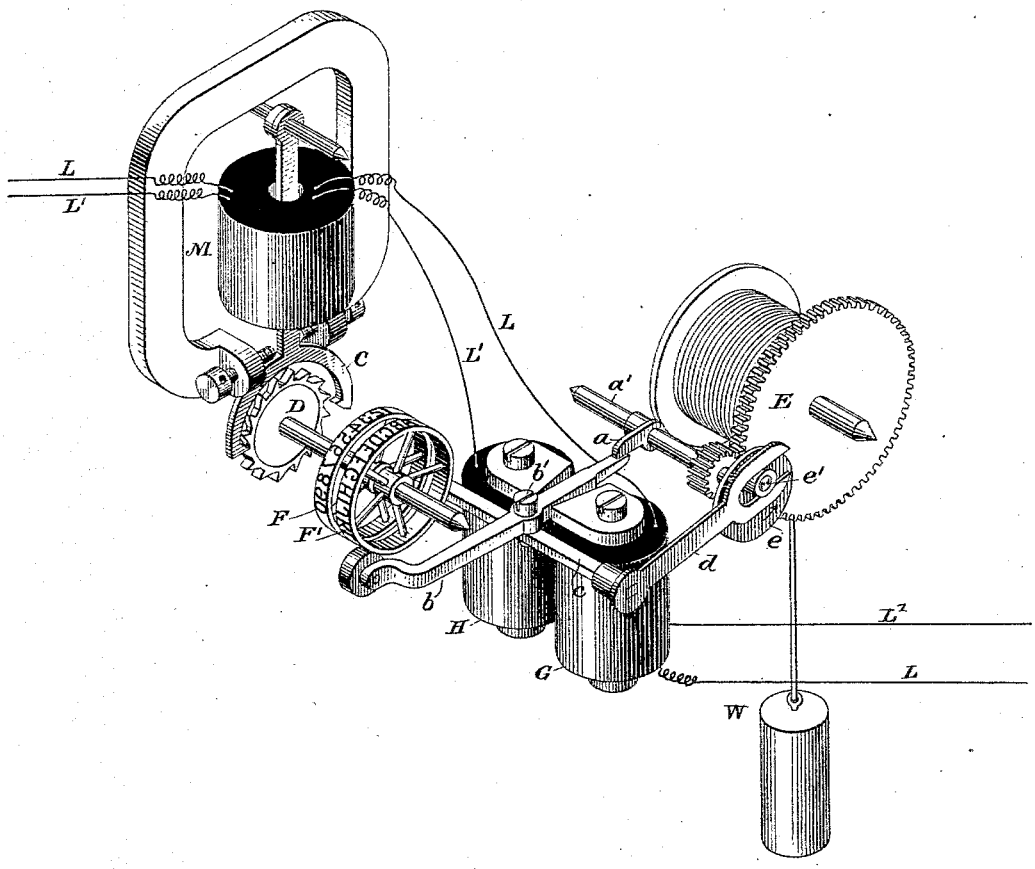
(No Model.)

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

PRINTING TELEGRAPH.

No. 304,052. Patented Aug. 26, 1884.



WITNESSES:

Wm A. Skinkle

Carrie E. Ashley

INVENTORS

Wm B. Vansize

C. L. Buckingham

UNITED STATES PATENT OFFICE.

WILLIAM B. VANSIZE, OF BROOKLYN, AND CHARLES L. BUCKINGHAM, OF NEW YORK, ASSIGNORS TO THE WESTERN UNION TELEGRAPH COMPANY, OF NEW YORK, N. Y.

PRINTING-TELEGRAPH.

SPECIFICATION forming part of Letters Patent No. 304,052, dated August 26, 1884.

