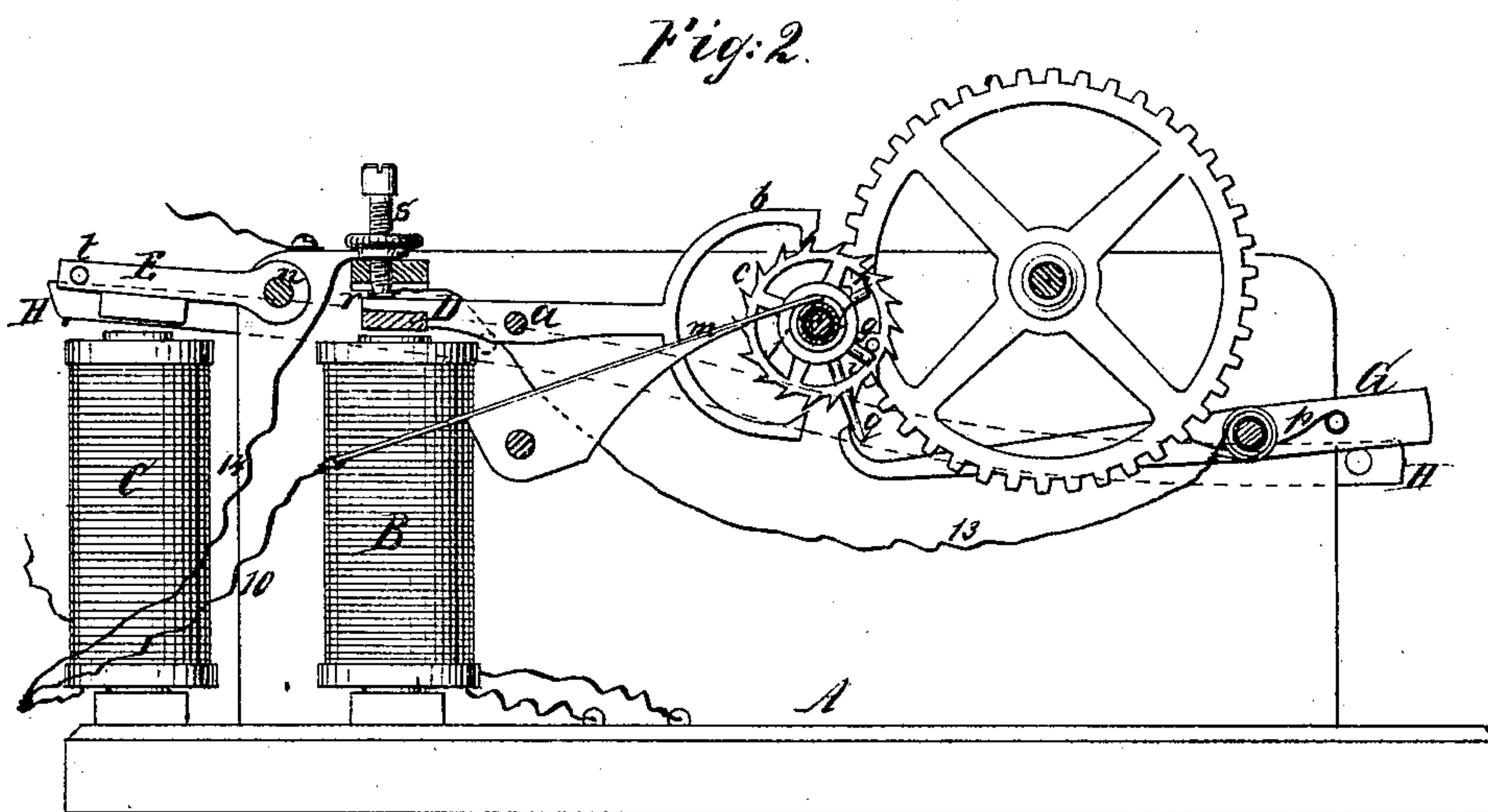
