter-key A a local circuit will thus be completed through one of the electro-magnets *m*, and a local circuit through the same electro-magnet will also be completed by the depression of figure-key 1, thereby causing the arm A to be arrested in the same position, whether the letter-key A or the figure-key 1 is depressed. In the branch *f*, leading from point 10 to frame F', is an electro-magnet, D. Upon the depression of a figure-key, therefore, the armature E is attracted by electro-magnet D, and closes a second main line, *l*, connected with a battery, G, and the earth E'. The line *l* will obviously be closed in advance of the arresting-arm A. Thus upon the depression of the figure-key before a cessation of the short impulses for rotating the type-wheel to any desired position for printing, a current is directed from line *l*, and the press-roller of the receiving-instrument is laterally shifted under the figure type-wheel, whereupon, after the type-wheels have been set, an impression will be taken from the figure-wheel.

What I claim, and desire to secure by Letters Patent, is—

1. In a printing-telegraph, the combination of a main line embracing a printing and an escapement electro-magnet, substantially as described, two type-wheels, a second main line, apparatus whereby said main line is normally kept open and is only closed at or before the time of printing from one of the two type-wheels, and an electro-magnet in said second main line.

2. In a printing-telegraph, the combination of two type-wheels, a laterally-shifting press-roller, an electro-magnet, and an armature-lever for controlling the lateral position of said press-roller, and a main line connected with said electro-magnet, which is normally open, and means for closing the same during the printing of characters from one of the two type-wheels.

3. The combination, in a printing-telegraph, of a series of letter-keys, a series of figure-keys, local circuits therefor, an electro-magnet, D, in a branch of the figure-keys, a main line, *l*,

a press-shifting magnet, N, and double type-wheels T T', substantially as described.

4. The combination of an electrical pulsator for directing short electrical impulses over
5 line L, means for prolonging one of said impulses, a second main line, l, a series of letter and figure keys for arresting the pulsator upon the transmission of any desired number of im-
10 pulses, and means whereby said figure-keys are also adapted to close the second main line to shift the press-roller of a receiving-instrument, substantially as described.

5. In a printing-telegraph transmitter, the combination of a series of stop-magnets, m, to
15 each of which are connected two branches of a local circuit, one extending to a letter-key and the other to a numeral-key, a main line, l, for

determining from which type-wheel of a receiving-instrument impressions shall be taken, and an electro-magnet in one of said local
20 branches for opening and closing said main line.

6. In a printing-telegraph transmitter, two series of keys, respectively representing letters and figures, for arresting the transmitter,
25 a main line for determining from which of two type-wheels of a receiving-instrument impressions shall be taken, and a circuit closer or closers for opening and closing said line, which is controlled by one set of keys only.

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Witnesses:

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