R. J. SHEEHY.

PRINTING TELEGRAPH.

No. 179,875. Patented July 18, 1876.

Fig. 1.

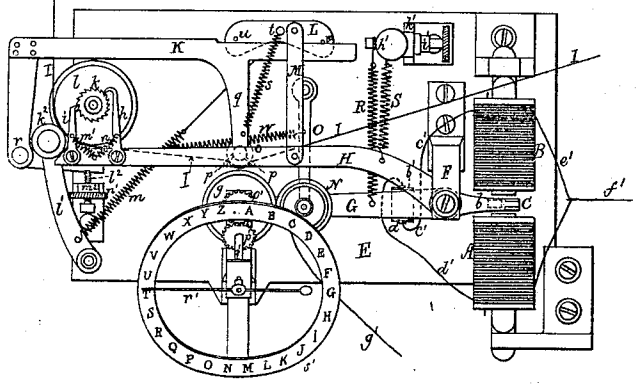


Fig. 6.

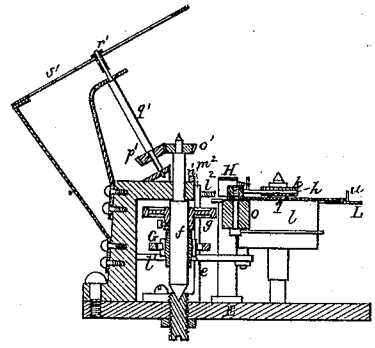


Fig. 2.

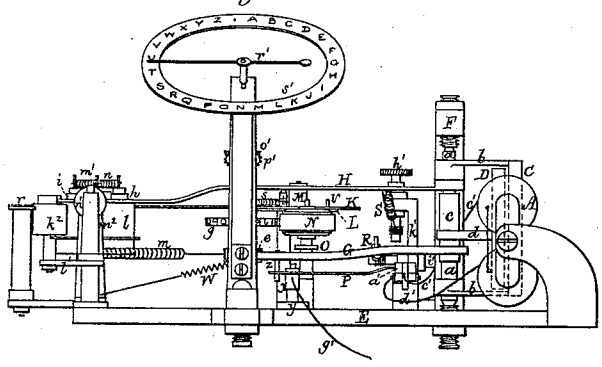


Fig. 4.

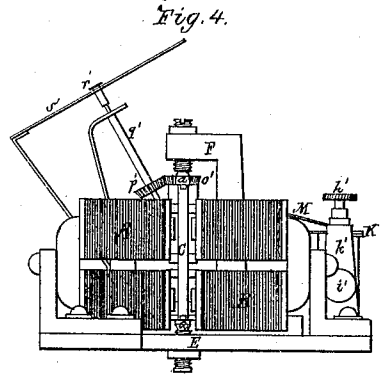


Fig. 3.

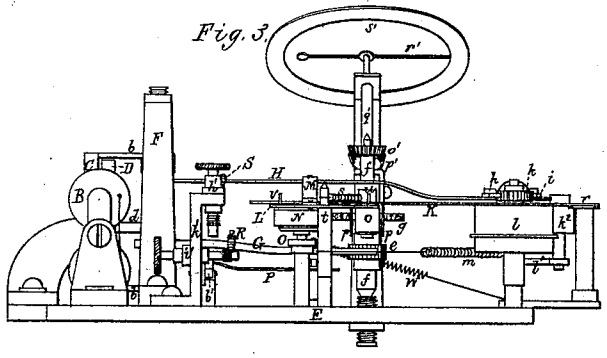


Fig. 5.

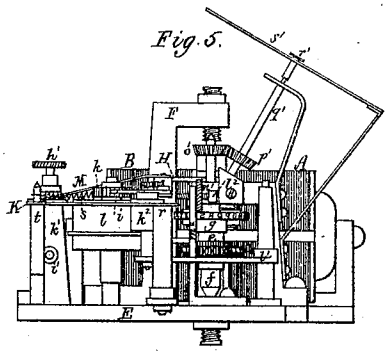


Fig. 7.

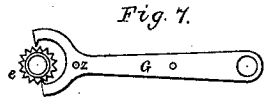
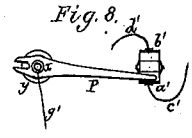


Fig. 8.



