A. A. KNUDSON.

Printing Telegraph.

No. 160,442. Patented March 2, 1875.

Fig. 2.

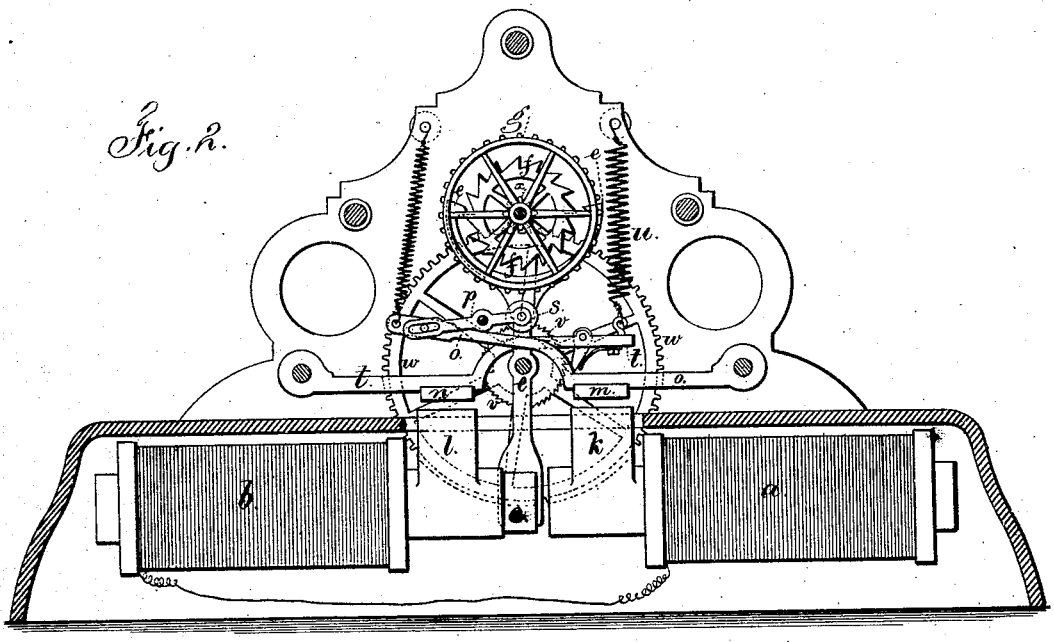
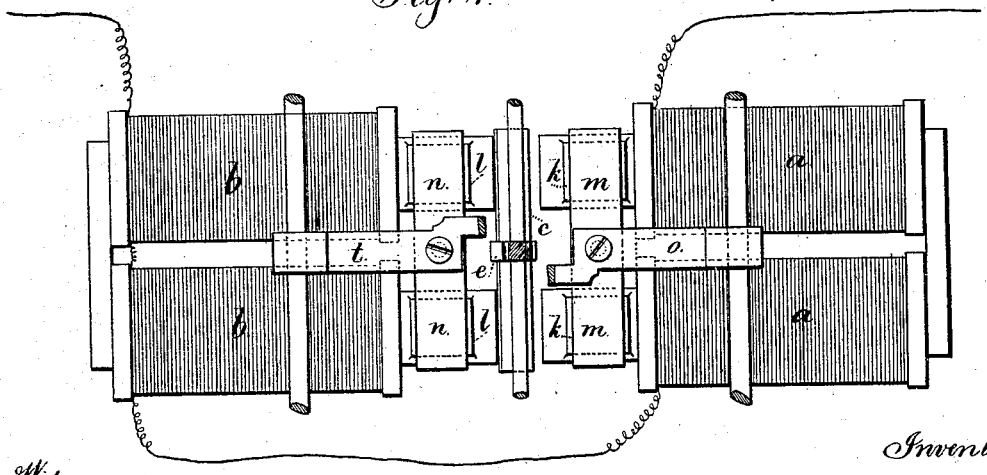


Fig. 1.



Witnesses

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UNITED STATES PATENT OFFICE.

ADOLPHUS A. KNUDSON, OF BROOKLYN, NEW YORK.

IMPROVEMENT IN PRINTING-TELEGRAPHS.

Specification forming part of Letters Patent No. **160,442**, dated March 2, 1875; application filed August 18, 1874.

To all whom it may concern:

Be it known that I, ADOLPHUS A. KNUDSON, of Brooklyn, in the county of Kings and State of New York, have invented an Improvement in Printing-Telegraphs, of which the following is a specification:

In Letters Patent No. 140,143, granted to me, an electro-magnet is employed to strain a spring, so that the reaction thereof may revolve the type-wheel as the same is liberated by an escapement, thereby rendering the machine self-winding.

My present invention is made for simplifying the construction of the printing-telegraph instrument; and to this end I employ two magnets in the main circuit, between which the polarized armature of the escapement is made to play by the reversal of the currents, and to the cores of these electro-magnets are lateral projections, and one magnet acts to give the impression, and the other to strain the spring that serves to revolve the type-wheels, and these operations are only performed when there is a sufficient pause in the pulsations to allow the lateral cores to accumulate the energy necessary to attract their armatures.

In the drawing, Figure 1 is a plan of the magnets and their armatures, and Fig. 2 is a vertical section of the instrument.

The electro-magnets *a b* stand facing each other, and the main-line circuit is connected with and passes through their helices, as seen in Fig. 1. The armature *c* vibrates between the cores of these magnets *a b* by the reversal of the polarity of the pulsations sent, the armature *c* being polarized. This armature *c* operates the escapement lever and pallets *e*, that act with the wheel *f*, to allow the type-wheel *g* to turn one letter or character each pulsation.

The lateral cores *k l* do not become sufficiently energized by the pulsations that are sent of alternate polarity to attract their respective armatures *m n* until a pause occurs with the circuit closed, at which time both *m* and *n* will be attracted.

The armature *m* acts on the levers *o* and *p*, to move the impression pad or roller *s* toward the type-wheel *g*, and print upon a strip of paper the character of the type-wheel that is in position.

The armature *n* acts, through its lever *t*, upon the spring *u*, to strain such spring, and the movement is retained by a pawl that acts upon the ratchet-wheel *v*, to revolve the same as the spring *u* contracts, and by the ratchet *v*, its shaft, a wheel, *w*, and a pinion, *x*, on the type-wheel shaft, said type-wheel is turned as the escapement allows of from time to time.

I claim as my invention—

The combination, in a printing-telegraph instrument, of two magnets in one circuit, and a polarized armature between them operating the escapement, a printing or impression lever receiving motion from a lateral core and armature, and self-winding mechanism receiving its power from lateral cores and another armature, substantially as set forth.

Signed by me this 14th day of August, A. D. 1874.

ADOLPHUS A. KNUDSON.

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