

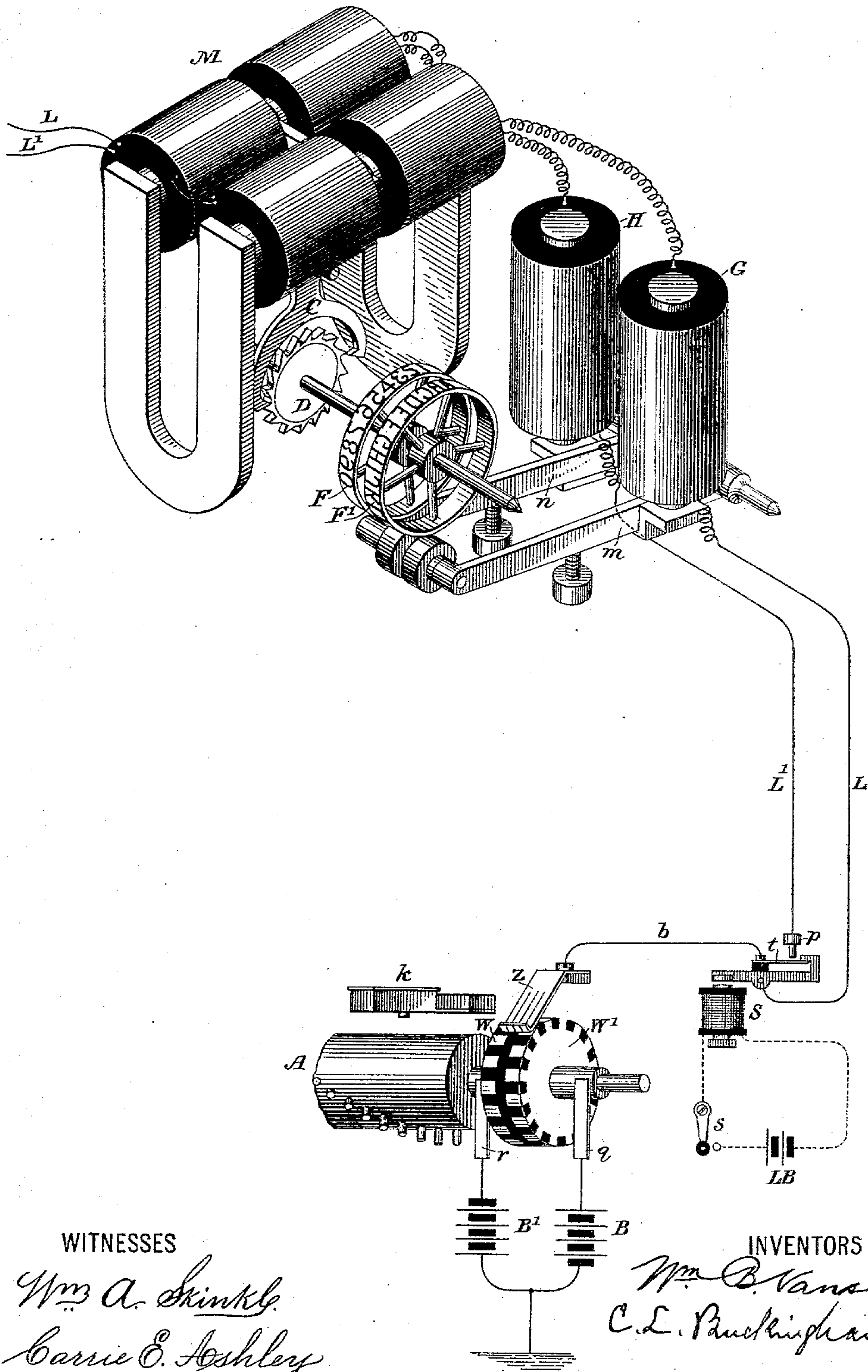
(No Model.)

W. B. VANSIZE & C. L. BUCKINGHAM.

PRINTING TELEGRAPH.

