(No Model.)

G. B. SCOTT.

TRANSMITTER FOR PRINTING TELEGRAPHS.

No. 304,037. Patented Aug. 26, 1884.

Fig. 1.

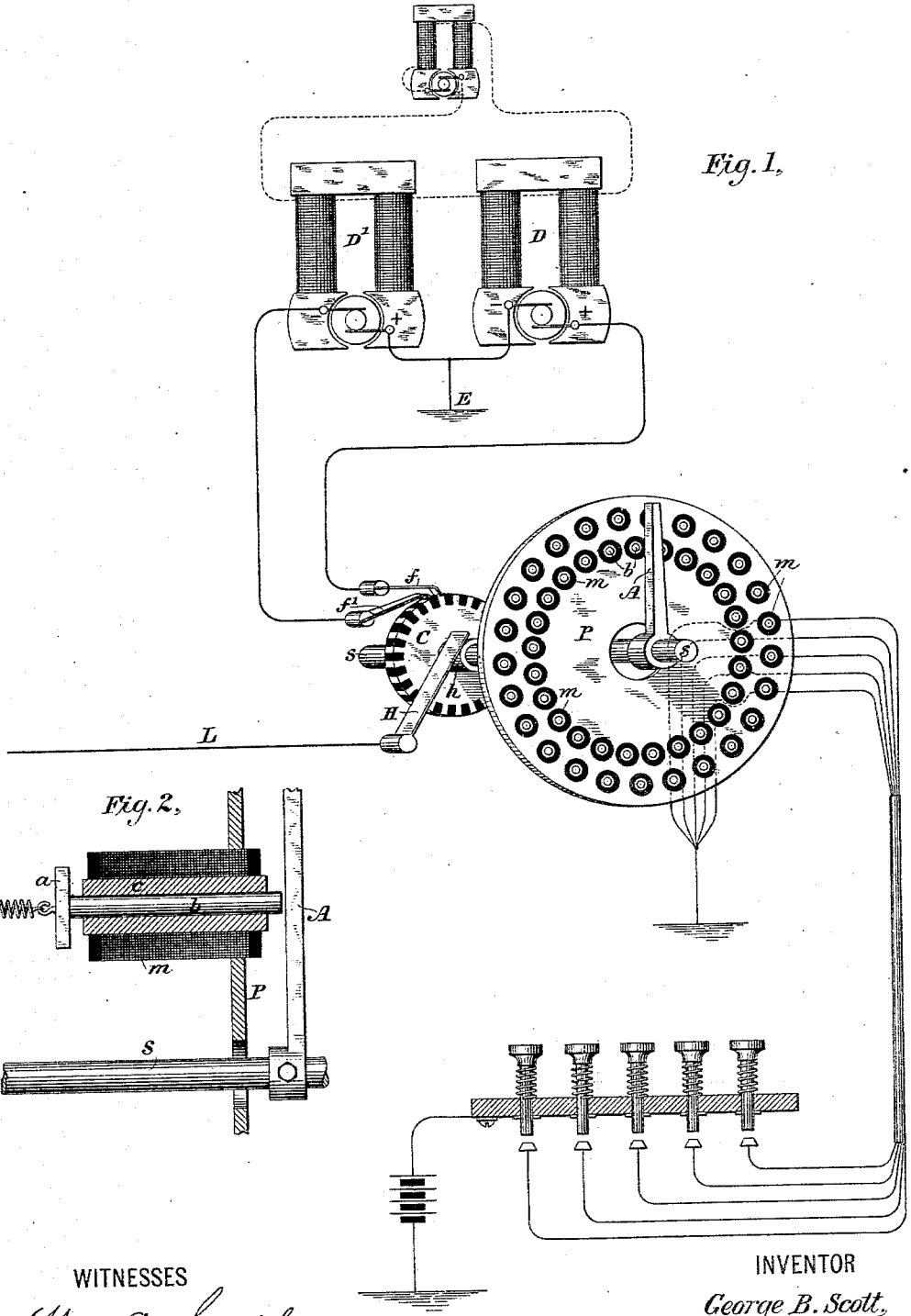

Fig. 2.

WITNESSES

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TRANSMITTER FOR PRINTING-TELEGRAPHS.

SPECIFICATION forming part of Letters Patent No. 304,037, dated August 26, 1884.

Application filed December 13, 1883. (No model.)

To all whom it may concern:

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

The object of my invention is to furnish an improved transmitter for printing-telegraph instruments whose type-wheels are rotated step by step by short reversals of line-current, and from which impressions are taken by prolonging a pulsation of either polarity.

