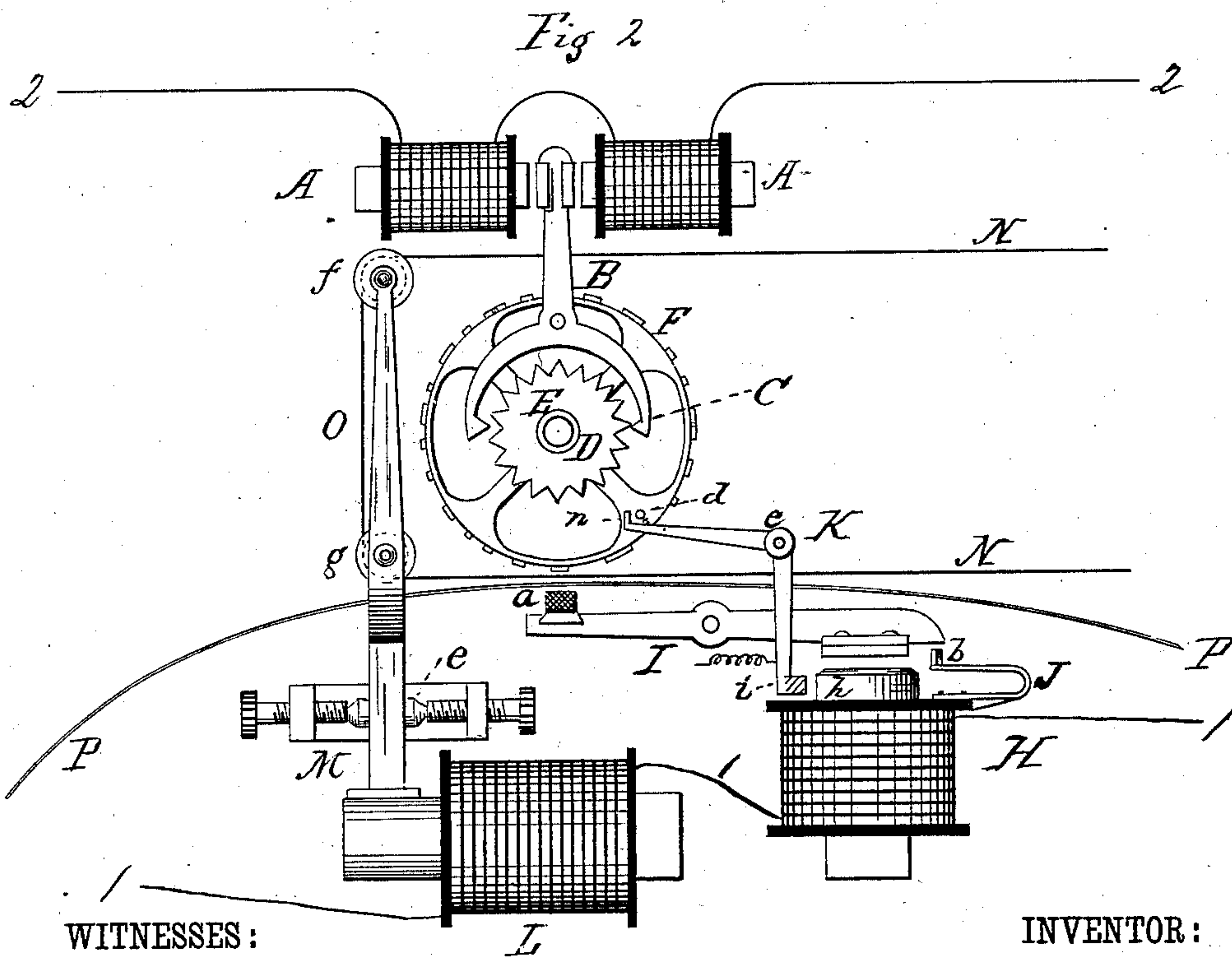
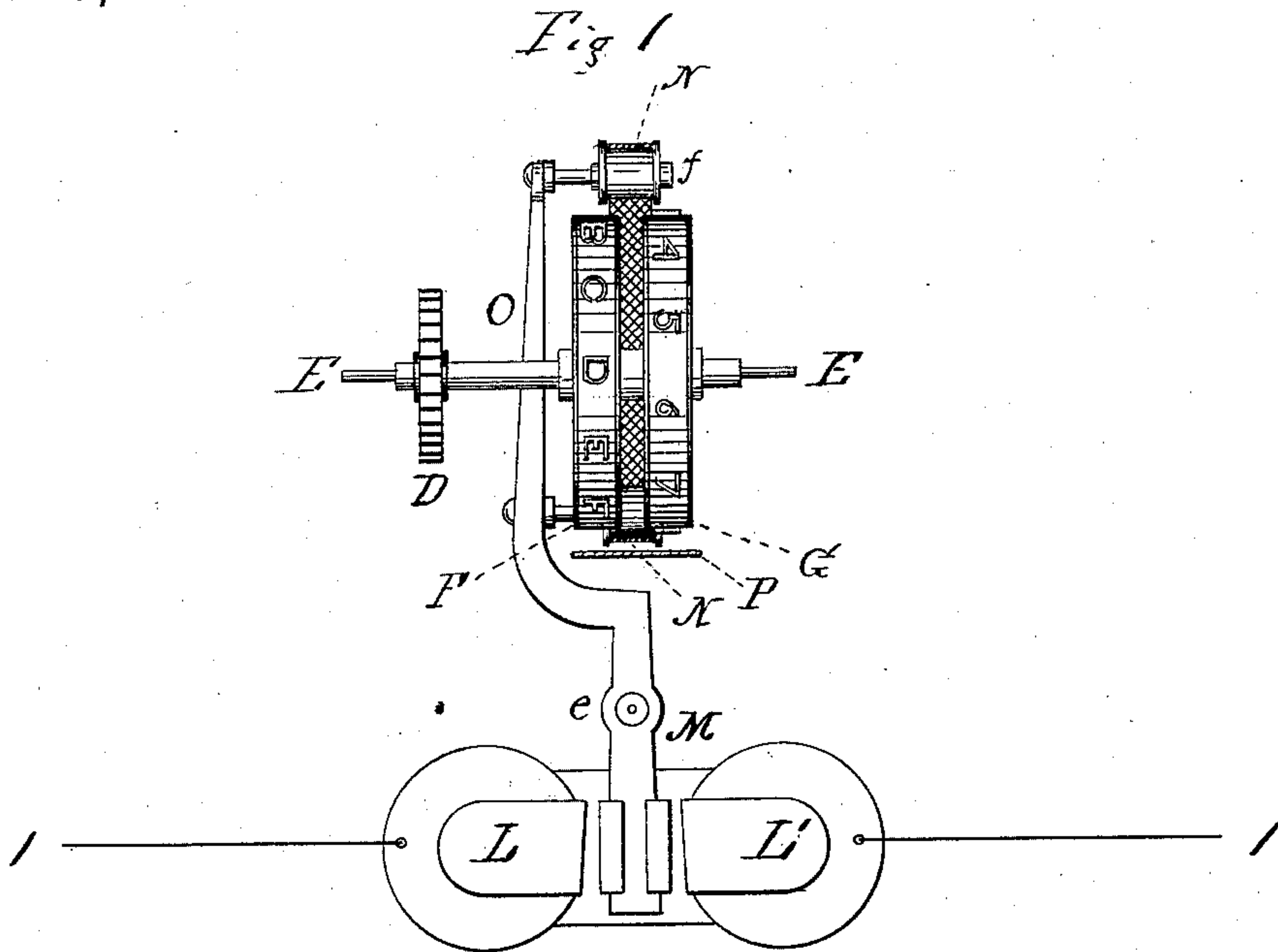


