

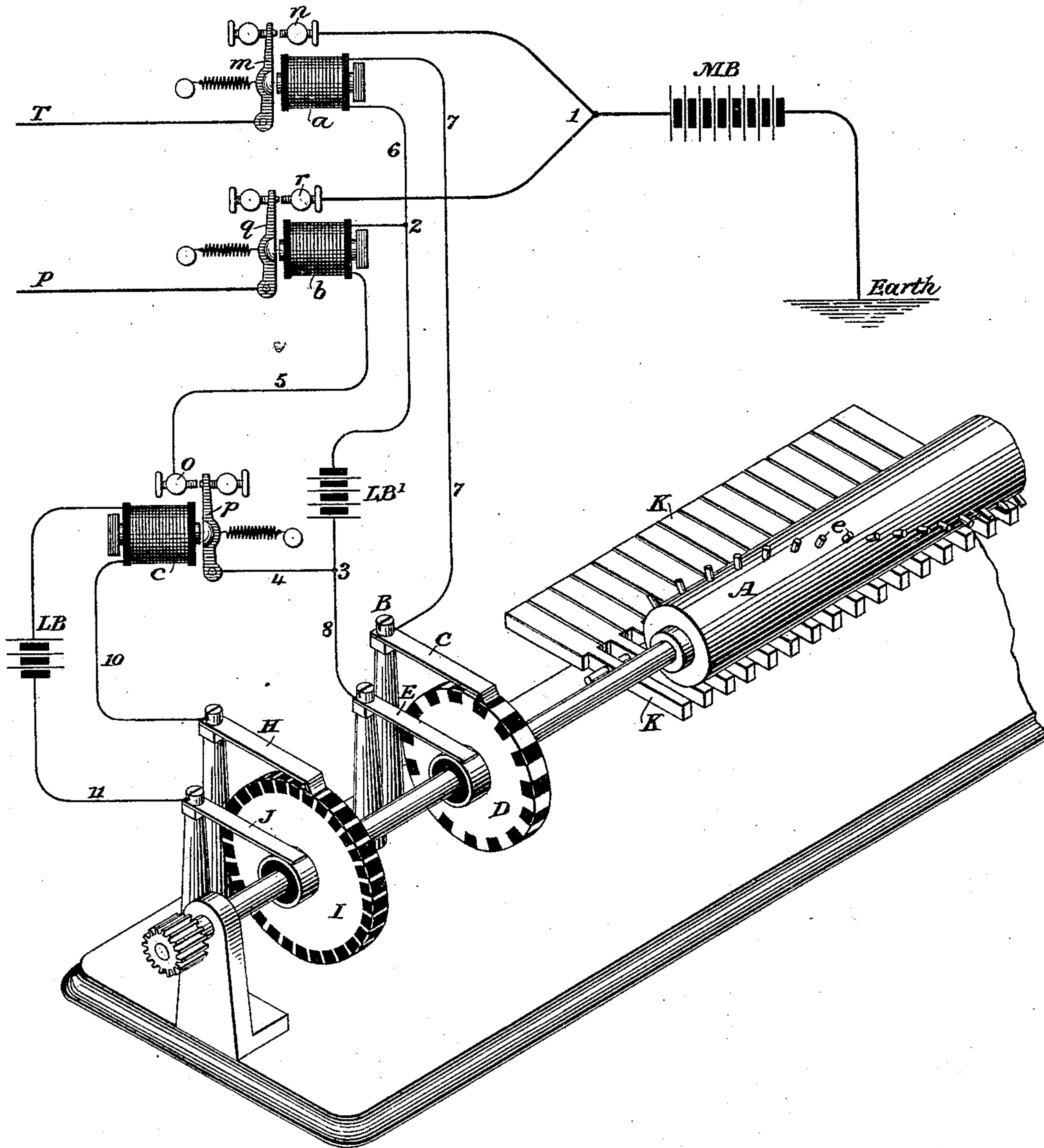
(No Model.)

G. B. SCOTT.

PRINTING TELEGRAPH TRANSMITTER.

No. 321,858.

Patented July 7, 1885.



Witnesses

Wm A. Link
Carrie C. Ashley

Inventor

George B. Scott,

By his Attorney

C. L. Buckingham

UNITED STATES PATENT OFFICE.

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

PRINTING-TELEGRAPH TRANSMITTER.

SPECIFICATION forming part of Letters Patent No. 321,858, dated July 7, 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, State of New York, a citizen of the United States of America, have made a new and useful Improvement in Printing-Telegraph Transmitters, of which the following is a specification.

My invention relates to that class of printing-telegraphs in which the type-wheel of a receiving-instrument is controlled by an electro-magnet in one main line, while the press mechanism is operated by an electro-magnet in a second and independent main line. A circuit-breaking wheel having half as many insulating-spaces as the type-wheel has characters opens and closes a local circuit in which is an electro-magnet, which in turn opens and closes the main line, which includes the type-wheel magnet. As the type-wheel is given a step of rotation upon the opening as well as the closing of the main line, it is obvious that the circuit-breaking wheel in the local circuit should have only one-half as many insulating-spaces as there are characters on the type-wheel.

To print a character, the circuit-breaking wheel is arrested, and when so arrested a local circuit is closed, which closes a second local circuit, which in turn closes the second main line—that is, the main line which includes the printing-magnet, hereinafter referred to as the press-wire.

