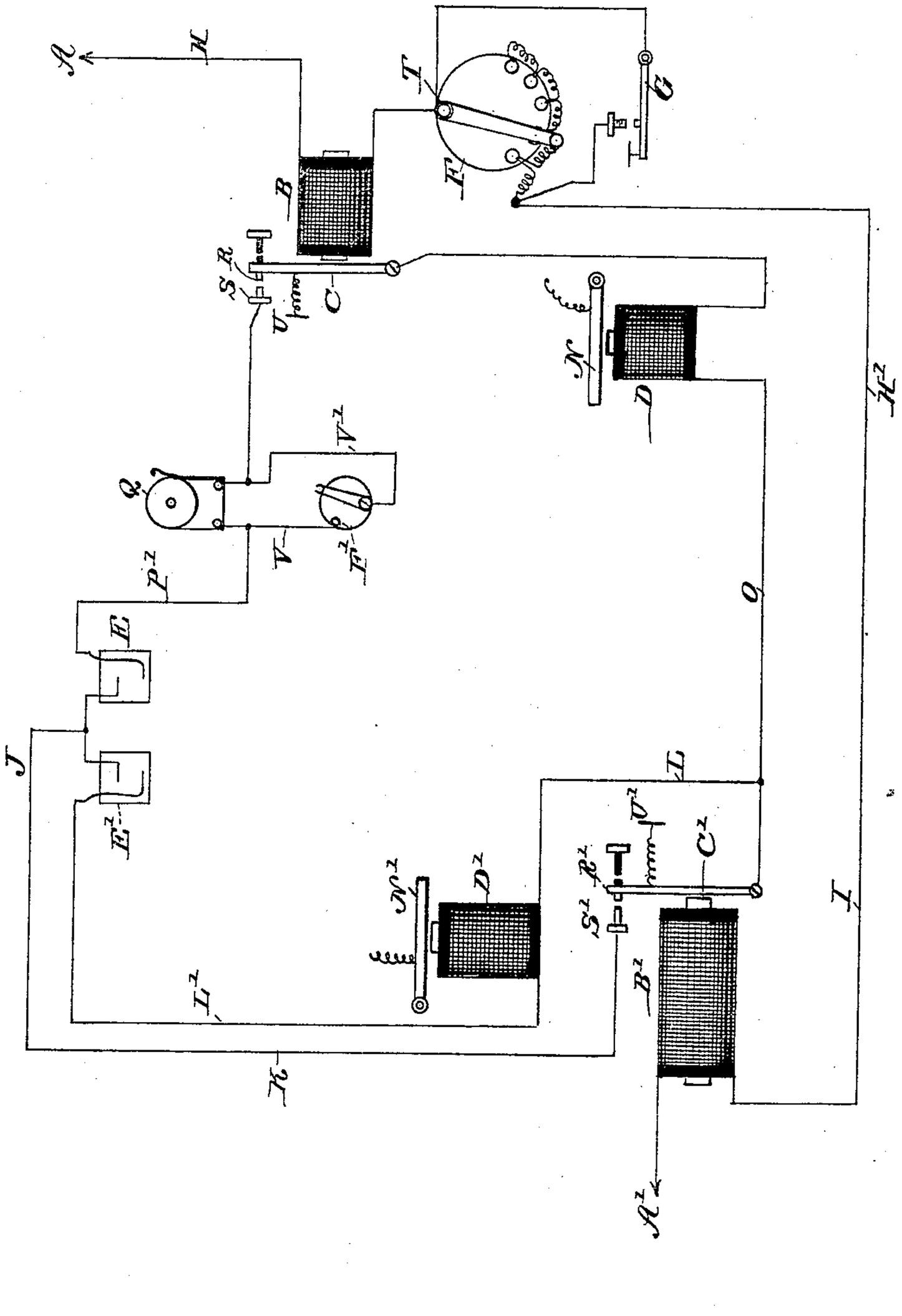
(No Model.)

A. D. P. WEAVER.

SECRET TELEGRAPHY.

No. 527,518. Patented Oct. 16, 1894.



WITNESSES:

Fred G. Dieterich

Edw. W. Byrn.

INVENTOR

A. D. P. Weaver

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

ALFRED DEE PINCKNEY WEAVER, OF JACKSON, MISSISSIPPI.

SECRET TELEGRAPHY.

SPECIFICATION forming part of Letters Patent No. 527,518, dated October 16, 1894.

Application filed December 26, 1893. Serial No. 494,924. (No model.)

To all whom it may concern:

Be it known that I, ALFRED DEE PINCKNEY WEAVER, of Jackson, in the county of Hinds and State of Mississippi, have invented a new and useful Improvement in Secret Telegraphs, of which the following is a specification.

My invention relates to a secret telegraph to which I have applied the name "secrograph." Its object is to enable telegraphic dispatches to be exchanged between such stations as are equipped with the device, the said telegraphic dispatches not being heard at stations not equipped with the device.

The invention is mainly designed for the use of railroad officials, government officers, diplomatic agents, and military officers who often desire to communicate with each other secretly and expeditiously.

The device may be used on any wire in a loop or break in the same, and over a distance equal to that to which the ordinary telegraphic apparatus will work.

It consists in the peculiar construction and arrangement of the various instruments, circuits, and connections, which I will now proceed to describe with reference to the drawing, in which the figure represents a diagrammatic illustration of the various instruments with their circuits and connections.

