

(No Model.)

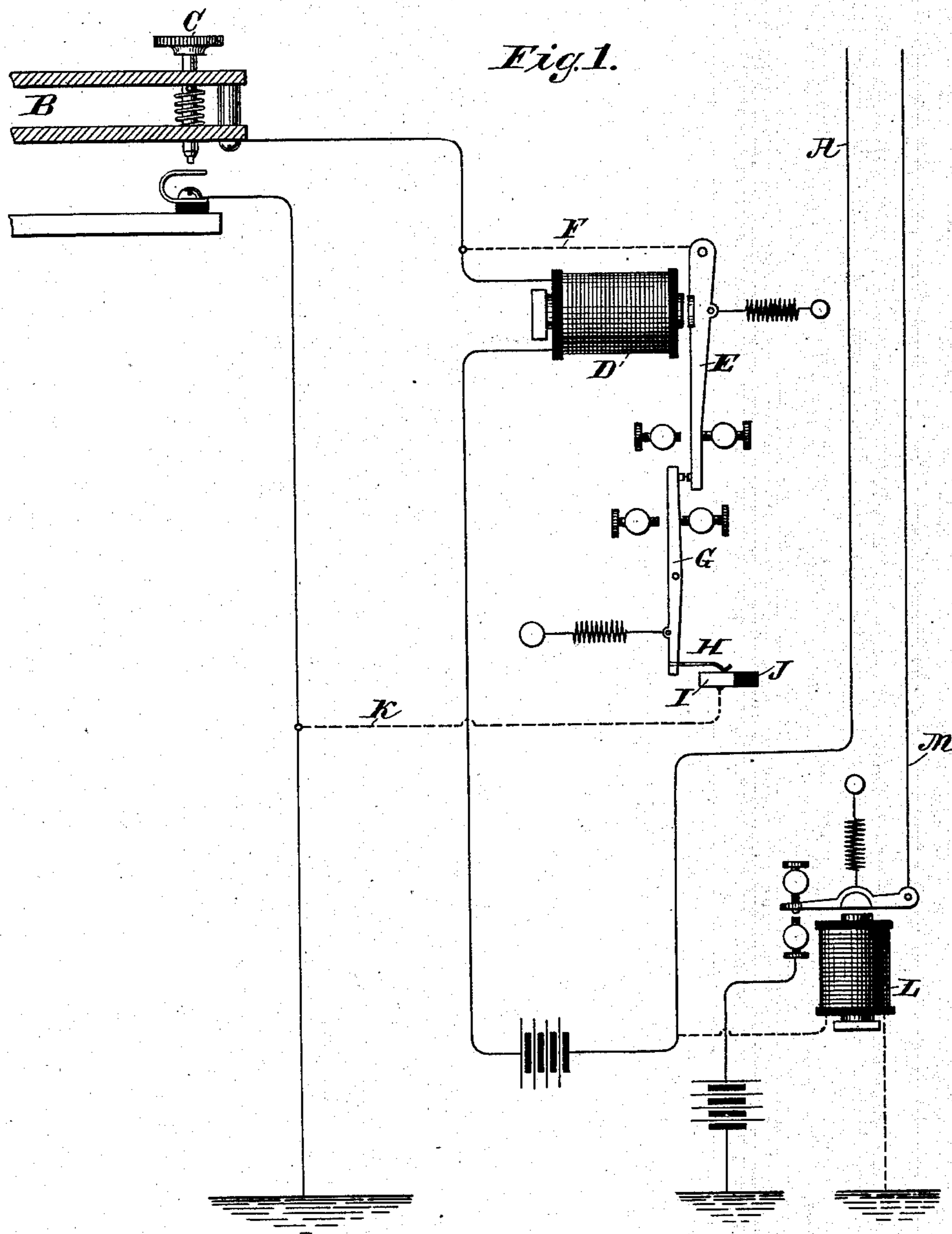
3 Sheets—Sheet 1.

C. L. HEALY.

CONTROLLING PRESS CIRCUITS OF PRINTING TELEGRAPHS.

No. 326,084.

Patented Sept. 8, 1885.



Witnesses:

R. F. Sayford,  
Robt H. Duncan

Inventor

Clarence L. Healy

(No Model.)