No. 300,417.

Patented June 17, 1884.





# UNITED STATES PATENT OFFICE.

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## PRINTING-TELEGRAPH.

SPECIFICATION forming part of Letters Patent No. 300,417, dated June 17, 1884.

Application filed March 8, 1884. (No model.)

*To all whom it may concern:*

Be it known that we, WM. B. VANSIZE, of the city of Brooklyn, county of Kings, and State of New York, and CHARLES L. BUCKINGHAM, of the city, county, and State of New York, citizens of the United States, have invented a new and useful Improvement in Printing-Telegraphs, of which the following is a specification.

Our invention relates to that class of printing-telegraph instruments having two type-wheels whose rotation is effected by a motor—such as a clock-work—and an electro-magnetic escapement controlled by short electrical impulses.

Hitherto, and prior to our invention, others had employed two type-wheels in printing-telegraph instruments, one having letters upon its periphery and the other figures. To enable the printing of letters to the exclusion of figures, and vice versa, complicated apparatus was necessarily employed—such, for instance, as that for the shifting of the two type-wheels longitudinally upon their axis to bring one type-wheel over the strip of paper and to move the other from above the strip; also, a shield had been used which could be interposed between the paper strip and either type-wheel. Again, the press-pad had been laterally moved under one type-wheel or the other. In all of these cases it was necessary, as a condition precedent to the shifting of the printing from one wheel or the other, to first rotate the type-wheels to a predetermined or zero position.

The object of our invention is to enable the printing from either of two wheels which may be rigidly fixed upon the same shaft without using intricate devices for determining upon which type-wheel an impression shall be taken, and without consuming time incident to the operation of first rotating the type-wheels to a predetermined or zero position. To this end we use two main lines, which extend from the transmitting-station to one or more receiving-stations. Either main line controls means for operating step-by-step escapement mechanism independently of the other line, and

each of said main lines controls means for taking an impression from one of two type-wheels only. Thus, for printing from each type-wheel we prefer to employ an independent platen, press-lever, electro-magnet, and main line. To set the type-wheels in position to print any desired character, a predetermined number of electrical impulses, as electrical reversals, (though mere makes and breaks might be used,) is transmitted over that main line the circuit of which controls the means for taking an impression from that wheel carrying the desired character, while the other main line, or the circuit which operates the impression mechanism of the type-wheel from which it is not desired to print, is left open and the entire battery strength concentrated on one wire. The means for taking an impression from either wheel consists of a press pad or platen operated by a neutral magnet which is so constructed as to remain inactive under the influence of short and rapid reversals in the polarity of current, but which is rendered operative under a prolonged impulse of either polarity. For the purpose of operating the escapement mechanism we provide an electro-magnet having two coils of equal size and resistance and exerting an equal and similar magnetic effect, one of which coils is placed in the circuit of each main line. A paper-feed operated by either or both printing devices should be employed, which may be of well-known form. For the purpose of shifting from the letter-wheel to the figure-wheel a switch is employed, and we prefer an electro-magnetic switch, which may be operated by the foot or knee. To this end we have shown a circuit-preserving switch governed by a local circuit and arranged to transfer the current of the transmitter instantaneously from one line to the other without opening the circuit or losing an impulse. The transmitter may be any of the well-known forms arranged to direct upon the line a series of reverse pulsations and to prolong an impulse or otherwise strengthen the effect of the current to print.

Referring to the accompanying drawing, M is a polarized electro-magnet, upon the core



of which are wound two equal and similar coils, one coil being placed in the main line L, the other in line L'.

H and G are two neutral electro-magnets, so constructed and adjusted as to respond more sluggishly than electro-magnet M. Electro-magnet G controls an armature-bar, *m*, carrying a press-pad for taking an impression from the letter-wheel F'. Magnet H controls armature-bar *n*, carrying a press-pad for taking an impression from the figure-wheel F.