To use this apparatus, the main line may be tapped at any point, and the apparatus introduced into a loop of the main line, the connections being made at A and A'.

B' is a relay actuated by the main line current, which is normally closed. This relay and its sounder D' act precisely as an ordinary relay and sounder, and respond to all telegraphic messages, not of a secret character. They are in fact mere duplicates of the ordinary relay and sounder, and are used in this instrument solely to enable the secret operator to know when other operators are working in the normal way on the line so that he may not interfere with their messages. At way stations the relay and sounder B' and D' might be replaced by the ordinary relay and sounder by simply making the proper connections. The balance of the apparatus constitutes the secret telegraph, and it consists of a special arrangement of local battery E E', a call bell and switch Q and F', a secret relay B, a secret sounder D, a rheostat F, and a key G, which opens by being depressed.

My secret telegraph operates by throwing the resistance of the rheostat into the line, and then working the line—not by opening and closing the line, for it is never opened by the secret telegraph—but by alternately throwing the line current through the rheostat and then around the rheostat by a shunt circuit, and causing this difference in the current to operate the sensitive relay B of the secret telegraph as follows.

The incoming current arrives on wire H at point A, passes through relay B to a rheostat F, or is short circuited out of the rheostat by the key G, thence passes by wire H' I to relay B', and thence out the other arm of the loop at A'. The effects of this incoming current are to attract armature C of relay B, and armature C' of relay B'. The further effects caused by the attraction of armature C' are to close a circuit J, K, C', L, D', L', E', causing the armature N' of sounder D' to be attracted and recording a signal. The effect of the attraction of armature C is to open between R and S the circuit C, D, O, C', K, J, E, P', and Q. This prevents bell Q and secret sounder D from being operated when the main circuit is closed by the current coming from A. The effect of the interruption of the current coming from A is equally impotent on sounder D and bell Q for this circuit, although closed at R S by the interruption of the main circuit, is opened on the other side of the instrument at S' R', so that the current cannot pass into the wire K, while the other branch L and L' terminate in the same or corresponding pole of the battery that it started from, causing no effect on bell Q and sounder D. Hence the bell Q and sounder D are not operated no matter whether the main current in the hands of the regular operators is opened or closed. To sum up, sounder D' responds to the completion and interruption of the main current coming from A, but sounder D and bell Q do not. The action as so far described is that which takes place when the ordinary instruments on the line are being operated in the usual way, or when the secret telegraph is not in use.

The action of the secret telegraph is as fol-

lows: Assuming that the instrument has been properly introduced into the loop of the main line, and the rheostat adjusted to the distance between the points of communication, and secret communication is desired between these points, the first operator calls the other by depressing key G. This opens the shunt and throws the current through the rheostat, causing the secret relay B to exercise less attraction on armature C, and the spring U being adjusted to pull it back when the relay is thus weakened in energy, contact is made between R and S, and the bell Q is sounded by the following circuit P′, Q, S, R, C, D, O, C′, R′, S′, K, and J; S′ and R′ being held closed by relay B′ whose main line current is not broken, but only diminished by the rheostat. The result is, that the second operator responds to the call, and both operators then adjust their switches F′ so as to cut out their bells. The opening and closing of key G now continues to actuate relay B and alternately opens and closes contact points S and R, and operates the sounder D over the following, circuit C, D, O, C′, R′, S′, K, J, E, P′, V, V′, being the same circuit last traced except that the bells are cut out.

To render my device more sensitive, so that the secret relay B will operate with the smallest differentiation of current on the line the secret relay B is constructed with special reference to this use, with a core of soft iron wires, instead of a solid core, and said core is short in length and is wound with a coil of low resistance.

The ordinary relay B′ and sounder D′ are prevented from being operated by the movement of the secret key for the following reasons: The amount of resistance introduced by the depressing of the secret key at the distant end is not sufficient to weaken the main current flowing through said ordinary relay to a degree necessary for the release of the armature C′. Hence the latter and sounder D′ remain passive with the points S′ R′ closed during all the movements of the secret key G. The same may be said of all the ordinary relays in offices situated on the main line, and therefore the object sought—to be able to communicate between given points without any office along the line being able to hear the signals—is attained.

In practice the ordinary relay B′, and ordinary sounder D′, and secret sounder D are to be placed on the operating table, but the remainder of the apparatus is to be mounted inside of a case with lock and key together with binding-posts to connect the secrograph to the ordinary apparatus and main line.

I am aware of the fact that it is not new in telegraphy to alternately throw a current through and around a rheostat, and to utilize the difference for the operation of telegraphic apparatus, and I therefore make no broad claim to this.

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

A secret telegraph, consisting of a rheostat, a key arranged in a shunt around the rheostat, an extra relay operating by the variations in the main line current in being alternately thrown into and around the rheostat, an extra sounder with bell and switch arranged in a local circuit and operated by the opening or closing of the extra relay armature, an ordinary relay and sounder, and a battery for the local circuit, said battery having one pole connected with the secret telegraph instrument proper, and both its poles on the other side connected with the secret telegraph, the one pole through the armature of the ordinary relay and the other pole through the sounder for the ordinary relay substantially as shown and described.

ALFRED DEE PINCKNEY WEAVER.

Witnesses:
EDWD. W. BYRN,
P. B. TURPIN.