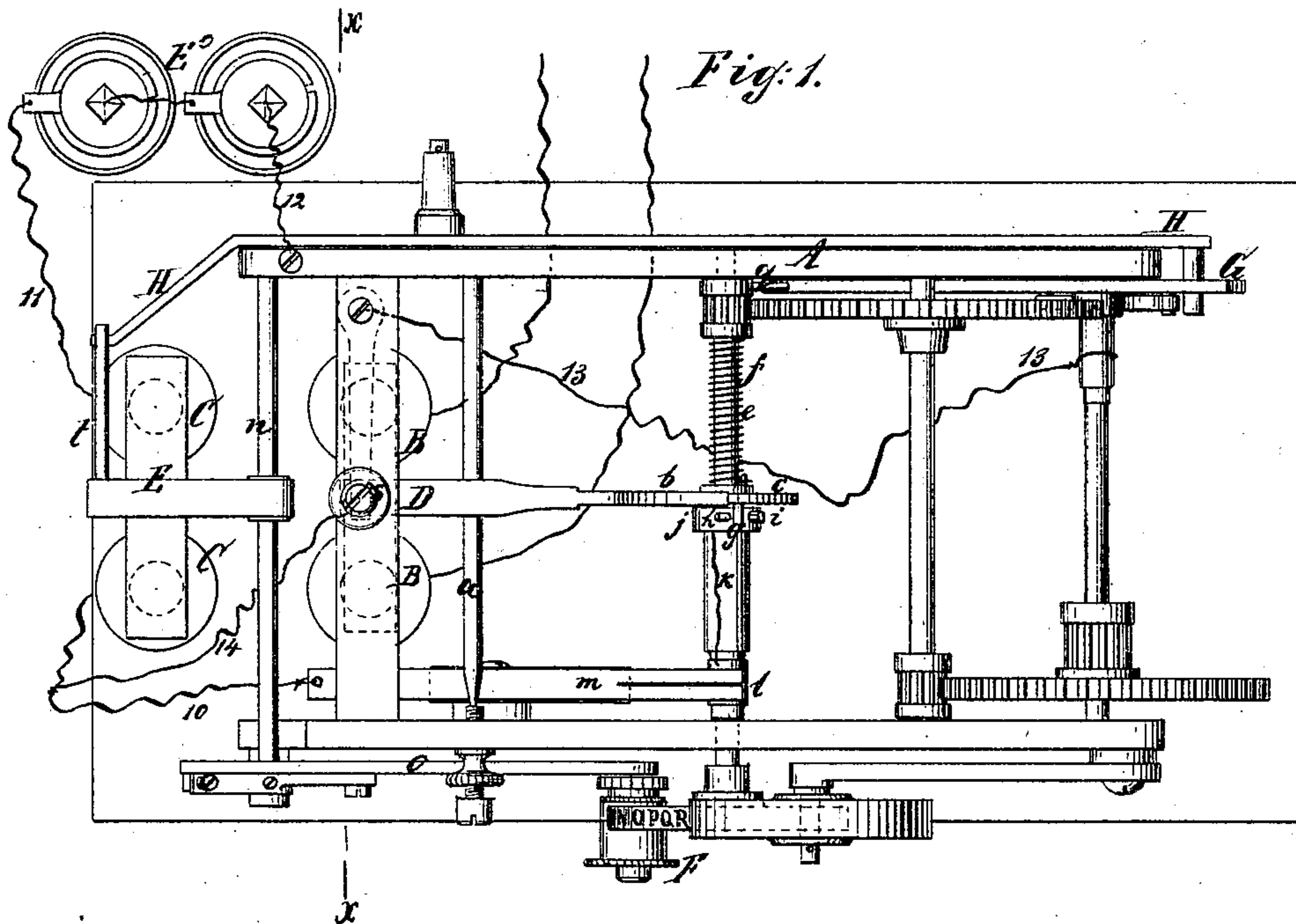


