

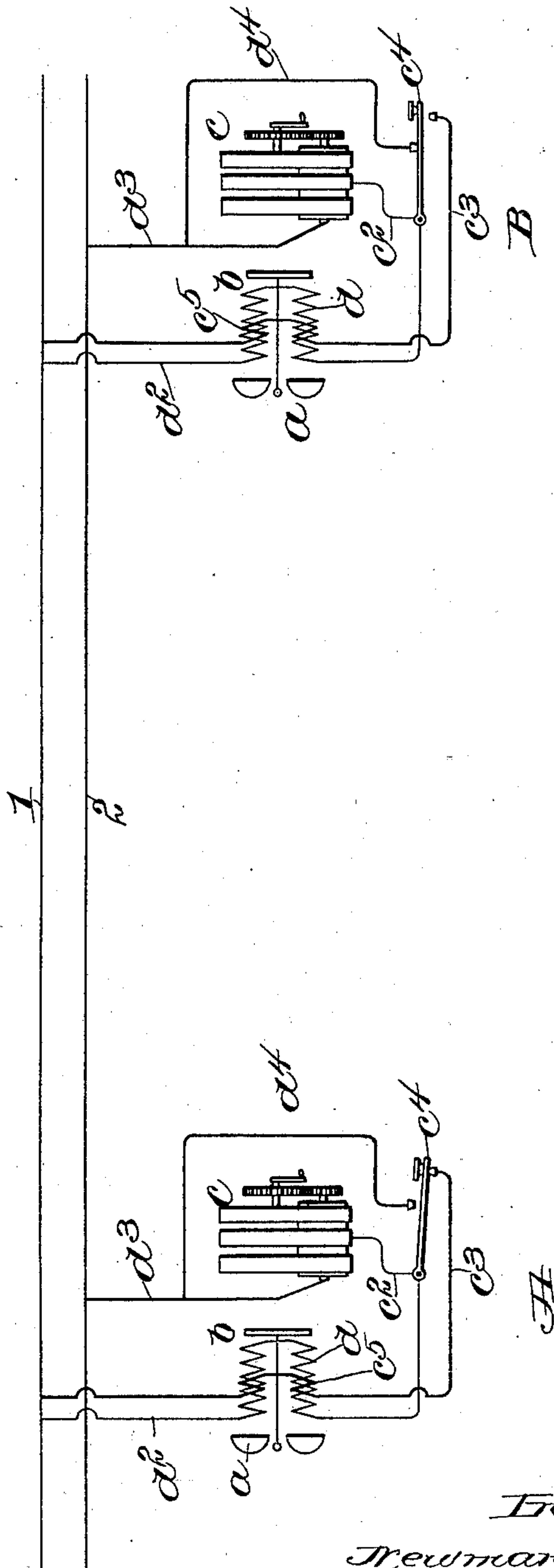
No. 647,300.

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N. H. HOLLAND.
TELEPHONE SIGNALING SYSTEM.

(Application filed Oct. 9, 1899.)

(No Model.)



Witnesses.
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UNITED STATES PATENT OFFICE.

NEWMAN H. HOLLAND, OF BROOKLINE, MASSACHUSETTS, ASSIGNOR TO THE
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TELEPHONE SIGNALING SYSTEM.

SPECIFICATION forming part of Letters Patent No. 647,300, dated April 10, 1900.

Application filed October 9, 1899. Serial No. 733,033. (No model.)

To all whom it may concern:

Be it known that I, NEWMAN H. HOLLAND, of Brookline, county of Norfolk, and State of Massachusetts, have invented an Improvement in Telephone Signaling Systems, of which the following description, in connection with the accompanying drawing, is a specification, like letters and numerals on the drawing representing like parts.

10 The present invention relates to a telephone signaling system, and is intended for use with "party-lines," so called, in which a number of telephones are included in a single circuit, so that the signal is repeated at all the stations each time any subscriber uses his signaling device, which is commonly a magneto adapted to generate current for ringing a bell.

15 The invention is embodied in a system of that kind in which the several signaling devices are arranged in multiple with the line-circuit, so that each receives a portion of the current from the generator at any station, the resistance being such as to properly divide up the current among the several devices. In a system of this kind while it is desirable that the bell should ring at the calling station it is impracticable to include the high-resistance coils in series with the generator at said station on account of the impedance of said coils which must be overcome in sending the current out over the line.

20 It is the object of the present invention to avoid the necessity of sending the entire generator-current through the high-resistance coils at the station where the said generator is located, the said coils, however, not being actually cut out of the circuit, but merely shunted, so that such current as may pass through the said coils will assist in energizing the magnets.

25 In accordance with the invention each signaling device is provided with high-resistance coils and low-resistance coils, the latter being normally open-circuited and the former always connected in multiple with the line. The said low-resistance coils, however, are arranged to be connected when the generator is operated in multiple with the high-resistance coils at the station from which the signal is being sent, so that the main portion of the current flows through the said low-resist-

ance coils, which afford an easy path for the current, the high-resistance coils, however, still remaining in a branch of the circuit, so as to assist in energizing the signal-magnets at the station from which the call is being sent.

The drawing is a diagram showing the circuits at two stations arranged in accordance with the invention.

30 The signaling devices *a* are shown as ordinary magneto-bells adapted to be operated by current passing through the coils of magnets *b*, the said current being suitably generated at the calling station, as by the usual magneto *c*. Each of the said magnets is provided with high-resistance coils *d*, connected in multiple with the main line 1 2 by means of conductors *d*² and *d*³, the latter preferably having a shunt connection *d*⁴ around the generator *c*, so that current coming in from the line does not have to traverse the armature-coils of said generator. To obviate the necessity of connecting these high-resistance coils in series with the generator, each of the said generators is provided with a secondary circuit *c*² *c*³, provided with a switch *c*⁴, adapted to be operated when the generator is in use. The said circuit *c*² *c*³ is provided with low-resistance coils *c*⁵, wound on the magnets *b*, so as to energize the said magnets sufficiently to ring the bell at the calling station without affording any material impedance to the current. The switch *c*⁴, which may be manually operated, as shown, or automatically operated in any suitable or usual way, is arranged to connect the low-resistance and high-resistance coils in multiple, so that while an easy path is afforded for the current when the generator is in use the high-resistance coils may still assist in energizing the magnets at the calling station through the agency of such current as may find its way through the branch circuit in which they are contained. Assuming that a call is being sent from the station A, the switch *c*⁴ will be in the position shown, the circuit passing from the magneto *c* at station A through the wire *c*² and then dividing, the main portion passing through the wire *c*³ and low-resistance coils to the line-wire 1 and the rest passing through the conductor *d*², which contains the high-resistance coils, to the same line-wire. At the station B

the current comes in from line-wire 1 through the wire d^2 , high-resistance coils d , the switch member, the shunt-circuit d^4 , the wire d^3 , and thence by the wire 2 back to the armature of the generator c at station A, thus completing the circuit. The arrangement is very simple, and while the difficulty attendant upon placing the high-resistance coils in series with the generator is obviated the said high-resistance coils are still utilized to some extent at the calling station to operate the signal thereat.

I claim—

In a telephone signaling system, the combination with a signaling device at each station; of a generator; high-resistance coils for

said signaling device normally in multiple with the line; low-resistance coils for said signaling device normally open-circuited; and means for connecting said high and low resistance coils in multiple with each other and in series with the generator when the said generator is in use, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

NEWMAN H. HOLLAND.

Witnesses:

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