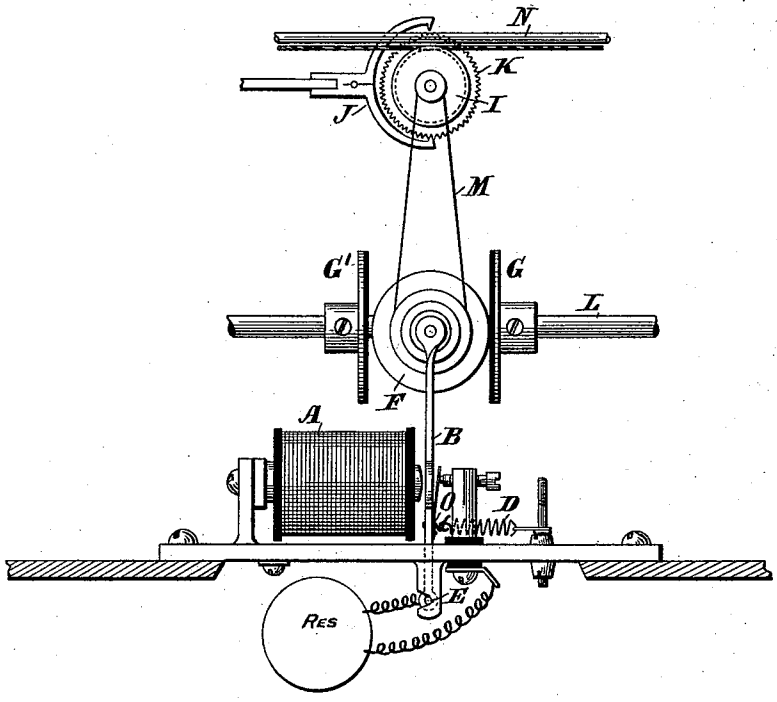
(No Model.)

G. S. TIFFANY.

TELAUTOGRAPH.

No. 570,112. Patented Oct. 27, 1896.



Attest:
Geo. H. Botts
Geo. H. Borst

Inventor:
Geo. S. Tiffany
By Philipp Munson & Philipp
Attys

UNITED STATES PATENT OFFICE.

GEORGE S. TIFFANY, OF HIGHLAND PARK, ILLINOIS, ASSIGNOR TO THE GRAY NATIONAL TELAUTOGRAPH COMPANY, OF RICHMOND, VIRGINIA.

TELAUTOGRAPH.

SPECIFICATION forming part of Letters Patent No. 570,112, dated October 27, 1896.

Application filed June 7, 1895. Serial No. 551,945. (No model.)

To all whom it may concern:

Be it known that I, GEORGE S. TIFFANY, a citizen of the United States, residing at Highland Park, county of Lake, and State of Illinois, have invented certain new and useful Improvements in Telautographs, fully described and represented in the following specification and the accompanying drawing, forming a part of the same.

My invention relates to a reversing mechanism for telautograph receiving instruments of the general type heretofore patented to Elisha Gray and shown in my own application for Letters Patent, Serial No. 503,871.

The drawing annexed illustrates my improvement.

In the drawing, L is the motor-shaft, upon which are keyed two disks G G′, against one or the other of which a drum F is brought into frictional contact, the three forming a friction-clutch, and communicates the motion of the shaft through a cord M to a drum I, connected to the receiving-pen arm N in the usual manner by a cord passing around the drum. The escapement-wheel K, attached to the drum I, is governed by the pawl J, which is actuated in the usual way by impulses sent over the line by the transmitting instrument to permit the pen to move step by step in one direction or the other as it is impelled by the force derived from the disks G G′.

The position of the drum F with reference to the disks G G′ is determined by a reversing-magnet A. When this magnet is energized, the armature-lever B is drawn toward it and the drum F caused to press upon the disk G′, and a tendency to move in a given direction is given thereby to the drum I. Upon a reversal of the direction of movement of the transmitting-pen the circuit of magnet A is interrupted, and the armature-lever B is drawn away from the magnet by the spring D, so that the drum F bears upon the disk G and receives from it motion in the direction opposite to that in which it was moved by the disk G′. A tendency to move in the opposite direction is therefore communicated to the drum I, this change of direction corresponding to a change in direction of movement of the transmitting-pen.