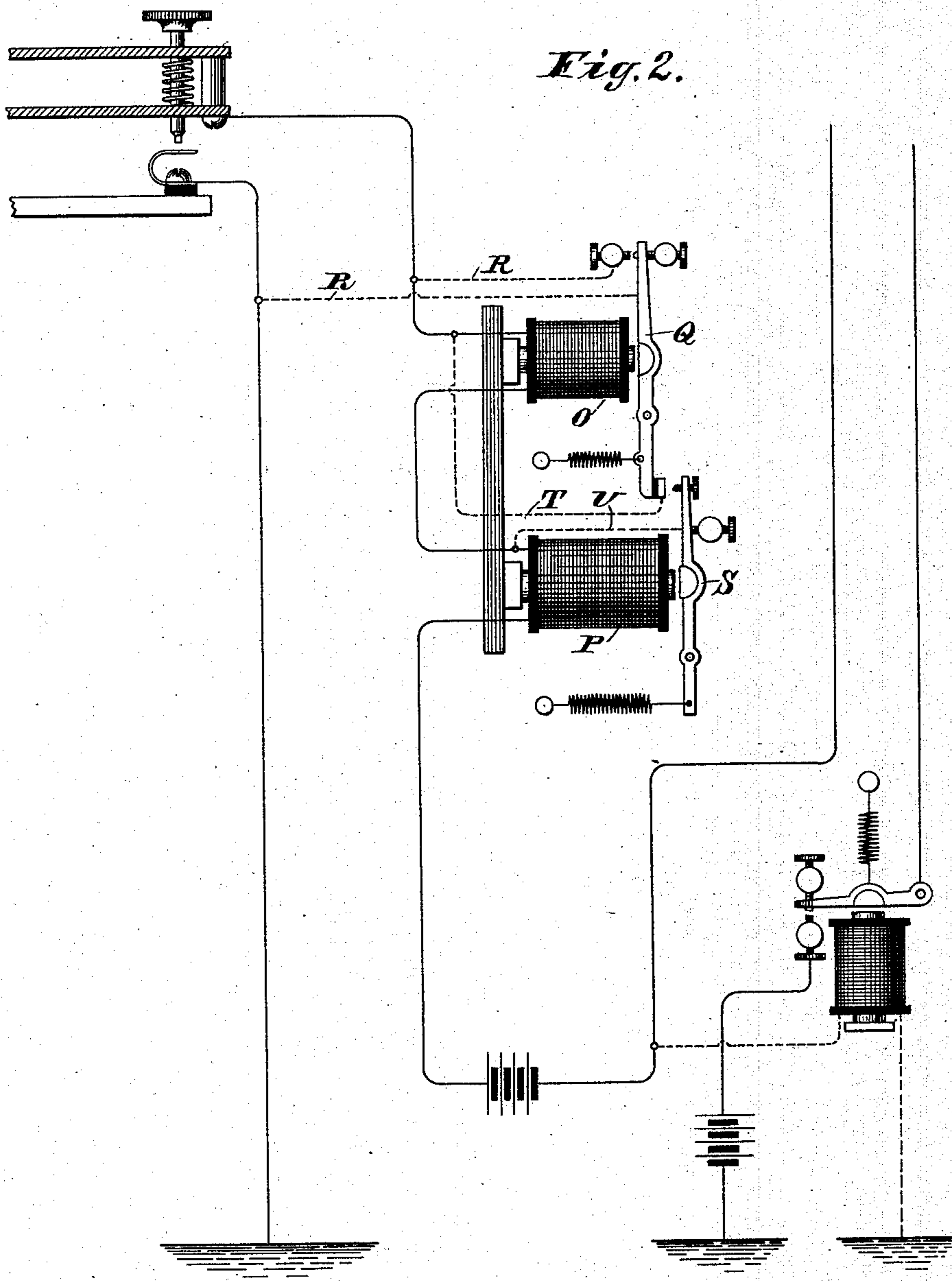
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