

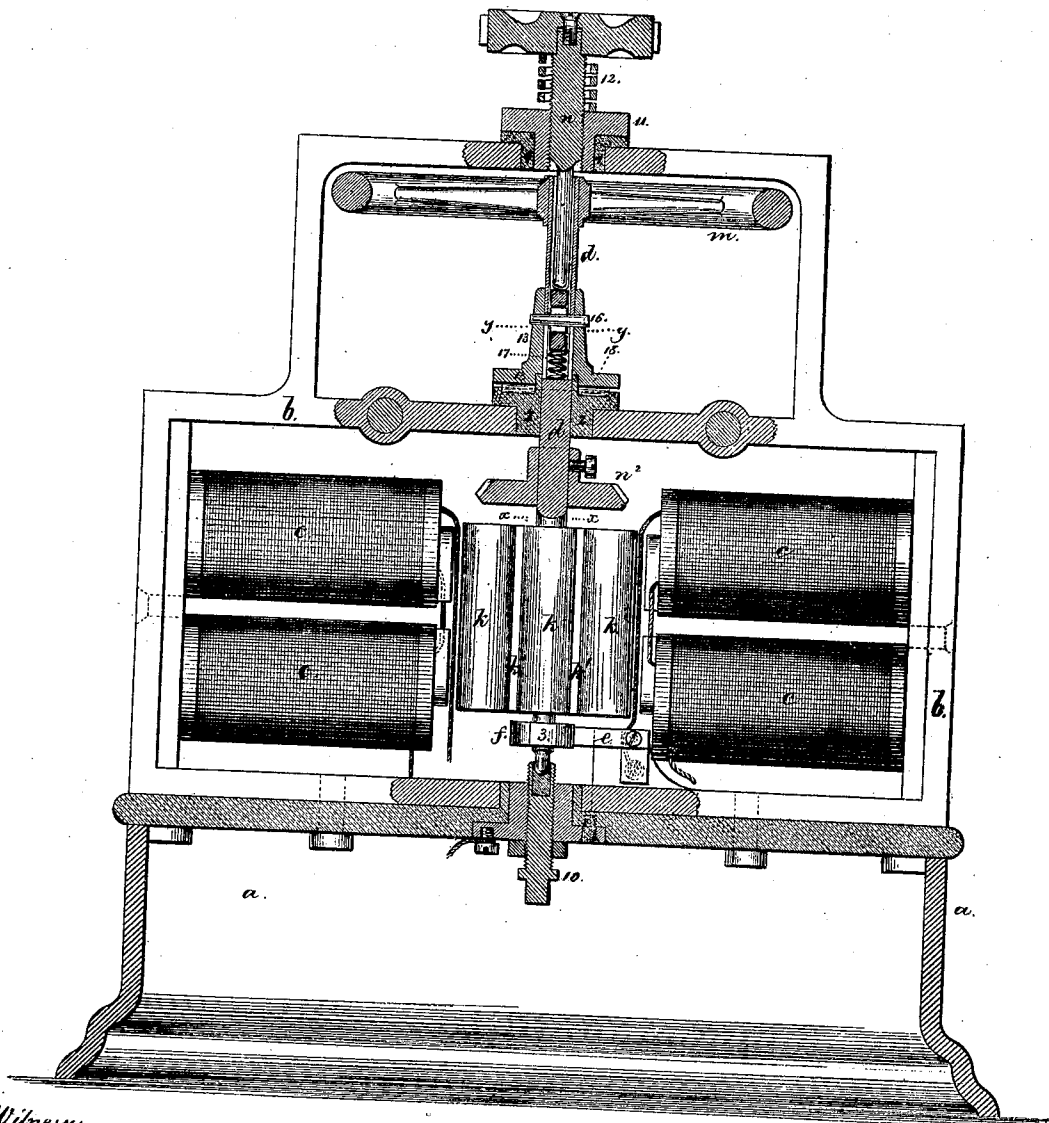
G. LITTLE.

Improvement in Automatic Telegraph Transmitters and Receivers.

No. 128,405.

Patented June 25, 1872.

Fig. 1.



