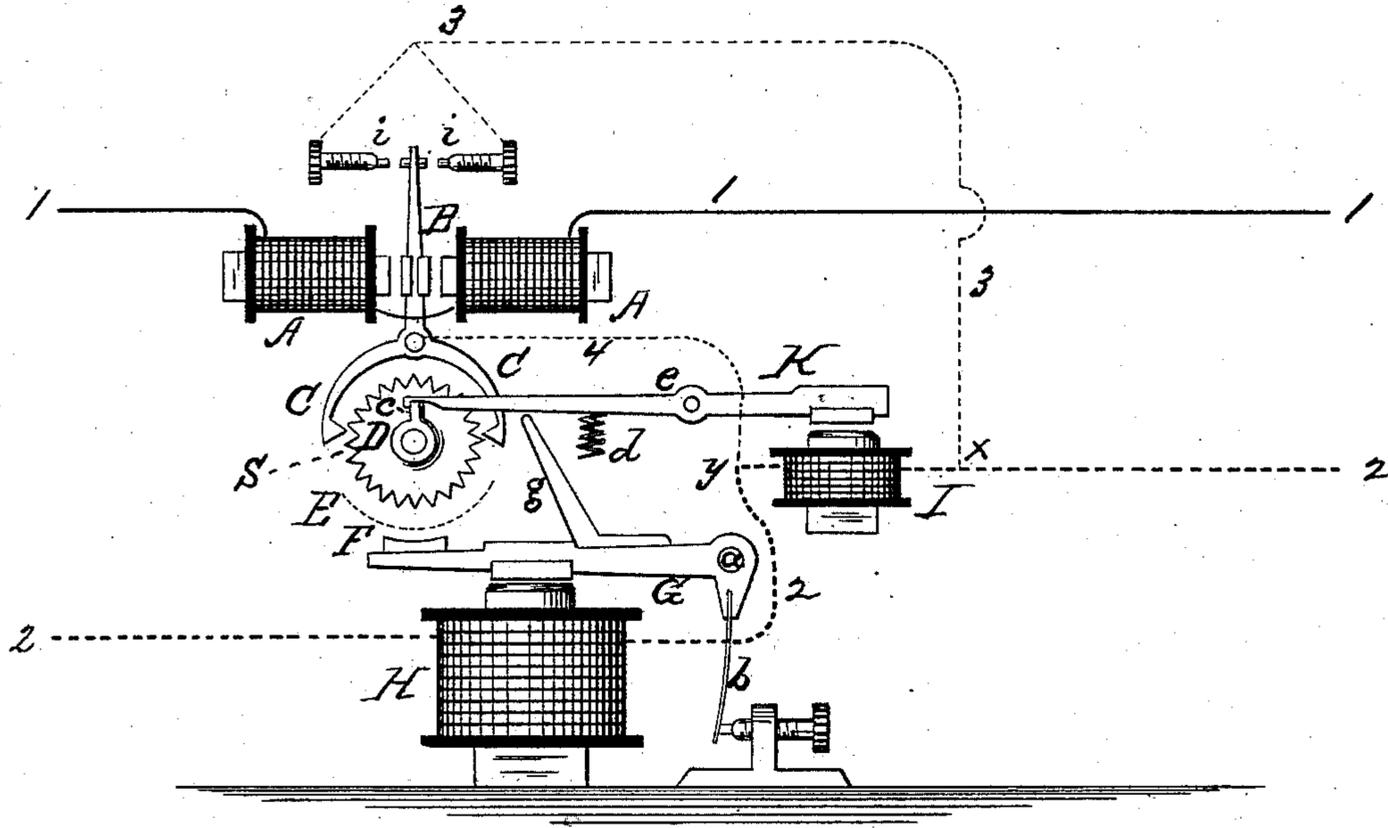


(No Model.)

S. D. FIELD.  
PRINTING TELEGRAPH.

No. 279,865.

Patented June 19, 1883.



WITNESSES:

*D. D. Mott*  
*P. H. Hilber*

INVENTOR:

*S. D. Field*  
BY *J. F. Milner*  
ATTORNEYS.

# UNITED STATES PATENT OFFICE.

STEPHEN D. FIELD, OF NEW YORK, Y. Y.

## PRINTING-TELEGRAPH.

SPECIFICATION forming part of Letters Patent No. 279,865, dated June 19, 1883.

Application filed February 24, 1883. (No model.)

*To all whom it may concern:*

Be it known that I, STEPHEN D. FIELD, of New York, in the county of New York and State of New York, have invented a new and useful Improvement in Printing-Telegraphs; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

My invention relates to that class of printing-telegraphs known ordinarily as "step-by-step printers;" and its object is to furnish therefor a simple and reliable "unison" device—that is, a device by the use of which the operator transmitting news may at any time lock all the printing-wheels in the circuit at a certain fixed and predetermined point, termed the "unison-point," and then release them therefrom for operation.