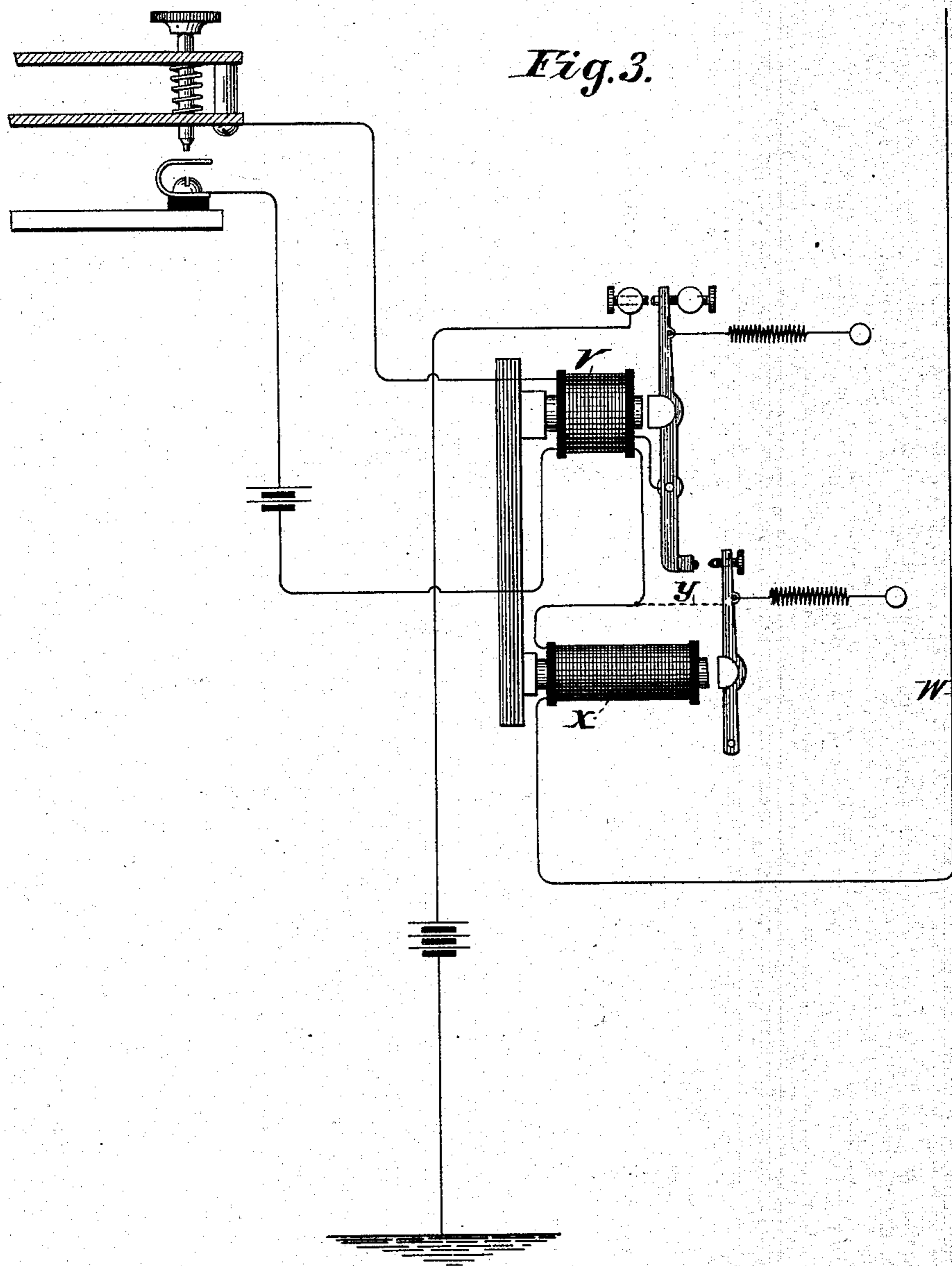
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# UNITED STATES PATENT OFFICE.