My invention consists, first, of means for directing upon the main line short and rapid reversals of electricity to rotate the type-wheel; and, second, means for stopping the type-wheel at any desired character and means for prolonging an impulse for the taking of an impression from the type-wheel. For the purpose of directing short and rapid reversals upon the line, I provide a circuit-wheel, the periphery of which is composed of an equal number of conducting and insulating spaces, the total number being equal to the number of characters upon the type-wheel. This circuit-wheel is firmly placed upon a shaft or arbor, and is frictionally geared to any suitable motor for imparting rotation thereto. The conducting-sections in the periphery of the wheel are in electrical communication with a hub, upon the periphery of which bears a spring or finger which is in connection with the line-wire. Upon the periphery of the circuit-wheel two spring-fingers are placed. Each finger is connected to an independent generator of electricity, respectively of opposite polarity. The conducting-spaces upon the periphery of the circuit-wheel are slightly shorter than the insulating-spaces, and the points of contact of such fingers upon the periphery of the said wheel are circumferentially separated by a space equal to the length of an insulating-space. As the circuit-wheel rotates, a conducting-space passes under the first finger, and thereupon a pulsation of one polarity is thrown upon line, and simultaneously with the disconnection of that space from the first finger said space passes under the second finger and directs a pulsation of opposite polarity upon line, and at the same time an insulating-space passes under the first finger. In this way alternately-opposite impulses are directed to line. The means for stopping rotation of the type-wheel and prolonging a pulsation consists of an arm firmly fixed to the rotating shaft bearing the circuit-wheel. On a fixed support a series of electro-magnets—one for each character of the type-wheel—are arranged equidistant in the circumference of a circle, or in two concentric series. Each electro-magnet is connected by a separate wire with the corresponding circuit-closing key of a key-board. Each electro-magnet has a movable stop controlled by its armature, and normally resting slightly withdrawn from the plane of rotation of said arm. When an electro-magnet is energized by completion of its circuit at the normally-open key, such stop is projected into the path of the rotating arm, thus stopping rotation of the shaft and circuit-wheel, and thus continuing the pulsation last directed to line. It is to be understood that the position of the electro magnet corresponding to any character of the type-wheel and the fixed arm are to bear such a relation to each other that when the fixed arm is arrested by the operation of such electro-magnet, as aforesaid, the character of the type wheel corresponding to such electro-magnet will be in position to yield an impression.

Referring to the drawings, Figure 1 is a general view of the transmitter and its connections with the generators. Fig. 2 is a detail sectional view of one of the electro-magnets, all of which are alike used for stopping rotation of the shaft, and the circuit-wheel for directing reverse pulsations to line.

s is a shaft, to which is frictionally geared a motor of any suitable construction (not shown) firmly fixed to this shaft is the circuit-wheel C, the periphery of which is divided into conducting and insulating spaces, the former being slightly shorter than the latter. They should be equal in number, equidistant, and together equal in number to the number of characters upon the type-wheel. The conducting portion of wheel C is electrically connected to a hub or roller, *h*, upon which bears an arm, H, to which the line-wire is connected. Two spring-fingers, *f f'*, rest upon the periphery of the wheel with sufficient force to form a good electrical connection therewith. These fingers are circumferentially distant

from each other at contact and upon the periphery of wheel C a space about equal to the length of one of the insulating-sections on the periphery of C. Finger *f* serves to connect generator of electricity D of one polarity to line, and *f'* similarly serves to connect generator D' of opposite polarity to line. As the circuit-wheel C revolves in connection with the line-fingers *f* and *f'*, each alternately rests upon a conducting-space and an insulating-space, and vice versa. Thus a continuous series of reversals are directed to line.

Firmly fixed to shaft *s* is an arm, A.

P is a standard or fixture located in a plane parallel to but slightly distant (say a fraction of an inch) from the plane of rotation of arm A. A series of electro-magnets, *m*, are located in this support, and are in number equal to the number of characters upon the type-wheel. They are equidistant, and are placed in the circumference of a circle of which the arm A forms the radius. These magnets have a hollow core, *c*, through which passes a bar of brass or other non-magnetic material, *b*, Fig. 2, to which the armature *a* is securely fixed. The free end of bar *b* normally rests but slightly removed from the plane of rotation of arm A. When the armature *a* is attracted, bar *b* is given a longitudinal movement, carrying it into the path of arm A, by which means arm A, shaft *s*, and wheel C are arrested, and a conducting-section of wheel C will rest under either *f* or *f'*, by which means the last reversal directed to line is continued or prolonged. Each magnet is connected with a circuit closer or key by an independent wire connecting with a common battery, and by this means the series of key circuit-closers may be located at any desired distance from the main-line pulsater or transmitter.

When the instruments are not in operation, arm A is at a zero position, as are also the type-wheels of the receiving-instruments. By depressing any particular key after arm A has been released, a series of current-reversals will be sent to line before the arresting of A, sufficient in number to bring that character of the type-wheel opposite the press-pad, which corresponds with the character represented by the depressed key.

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

1. A main-line circuit pulsator and reverser, C, whose periphery is alternately composed of insulating and conducting portions, conducting-springs *f f'*, and respective generators D D', main line L, shaft *s*, arm A, and a circular series of stop electro-magnets, *m*, substantially as described.

2. The combination of shaft *s*, rotating arm A, support or standard P, a circular series of stop electro-magnets, *m*, mounted on said standard or support, said electro-magnets *m* having an axial core of non-magnetic material, *b*, and an armature, *a*, substantially as described.

3. The combination of the rotating arm A, the circular series of stop electro-magnets *m*, whose ends are embedded in support P, each of said electro-magnets having an axial core of non-magnetic material, *b*, and an armature, *a*, substantially as described.

4. The combination of a stop electro-magnet, *m*, whose ends are embedded in the support P, adapted to arrest a rotating arm, A, consisting of a coil of wire wound upon a hollow iron core, *c*, a movable axial core of non-magnetic material, *b*, adapted to project into the path of A, and armature *a*, substantially as described.

GEO. B. SCOTT.

Witnesses:
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WM. ARNOUX.