

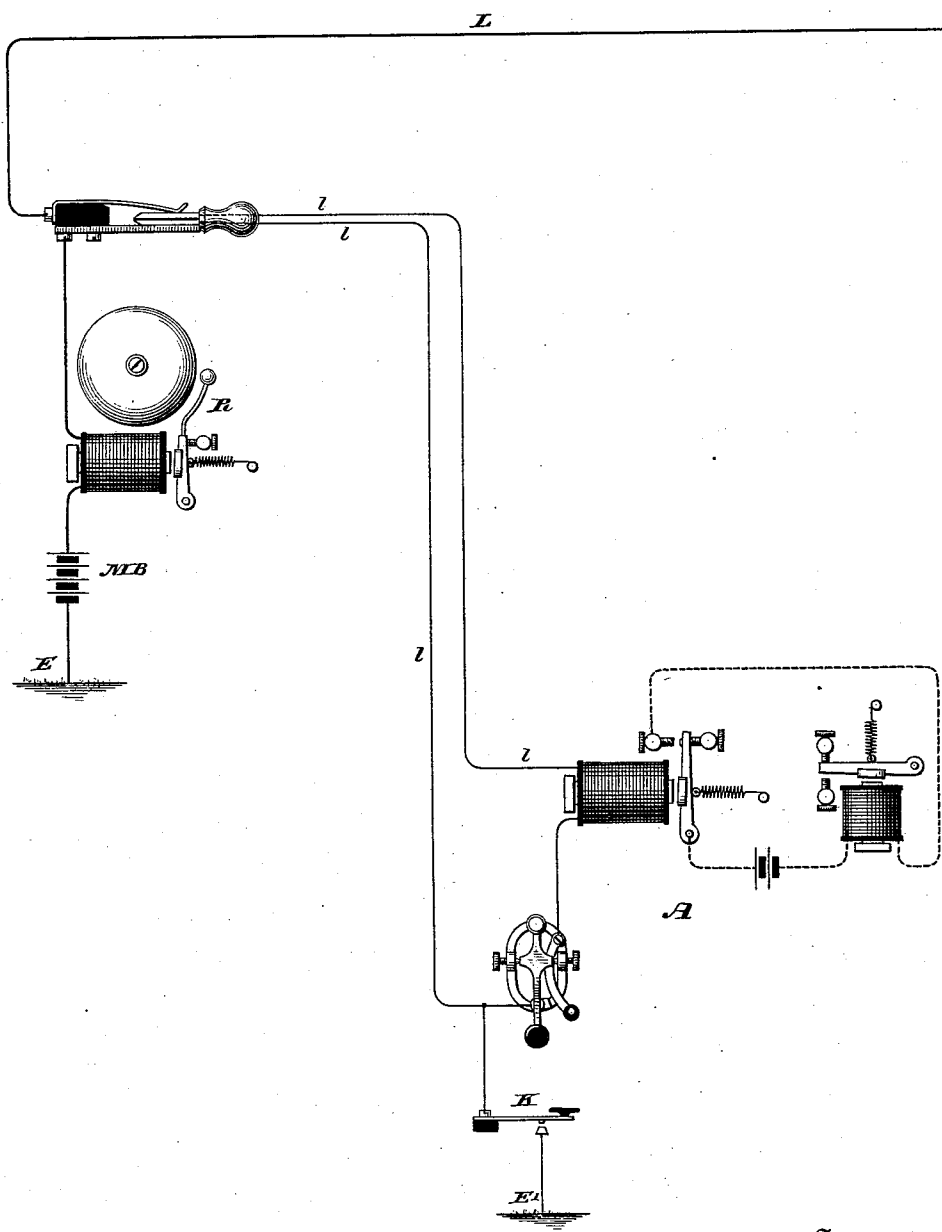
(No Model.)

J. B. HURD.

TELEGRAPH APPARATUS FOR BRANCH OFFICES.

No. 469,856.

Patented Mar. 1, 1892.



Witnesses

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UNITED STATES PATENT OFFICE.

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TELEGRAPH APPARATUS FOR BRANCH OFFICES.

SPECIFICATION forming part of Letters Patent No. 469,856, dated March 1, 1892.

Application filed March 7, 1890. Serial No. 343,027. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. HURD, a citizen of the United States of America, residing at Red Bank, Monmouth county, New Jersey, have made a new and useful Improvement in Branch-Office Telegraph Apparatus, of which the following is a specification.

In large cities it is now common to connect main telegraph-lines at a central station with branches or loops connecting the main line with local stations oftentimes several miles distant.

The object of my invention is to so connect local stations with the main line at a central office that a local operator may have the means of communicating with the central office to inform the latter of line trouble, which he may detect in the course of transmitting or receiving signals. The necessity for such an arrangement arises from the fact that the local operator has ample means of detecting line trouble; but he is unprovided with apparatus for communicating with distant points on the line or for making tests to locate and correct the trouble, or for connecting his loop and office with another line if incapacitated for service. This work must be done at the switch-board of the central office. To this end I employ at the central office a low-resistance magnet for operating a relay, gong, or other sounding device which remains unaffected by telegraphic signals, while at the local station an earth branch and key are connected to the loop. Upon depressing the key a circuit is formed from the central station through the main battery, the low-resistance magnet, a portion of the loop, the key branch at the local station, and the earth return. By this means the main-line battery is provided with a short circuit by the depression of the key, and sufficient current will flow through the low-resistance relay to cause signals to be given, thus announcing to the central office that there is difficulty on the line requiring correction.

In the accompanying drawings, L is the main line, whose circuit is normally closed to earth through the spring-jack *m n*, low-resistance magnet R, and battery M B. A local

station A is joined with the line by means of a loop *l* and a switch-plug P, whose tip is formed of two metallic portions *o p*, separated by a sheet of insulating material. When the plug is inserted, the jaws of the spring-jack *m n* are separated and joined, respectively, with *o p*. With this arrangement a circuit of low-resistance is formed from the main office to the local station upon the depression of the key K through the main battery M B, magnet R, a portion of loop *l*, and the earth from E' to E. If the operator at A finds that the line is not in satisfactory condition, he may depress key K, thereby calling the attention of the operator at the central station by relay R, who thereupon, with almost no loss of time, will proceed to locate and correct the difficulty, or, if need be, give local station A connection with another circuit.

I am aware of the patent of M. G. Kellogg, No. 386,886, dated July 31, 1888.

What I claim, and desire to secure by Letters Patent, is—

1. A main telegraph-line extending through a central station to an outlying local station and thence back to the central station, an indicating-magnet which is irresponsive to telegraph-signals and a battery, both placed in said main line at the central station, an earth branch connecting said loop with the earth at the local station, and a key placed in said earth branch for enabling the local operator to signal the central station while he is at the same time in communication with a distant main-line station, as and for the purpose set forth.

2. A main telegraph-line L, extending through a central station to an outlying local station A and back to the central station, an indicating-magnet R, irresponsive to telegraph-signals from a distant station, and a battery M B, both placed in said main line, an earth branch connecting said loop at the local station with the earth, and a key placed in said earth branch for the purpose of enabling the local operator to signal the central station without interfering with telegraphic transmission from the distant station.

3. A main telegraph-line L, extending from

a distant station to a central station and
thence to an outlying local station, an indi-
cating-magnet which is irresponsive to tele-
graph-signals from the distant station, and a
5 battery M B, both placed in said main line, a
normally-open earth branch connecting said
loop at the local station with the earth, a key

K, placed in said earth branch, and a spring-
jack at the central station, as and for the pur-
pose set forth.

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Witnesses:

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