

(No Model.)

H. VAN HOEVENBERGH.

PRINTING TELEGRAPH.

No. 274,416.

Patented Mar. 20, 1883.

Fig. 2.

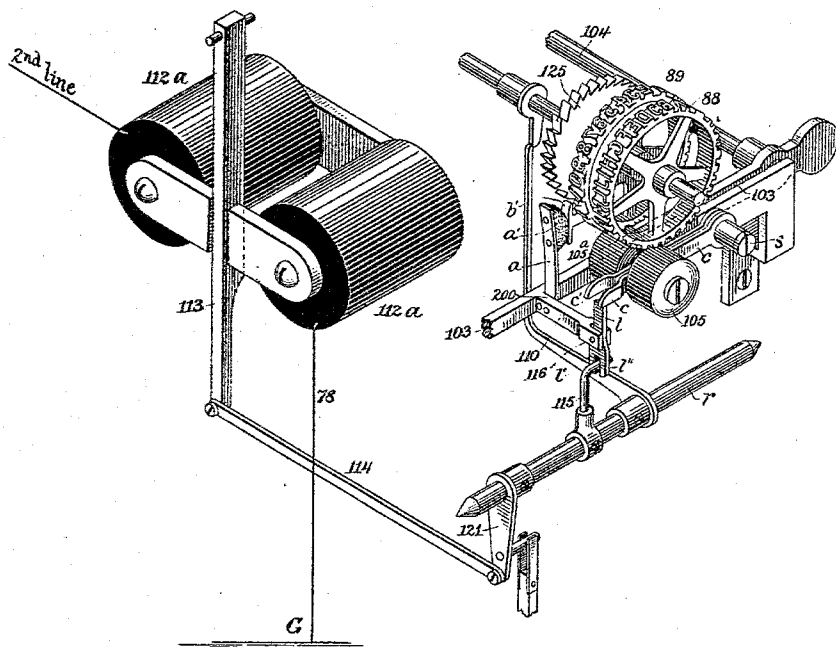
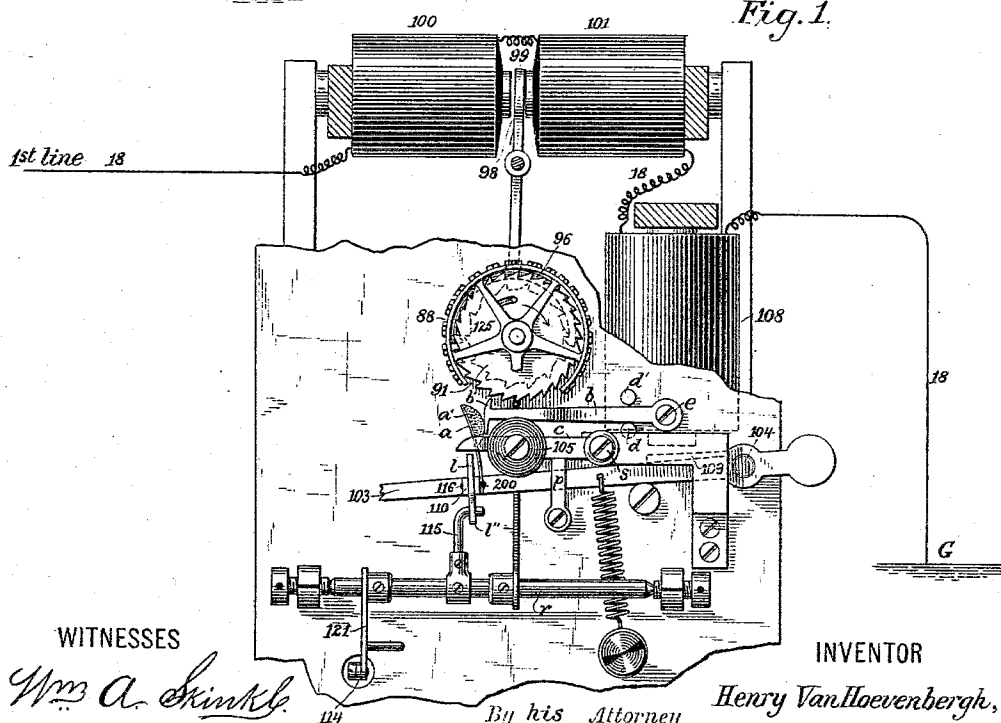


Fig. 1.



WITNESSES

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PRINTING-TELEGRAPH.

SPECIFICATION forming part of Letters Patent No. 274,416, dated March 20, 1883.

