J. L. HALL.

SIGNAL SYSTEM.

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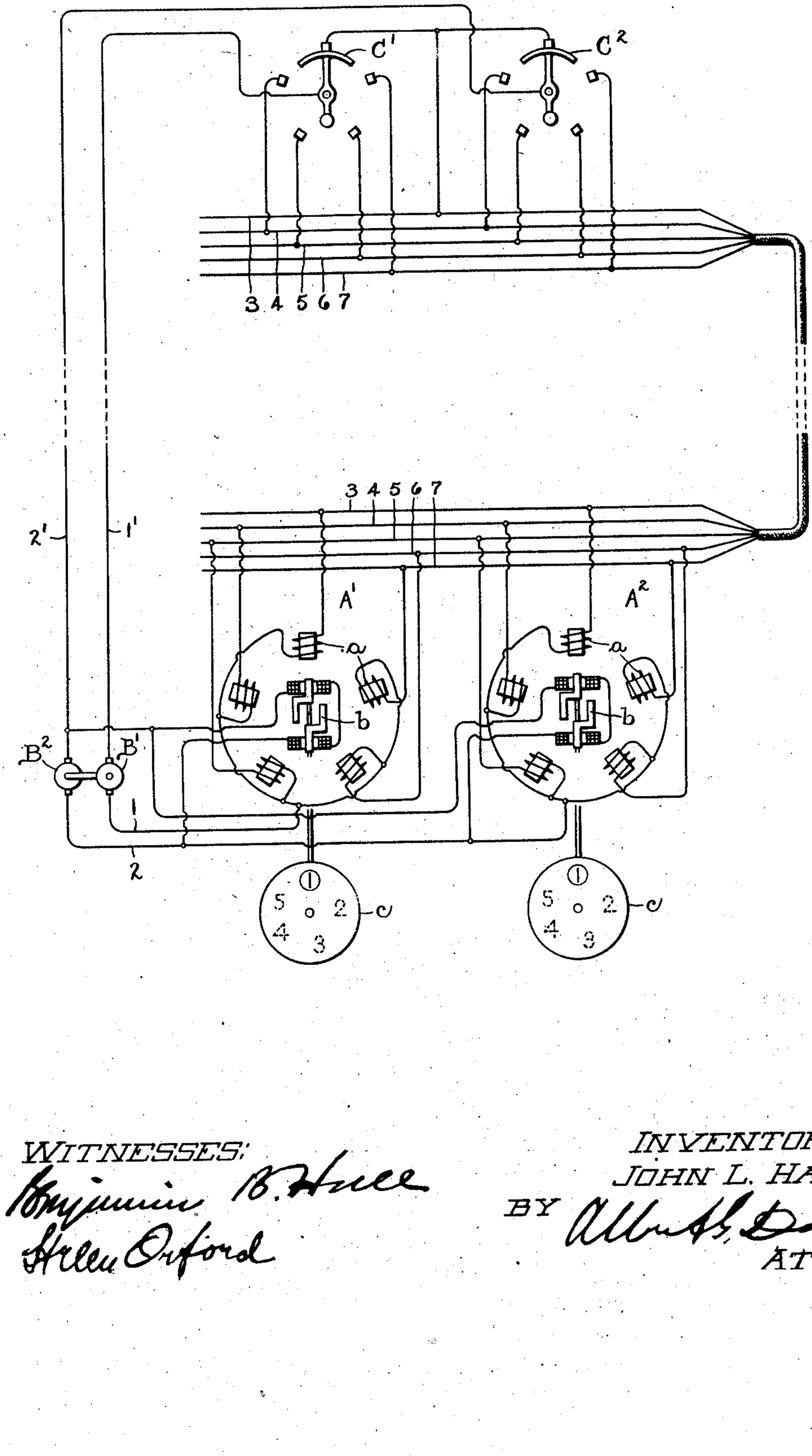
905,513. Patented Dec. 1, 1908.



WITNESSES:

Benjamin B. Hall

Helen Orford

INVENTOR

JOHN L. HALL.

BY Albert G. Davis

ATT'Y.

UNITED STATES PATENT OFFICE.

JOHN L. HALL, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

SIGNAL SYSTEM.

No. 905,513. Specification of Letters Patent. Patented Dec. 1, 1908.

Application filed January 30, 1908. Serial No. 413,342.