A. WIRSCHING.
Printing-Telegraph.

2 Sheets--Sheet 1.

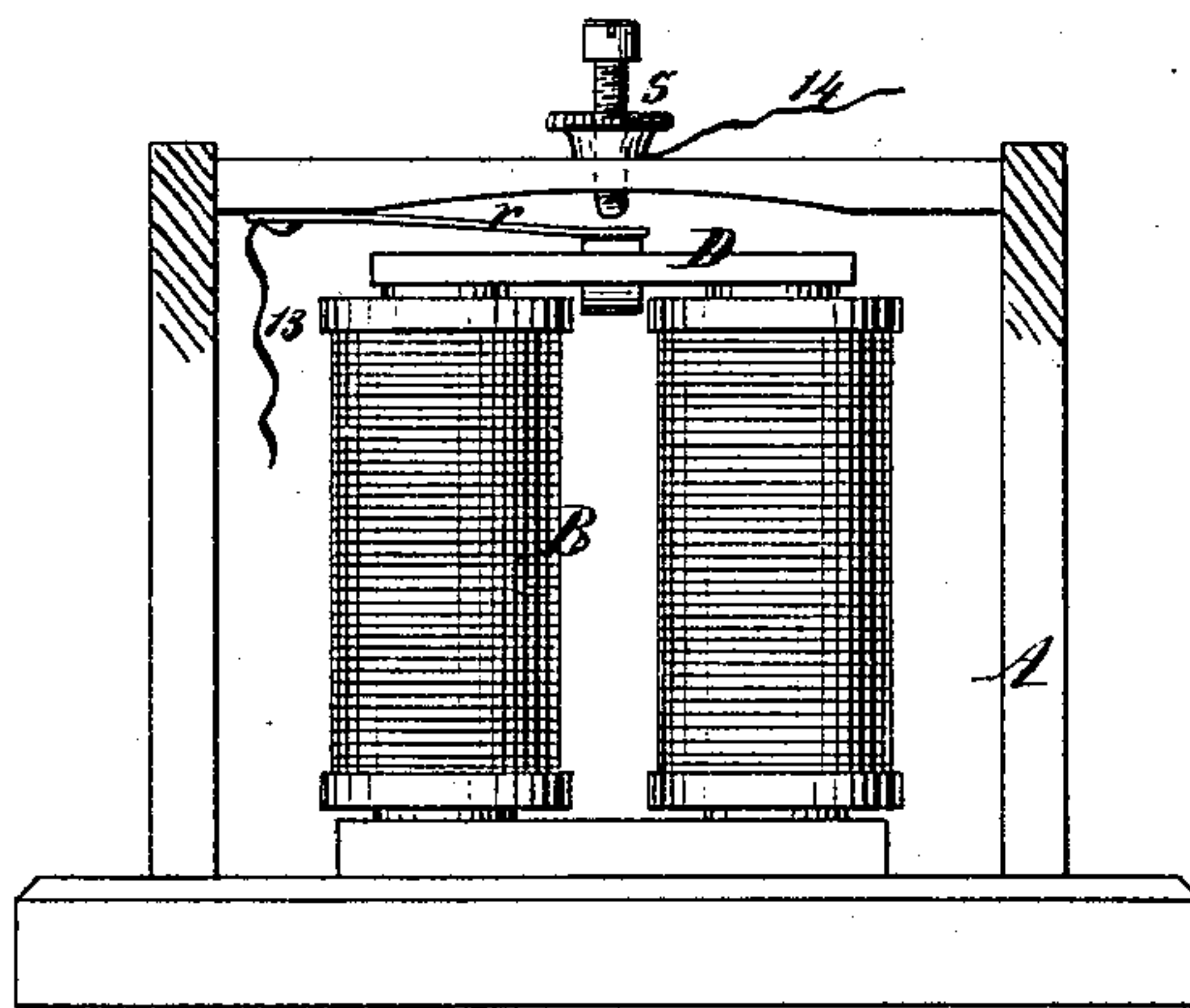
No. 166,911.

Patented Aug. 17, 1875.



Witnesses:
Otto Schuplaud.
Ernst Bilhuber

Inventor:
Alois Wirsching
per
Van Santvoord & Hauff
attors



Inventor:
Alois Wirsching
fr.
Van Santvoord & Hauff
attors

UNITED STATES PATENT OFFICE.

ALOIS WIRSCHING, OF BROOKLYN, E. D., NEW YORK.

IMPROVEMENT IN PRINTING-TELEGRAPHS.

Specification forming part of Letters Patent No. **166,911**, dated August 17, 1875; application filed April 29, 1875.

To all whom it may concern:

Be it known that I, ALOIS WIRSCHING, of Brooklyn, E. D., in the county of Kings and State of New York, have invented a certain new and Improved Printing-Telegraph, of which the following is a specification:

This invention is illustrated in the accompanying drawing, in which—

Figure 1 represents a plan or top view. Fig. 2 is a longitudinal vertical section. Fig. 3 is a side view. Fig. 4 is a transverse section in the plane *x x*, Fig. 1.

Similar letters indicate corresponding parts.

This invention relates to printing-telegraph apparatus; and my invention consists in a novel combination of parts, which will be fully hereinafter described, and specifically pointed out in the claim, a preliminary description being, therefore, deemed unnecessary.

In the drawing, the letter A designates a metallic frame, which forms the bearings for the various working parts of my printing-telegraph. On the bed-plate of this frame rest the line-magnet B and the printing-magnet C. D is the armature of the line-magnet, which oscillates on an arbor, *a*, and the inner end of which forms a pallet, *b*, which acts on an escapement-wheel, *c*. This escapement-wheel is mounted loosely on the type-wheel shaft *e*, being in metallic contact with, and connected to, the same by a spiral spring, *f*, which is wound round said type-wheel shaft and connected to the same at one end, while its opposite end is connected to the escapement-wheel. The type-wheel shaft is geared together with a clock-movement, or with any other source of power, so that when the armature of the line-magnet pulsates a regular step-by-step movement is imparted to the type-wheel shaft. If the escapement-wheel is rigidly mounted on the type-wheel shaft, the rapidity with which this step-by-step movement can be effected is limited, since for each stroke of the armature D and its pallet *b* the type-wheel shaft is arrested positively; but by my arrangement the rapidity of the step-by-step movement of the type-wheel shaft can be materially increased, since the spring *f*, which connects the escapement-wheel with the type-wheel shaft, allows the latter to move against the action of said spring after the escapement-wheel has