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## CONTROLLING PRESS-CIRCUITS OF PRINTING-TELEGRAPHS.

SPECIFICATION forming part of Letters Patent No. 326,084, dated September 8, 1885.

Application filed April 15, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, CLARENCE L. HEALY, of Brooklyn, in the county of Kings and State of New York, have invented certain new and  
5 useful Improvements in Printing-Telegraphs, of which the following is a full, clear, and exact description, and will enable those skilled in the art to which they appertain to make and use the same, reference being had to the  
10 accompanying drawings.

These improvements relate generally to that class of printing-telegraphs in which one or more revolving type-wheels bearing the requisite letters and figures or other characters are  
15 used, together with mechanism for pressing a ribbon or strip of paper against the type-wheels, or the type or wheels against the ribbon, to effect the printing of the message upon such ribbon.

20 The object of the invention is to insure the proper operation of the press mechanism, which is the mechanism in each of the printing-machines that presses the paper upon the type, and thereby produces upon it the desired  
25 impressions, it being the purpose to cause such press mechanism to always operate with such a positive or sustained action or blow as may be found necessary to secure a distinct and full impression upon the paper, and to effectively  
30 accomplish any other work that the press mechanism is intended to do; and it is essential that this object be attained by means that, when put in operation, will continue to act for a predetermined time, and independently of  
35 the operator who brings it into action, thereby lessening the necessity for accuracy of action on his part, and enabling him to transmit with greater speed. The more essential reasons that make it desirable to accomplish this  
40 end are these: As the characters to be printed from are arranged on the peripheries of the type-wheels, and as these type-wheels have practically a regular speed when running, the length of time between the printing of two  
45 succeeding characters is constantly changing with nearly every character printed, and hence the transmitting-key that is closed by the operator at the central station to send a printing or press current to the printers must  
50 be held down for correspondingly-changing periods of time. This prevents any regular

action on the part of the operator, and necessitates the closest attention and care to produce good work, and this condition, together with the naturally urgent character of the  
55 business, tends to make the operator release the transmitting-key too quickly after the press-current has been established, and thereby causes the mechanism that presses the paper on the type (which is usually a vibrating lever  
60 carrying a press-pad over which the paper travels) to act too quickly and too feebly or with a clipping stroke that fails to produce distinct impressions of the type upon the paper.

65 The invention consists, therefore, in arranging in the press-circuit of a printing-telegraph, or in a circuit connected with or influencing the press-circuit, an electro-magnet or equivalent device so arranged that it will  
70 be put into action by operating the key or other like device for establishing a current in the press-circuit, and will continue its action in such manner as to maintain the press-current during the time necessary to effect the  
75 proper action of the press-circuit mechanism, and will break or interrupt the press-current after such press mechanism has been acted upon, as required.

80 Figure 1' of the drawings shows a portion of a press-circuit, a key for closing the same, and an electro-magnet placed in the circuit, and operating devices arranged to hold the circuit closed in accordance with the purpose of the invention. Fig. 2 is a view of the same circuit and key, but showing how the invention  
85 may be carried out by the use of two magnets; and Fig. 3 shows a press-circuit operated in accordance with the invention by a local or separate circuit containing the circuit-closing key.

90 Referring to these views in detail, and first to Fig. 1, A represents a circuit running through the press mechanism of one or more printing-telegraph machines or repeaters. B  
95 is a section of a transmitting key-board, showing one of the transmitting-keys C, the closing of which establishes a current in the press-circuit. D is an electro-magnet arranged in the press-circuit, and constructed to act very  
100 promptly upon the passage of a current through its coils, its armature-arm E being

also arranged so as to respond quickly to the slightest action of the magnet. F is a wire connecting the armature-arm E with the press-circuit. G is a swinging lever arranged to make electrical contact with the vibrating end of arm E, and is provided with a spring, H, pressing upon a button or block composed of the electric conductor I and the electric non-conductor J; and K is a wire connecting the button I with that part of the press-circuit that is on the side of the key opposite the connection of the armature E with the press-circuit.

By closing the key and establishing a current in the press-circuit the armature-arm E is instantly caused to swing to contact with the lever G, and thus short-circuit the key G through the line F E G K, after which the lever E, continuing to move toward its magnet, causes spring H to leave the electrical conductor I, that it bears upon, and pass on to the non-conductor J, which produces a break in the short-circuit, which is then a portion of the press-circuit, and the armature-arm and swinging lever return to their original position, it being understood, of course, that the transmitting-key was opened as quickly as the press-current was established, as is the intention. The duration of the press-current will manifestly depend upon the extent of play that the armature-arm and the swinging lever have. These should be so adjusted that they shall come in contact with each other by the slightest practicable movement, and so that their after movement shall substantially represent the duration of the press-current.

In the printing telegraph systems as commonly operated it is usual to work various separate circuits from one transmitting key-board. When this is done each of the transmitting-keys is placed in a local circuit that is confined to the transmitting-station and that contains one or more relays arranged to operate the press-circuits. With this arrangement the key-circuit, instead of including the press-line A, would run to one or more relays, L, and then to the ground or back to where the short circuit K is connected with this key-circuit. The relays L serve to close and open the press-circuit M after the same manner that the local key-circuit is closed and opened. In this way as many separate press-circuits may be worked by one key-board as may be desired.