Witnesses,

Chas. Smith
Geo. D. Harker

Inventor

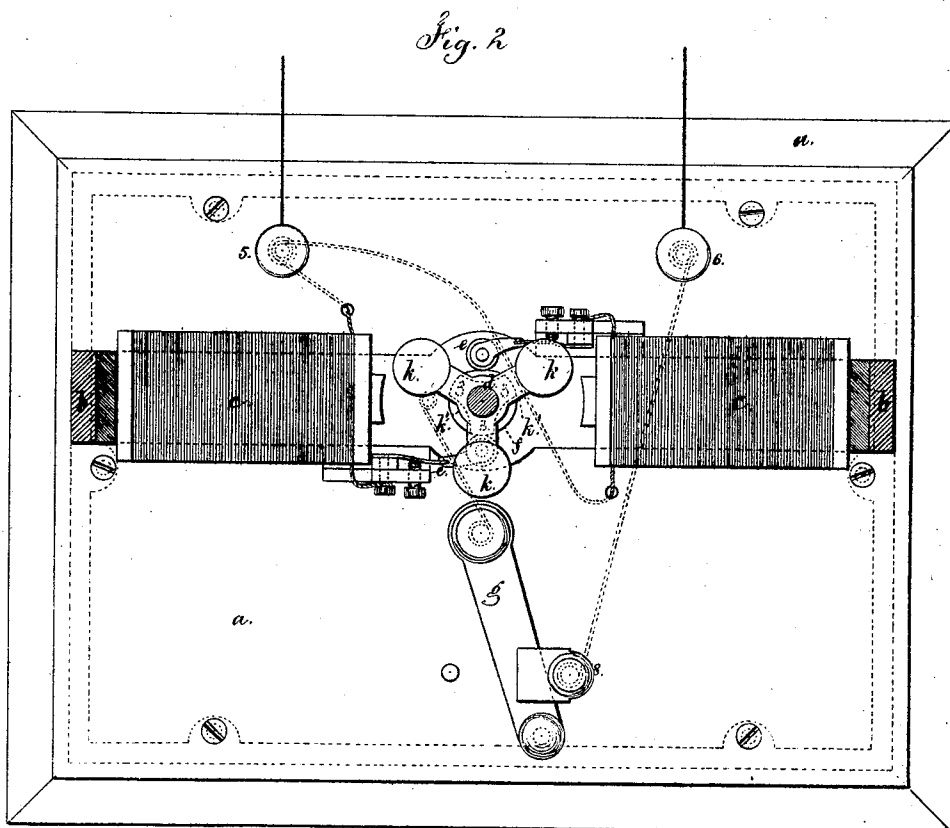
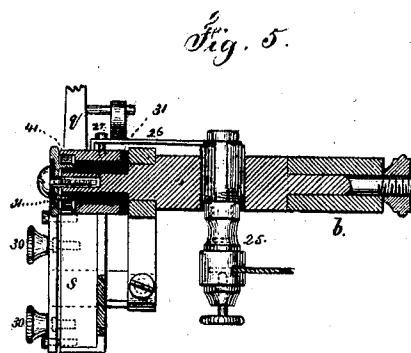
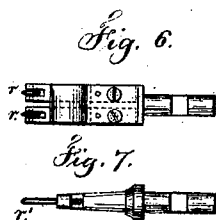
George Little
Lemuel W. Terrell atty.

G. LITTLE.

Improvement in Automatic Telegraph Transmitters and Receivers.

No. 128,405.

Patented June 25, 1872.



Witnesses,
Chas. Smith
Geo. W. H. K. K.

Inventor
George Little
Lemuel W. Perrell atty.

G. LITTLE.

Improvement in Automatic Telegraph Transmitters and Receivers.

No. 128,405.

Patented June 25, 1872.

Fig. 4.

