

(No Model.)

P. C. F. McCAMBRIDGE.

AUTOMATIC CIRCUIT CLOSER.

No. 330,037.

Patented Nov. 10, 1885.

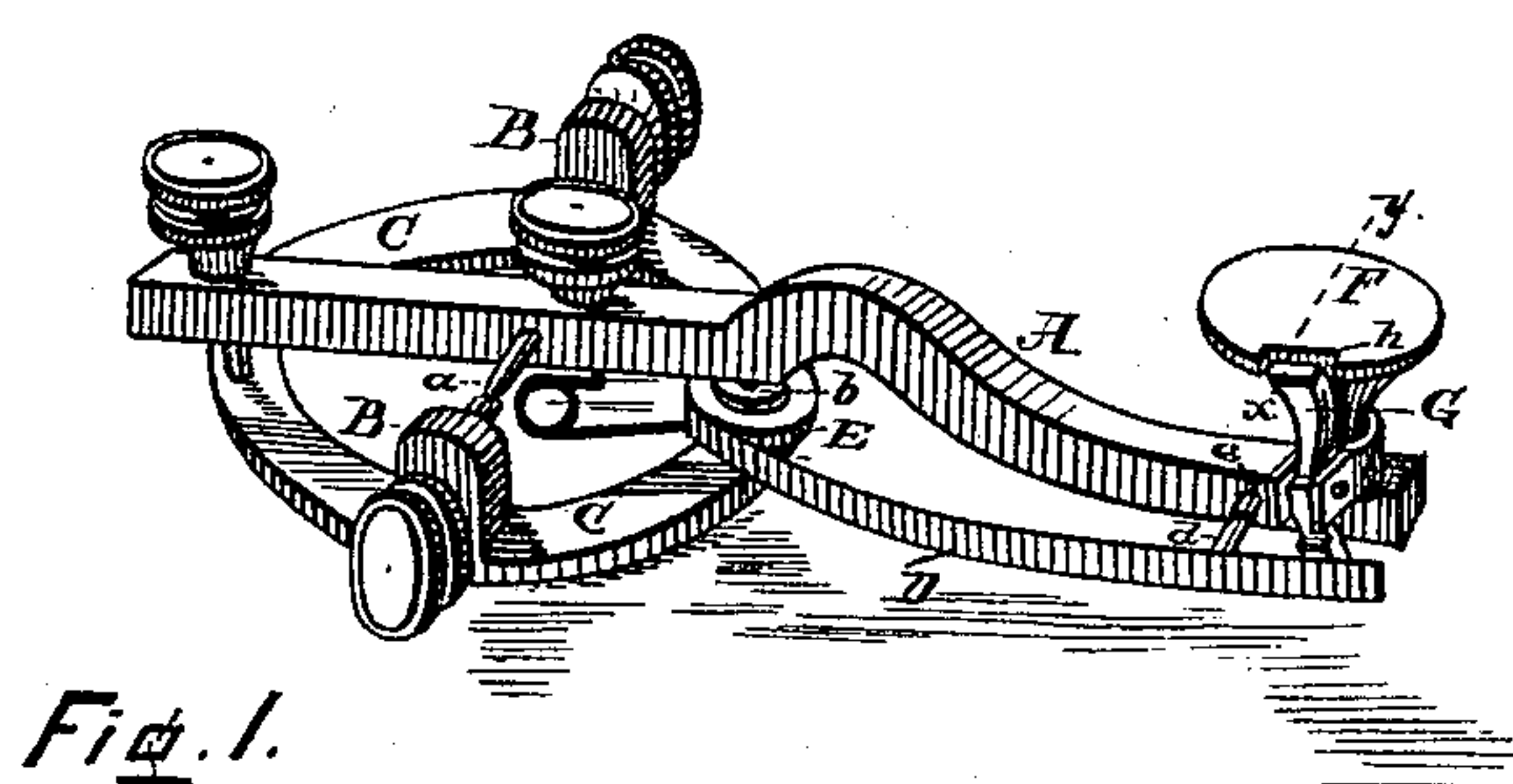


Fig. 1.

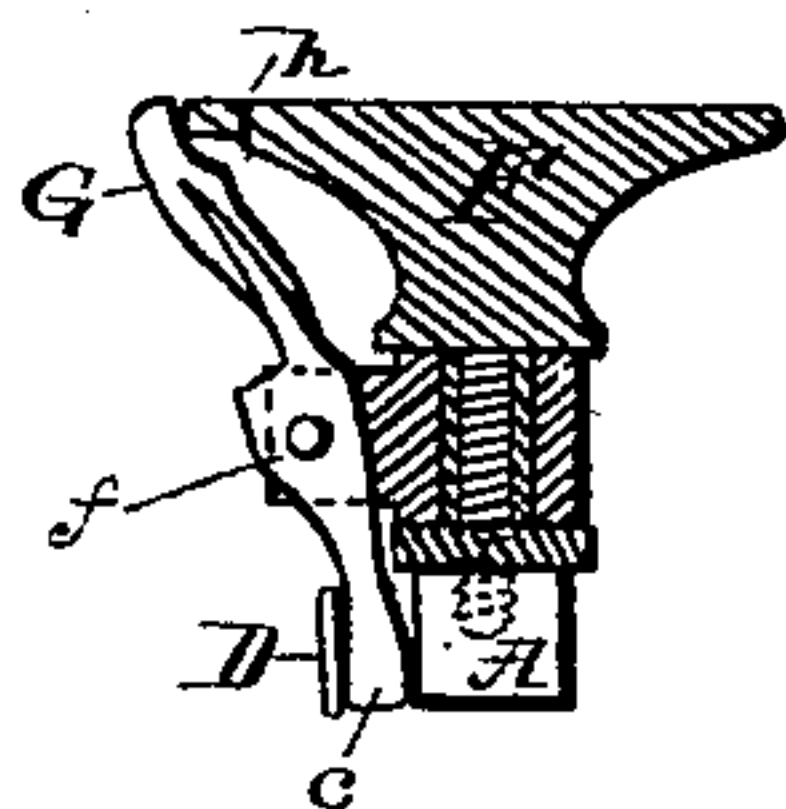


Fig. 2.