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To all whom it may concern:

Be it known that I, HENRY VAN HOEVENBERGH, a citizen of the United States, residing in the city of Elizabeth, county of Union, and State of New Jersey, have invented certain new and useful Improvements in Printing-Telegraphs, of which the following is a specification.

In United States Letters Patent No. 251,658, granted to me December 27, 1881, I have shown a two-wire printing-telegraph in which two type-wheels are rigidly secured to their shaft, are rotated by clock-work, and are released step by step by reverse pulsations sent over one of two main lines, which line embraces the coils of the escapement and press-magnets. Under the influence of reversed pulsations of normal strength the press-lever is not actuated; but when a pulsation of increased strength of either positive or negative polarity is transmitted the press mechanism is brought into operation.

To the end of enabling the immediate printing of figures after letters, and vice versa, without first carrying the type-wheels to a zero or predetermined point, and also to enable the paper to be moved for spacing between words without first carrying the type-wheels to zero, I have there shown what I term a "tilting press-pad," which, through the agency of one polarity of current upon a second main line, upon actuating the press-lever, will cause a letter to be printed, and through the agency of a current of opposite polarity upon said second main line, and upon actuating the press mechanism, will cause a figure to be printed, while if an increased impulse is sent upon the first line and no impulse upon the second line both of the oscillating ends of the press-pad will be held by a clutch from reaching the type-wheels, but the paper will be moved forward one space.

Printing is effected by causing the press-lever, on its upward movement, to lock the rotating type-wheel for an instant before the press-pad has brought the paper in contact with the type-wheel, in order that the type-wheel may be temporarily stationary at the instant of printing. I have found, however, that where a tilting press-pad is employed and a stop is

rigidly fixed to the press-lever, intended to arrest the type-wheels only a little in advance of an impression, a current of great strength is required to lift the press-lever to print in the short space of time intervening (or perhaps a little more) between two consecutive pulsations upon the line; and it is also difficult to secure clear impressions, from the fact that the rebound following an impression will not enable the press-pad to be firmly pressed to the type-wheel. I herein desire to describe and claim means whereby the type-wheels are arrested in advance of the movement of the press-lever to effect an impression from the type-wheel, which consists of an arm upon an independent bearing frictionally connected to an arm upon the press-lever, thus enabling the press-lever proper to be made much lighter and the inertia necessary to be overcome in its movement greatly diminished. I also desire to describe and claim, as an improvement upon a tilting press-lever, two independent press-levers, each of which may be separately and independently raised by the same press-magnet upon the proper movement of an oscillating bar controlled and thrown into either of two opposite positions, according as an impulse of positive or negative polarity is sent over the second line, and if no impulse is sent over the second line the oscillating bar will be held in a middle position and will rest between the two separate press-pads, whereby upon actuating the press-lever the press-pads will not be moved. It is possible, however, and sometimes advantageous, to dispense with the frictionally-actuated arm, to which I have referred, for the purpose of stopping the type-wheel in advance of the impression, and depend entirely upon the press-pads.

For the purpose of more fully describing my improvements, reference is had to the accompanying drawings.

Figure 1 represents a side view of the type-wheel escapement with the lever for stopping the type-wheel, one of the independent impression-pads, the oscillating bar for determining which of two pads shall be used, and the impression magnet and lever. Fig. 2 represents in perspective the two type-wheels, two independent impression-pads, the oscillating bar

for determining which pad shall be actuated, with the polarized magnets, and means for directing and controlling said oscillating bar.

Referring to Fig. 1, the polarized magnet 100 101, with its armature 98, bar 99, double pallet 96, and ratchet-wheel 91, forms an escapement for releasing the type-wheels 88 89 by reversals of polarity transmitted upon the first line, 18. The electro-magnet 108, also in the 10 first line, 18, is actuated upon an increased strength of current of either polarity to attract armature 109, having firmly affixed thereto bar 103.

Upon bar 103 is firmly fixed a bar, 110, 15 upon the end of which is pivoted, at 116, a bar, 1, capable of an oscillating movement at right angles to the movement of bar 103. Below its pivoted support oscillating bar 1 is composed of two arms, 1' and 1'', Fig. 2, 20 between which arms is placed the L-shaped lever 115, securely fixed to the rock-shaft *r*. 112^a is a polarized magnet, having an armature-bar, 113, to which bar is pivoted connecting-shaft 114. Bar 121 is firmly fixed 25 to rock-shaft *r*, its opposite end being pivoted to connecting-shaft 114. Upon an impulse of predetermined polarity being sent upon the second line, 78, armature-bar 113 will be attracted to the left, say, and through connect- 30 ing-shaft 114 will rotate rock-shaft *r* and L-shaped arm 115 toward the right. Arm 115 will thus strike one arm, 1'', of oscillating lever 1, throwing the upper end of lever 1 under the support *c'* of impression-pad 105^a, to be 35 hereinafter described. A current of opposite polarity would of course actuate armature-bar 113 and its connections to throw oscillating lever 1 in an opposite direction and under support *c* of impression-pad 105. When no 40 current is upon the second line, 78, oscillating bar 1 will rest in its normal position midway between the supports *c c'* of the two impression-pads.