The transmitter consists of two wheels, disks, or cylinders, W W', having in their periphery a series of alternate conducting and insulating spaces. The conducting-spaces in one wheel are opposite the insulating-spaces in the other. W' is connected by spring *q* with a generator of electricity of a certain polarity, B. W in like manner is connected to a generator, B', of opposite polarity through brush or spring *r*. Spring or brush Z forms a connection between the conducting-spaces of either disk or cylinder and either main line.

Upon the same arbor with disks W W' is a cylinder, A, having a series of pins helically arranged in position to be arrested by a suitably-arranged series of transmitting-keys, *k*, in a well-known manner.

S is an electro-magnetic circuit-preserving switch operated by the local battery L B and circuit-closer *s*, which may be arranged for operation by means of the foot or knee of the transmitting operator. An insulated spring, *t*, on the armature-bar of electro-magnetic switch S is connected by wire *b* to spring Z. The hooked armature-bar forms the terminal of one main line, L, and the contact-stop *p* forms the terminal of the other main line, L'. When the local circuit is open, line L is connected to the transmitter and line L' is open. When the local circuit is closed, line L' is connected to the transmitter and line L is open.

The operation is as follows: The transmitter-cylinder, rotated by any suitable motor, directs to line L, if the local circuit be open, a series of reverse impulses, which vibrate the escapement-pallet C and allow wheel D and the type-wheels located upon the same arbor to rotate step by step. The transmitting-key corresponding to the desired character having been depressed, the transmitting-cylinder is halted at the conclusion of the requisite number of reversals to bring the type-wheel into position, and the last electrical impulse is prolonged. This operates the printing-magnet G, and an impression is taken from the letter-wheel. If it be next desired to print a figure, the local circuit of switch S is closed by the circuit-closer *s*, and wire *b* is connected to line L', line L being simultaneously opened; but no impulse is lost, for, although a pulsation may be split, it will divide equally between the two lines, the resistance of which should be substantially equal, and the effect of the divided impulse in one line will sup-

plement that in the other. Reversals from the transmitter are thus transferred from one line to the other, and impressions taken from either wheel at pleasure.

We do not desire to herein broadly claim the combination, in a printing-telegraph, of two main lines, two independent press-magnets respectively placed therein, two type-wheels, and an electro-magnet for controlling their rotation; nor do we desire to herein cover in said combination the use of two type-wheels rigidly connected together, or multiple-are coils of the escapement electro-magnet.

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

1. In a printing-telegraph instrument having two type-wheels, the combination of a main line controlling a platen for taking an impression from one type-wheel, a second main line controlling a platen for taking an impression from the second type-wheel, an escapement mechanism under control of either line, a transmitter, and a switch for connecting either line thereto at pleasure.

2. In a printing-telegraph instrument having two type-wheels, the combination of a main line embracing the coils of an electro-magnetic impression device, a second main line embracing the coils of a second electro-magnetic impression device, and an electro-magnetic escapement common to both wires, a transmitter, and a switch for connecting either line thereto.

3. In a printing-telegraph, a letter-type wheel, an impression electro-magnet, and a main line containing the coils of said magnet, a figure-type wheel, a second impression electro-magnet, and a second main line containing the coils of said second magnet, in combination with an escapement electro-magnet having two coils located in said lines, respectively, a transmitter for directing to line reverse impulses, and a switch for connecting and disconnecting either line therewith at pleasure.

4. In a printing-telegraph having two type-wheels and two main lines, the combination of two independent press-magnets, one for each line, a transmitter, and a switch for connecting and disconnecting either line thereto.

5. In a printing-telegraph, the combination of the type-wheels F F', main lines L L', magnets H G, a transmitter, and an electro-magnetic switch, S, for connecting the transmitter with either main line.

6. In a printing-telegraph, the combination of the type-wheels F F', main lines L L', electro-magnets M, H, and G, a transmitter, and a switch, S, for connecting either line with said transmitter, substantially as described.

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