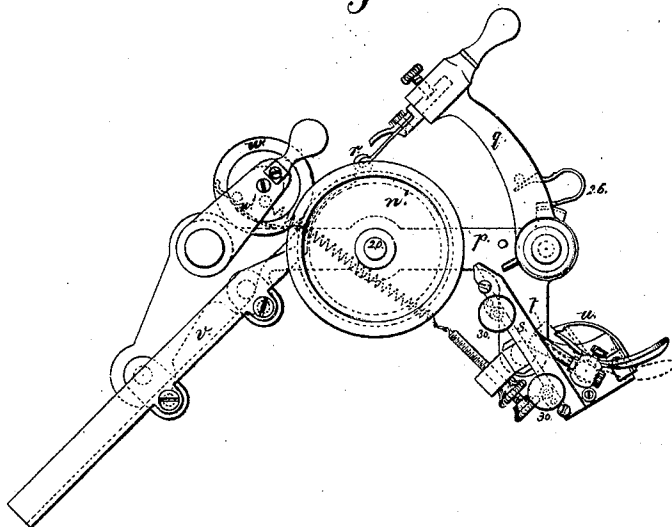
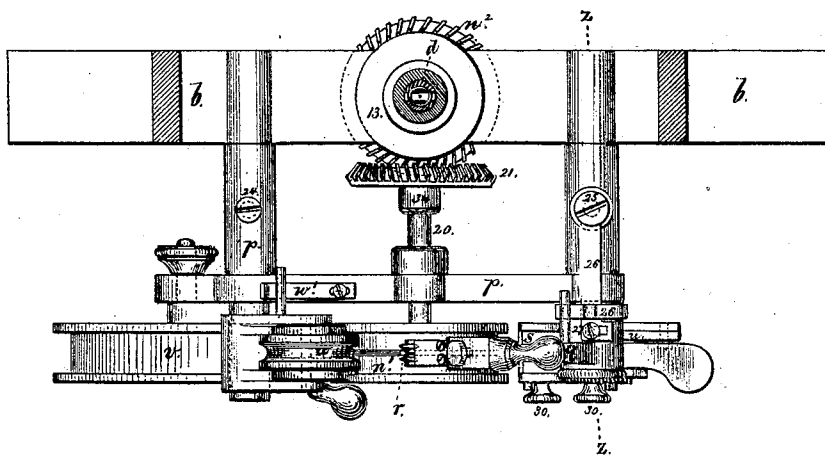


Fig. 3.



Witnesses,

Chas. A. Smith
Geo. D. Harris

Inventor.

George Little
Lemuel W. Ferrell atty.

UNITED STATES PATENT OFFICE.

GEORGE LITTLE, OF RUTHERFORD PARK, NEW JERSEY.

IMPROVEMENT IN AUTOMATIC TELEGRAPHIC TRANSMITTERS AND RECEIVERS.

Specification forming part of Letters Patent No. 128,405, dated June 25, 1872.

To all whom it may concern:

Be it known that I, GEORGE LITTLE, of Rutherford Park, in the county of Bergen and State of New Jersey, have invented an Improvement in Telegraph Instruments; and the following is declared to be a correct description of the same.

This invention relates to an improvement in the magnetic motor, whereby its construction is simplified, to an improvement in the trough through which the strip of perforated paper is passed, and in the construction of the connections of the receiving and transmitting devices.

In the drawing, Figure 1 is an elevation of the motor with the shaft in section. Fig. 2 is a sectional plan below the line *x x*. Fig. 3 is a sectional plan below the line *y y*. Fig. 4 is an elevation of the transmitting mechanism. Fig. 5 is a section at the line *z z*. Fig. 6 is a plan of the transmitting-rollers, and Fig. 7 is a plan of the receiving-stylus.

The bed *a* of the machine receives the frame *b* that carries the electro-magnets *c c* and the shaft *d*; but this shaft is insulated from the frame *b* by non-conducting material at 1 and 2, in order that the circuit-breakers *e e* to the magnets *c c* may open or close the circuits directly through the said shaft and the contact-pieces 3 3 on the disk *f*, that is made with non-conducting material between the pieces 3 3. The connections from the battery are made with the binders 5 and 6, and from the binder 5 metallic contact is made with the respective helices of the electro-magnets; thence, through the insulated circuit-breakers *e e*, contact-pieces 3, shaft *d*, to the switch *g*, and from its block 8 to the binder 6, so that the motor will be stopped by opening the switch. No part of the current passes through the frame of the machine; hence there is no interference with the electrical portions employed in transmitting or receiving. The armatures *k k* are made of soft-iron bars soldered to a cast-metal body, *k'*, upon the shaft *d*. By this construction the cost is lessened and a better quality of armature secured. The shaft *d* runs at the bottom upon a hardened-steel pin in the screw-step 10, and the upper end of the said shaft *d* receives the fly-wheel *m*, and is hollow, for passing the pin of the regulating-screw *n*, that passes through the insulated