c c' are two curved bars loosely pivoted upon support *s*, projecting from the frame of the instrument. Upon these curved bars *c c'* are 45 mounted two impression-pads, 105 105^a. The curved bars *c c'* separate sufficiently to allow oscillating bar 1 to pass between them, and they normally rest by gravity upon stop *p*, (shown in Fig. 1,) and fixed to the frame of the instrument.

A bar, *b*, having a hooked termination, *b'*, 50 as shown, is loosely pivoted to the frame of the instrument at *e*, the stops *d d'* upon opposite sides thereof limiting its movement in either direction.

Upon the bar 103, controlled by the impression-magnet, and moving with it, is a spring-arm, *a*, having securely fixed at point 200, upon 60 the side thereof nearest bar *b*, a piece of leather, *a'*, or similar substance possessing frictional properties. The face of *a'* is normally in contact with the end *b'* of bar *b*, and upon the upward movement of bar 103 arm *a'* partakes of 65 the upward movement, and through the frictional contact lifts *b'* to engage with the toothed

wheel 125, toothed wheel 125, as described in my prior patent, having a number of teeth equal to the number of characters upon the 70 periphery of the type-wheel. It must be observed, however, that upon the upward movement of bar 103 the end of lever *b* is so adjusted as to engage the wheel 125 and stop the type-wheel shaft before pad 105, for in- 75 stance, can strike the type-wheel to produce an impression. I may dispense with the mechanism for stopping the type-wheel while the impression is being taken, depending upon the contact of the impression-pad with the type- 80 wheel alone, thus taking a "flying impression," the present arrangement of the impression-pads being such that a short and quick stroke can be used to produce the impression.

The operation of the machine may be de- 85 scribed as follows: The type-wheel shaft, having a constant tendency to rotate in the direction of the arrow, Fig. 1, is released step by step by rapid reversals of polarity actuating the escapement mechanism. Upon the depres- 90 sion of a key an impulse of determinate polarity, according as it is desired to print a letter or figure, is transmitted upon the second line, and immediately thereupon the normal strength of current in the first line is increased. Let us 95 suppose it is desired to print a letter: the current sent in the second line would be of a polarity to actuate magnet 112^a, to attract armature-bar 113 to the left, tilting oscillating bar 1 to the right, and thus throwing its upper 100 end under the lever of printing-pad *c*. The increased strength of current in the first line actuates magnet 108 to attract its armature and bar 103, carrying the oscillating bar 1 and lever *b*, through its frictional contact with spring- 105 arm *a*, upward. The distance through which arm *b* has to move before engaging wheel 125 is much less than that through which pad 105 has to move to strike type-wheel 89, so that the rotating shaft of the type-wheel will be 110 stopped by bar *b* before the arrival of pad 105, thus allowing a clear impression to be taken from a stationary type-wheel. If it were desired to print a figure, the current in the second line would be of an opposite polarity, thus di- 115 recting oscillating bar 1 under the lever *c'* of impression-pad 105^a. If it were desired to print a space, no current would be sent in the second line. The transmitter suited to these conditions is fully described and claimed in 120 my prior patent above referred to.

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

1. In a printing-telegraph instrument, the combination of a press-lever, two type-wheels, 125 two independent press-pads, and means whereby the press-lever may actuate either press-pad, a ratchet stop-wheel, and a frictionally-operated stop for arresting said ratchet stop-wheel actuated by the press-lever. 130

2. The combination, in a two-line printing-instrument, of printing electro-magnet 108 in the first line, press-lever 103, polarized electro-magnet 112^a in the second line, armature 113,

type-wheels 88 and 89, printing-pads 105 and 105^a, and means whereby, upon passing a current of one polarity through said second line, printing may be effected from one type-wheel, and upon passing a current of opposite polarity through said line printing may be effected upon the other type-wheel.

3. In a printing-telegraph instrument, the combination of ratchet-wheel 125, detent *b'*, press-lever 103, and friction-arm *a*.

4. The type-wheels 88 89, toothed wheel 125, arm *b*, and impression-lever 103.

5. The combination of type-wheels 88 89, toothed wheel 125, lever *b*, impression-lever 103, and press-pads 105 105^a.

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Witnesses:

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