

M. F. WESSMANN.

Improvement in Printing-Telegraph Instruments.

No. 130,260.

Patented Aug. 6, 1872.

Fig. 1.

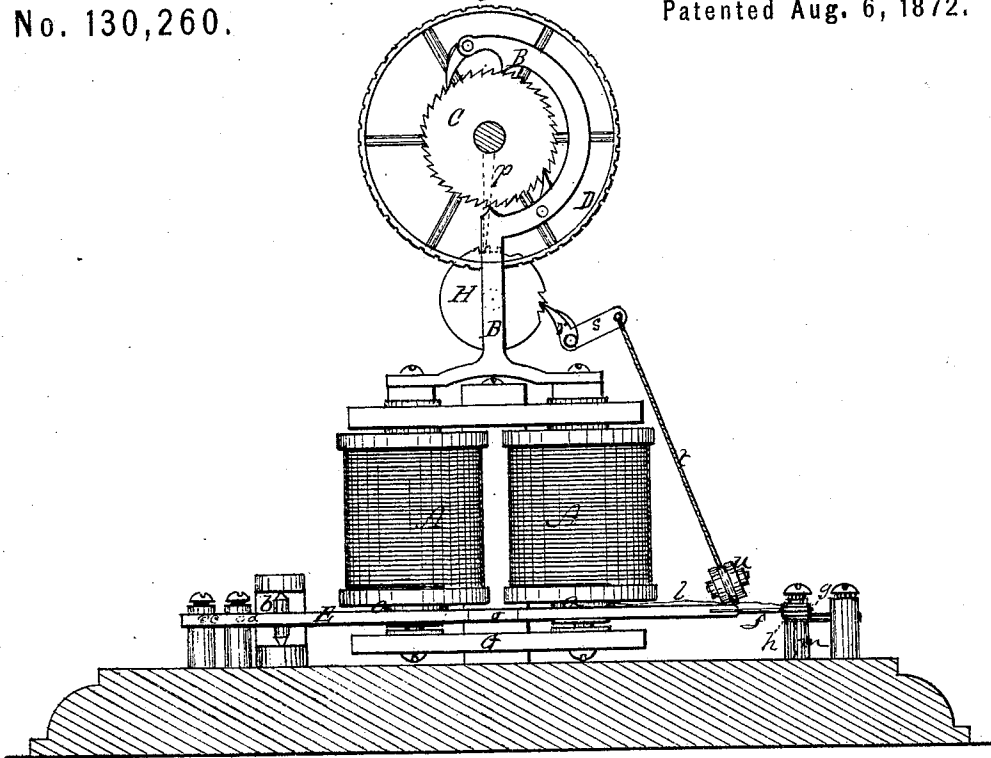


Fig. 2.

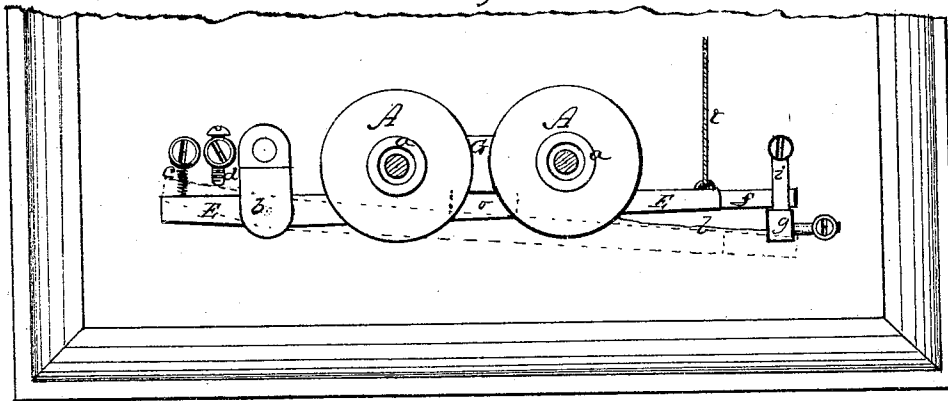


Fig. 3.

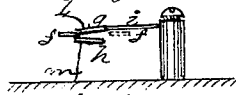
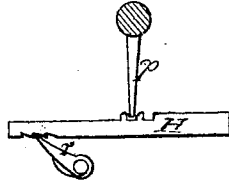


Fig. 4.



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UNITED STATES PATENT OFFICE.

MARTIN F. WESSMANN, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN PRINTING-TELEGRAPHS.

Specification forming part of Letters Patent No. 130,260, dated August 6, 1872.

To all whom it may concern:

Be it known that I, MARTIN F. WESSMANN, of Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Printing-Telegraph Instruments; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing making part of this specification—

Figure 1 being a side view of such parts of a printing-telegraph instrument as are necessary to show my improvement; Fig. 2, a plan of similar parts, showing my improvement; Fig. 3, an end view of a portion of said parts; Fig. 4, a view of a modification of the unison device.

Like letters designate corresponding parts in all of the figures.

The principal feature of my invention consists in a device by which, with a single wire for the main line and a single battery, the printing is effected automatically by a simple prolonged cessation of the step-and-step movement for turning the type-wheel on a broken circuit, substantially as herein specified.