Fig. 3.

Witnesses:

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AUTOMATIC CIRCUIT-CLOSER.

SPECIFICATION forming part of Letters Patent No. 330,037, dated November 10, 1835.

Application filed February 24, 1885. Serial No. 156,710. (No model.)

To all whom it may concern:

Be it known that I, PATRICK C. F. McCAMBRIDGE, a citizen of the United States, residing at St. Albans, in the county of Franklin and State of Vermont, have invented certain new and useful Improvements in Automatic Circuit-Closers, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in automatic circuit-closers in which a spring-lever operates in combination with a telegraph-key; and the objects of my improvements are, first, to provide a more natural and convenient mode of opening the circuit, when the key is being used in telegraphing, by so adjusting the operating-lever of the circuit-closer to the finger-button that it is under the perfect control of the operator without in any way interfering with the free and independent use of the key; second, to so combine the circuit-closer with the telegraph-key that it can be readily adapted to any key of the usual construction by reason of its convenient and ready mode of attachment and the simplicity of its design. I attain these objects by the mechanism illustrated in the accompanying drawings, in which similar letters indicate like parts.

Figure 1 is a perspective view of the ordinary telegraph-key provided with my automatic circuit-closer. Fig. 2 is a transverse section of the finger-button on the line *xy*, showing the mode of operating the spring-lever of the circuit-closer. Fig. 3 is a detail view of the spring-lever.

A is a telegraph-key, whose shaft *a* is journaled in the vertical standards B B on the base-plate C in the usual manner.

D is a spring-lever, one extremity of which is rigidly attached to the collar E below the contact-pin *b* of the key A, and which is insulated from the base-plate C. Its free end extends sufficiently beyond the base of the finger-button F to allow the lower end, *c*, of the operating-lever G to intervene between it and the side of the key A.

d is a contact-point which projects from the inside of the spring-lever D, and is designed to come in contact with a corresponding platinum projection or point, *e*, on the adjacent side of the key A.

The lever G is pivoted at *f* to a collar, which

surrounds or is attached to the stem of the finger-button F, which is rigidly connected to the end of the key A. The upper extremity of the lever G is tipped with hard rubber or other non-conducting material, and is so constructed as to be made to enter the recess *h* in the outer edge of the button F by means of the pressure of the ball of the thumb of the operator, as he naturally grasps the finger-button when telegraphing. By so doing, the regular contour of the upper face of the button F is preserved, and, the free end of the spring-lever D being thereby forced back by the outward movement of the end *c* of the lever G, the contact-points *d* and *e* are separated, and the circuit between the opposite ends of the line is at once automatically broken.

As soon as the hand of the operator is raised from the finger-button and the key is no longer used, the upper extremity of the lever G, being relieved of the pressure of the thumb, flies backward by reason of the force of the spring-lever D against its lower extremity, *c*, and the points *d e* immediately come again into contact, and the circuit between the opposite ends of the line is at once automatically closed. Care should be taken that the key works with perfect freedom and the spring-lever is adjusted to suit the operator.

By this simple and cheap device, which can be readily attached to any telegraph-key, and on either side of the finger-button, according as the operator may be right or left handed, no change is required to be made in the ordinary manipulation of the finger-button, inasmuch as the end of the operating-lever G is directly where it would be most naturally pressed toward the center of the button, and thus automatically open the circuit in the act of telegraphing, and this without resorting to any difficult or inconvenient effort, which attends the use of any devices which have first to be pressed and then held down to the finger-button at the same time that the latter is being used.

By my device no obstruction is caused to the free independent working of the key, and it in no way prevents the rigid attachment of the finger-button to the key, so essential to the ease and reliability of its operation. At the same time the action of the circuit-closer is instantaneous, effective, and automatic.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The spring-lever D, one extremity of which is rigidly attached to the collar E, having
5 a contact-point, *d*, so placed as to meet a corresponding contact-point, *e*, on the adjacent side of the key A, and so arranged that its free end may be moved horizontally by a lever pivoted
10 to the stem of the finger-button, substantially as described, and for the purpose set forth.
2. The finger-button F, provided with a recess, *h*, in its upper face for the entrance of the upper extremity of the lever G, which is
15 pivoted to its stem, whereby the free end of the spring-lever D may be forced outward, thereby causing the contact-points *d* and *e* to be separated, substantially as and for the purpose specified.
3. The telegraph-key A, having the rigid fin-
20 ger-button F, provided with a recess, *h*, for the entrance of the top of the lever G, pivoted to its

stem, in combination with the spring-lever D, one end of which is firmly attached to the insulated collar E, and having the contact point *d* so placed as to meet a corresponding contact-
25 point, *e*, on the side of the key A, substantially as described, and for the purpose set forth.

4. The combination, with a telegraph-key, A, of the spring-lever D, fastened at E, and
30 the laterally-projecting point *d* so arranged as to be moved out of contact with the key-point *e* by means of a lever, G, pivoted to the stem of the finger-button F, substantially as herein shown and described.

35 In testimony whereof I do affix my signature in presence of two witnesses.

PATRICK C. F. McCAMBRIDGE.

Witnesses:

CHARLES E. ALLEN,
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