Application filed April 26, 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, the two main lines respectively embracing two multiple-arc coils wound in the same direction upon the core of the escapement electro-magnet, and each of said main lines embraces the coils of an independent press-magnet. The motive power for taking an impression is furnished by any suitable motor having a constant tendency to start into action, but which is held in check by the projecting end of the bar, upon the opposite end of which the press-pad is located. This bar is pivoted at or near its center to a shaft of the press-motor train, and so that the end bearing the press-pad may have a reciprocating movement at right angles to the longitudinal direction of the bar. The end of the bar opposite the press-pad is situated between the poles of the two press-magnets, subject to their equal but opposite action. When impulses of electricity are simultaneously transmitted over both wires, the press-bar is held in a central position, the press-pad being in a plane midway between the wheels and its opposite end in the path of a stop on a shaft of the press-motor, holding said motor at rest.

To operate the instrument, impulses of electricity are transmitted over both wires, and when the desired character is positioned the circuit of the press-magnet corresponding to the wheel from which an impression is desired is broken, and the circuit is left closed upon the other wire. The end of the press-bar opposite the press-pad is thus drawn aside by the magnetism of the opposite press-magnet, and takes a position out of the path of the stop on the press-motor, which immediately starts into action, carrying the pad into contact with the desired character. To print from the other wheel, the operation is reversed as regards opening and closing the respective wires. Means for feeding the paper after an impression, and for going to unison, which are well known, must be supplied.

The accompanying drawing illustrates our invention.

M is an electro-magnet having two similar and equal coils, located, respectively, in the main lines L L′ and operating the escapement C D. Letter and figure wheels F F′ are rotated step by step by the escapement and press magnets G H, located, respectively, in main lines L L′.

E is a clock-work having a constant tendency to start into action. The cam-movement *e e'* and connecting-bar *d* furnish a semi-rotatory reciprocating movement to arbor or bar *c*, upon which is pivoted at *b'* press-bar *b*, carrying a press-pad at one extremity. The opposite end of this bar *b*, when in a central position, is in the path of a stop, *a*, on an arbor, *a'*, of press-motor E. Bar *b*, however, is under joint control of the press-magnets G H, and can only take a central position when said magnets are neutral or are equally magnetized.

If it be desired to take an impression from figure-wheel F, electrical impulses are simultaneously transmitted over both wires, the escapement is operated, and the desired character positioned, magnets G and H equally and oppositely affecting bar *b*. When the character is in position, the circuit of L' is broken and the circuit of L is closed. Magnet H being inoperative, magnet G draws bar *b* toward itself and out of the path of stop *a* on arbor *a'*. Press-motor E thereupon starts into action. A partial rotation is given to arbor *c*, the press-pad is struck against the desired character, and an impression is taken. To print from wheel F', line L is opened and L' left closed after the character has been brought to position.

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

1. In a printing-telegraph instrument, the combination of two main lines and an escapement electro-magnet having two multiple-arc coils, forming parts, respectively, of the two main lines, as described.

2. In a printing-telegraph instrument, the combination of two main lines, an escapement-magnet whose two coils form parts thereof, a printing-motor, and the two independent printing electro-magnets respectively placed in said main lines, for controlling said motor to print from one wheel or the other at pleasure, as described.

3. In a two-wire printer, the combination of two electro-magnets whose coils respectively form parts of the two wires, a clock-train for actuating a printing-bar, and a printing-bar which, when in a central position, arrests said clock-train from rotation, but which, when attracted to one side or the other by either press-magnet, releases said clock-work and permits an impression to be taken from one type-wheel or the other, according as the press-bar is attracted to one side or the other to release the clock-train.

4. Two type-wheels, in combination with a clock-train for actuating a press-bar which, in a central position, arrests said clock-train, and which press-bar, when attracted either to one side or the other, releases said clock-train to effect an impression from one type-wheel or the other, and two electro-magnets respectively located in the two main lines, for attracting said press-bar to one side or the other.

WM. B. VANSIZE.

Witnesses:
D. E. RICHARDS,
GEO. WILLIS PIERCE.

CHARLES L. BUCKINGHAM.

Witnesses:
WILLARD BROWN,
S. S. WALTERS.