(No Model.)

S. D. FIELD.  
PRINTING TELEGRAPH.

No. 279,729.

Patented June 19, 1883.



WITNESSES:

*D. D. Mott*  
*R. B. Wilber*

INVENTOR:

*S. D. Field*

BY

*J. F. Miller*

ATTORNEYS.



# UNITED STATES PATENT OFFICE.

STEPHEN D. FIELD, OF NEW YORK, N. Y.

## PRINTING-TELEGRAPH.

SPECIFICATION forming part of Letters Patent No. 279,729, dated June 19, 1883.

Application filed February 24, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, STEPHEN D. FIELD, of New York, in the county of New York and State of New York, have invented a new and  
5 useful Improvement in Printing-Telegraphs; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

10 The invention in this case relates to that class of "step-by-step" or "gold-and-stock" printing-telegraphs in which two type-wheels are used; and its object is to afford means by which, at will, it may be determined which wheel shall  
15 be printed from, and that wheel only printed from.

In carrying the invention into effect, the printing is done through the medium of an inked tape passing between the printing-wheel  
20 and the paper to be imprinted, so that when the two are struck upon a character the character shall be imprinted upon the paper in a well-known manner. The inked tape is of the width of, or about of, the face of one wheel  
25 only, and preferably is made as an endless belt passing over suitable rollers, one of which may be actuated in a manner similar to the old and well-known paper-feed, so as to bring into action after every impression a fresh portion  
30 of the tape. Formed as an endless belt, the tape passes over rollers carrying it above the top of the type-wheels, but in close proximity to the wheels, and between the wheels and fillet or band of paper on the other side. These  
35 rollers form a carriage for it, and the rollers nearest the type-wheels are mounted in and carried by a lever, which is formed at its other end into the vibrating or rocking armature of a polarized magnet, which, rocked or vibrated,  
40 moves the tape with it. This polarized magnet is in the printing-magnet circuit, and is adjusted to operate somewhat quicker than the printing-magnet, which is an ordinary electro-magnet. At the extreme of vibration of the  
45 armature-lever of the polarized magnet it carries the inked tape beneath one wheel, at the other extreme under the other wheel. The polarity of the current in the printing-circuit determines then which wheel shall be printed  
50 from. This is fully illustrated in the drawings, in which—

Figure 1 is a side view, showing the means

of shifting the tape; and Fig. 2, a front view, mainly diagrammatic and conventional, showing the tape-shifting, printing, and unison  
55 mechanisms.