Witnesses.

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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN PRINTING-TELEGRAPHS.

Specification forming part of Letters Patent No. **179,875**, dated July 18, 1876; application filed February 7, 1876.

To all whom it may concern:

Be it known that I, ROBERT J. SHEEHY, of Boston, of the county of Suffolk and State of Massachusetts, have invented a new and useful or an Improved Telegraphic Printing-Instrument; and do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a top view, Fig. 2 a front elevation, Fig. 3 a rear elevation, and Figs. 4 and 5 end views, of it.

The instrument is to print on a strip of paper by means of a type-wheel a message sent through a telegraphic circuit.

My invention relates to mechanism for revolving such type-wheel and feeding a strip of paper along in front of such wheel, and moving it up to and away from the wheel at suitable times, in order that it may be printed by such wheel, such mechanism being very simple in construction and efficient in operation. My invention further relates to the combination of a dial and index-pointer, and mechanism for operating the latter, with the type-wheel and its operative shaft, all being substantially as hereinafter explained, and as represented in the drawings.

In this instrument two electro-magnets, A and B, are employed, they being arranged as shown, and having between their pairs of poles two armatures, C and D. The outer armature, C, is attached to a vertical shaft, *a*, by two arms, *b b*, extended therefrom, such shaft being pivoted in a base-plate, E, and also in a standard, F, erected on said plate, as shown. On the shaft *a* is a rotary sleeve, *c*, from which an arm, *d*, projects, and has fixed to it the armature D. From the said sleeve there is extended an escapement-arm, G, that operates with an escapement-wheel, *e*. (See Fig. 6, which is a transverse section of the instrument, taken through the type-wheel; see, also, Fig. 7, which is a top view of said arm G and wheel *e*.) The wheel *e* is fixed on a vertical arbor, *f*, which carries a type-wheel, *g*, having upon its periphery a series of types or devices for printing alphabetic characters. From the shaft *a* there extends a long arm, H, having pivoted to it two pawls, *h i*, to work with a ratchet-wheel, *k*, fixed on a feed-drum, *l*, between which and a pressure-roller, k^2, arranged as shown, the strip of paper to be printed passes or is to be passed. The roller k^2 is mounted in a vibratory arm, l^1, provided with a spring, *m*, for moving it, so as to force the roller k^2 toward the drum. To the pawls there are springs, $m^1 n$, for keeping them up to their ratchet-wheel. During each forward or backward movement of the arm H the drum will be revolved a short distance, in order to feed the strip of paper forward for being printed. The strip (shown at I) passes across a roller, *o*, and through two guides, *p p*, carried by an auxiliary arm, *q*, projecting, as shown, from a bent lever or arm, K, whose fulcrum or pivot is shown at *r*. A helical spring, *s*, fixed at one end to a post, *t*, and fastened at its other end to the auxiliary arm *q*, serves to move the arm K in a manner to draw the paper off the type-wheel. The said arm K rests on a short vibratory lever, L, which, at its middle, is pivoted on the post *t*, such lever L being provided with two studs, *u v*, extended up from its two arms and against the outer edge of the arm K. To one of the arms of the lever L, and also to the arm H, there is pivoted a connection-bar, M, all being as shown. An inking-roller, N, supported on a vibratory arm, O, rests against the type-wheel, and is forced up to it by a spring, W, properly applied to the said arm O. Beneath the escapement-arm G is a switch or lever, P, whose pivot, *x*, extends up from an insulator, *y*, fixed on the base-plate. Fig. 8 is a top view of the said metallic switch and the metallic abutments with which it operates. The shorter arm of the switch is forked, and receives between the prongs a stud, *z*, that extends downward from the escapement lever or arm G. The longer arm of the switch is arranged between the two abutments *a' b'*, which are, or should be, insulated from each other and the base-plate. A wire, *c'*, connected to the front abutment, leads to the coil of the rear magnet, while another wire, *d'*, leads from the rear abutment to the coil of the front magnet, and the coils of both magnets are connected by a wire, *e'*. The telegraph-wire *f'*, from the pole of the battery, is connected to the wire *e'* at its middle. Another wire, *g'*, leads from the switch, near its fulcrum, to the line-wire.