Heretofore the press-wire has been opened and closed through the agency of a local circuit, which local circuit was opened and closed by means of a lever. The movement of said lever was effected by a wheel having as many cam-teeth as there were characters upon the type-wheel, and the cam-wheel was rigidly fixed to the same shaft as was the circuit-breaking wheel for controlling the type-wheel wire. During the rotation of the cam-wheel the lever controlled thereby opened and closed the local circuit with too great rapidity to permit its relay to respond, thus avoiding the closing of the press-wire. Upon arresting the cam-wheel, however, the lever would close its local for a prolonged period, and the press-wire would be closed, thereby causing the impression of a character from the type-wheel.

The employment of a cam-wheel and a cir-

cuit-closing lever controlled thereby has been found to involve many difficulties. Owing to the great rapidity of its vibration, it is noisy and subject to derangement, while the electrical contact with its anvil is uncertain. To overcome these objections I have substituted for the cam wheel and lever a circuit-wheel running in oil. This wheel, like the cam-wheel, is rigidly fixed to the same shaft with the circuit-wheel for controlling the type-wheel, and its periphery is provided with as many insulating-spaces as there are characters on the type-wheel. While impulses are being transmitted over the type-wheel wire to effect the rotation of the type-wheels, the impulses due to the press-circuit wheel are too short to cause the press-wire to be closed. When the circuit-wheel of the type-wheel wire is arrested, the press-circuit wheel is likewise arrested, and in such position as to always close its local circuit, and to consequently close the press-circuit.

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

F is a shaft, upon which are rigidly fixed, first, a key-cylinder, A, having a series of spirally-arranged stop-pins, e, which may be intercepted by keys K; second, a circuit-wheel, D, for controlling the number of impulses which shall be transmitted over the type-wheel wire T, having half as many insulating-spaces as there are characters upon the type-wheel of the receiving-instrument; and, third, a circuit-breaking wheel, I, having as many insulating-teeth as there are characters upon the type-wheel for controlling the press mechanism of the receiving-instrument upon press-wire P. Thus, if there were thirty characters upon the type-wheel, wheel D would have fifteen insulating and fifteen conducting spaces upon its periphery, while wheel I would have thirty narrow conducting-spaces and an equal number of comparatively broad insulating-spaces. It is desirable that the insulating and conducting spaces of D should be of about equal length; but in order that wheel I, when the type-wheel is being rotated, may close its local circuit for only so short a time as not to cause the press-wire to be closed, its conducting-spaces are made very narrow and the insulating-spaces broad. Upon arresting

the wheels D and I, spring H rests upon one of the conducting-spaces, thereby closing the local circuit of L B through post G, wire 10, relay C, wires 9 and 11, and spring J, which is in permanent contact with wheel I. Relay C in turn closes a local circuit of battery L B' through wire 4, lever *p*, anvil *o*, wire 5, relay *b*, to the opposite pole of the battery. Relay *b* closes press-wire P through armature-lever *q* and anvil *r* to point 1, battery M B, and earth. Battery L B' is also in a local circuit, including relay *a*, for opening and closing the type-wheel wire through armature-lever *m* and anvil *n*, and is completed from point 2 through wires 6 7, post B, spring C, wheel D, spring E, which is in constant contact with D, and wire S, to point 3.

It is manifest that relays *b* and *c* may be dispensed with. In case of such change the main line P would be connected to conducting-springs H J, and the circuit would be completed through said springs and the circuit-breaking wheel I. When said relays are dispensed with, the main line P will be momentarily closed, but not long enough to cause the operation of the press mechanism of the receiving-instruments. When said relays are employed, the main line P is not even momentarily closed during the rotation of the transmitter, from the fact that the armatures of the relays will not close during the passage of the short conducting portions of wheel I in contact with spring H.

Upon depressing one set of keys, as A C E, &c., wheel D will be arrested with spring C on an insulating-space, while upon depressing one of the alternate keys, C will rest upon a conducting-space. Thus, when any of one set of keys is depressed, the type-wheel wire will remain open, and upon depressing any of the other set it will remain closed during the entire time that D is arrested. The type-wheel of the receiving-instrument, however, will remain locked, whether the type-wheel circuit is opened or closed for a prolonged period,

since the escapement-pallet is moved in one direction by electro-magnetic attraction, and is moved in the opposite direction by a retracting-spring. The conducting-spaces of I, however, are so arranged that whenever a pin, *e*, is arrested by a key, *k*, one of said spaces is in contact with its spring, thus causing the impression of a character.

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

1. In a transmitter for a printing-telegraph, the combination of two main lines, a circuit-breaker for the type-wheel circuit, a circuit-breaking wheel having as many narrow conducting-spaces as there are characters on the type-wheel, and a series of key-stops, substantially as described.

2. The combination of two main wires—one to control the type-wheels and the other the press mechanism—a circuit-closer and relay for controlling the type-wheel wire, a second rotating circuit-closer having broad insulating and narrow conducting-spaces for controlling the press-wire, and a series of stop-keys, substantially as described.

3. In a printing-telegraph transmitter, the combination of a circuit-breaking wheel, I, having broad insulating and very narrow conducting-spaces, alternately arranged substantially as described, there being as many conducting-spaces as there are characters upon the type-wheel of the printing-instrument in circuit, and a main line, P, whereby, owing to said arrangement of conducting and insulating spaces, the main line will remain open during the rotation of said transmitter, and will be closed only upon arresting said transmitter from rotation, a main line, T, for controlling rotation of the type-wheels, and a circuit-breaking wheel, D.

GEO. B. SCOTT.

Witnesses:

C. L. BUCKINGHAM,
WM. ARNOUX.