

J. ROWE.

Improvement in Circuit Changers.

No. 128,427.

Patented June 25. 1872.

Fig. 2.

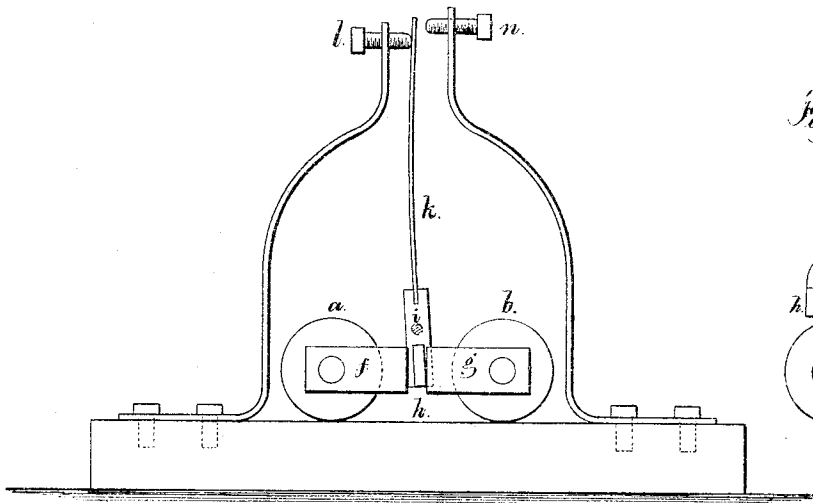


Fig. 3.

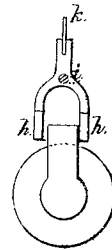
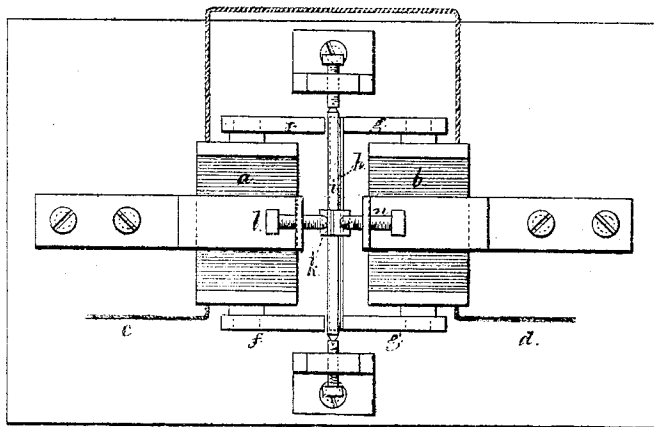


Fig. 1.



Witness

Chas. Smith
Geo. W. Harper.

Inventor

James Rowe
Lemuel W. Serrell atty.

UNITED STATES PATENT OFFICE.

JAMES ROWE, OF PATERSON, NEW JERSEY.

IMPROVEMENT IN CIRCUIT-CHANGERS.

Specification forming part of Letters Patent No. 128,427, dated June 25, 1872.

To all whom it may concern:

Be it known that I, JAMES ROWE, of Paterson, in the county of Passaic and State of New Jersey, have invented an Improvement in Telegraphic Apparatus; and the following is declared to be a correct description of the same.

When the armature of an electro-magnet is allowed to come into contact with the cores of such electro-magnet in such a way as to thereby establish a magnetic-circuit, the armature adheres to the cores by induced magnetism, and the parts cannot easily be separated until the polarity of the current is reversed, which liberates the armature and then again attracts it. This feature of electro-magnetism has been employed by H. Van Hoevenberg in connection with a printing-telegraph.

My invention relates to a circuit-changer in which two electro-magnets are employed, and a soft-iron armature vibrating between them, connected with a circuit-changing arm, the parts being arranged so that when a pulsation is sent it goes through both magnets—it may be in one circuit or divided—so that a part will go through each magnet and thereby reduce the resistance. The armature when free from magnetic influence is at rest nearest to the magnet toward which it is to be attracted first. If an electric-current is sent through the electro-magnets, the armature will be attracted to the magnet which is nearest to it, and adhere to the soft-iron cores. If, now, the polarity of the electric-current is reversed, the armature is liberated, and the spring of the circuit-breaking arm and the momentum draw the armature away from the first magnet, and throw it nearest to the second magnet; hence it will be drawn by the attractive force thereof into contact with the cores, and held there until the change of polarity again causes a reverse movement, and this movement also given to the circuit-breaking arm, directs a local or other current in one direction or another, or brings into action one circuit and breaks another, these circuits being employed for any known or available use. I remark that one magnet with two armatures connected

with the circuit-changing arms, in such a way that the two poles of the magnet are between the two armatures, may be used instead of two magnets and one armature, as described. In this case the two armatures act alternately.

In the drawing, Figure 1 is a plan of this circuit-changer, and Fig. 2 is an elevation of the same partially in section. Fig. 3 is an elevation of the modified form of armature.

The magnets *a* and *b* are in one circuit, of which *c* and *d* are the wires or connections. The cores, or the lateral extensions *f* and *g* of the cores are at opposite sides of the armature *h*, and there is the required distance between *f* and *g* to allow the armature *h* to swing on its axis *i*, as the polarity of the current through *c* and *d* is changed. The arm *k* should have a slight spring in it, or springs or weights be applied to move the armature from one of the cores as the circuit is broken, and cause its momentum to swing it nearer to the other core, so as to be drawn thereto, as aforesaid. In this movement the armature moves the arm *k* from one circuit-closing point, *l*, to the other circuit-closing point *n*, or vice versa. The wires of the local or branch circuits may be connected with *l n* in any convenient manner, and one of the metallic connections is made with the arm *k*, or through the axis on which it swings. The armature may be made in two parts, and these be connected to each other and to the circuit-changer, so that the electro-magnet will come between the two armatures, as in Fig. 3, in which case the vibration and change of circuit will be the same as before described.

I claim as my invention—

The soft-iron armature swinging from one position to the other on an electro-magnet, when the polarity of the electric circuit is changed, and retained alternately by induced magnetism, as set forth.

Signed by me this 8th day of February, A. D. 1872.

JAMES ROWE.

Witnesses:

GEO. T. PINCKNEY,
CHAS. H. SMITH.