To all whom it may concern:

Be it known that I, JOHN L. HALL, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Signal Systems, of which the following is a specification.

My invention relates to signal systems of the type employing a plurality of receivers, each having a plurality of magnet windings which are selectively energized so as to give at each receiver any one of a plurality of indications, the several receivers being independent of each other in their action; and the object of my invention is to provide a novel system of this character in which the number of control conductors or leads is reduced to a minimum.

My invention consists in providing a number of separate sources of current for the receivers, a group of leads, each of which is common to one source and to all the magnet windings of one indicator, a second group of leads common to all the receivers, the several magnets of each receiver being connected to different leads of the group, and switches arranged to connect each source to any one of the leads of the latter group.

My invention will best be understood by reference to the accompanying drawing, which shows diagrammatically a signal system arranged in accordance with my invention.

In the drawing two receivers A^1 and A^2 are shown. These are indicated diagrammatically as synchronous indicators of a type well known in the art, employing a plurality of stationary magnets *a*, a polarized armature *b*, and an indicator, shown at *c* as a numbered plate or dial driven by the armature and adapted to display any one of the numbers on the plate or dial. B^1 and B^2 represent separate sources of current for the receivers. These are indicated as a pair of small generators on the same shaft. All the magnet windings *a* of receiver A^1 have a common terminal connected through a lead 1, to one terminal of the generator B^1. The magnet windings *a* of receiver A^2 are connected through a common terminal and the lead 2 to one terminal of the small generator B^2. Extensions 1′ and 2′ of the leads 1 and 2 run to the transmitting station at which are a pair of controlling switches C^1 and C^2. The switch C^1 is arranged to connect the lead 1′, and consequently the generator B^1 to any one of the group of five leads 3, 4, 5, 6 and 7. The switch C^2 is similarly arranged to connect lead 2′ and generator B^2 to any one of this group of leads. At the receivers, the magnets *a* of each receiver are connected to different leads of this group. The polarizing coils of the armatures of the receivers are energized from any suitable source. They are indicated as being connected in shunt to the generator B^2.

With the switches C^1 and C^2 in the positions shown, both generators B^1 and B^2 are connected to the lead 3, so that the winding *a* of both receivers which is connected to the lead 3 is energized, so that the receivers give similar indications. If the switch C^1 is moved to connect lead 1′ to lead 4, the magnet winding of receiver A^1, connected to lead 4, will be energized, so as to change the indication of this receiver; while if switch C^2 is not moved, the indication of receiver A^2 is not changed. The operation of each receiver is thus independent of the other, although one group of leads is common to both of them.

By the use of this system, the ten magnet windings *a* of the two receivers are selectively controllable by means of seven transmission leads. If three receivers and three sources of current were employed, the fifteen magnet windings *a* of the three receivers would be controlled by eight leads; and four receivers with their twenty magnet windings would be controlled by nine leads, etc. Except for energizing the polarizing coils of the receiver armatures, it makes no difference whether the current sources are at the receiving or transmitting station.

I do not desire to limit myself to the particular construction and arrangement of parts here shown, but aim in the appended claims to cover all modifications which are within the scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States, is,—

1. In a signaling system, a plurality of receiving devices each having a plurality of magnet windings, a plurality of current sources, an independent lead for each source and one of said receiving devices connected at the device to a common terminal for the magnets of the device, a group of leads common to the receiving devices, the several magnets of each device being connected to

different leads of the group, and a switch for each source arranged to connect the source to any lead of said group.

2. In a signaling system, a plurality of receiving devices each having a plurality of magnet windings and the windings of each device having one common terminal, a plurality of current sources, independent leads from the common terminals of the several devices to the several sources, a group of leads common to the several devices, the several magnets of each device being connected to different leads of the group, and a switch for each source arranged to connect the source to any lead of said group.

3. In a signaling system, a plurality of receiving devices having a plurality of magnet windings, a plurality of current sources, leads common to the magnets of each device but independent as to the several devices, leads common to the several devices but independent as to the magnets of each device, connections from each source to one of the former set of leads, and a switch for each source arranged to connect the source to any one of the latter set of leads.

In witness whereof, I have hereunto set my hand this 28th day of January, 1908.

JOHN L. HALL.

Witnesses:

BENJAMIN B. HULL,

HELEN ORFORD.