nut 11, and is provided with a friction-spring, 12, between the head of the screw and its nut, that is sufficiently powerful to prevent the screw being turned by the revolving movement of the shaft. The sleeve and friction-disk 13 are brought into contact with more or less force with the disk of felt or similar material 15 on the insulator 2, said sleeve having a pin, 16, that passes through a longitudinal slot in the shaft *d*, and also through a short cylindrical block that is above the spring 17 and below the end of the regulating-screw *n*, so that the friction necessary for controlling the speed of the instrument can be given by the disk 13, as pressed to place by the screw *n*; and this friction is lessened by the spring 17, relieving the parts as the screw *n* is turned up. The roller *n*¹ is upon a shaft, 20, that is driven by the bevel-gear wheel *n*² on the shaft *d*, acting upon the wheel 21. The teeth of these bevel-gears are not in line with the centers of the respective shafts, but are at an inclination or diagonally upon the faces of such wheels, so that the surfaces of the teeth that come into contact do not press against each other at right angles, but at an inclination; this prevents noise, concussion, or irregularity in the movement communicated from the motor to the roller *n*¹. The wheel 21 is to be insulated at 34 from its shaft, and one wire from the line or battery is connected with the frame *p* at 24, and the other line or battery wire leads to the insulated binder 25. The arm *q*, carrying the rollers or stylus *r*, is upon a sleeve that is insulated at 31 from the other portion of the frame, and is in metallic contact through the spring 26 with the binder 25. This insulated part 34 prevents the electric current that drives the motor reaching the receiving or recording portions of the apparatus. The spring 26 is made with a rib for holding the arm *q* when turned back. The movement is limited by the screw 27 in a slot in the spring 26. A pin upon the frame *p* may also be used to take a stop upon the arm *q*. The stylus and arm *q* is pressed toward the roller *n*¹ by a spring, 41, in the sleeve of the said arm *q*. (See Fig. 5.) The circuit-closing rollers may be doubled, as shown in my patent No. 122,473. The brush *t* detains the paper in the trough *s* for smoothing and steadying the same. The spring-arm *u*, with an inclined end, either holds the brush up, as

seen in Fig. 4, by dotted lines, or furnishes the pressure for keeping the brush down to the paper. One side of this trough is movable, and it is adjusted by the set-screws 30, so as to accommodate the trough to varying widths of paper and guide the same. The roller n^1 is to be grooved and receive a thin blade fastened upon the delivery-trough v , as in my patent No. 123,491. The roller w presses upon the paper to cause it to be fed by the roller n^1 as it rotates, and this roller, when turned back, is held by the spring-catch w' .

I have shown the rollers r in the transmitting-arm q is held, as in my patent No. 122,473; but a point or stylus, r' , may be substituted when receiving a message, so as to act upon the chemical paper. The rollers r are upon separate spring-arms, so that either can be replaced, if injured, and the rollers and stylus are held in the arm q by a short tang or pin and a clamping-screw.

I claim as my invention—

1. The motor-shaft d , insulated as set forth, in combination with the electro-magnets c c , and connections through that shaft to the said magnets, substantially as set forth.

2. The screw-regulator n and disk 13 applied to the motor-shaft d , in combination with the spring 12, acting upon the screw n , for the purposes and as specified.

3. The arm q , insulated at 31, and connected by the spring 26 with the insulated binder 25, substantially as and for the purposes set forth.

4. The trough s for the paper, made with an adjustable side, to vary the width of the trough, for the purposes set forth.

5. The armatures of the motor, made of soft iron soldered to a cast-metal core, as and for the purposes set forth.

6. The miter-wheels n^2 21, with diagonally-cut teeth, applied to and combined with the motor-shaft d and roller n^1 , shaft 20, as and for the purposes set forth.

7. The rollers or stylus upon a tang or pin, and removable from the arm q , as and for the purposes set forth.

Signed by me this 26th day of April, A. D. 1872.

Witnesses:

GEO. LITTLE.

GEO. T. PINCKNEY,
CHAS. H. SMITH.