In the drawing, let A represent the type-wheel magnet; B, the reciprocating ratchet-pawl arm operated by the magnet for turning the type-wheel; C, the ratchet on the type-wheel shaft; and D, the type-wheel. One end (the lower, as shown) of the magnet-cores *a* projects beyond the magnet-spools somewhat further than usual—sufficiently to afford room to apply an additional armature, E, to the sides thereof, as represented, though this armature might be applied to the ends of the magnet-cores. The armature is pivoted at *b* to a fixed part of the instrument, and it has a counter-spring, *c*, and an adjustable stop, *d*, as shown, or any equivalent thereof, to limit its outward movement. It is arranged so as to come into immediate contact with the cores of the magnet, whereas the regular armature G does not, or at least the iron thereof does not, come in contact with the magnet-cores. The principle on which my present invention is founded consists in the fact that if the armature of an electro-magnet is not allowed to come into actual contact with the cores it will immediately separate therefrom when the electric current ceases in the magnet; but if an

armature is allowed to come into complete contact with the magnet-cores it will cling thereto for a very short time after the electric current ceases. Hence, during the rapid successive breaking and closing of the main-line circuit in moving the type-wheel, though the armature G, which effects that movement, falls or separates from the magnet-cores on the instant when the circuit is broken, the additional armature E continues to adhere to the magnet-cores during the step-and-step movement for turning the type-wheel, and only separates therefrom when the circuit is left open for a second or two after the step-and-step movement has ceased each time. This armature is used as a means of breaking the circuit passing through the type-wheel magnet A, and closing that passing through the printing-magnet, (not shown in the drawing,) and vice versa. This is effected by means of the device represented, or its equivalent. The long arm of the lever-armature E, where it has the greatest movement, terminates in a plate, *f*, (which may be thin and elastic,) that, for the purpose intended, is or may be an electric conductor on one, say the under, side and an electric non-conductor on the other or upper side. Thus constructed it is made to form itself a part of the electric circuit of the printing-magnet, and it is also made to break the circuit of the type-wheel magnet A at the same time. In connection with this terminal plate or projection *f* are employed two small metallic plates, *g h*, one of which, say the upper one, *g*, is made elastic, or is attached to an elastic supporting-arm, *i*, as shown. The other plate may, though not necessarily, be similarly elastic. Ordinarily these two plates are kept in contact with each other at one edge, they being situated in an inclined position to each other, as shown in Fig. 3, and form the connection of the type-wheel circuit, the upper plate *g* being connected, by a wire, *l*, with the magnet A, and the other plate *h* being connected, by a wire, *m*, with the line-wire or with the ground. These plates are situated, in relation to the armature-plate or projection *f*, so that the latter, when the armature E is held in contact with the magnet A, is opposite to the separated edges of the plates, but not in contact therewith, as indicated by dotted lines in Fig. 3; but when the main-line

circuit is held open long enough to allow the armature E to separate from its magnet and it is swung outward by the counter-spring *c*, the terminal plate *f* enters between the circuit-plates *g h* and separates them, as shown by full lines in the same figure, thereby breaking the circuit through the type-wheel magnet A, in addition to the break at the transmitter, and closing the printing-circuit through the lower plate *h* and its wire *m*, and through the armature E itself, which is connected by a wire with the printing-magnet. Then, on closing the main circuit at the transmitter by moving the letter-key forward to the next closing, the electric current is first sent through the printing-magnet, and the printing is thereby effected before the armature E can swing back and close the type-wheel circuit, which is finally effected to move the type-wheel correspondingly with the forward movement of the key of the transmitter. If it is desired to print the same letter or character successively without moving the type-wheel, a separate printing-key on the transmitter may be used to close and break the circuit, which is done so quickly that the armature E has not time to close up to the magnet. The armature E is made of soft iron, except a small portion, *o*, of brass or other non-magnetic metal in the middle, between the cores of the magnet, so as not, by magnetic induction, to impair the force of the attraction of the magnet-cores thereon. The unison is released by this additional armature E, in manner substantially as follows: The unison is set by means of a toothed and notched disk, H, brought into action by a projecting pin or arm, *p*, (Fig. 1,) on the type-wheel shaft and revolving therewith, as secured by me in former Letters Patent, and it is held locked by a detent, *r*, tak-

ing into ratchet-teeth on the edge of the disk in a similar manner; but this detent, by means of a counteracting arm, *s*, thereon, a cord, *t*, and pulley *u*, or their equivalent, is connected with the armature E, which, when it is thrown out before printing, draws the detent from the notch of the unison-disk and sets it free.

In Fig. 4 is indicated a modification of the unison device. It consists of a bar, H, having a reciprocating movement endwise. It is provided with cogs on the upper side for setting, by the arm *p*, on the type-wheel shaft, and is held by a detent, *r*, taking into notches in the under side.

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

1. A printing-telegraph instrument constructed so as to effect the printing automatically, by the cessation of the step-by-step movement of the type-wheel, and the recommencement thereof for the next letter or character, substantially as herein specified.
2. The combination of the additional armature E and the circuit-plates *g h*, arranged and operating together, in connection with other parts of the instrument, substantially as and for the purposes herein specified.
3. The combination of the unison-stop with the armature E, substantially as described, so as to release it by the said armature, substantially as specified.
4. The cord *t* and pulley *u* for forming connection between the armature E and the unison device, substantially as herein set forth.

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Witnesses:

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