We will now suppose the switch to be in ontact with the front abutment a', and also hat the lesser armature D is drawn toward he outer magnet A. The electric current then vill pass through the coils of the rear magnet o the front abutment; thence through the witch and to the line-wire, in which case the ear magnet will draw toward it the said ar- nature D, and thus move the escapement-arm ; and cause it to actuate or partially revolve he type-wheel. During the said movement f the arm G, or just previous to its comple- ion, the switch will be moved over to the op- osite or rear abutment, thus breaking the ircuit through the rear magnet-coils and com- leting it through those of the front magnet, vhereby the armature will be moved in the pposite direction, and the escapement-arm lso will be again moved to effect a further ovement of the type-wheel, such movements f the type-wheel being regulated by the cir- uit-breaker at that end of the line from which he message is transmitted.

In order to cause the printing of the strip f paper to take place, and such strip to be ed along as may be required, the other or uter armature, C, will be operated or moved r attracted first by one magnet and next by he other at suitable times. This armature C s prevented by the spring S from moving with he inner armature, the power of such spring eing sufficient to counterbalance the attract- ve force of either magnet while it may be perating the inner armature.

To effect the movements of the outer arma- ure, additional battery-power may be used at he proper times, or a resistance-coil may be vailed of, whereby the force of the electric urrent at suitable periods may be diminished ufficiently to effect the working of the inner rmature.

The arm H, vibrated by the outer armature, vill operate the pawls h i, whereby the feed- ng of the strip of paper will be effected. By neans of the connection-bar M, the vibratory ever L, its studs u v, and the spring s, the ever or arm K will be vibrated, so as to cause he strip of paper to be pressed up against nd drawn away from the type-wheel at the roper times.

R and S are two helical springs, one be- ng attached to the escapement-arm G and he other to the arm H. Each spring has its ear end attached to a cord fixed to or extended rom one of two rotary windlass-pins, h' i', ar- anged in a standard, k'. By either of such vindlass-pins the draft of its spring on the rm may be relieved or applied as may be re- uired.

The object of the spring R, attached to the arm G, is to enable me to operate the arm by such spring and one of the magnets, in case I may desire to do this at any time. So with the other spring, S, by means of it and one of the magnets, the arm H may be operated.

In order to regulate the strength of the im- pression of the type-wheel I make use of an adjusting stop or screw, l^2, which screws through a post or standard, m^2. When the arm H is moved forward it brings up against the end of the screw, which serves as a stop to arrest it. A check-nut, n', on the screw answers to confine it in position. Further- more, on the top of the spindle or arbor of the type-wheel is a beveled gear, o', that engages with another bevel-gear, p', fixed on an in- clined arbor, q', arranged as shown, and pro- vided with an index-pointer, r'. Concentric- ally with the arbor q' is a stationary dial, s', having letters or characters on it correspond- ing to those made by the type-wheel. When any type of the said wheel is in the act of printing, or the wheel is stopped for it to print the strip of paper, the index-pointer r' will point to the dial-letter corresponding to the said type.

By means of the dial and index-pointer an attendant can readily read a message being printed, or can receive one without the neces- sity of printing it.

In the above-described telegraphic printing- instrument, I claim as my invention as fol- lows, viz:

1. The combination of two electro-magnets, A B, two armatures, C D, the switch P, the abutments a' b', and mechanisms, substan- tially as described, for revolving the type- wheel g, feeding the strip I of paper, and mov- ing it up to and away from the said type- wheel, these latter mechanisms being the es- capement-wheel e and arm G, the arm H, its pawls h i, springs m^1 n, ratchet-wheel k, feed- drum l, presser-wheel k^2, bent lever K, rocker- lever L, studs u v, connection M, and spring s, all applied and arranged essentially as specified.

2. The combination of the escapement-wheel e and armature-lever G, provided with the stud z, with the switch-lever P and its abutments a' b', arranged as set forth, and connected, as described, with the two magnets A B.

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Witnesses:
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J. R. SNOW.