J. H. BUNNELL.

PRINTING TELEGRAPH.

No. 180,700. Patented Aug. 8, 1876.

Fig. 1.

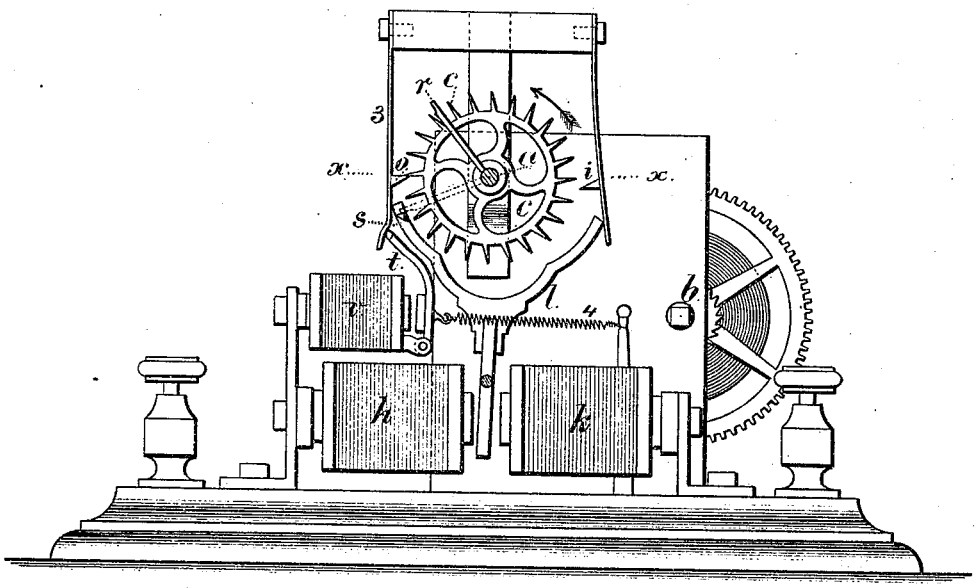


Fig. 2.

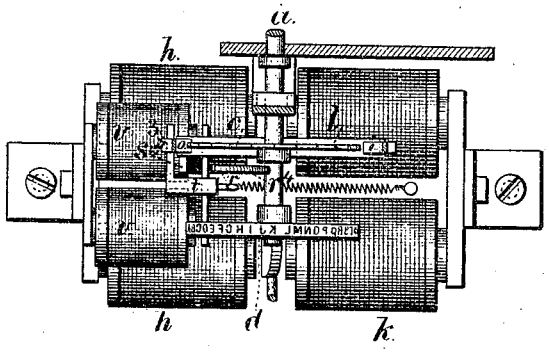
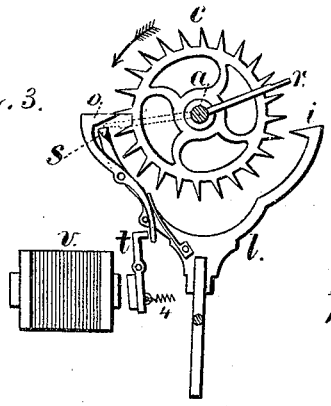


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

JESSE H. BUNNELL, OF NEW YORK, N. Y.

IMPROVEMENT IN PRINTING-TELEGRAPHS.

Specification forming part of Letters Patent No. **180,700**, dated August 8, 1876; application filed December 6, 1875.

To all whom it may concern:

Be it known that I, JESSE H. BUNNELL, of the city and State of New York, have invented an Improvement in Printing-Telegraphs, of which the following is a specification:

Printing-telegraphs have been made with a unison mechanism that is brought into action by a continuation of the revolving mechanism. The type-wheel has also been revolved by spring or weight power, and an escapement has been applied thereto, that was moved by a magnet, and allowed the type-wheel to be moved around step by step, or to turn at one bound to the unison-point; but such escapement was rigid, and both pallets were moved by the electro-magnet in bringing the type-wheel to unison.

My invention relates to the combination, with a type-wheel and its rotating mechanism, of an escapement that is made of two pallets, one of which is capable of motion independent of the other, and is controlled by an electro-magnet, the parts being constructed so that the two pallets move together when the type-wheel is being set for printing, and the pallet that is capable of separate motion is withdrawn when the type-wheel is to revolve around to unison. By this construction the pallets are more easily and reliably moved than those heretofore employed to accomplish a similar object.

In the drawing, Figure 1 is an elevation of the apparatus with the type-wheel removed. Fig. 2 is a plan below the line *x x*, and Fig. 3 is an elevation of the escapement in a slightly modified form.

The shaft *a* is rotated by a spring-barrel, *b*, and train of gearing or other suitable means, and upon this shaft *a* is the escapement-wheel *c*, and the type-wheel *d* is either upon the same shaft or connected therewith, so as to be rotated with, or stopped by, said shaft *a*. The escapement-pallets *o i* allow the wheel *c* to rotate, and the number of teeth and the spaces upon the type-wheel correspond, or one is a multiple of the other.

The pallets are controlled by an electro-magnet or by electro-magnets, so as to give a step-by-step motion. One magnet and a retractile spring can be used; but I prefer to use the two magnets *h k* and alternate the currents, positive and negative, as usual.

The pallets may be upon the vibrating lever *l*, as in Fig. 3, or they may be spring-pallets, as in Figs. 1 and 2.

Ordinary pallets of escapements are constructed so that the escapement-wheel cannot move more than one tooth at a time. I, however, construct the escapement so that the tooth *o*, holding the wheel *c*, can be moved aside by the action of an electro-magnet, so that the wheel *c* may be freed and revolve around until an arm, *r*, comes into contact with the stop *s*, and the type-wheel in this movement is brought around to the unison-point.

The stop *s* is preferably upon the escapement-lever, so as to be moved out of the way of the arm *r* when it is turning around under the ordinary circumstances of setting the type-wheel to print a letter. Thereby the unison will not be operative periodically or by the printing-lever, but will be under the control of the electro-magnet *v*.

I have shown in Fig. 1 the armature-lever *t* of the electro-magnet *v* as acting upon the spring 3 of the pallet *o* to draw the same back, and in Fig. 3 the armature-lever *t* is represented as acting against a spring-lever, at one end of which is the pallet *o*, the operation in either case being the same.

The electro-magnet *v* may be made operative by increasing the electrical tension by additional battery-power thrown into the line at the sending-station, so as to overcome the spring 4; or the same may be a sluggish magnet, that ordinarily will prevent a spring drawing back the pallet while the pulsations are sent to set the type-wheel, but which spring will be allowed to draw back the pallet and bring the type-wheel to unison when the circuit is broken or the battery-power small.

I claim as my invention—

The combination, with the type-wheel of a printing-telegraph and its revolving mechanism, of an escapement and two pallets, one of which is movable independent of the other, and an electro-magnet for moving such pallet, and a unison-stop, substantially as set forth.

Signed by me this 3d day of December, 1875.

J. H. BUNNELL.

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