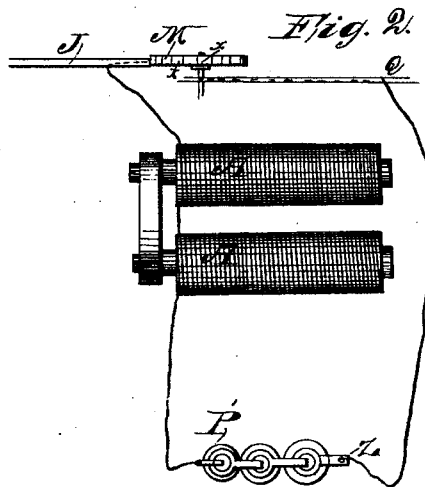
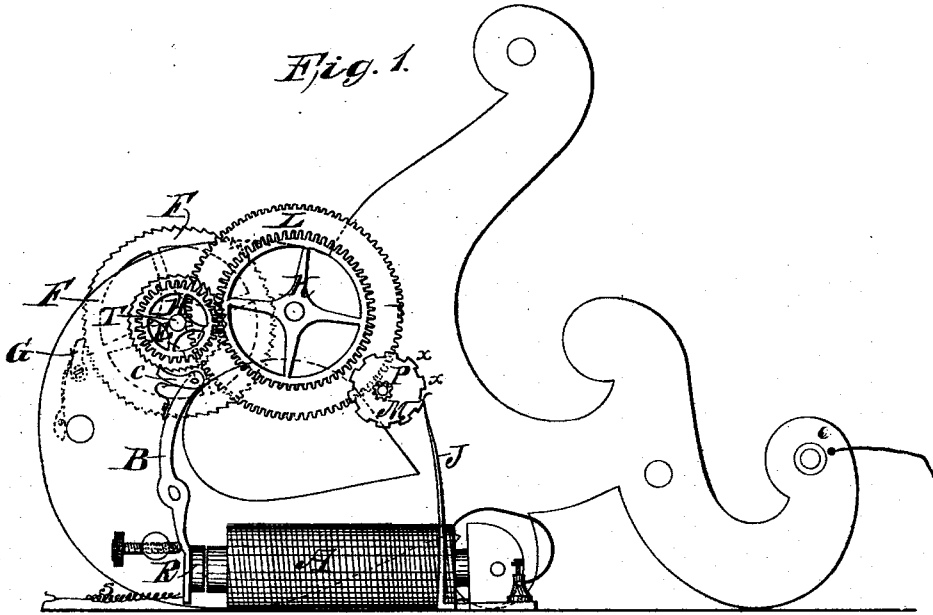


J. J. CLARK.  
SELF WINDING REGISTER.

No. 10,128.

Patented Oct. 18, 1853.



# UNITED STATES PATENT OFFICE.

JAMES J. CLARK, OF PHILADELPHIA, PENNSYLVANIA.

## IMPROVEMENT IN SELF-WINDING TELEGRAPHIC REGISTERS.

Specification forming part of Letters Patent No. 10,128, dated October 18, 1853.

*To all whom it may concern:*

Be it known that I, JAMES J. CLARK, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in the Construction of Self-Winding Telegraph-Registers; and I do declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, in which—

Figure 1 represents a side view or elevation of the winding part of my improved register. Fig. 2 represents a view of the connections of the battery, magnet, and break-circuit wheel, hereinafter described.

My improved self-winding apparatus consists in attaching to an ordinary Morse telegraph-register a second electro-magnet, (seen at A, Fig. 1,) an armature, R, attached to one extremity of a lever, B, and a click, C, at the other extremity. This click works into a ratchet-wheel, E. To the other extremity of the lever, behind the armature, a reacting-spring, S, is attached. On the shaft T of the ratchet-wheel E another ratchet-wheel, F, of larger diameter, is placed, with a fixed click, G, catching into the teeth of the wheel F at one part of its circumference.

On the same shaft with the ratchet-wheels E and F is a small cog-wheel, H, working into another larger cog-wheel, K, to the shaft of which last wheel the spring is attached. The other end of the spring is fixed to the box, as in a watch.

The large wheel L is fastened to the spring-box and revolves with it. This cog-wheel L gears into the cog-wheel P, placed on the first shaft, which communicates motion to the train of register-wheels. On the shaft of P is also placed a break-circuit wheel, M, consisting of a metallic wheel with broad-faced teeth X X. These teeth X X are faced with platina, and against them a straight metallic spring, J, rests, so that as this break-circuit wheel revolves the spring J will fall into the cavities between X X and alternately press against the platina face of the teeth X X.

The break-circuit wheel M, the coils of the magnet A, and the battery P' Z are connected together as follows: (See Fig. 2.) A wire leaves the extremity of the battery P' and proceeds to the coils of the magnet A, thence to the spring J, thence through the platina-faced

teeth X X of the wheel M, thence to the metallic frame-work of the instrument to Q, and thence back to the other extremity of the battery at Z.

The operation of the several parts of my improvement is as follows: When the spring unwinds and propels the train of register-wheels it also rotates the break-circuit wheel M. As the wheel M revolves the spring J alternately strikes the face of the teeth X X, and falls into the cavities between them. Each time J (the spring) presses on the teeth X X, it by so doing closes a galvanic circuit extending from the battery around the winding-magnet. When the spring falls between the teeth this circuit is broken. The winding-magnet A, thus caused alternately to attract and release the armature R and the lever B, attached thereto, moves the ratchet-wheel E through the space of one tooth at each vibration.

The number of teeth on the break-circuit wheel M is so proportioned that the lever B is caused to vibrate with sufficient rapidity to revolve the spring-shaft (through its gearing with the shaft T) with the same velocity that the spring unwinds itself to revolve the train of register-wheels.

By my arrangement thus described it will be seen that the unwinding is itself made to start and regulate the action of the winding-magnet. When the train of register-wheels is stopped the break-circuit wheel ceases to revolve and the winding-magnet ceases to vibrate the armature and lever.

To start the train of register-wheels you turn the wheel K, which winds up the spring, which is fastened to the same shaft. The break-circuit wheel M, revolving with the train, breaks and closes the galvanic circuit, and thus affects the winding-magnet A and causes the lever B to vibrate with sufficient rapidity to wind up the spring as fast as its own action would unwind it.

If the spring has too great a tension and the train of wheels revolves too rapidly, by raising the straight spring J from the teeth of the break-circuit wheel and holding it, the spring will unwind without the winding operation going on when it gets to the speed required, then the spring J is suffered to descend again and the winding operation commences, as above described. Hence it will appear that the de-

gree of tension to which the spring is wound up determines the velocity of the movement of the train as well as the velocity of the winding apparatus, and thus the register will always be wound up with the same rapidity that it unwinds.

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

The combination of the winding-magnet, the

break-circuit wheel, and spring with the train of wheels of an ordinary telegraph-register, in the manner and for the purpose substantially as hereinbefore described.

JAMES J. CLARK,

Witnesses:

JNO. E. SHAW,

CHARLES D. FREEMAN.