In Fig. 2 I show another form of automatic short-circuiting devices. Here there are two electro-magnets in the press-circuit, the magnet O being sensitive and quick to respond to the slightest current, and the magnet P being not necessarily so delicate in its action. Upon establishing the press-current the armature-arm Q instantly closes the short circuit R and cuts out the transmitting-key, as before, the press-current being thus prolonged, then brings the armature-arm S into action, which closes the shunt-circuit T U, and thereby shunts off so much of the current from magnet

O that it releases its hold upon its armature, which flies back and breaks the press-circuit. It will be noticed that the armature S may have a further movement after it has struck the armature-arm Q, and this is to insure the arm Q being lifted from its magnet and the consequent breaking of the press-circuit. Thus, if the contact-points which complete the short circuit R should stick, or if this arm Q be held down by reason of the slight magnetic power that its magnet will continue to exert after it has been shunted, then the latter part of the movement of the arm S will force it up and make the necessary break. The duration of the press-current in this apparatus may manifestly be regulated by the sensitiveness of the shunting-magnet or by the range of play that its armature has, or by both of these conditions; but it is preferred to regulate the current by the adjustment of the shunting-magnet armature.

In Fig. 3 I show an electro-magnet, V, wound with two coils, one being in the key-circuit and one being in the press-circuit W, the press-circuit also containing a long slow-acting shunt-magnet, X. Closing the transmitting-key causes the armature of the magnet V to close the press-circuit, and this circuit, also acting upon magnet V, holds its armature down after the key-circuit may have been opened. Upon the armature of magnet X coming in contact with the armature of magnet V the latter magnet is shunted through shunt Y, and it thereupon releases its armature, or is forced to by the armature of the shunt-magnet, and the press-circuit is thereby broken.

Here, as with the form of apparatus shown in Figs. 1 and 2, the key-circuit may be employed as a local circuit to operate one or more press-circuits in the manner already explained. So, too, many other forms of devices for short-circuiting or disconnecting or cutting out the transmitting-key, or rendering it when opened ineffectual to discontinue the press-current, and for holding the press circuit or circuits closed the proper length of time, are possible, as well as other methods and means for causing the said disconnecting device to be operated from or by the transmitter-key; but the forms here shown are preferred, and they suffice to fully illustrate the principle and application of the invention.

It will now be plain that with an apparatus arranged to control the press-circuits after the manner here shown and described the action of the transmitting-operator in manipulating the keys is no longer one of necessary exactness or close attention, for so long as the key is closed, so as to establish the current through it at all, be this ever so quickly or imperfectly done, the mechanism for continuing to hold the press-circuit closed will invariably act to send the proper current to the press mechanisms; and this results in a more rapid transmission of quotations or other news, because the transmitting-operator, being thus freed in great

measure from the heretofore existing demand upon him, compelling close attention to the action of the transmitting mechanism, is able to work without the mental strain and responsibility connected with such attention, and hence more rapidly and accurately.

What is claimed as new is—

10 1. The combination, in a printing-telegraph, of a press-circuit, a key for establishing a current in said circuit, an electro-magnet connected with the press-circuit and brought into action by the closing of said key, and mechanism operated by said magnet to hold the circuit closed independently of said key.

15 2. The combination, in a printing-telegraph, of a press-circuit, a key for establishing a current in said circuit, an electro-magnet which is brought into action by the closing of said key and holds the circuit closed independently of the key, and mechanism operated by said magnet which breaks the press-circuit when the printing has been effected.

20 3. The combination, in a printing-telegraph, of a press-circuit having one or more printing-instruments placed therein, a local circuit provided with a key or similar means for establishing a current in said circuit and operating

a relay to correspondingly open and close the press-circuit, and an electro-magnet connected with said local circuit, with mechanism operated by such magnet for prolonging the printing-current when once established. 30

4. The combination, in an electric circuit containing a key for operating the press mechanism of one or more printing-telegraph instruments, of an electro-magnet whose armature is arranged to short-circuit or disconnect the key when the circuit has once been closed and maintain the current operating the said press mechanism, and an electro-magnet arranged to shunt said short-circuiting magnet, and thus open the circuit. 35 40

5. The combination, in an electric circuit containing a key for operating the press mechanism of one or more printing-telegraph instruments, of an electro-magnet whose armature is arranged to first short-circuit said key, and thereby maintain the press-current until the printing is effected, and to then break the press-circuit. 45

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