Were the armature-lever B pivoted in complete journals at E, as is usual with armature-levers, the drum F would be held against the disk G′ by the pull of magnet A with a considerable degree of firmness and rigidity, which would cause inequalities of movement and strain upon the cord M and the receiving-pen arm, especially if, as is generally the case, the face of the disk G′ has become somewhat irregularly worn by use. It is desirable to have the pressure of the drum against the disk of a yielding nature, in order that inequalities in the surface of the disk may not cause inequalities of transmitted strain. To this end, I propose to slot the journals in which the pivot of the armature rests, as shown in the drawing, so that the lower end of the armature is free to move toward the magnet or laterally, except as restrained by the spring D. The end of the core of magnet A is also made with a slight central protuberance, so that the armature-lever is free to move thereon, as upon a fulcrum. It results from this construction that the pressure of the drum F against the disk G′ is determined by the pull of the spring D.

The point of attachment O of the spring D to the armature-lever B is so placed that the ratio of leverage through which the force of the spring D is applied to the armature-lever B, causing the drum F to press against either the disk G′ or the disk G, is in both cases the same; that is, the distance from the point E to the point O is proportioned to the distance from the point O to the center of the drum F in the same ratio as the distance from the point O to the center of the core of the magnet A is proportioned to the distance from the center of the said core to the center of the drum F. It results from this that the pressure of the drum F against the disks G and G′ is in both cases dependent upon the pull of the spring D, acting with the same leverage and consequently with the same effective power. By this construction I am enabled to cause the reversing-drum to be operated by the magnet A, and at the same time to provide that the pressure of the drum upon the disks shall be a spring and not a positive pressure, and that, moreover, this pressure shall be that due to a single spring, which insures uniformity of pressure against each

of the two disks, a result which could not be readily attained if two springs were employed to regulate the pressure against the two disks, respectively.

I do not limit myself to the particular construction shown, claiming, broadly, any construction of apparatus in which a spring-pressure is utilized to secure the friction between the reversing parts, this spring-pressed mechanism being magnetically controlled. Of course it will be understood that the armature B might equally well be employed to move the disks, the axis of the drum being stationary, such a construction being an equivalent for the construction shown, and various other modifications of the parts may be made without departing from the invention.

I claim—

1. In a telautographic receiving instrument, the combination of a friction-clutch for transmitting power from the motor-shaft to the receiving-pen, and a magnet for controlling the position of said friction-clutch to determine the direction of motion transmitted in accordance with the movement of the transmitting-pen; the parts of the clutch being in each of its positions held in contact by spring-pressure, substantially as described.

2. In a telautographic receiving instrument, the combination of a friction-clutch for communicating motion from the motor-shaft to the receiving-pen, a magnet for controlling the operation of said clutch in accordance with the direction of movement of the transmitting-pen, and a spring operating upon the magnet-lever through which the clutch is controlled to determine the pressure of the parts of the clutch in each of its positions, substantially as described.

3. In a telautographic receiving instrument, the combination of a friction-clutch for communicating motion from the motor-shaft to the receiving-pen, a magnet and its armature for operating said clutch, the armature-lever of said armature being free to move laterally in one direction at its pivoted end, and a spring applied to the armature-lever and exerting a pull thereon in a direction opposite to the direction in which the end of the lever is free to move, substantially as set forth.

4. The combination of a friction-clutch, the armature B carrying one member of the clutch having its outer end pivoted but free to move laterally under the pull of the magnet, magnet A, and the spring D exerting a pull on the armature in the direction opposite to that in which it is free to move for controlling the position of the armature, whereby the tension of the clutch in each of its positions is determined by the strength of the spring, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

GEORGE S. TIFFANY.

Witnesses:
WM. WHEELRIGHT,
ALFRED A. MOSES.