In carrying my invention into effect I make use of the ordinary escapement, printing wheel or wheels actuated or controlled thereby, inking devices, and paper-feed; hence they need not be particularly described. The printing is accomplished upon the breaking of a normally-charged printing-circuit, the printing-magnet then releasing the printing-lever, which is thrown against the type-wheel by its retractile spring. A second magnet or unison-magnet is interposed in this normally-charged printing-circuit, having an armature-lever whose non-armature end is carried by a spring, when the circuit is broken, into the path of a stop or arm on the type-wheel or in the type-wheel train, so as to stop the type-wheel at the certain predetermined point. From this it is evident that whenever the printing-circuit is broken to print, the spring tends to immediately put the unison into action. To prevent this, and permit the calling into action of the unison only when desired, an arm is placed upon the printing-lever, taking under the unison-lever in such way as to throw it away from the unison-stop whenever the printing-lever is thrown into position to print. As thus arranged, the unison is prevented from acting, first, by its magnet in the normally-charged printing-circuit; secondly, by the action on it of the arm on the printing-lever when the printing circuit is broken. It is necessary, therefore, to demagnetize the unison-magnet

without affecting the printing-circuit. To do this the free end of the escapement-armature is caused to play between contact-points which form one terminal of a shunt-circuit around the unison-magnet, while the other terminal is carried to the lever itself. When the escapement-lever is at work, the contacts are so brief that this shunt is not closed sufficiently long to demagnetize the unison-magnet; but when the escapement-lever is brought to rest, it remains in contact, closing the shunt and causing the demagnetization of the unison-magnet, whose lever falls away therefrom and is carried by its spring into position for action. The unison-lever and its spring are so adjusted that when once the lever has been released the force of its magnet is not sufficient to restore its position, so that after the stoppage of the escapement to form the shunt throwing the unison into action, the escapement may be operated to bring the type-wheel to unison without danger of causing a release of the unison, which latter is then done by throwing the printing-lever into action, which then lifts the unison-lever from the unison-stop, placing its armature in such nearness to the unison-magnet that the latter may again attract and hold it. This is illustrated in the drawing, in which these co-operating parts and circuits only are shown, the framing, paper-feed, inking-rollers, &c., being omitted therefrom in order that the actual features of the invention may be more clearly and prominently shown.

A A are the escapement-magnets, between which plays the escapement-lever B, carrying anchor C, controlling escape-wheel D on the shaft S of the type-wheel E. (Indicated in dotted lines.) 1 1 in full lines is the escapement or type-wheel circuit.

H is the printing-magnet in the circuit 2 2, (shown in heavy dotted lines,) and kept normally charged, so as to hold its armature-lever G, carrying platen F, away from the type-wheel and against the resilience of a spring or other retractor, b. In this circuit 2 2 is the unison-magnet I, having armature-lever K, pivoted at e, and provided with an adjustable retractor, d. The non-armature end of this lever is arranged to take, when d is allowed to act upon it, in the path of an arm or stop, c, which may be called the "unison-stop," fixed upon the type-wheel shaft, as here shown, or upon the

type-wheel or upon some member of the type-wheel train. The force of  $d$  and the distance to which the armature may move away from I are so adjusted relatively to the force of I that  
 5 whenever K is released from I, I has not magnetic force enough to unaided again bring K back.

Upon the printing-lever G is mounted an arm,  $g$ , taking under K, so as to throw the stop  
 10 end of K upward whenever G is raised to print.

The free end of the escapement-lever B plays between contact-points  $ii$ , from which a wire, 3, leads to a point,  $x$ , in the circuit 2, while from the lever a wire, 4, leads to a point,  $y$ , in  
 15 the same circuit, the contact-points, escapement-lever, and wires 3 4 forming a shunt to I. (Shown in light dotted lines.)

The operation of these devices is as follows: The circuit 2 2 is kept normally charged, so  
 20 that G and K are attracted and held from action by their respective magnets. While the escapement CD is in operation to set the type wheel or wheels the contacts between B and  $ii$  are so brief that the shunt 3 4 does not affect  
 25 I. If, however, the escapement be stopped, B rests in contact with one of the pivots,  $i$ , and I becomes demagnetized, allowing spring  $d$  to pull the outer end of K down in position to contact with  $c$ . If, now, it be desired to use the  
 30 unison, the escapement B is vibrated by pulsations in the circuit 1 1 sufficiently to bring  $c$  and the end of K together, the force of I being, as before stated, insufficient to attract K to it-self again. The printing-circuit is now broken,  
 35 releasing G, whose spring  $b$  immediately throws it up, its arm  $g$  throwing the free end of K up and forcing its armature within effective range of I. Whenever the escapement is stopped  
 40 to be effected, the unison-lever K tends to come into action, first, because of the formation of

the shunt 3 4, and, second, because of the complete break in circuit 2 2 to cause the printing. The act of printing, however, through  
 45 the medium of the arm  $g$ , prevents this restoring K to its normal position, and the unison is brought into action only on a complete break-age in the printing-circuit.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, 50 is—

1. In a printing-telegraph, the combination of a magnet controlling the printing mechanism and a magnet controlling the unison mechanism, both located in a normally-charged  
 55 printing-circuit, the breaking of which permits the operation of the printing mechanism, throwing the unison-lever out of action and into effective range of the unison-magnet, substantially as set forth. 60

2. In a printing-telegraph, the combination of a unison-lever, a retractor tending to put the lever in action, and a magnet normally holding the same out of action, the magnet and retractor being so adjusted relatively to each  
 65 other that the magnet unaided cannot draw the lever out of action, and means controlled by the printing mechanism to throw the lever within effective range of the unison-magnet, substantially as set forth. 70

3. In a printing-telegraph, the combination, with a normally-charged printing-circuit, of a printing-magnet and a unison-magnet, and a shunt-circuit around the unison-magnet, controlled by the escapement mechanism, sub-  
 75 stantially as set forth.

This specification signed and witnessed this 15th day of February, 1883.

STEPHEN D. FIELD.

Witnesses:

WILLIAM E. SHINNER,  
 JOHN B. SCOTT.