been arrested by the pallet *b*, and when the escapement-wheel is released it moves by the action of said spring, and thus the motion of the escapement-wheel is rendered, to a certain extent, independent of the motion of the type-wheel shaft, and the pulsation of the armature *a* can be very rapid without disturbing the correct motion of the type-wheel shaft. From the side of the escapement-wheel projects a metallic pin, *g*, between two pins, *h i*, which radiate from a metallic collar, *j*, mounted on the type-wheel shaft, but insulated from the same. The pin *h* is of platina or other good conductor of electricity, and the pin *i* is of a non-conductor, such as gutta-percha or india-rubber. From the collar *j* extends a metal wire, *k*, to a metal ring, *l*, which is mounted on the type-wheel shaft, but insulated from the same. On this ring bears a spring, *m*, which connects by a wire, 10, with one end of the helix of the printing-magnet C. The other end of this helix connects by a wire, 11, with one pole of a local battery, E^o, and the opposite pole of this battery connects by a wire, 12, with the metallic frame A. Whenever the pulsations of the armature D of the line-magnet are stopped, and consequently the motion of the escapement-wheel is arrested, the type-wheel shaft is turned against the action of the spring *f*, until the metallic pin *h*, in the insulated collar *j*, strikes the pin *g* of the type-wheel, and then the circuit through the printing-magnet is closed, the armature E of this magnet is attracted, and the paper is pressed up against the type-wheel. The armature E is mounted on a rock-shaft, *n*, on which is also secured an arm, *o*, to the end of which is attached the paper-supporting roller F. When a letter has been printed and the pulsations of the armature of the line-magnet are again commenced the escapement-wheel, impelled by the accumulated force of its spring *f*, throws the pin *g* out of contact with the metallic pin *h*, and the circuit through the printing-magnet is opened. The paper-supporting roller drops back, and the step-by-step motion of the type-wheel proceeds until the next letter is to be printed. In order to throw the various instruments on a line in unison, I provide each instrument with a unison-lever, G. This lever is mounted on one of the arbors of the clock-

movement, being insulated from the same, and held in position by a friction-spring, *p*, so that when its arbor turns the unison-lever will be gradually carried up to the position shown in Fig. 2. As the type-wheel shaft revolves, a pin, *q*, projecting from the same comes in contact with the hook-shaped end of the unison-lever, and the type-wheel shaft is arrested, the escapement-wheel *c* being thrown in such a position that its pin *g* comes in contact with the insulated pin *i* of the collar *j*. From the hub of the unison-lever extends a wire, 13, to a spring or bar, *r*, which rests upon the armature *D* of the line-magnet, and which, when this armature is up, comes in metallic contact with a screw, *s*, which is insulated from the frame *A*, and which connects by a wire, 14, with the end of the helix of the printing-magnet. When the pin *g* comes in metallic contact with the unison-lever therefor the circuit through the printing-magnet is closed by wires 12, frame *A*, pin *g*, unison-lever *G*, wire 13, spring *r*, screw *s*, wire 14, and through wire 11 back to the battery. This circuit is only closed when the vibration of the armature *D* stops, and it cannot be closed while those vibrations continue. When the armature of the line-magnet is attracted then the circuit through the printing-magnet is open, even when the pin *g* is in contact with the unison-lever. When said circuit is closed the arma-

ture of the printing-magnet is attracted, and as the same descends a pin, *t*, projecting from its side strikes a lever, *H*, which is pivoted to the side of the frame *A*, and which, when depressed at its front end, bears against the tail of the unison-lever *G*, and throws the same out of contact with the pin *g*. By this action the circuit through the printing-magnet is open before the same has time to perform any printing, and at the same time the type-wheels of the various instruments are brought in unison, the unison-levers of all said instruments causing the appropriate type-wheels to turn to that position at certain intervals.

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

In combination with the escapement-wheel, mounted loosely on the type-wheel shaft of a printing-telegraph, and connected to the same by a spiral spring, and with the armature of the line-magnet, the pins *g h i*, insulated metallic collar *j*, spring *m*, and printing-magnet *C*, substantially as and for the purpose set forth.

In testimony that I claim the foregoing, I have hereunto set my hand and seal this 21st day of April, 1875.

A. WIRSCHING. [L. S.]

Witnesses:

W. HAUFF,

E. F. KASTENHUBER.