As the framing of the instrument, the motive power, when a regulated clock-work is used, the paper-feed, &c., constitute no part of the invention herein, for clearness they are  
60 omitted.

A A are the magnets, between whose poles vibrates the armature-lever B, whose other extremity is formed into an escapement, C, taking into an escape-wheel, D, mounted on  
65 shaft E, and either imparting a step-by-step motion thereto or regulating and controlling a tendency to continuous motion given thereto by an independent motive power.

Mounted on shaft E are the two type-wheels  
70 F G, one of which, for convenience, may carry letters and the other figures. In the drawings the characters on the two wheels are shown as alternating with each other; but this is not necessary, as they may alternate or coincide,  
75 as thought most desirable. The magnets A A, or equivalent, are in the type-wheel circuit 2 2, controlled by any of the well-known forms of transmitters at the sending-station.

H is the printing or press magnet, having an  
80 armature-lever, I, carrying a platen, *a*, adapted to strike against both wheels when the armature attached to I is attracted by the poles of H.

A retractile device is used to normally throw I away from H, consisting of a bent  
85 spring, J, having a projection, *b*, upon which I strikes. The advantage of this form is that as soon as *b* is struck and J compressed the reaction therefrom tends to throw I off, preventing it from "sticking," and making a  
90 quick, sharp blow of *a* upon the type-wheel.

In the printing-circuit 1 1 containing H is placed a polarized magnet, L L, whose armature-lever M, pivoted at *e*, is fashioned substantially as shown, or in any equivalent man-  
95 ner, and carries the rollers *f g*, which form ways or part of a carriage over which passes the inked tape N, preferably formed as an endless belt, the other supports or rollers therefor, which may be stationary, not being  
100 shown.

One of the rollers in the path of N may be connected to or actuated from I, as the ordinary and well-known paper-feeds in this class



of apparatus are, so as to move N after each impression.

The tape N is about the width of the face of one of the type-wheels, so that only one can be printed from at once, and it passes between the wheels and fillet of paper P. It follows, then, that as M is vibrated or rocked it carries the inked tape underneath one or the other only of the two wheels. If, then, the polarized magnet be so wound that L' will attract M when a + current is sent over the circuit 1 1, and L when a — current is sent, if a + current be sent the tape will be carried under F and it printed from, the polarized magnet acting practically instantaneously, while the printing-magnet H throws I into action immediately thereafter. By these means the polarity of the current transmitted for printing determines which wheel shall be printed from, the tape being thereby placed in position to make an imprint from the desired wheel on the fillet P.

In Fig. 2 a unison device is shown, consisting of a bell-crank lever, K, pivoted at c, having at one end an armature, i, controlled by the extension h of the pole of H, while the other end is formed into a hook, n, adapted to contact with a stop, d, on one of the type-wheels, or on some member of the type-wheel train. This unison of course tends to stop the wheels always at one point, and by the attraction of i to h they are unlocked and permitted to proceed.

It is evident that the printing-circuit 1 1 may be kept normally charged to a percentage of the current required for the complete operation of H, and the unison kept permanently out of action by the attraction of i to h, the unison being then thrown into operation upon a complete break of the circuit 1 1. In such case this percentage of current would be sufficient to hold M to one of the poles of L L', depending on the polarity of the current. In changing from one to the other polarity under such conditions, K would be momentarily released; but as it would be immediately reattracted this momentary release would not interfere with the reliability of the unison.

It is evident that an inking-roller could be substituted with this shifting mechanism for the inked tape shown; but I have found the inked tape preferable in such an organization, in that it does not leave sufficient on the wheels for a second printing or for blurring, which might cause confusion and uncertainty in the record.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a printing-telegraph having two type-wheels, the combination of an inked tape, and means, such as described, for shifting or positioning the tape under either wheel, substantially as set forth.

2. In a printing-telegraph having two type-wheels, the combination of an inked tape, a carriage therefor, and a polarized magnet controlling the position of the tape and its carriage, substantially as set forth.

3. In a printing-telegraph having two type-wheels, the combination of an inked tape, a carriage therefor, and a printing-magnet and a polarized magnet controlling the position of the tape, these magnets being in one circuit, substantially as set forth.

4. In a printing-telegraph having two type-wheels, the combination of an inked tape, a carriage therefor, a polarized magnet controlling the position thereof, a printing-magnet, and a unison, the magnets controlling the printing, unison, and position of the tape being in one circuit, substantially as set forth.

5. In a printing-telegraph having two type-wheels, the combination of the two type-wheels, a single platen, a single inked tape, and means for determining under which wheel the tape shall be positioned for printing, substantially as set forth.

This specification signed and witnessed this 16th day of February, 1883.

STEPHEN D. FIELD.

Witnesses:

I. B. SCOTT,

P. B. WILBER.