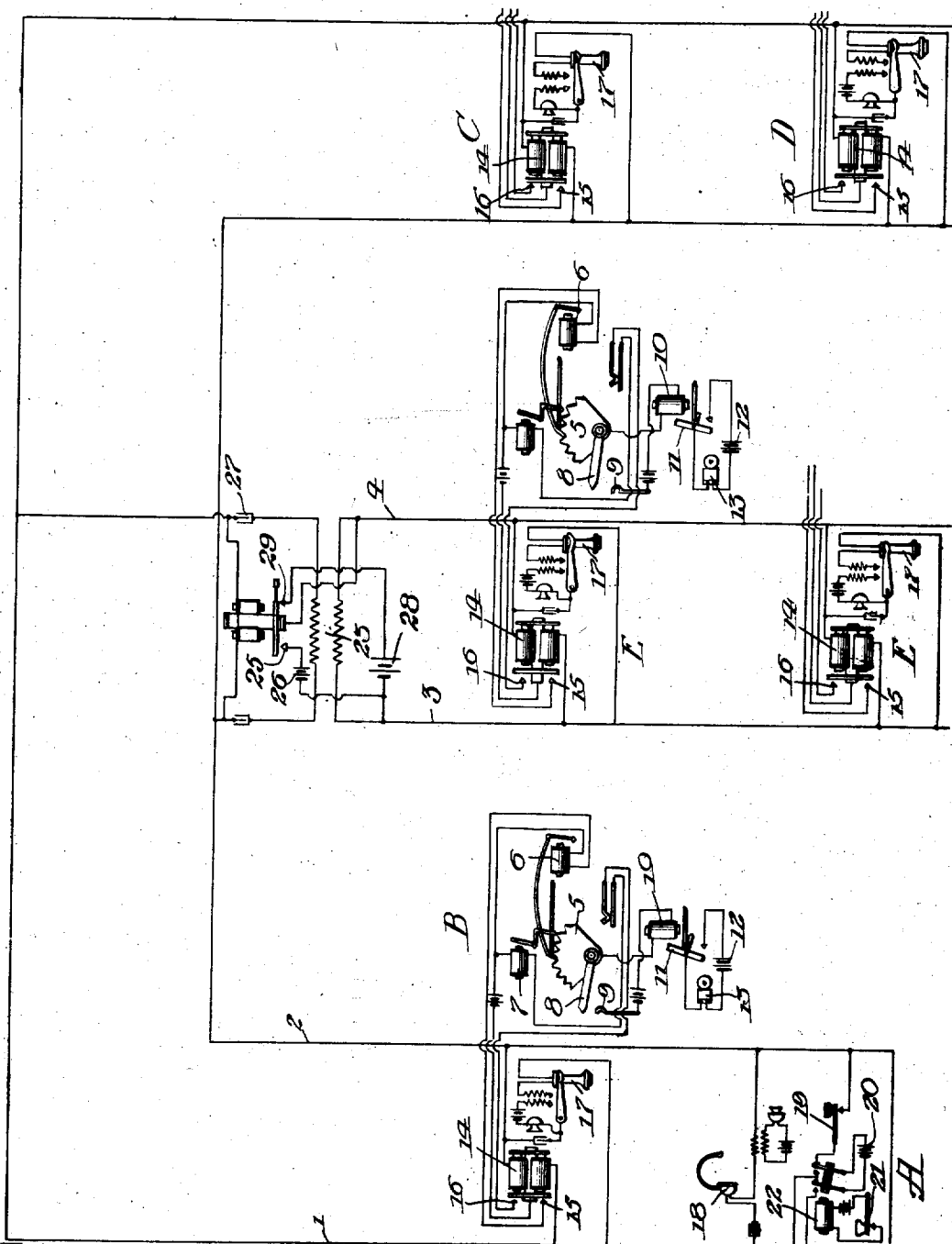


H. O. RUGH.
 SIGNALING SYSTEM.
 APPLICATION FILED SEPT. 2, 1909.

1,018,376.

Patented Feb. 20, 1912.



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UNITED STATES PATENT OFFICE.

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SIGNALING SYSTEM.

1,018,376.

Specification of Letters Patent.

Patented Feb. 20, 1912.

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To all whom it may concern:

Be it known that I, HARRY O. RUGH, a citizen of the United States, residing at Sandwich, in the county of Dekalb and State of Illinois, have invented a certain new and useful Improvement in Signaling Systems, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

This invention relates to signaling systems, and has for its object the provision of an improved arrangement for a signaling system, wherein it is possible to provide a plurality of signal-receiving stations having selective signal-receiving devices, from which signaling circuit it is possible to operate a plurality of branch circuits, all of which is of great utility in connection with railway telephone and telegraph apparatus, as will appear from the description of my invention which follows, in connection with the accompanying drawing illustrating the preferred embodiment thereof. In this illustration I show two line wires 1 and 2, for uniting a central station A with substations B, C, D, and which line circuit 1-2 is provided with a branch circuit having line conductors 3 and 4, for connecting a plurality of similar stations E, E. I have shown at all the substations a step-by-step segment 5, as controlled by a magnet 6, for stepping up purposes, and releasable by a magnet 7. When the segment 5 is properly stepped up, its arm 8 engages the contact spring 9 to close circuit through a relay 10, thereby to release a slow-moving element 11, and when the circuit has been established a sufficient length of time, the slow moving element closes circuit through a battery 12, and a local signal 13. The relays 6 and 7 are operated by a polar relay 14, bridged across the line wires 1 and 2, impulses of one polarity actuating its armature to close circuit through contact 15 to operate the relay 6, and impulses of the opposite polarity actuating its armature to close circuit with the contact element 16 to actuate the relay 7.

Each substation is provided with telephonic receiving devices indicated by the receiver 17. At the central station there is provided likewise a telephone set typified by the receiver 18 and a key 19, adapted to send currents of one polarity from the battery 20 to actuate the relay 14, thereby to operate the relay 6. A second key 21 operates its relay 22 to reverse the polarity of the battery 20, and thus sends impulses of opposite polarity over line wires 1 and 2, to thereby actuate relay 7. The contact arms 8 of the various substations B, C, and D are disposed angularly, so that each station responds to unlike indications sent out from the central station. On the branch circuit 3, 4, I have indicated a plurality of stations E, in each of which the selector apparatus is the same as for the other stations, except that preferably all of the arms 8 of said stations on the branch circuit have the same angular position, so that all of these stations may be called in unison. This is of advantage when such stations as B, C and D are the main line stations of a railroad system and a little branch line runs off the main line at some intermediate point, which may have one, two or more substations, but all of which respond to the same indication at the central station. In this manner, the system is not loaded with a multiplicity of separate and distinct calls. To connect the branch line 3, 4, with the main line 1, 2, for talking purposes, I provide a repeating coil 23, as shown. To relay or transfer the battery impulses from the main line to the branch, I provide a relay 24, whose armature and front contact 25 relay the impulses to the branch 3, 4, through the agency of a separate local battery 26. Back contact 29 through the agency of the battery 28 relays the impulses of opposite polarity. Thus the signals, as sent out by the central station I have transferred to the branch, and talking service can likewise be maintained. Condensers are used to prevent undue deflection of these battery impulses by the repeating coil away from the relay 24.

I do not claim herein the use of a polarized relay for relaying current of both polarities from one circuit to another as such use of a polarized relay is well known in the art and shown for instance in the patent to D'Infreville, 281,249, issued July 17, 1883.

While I have herein shown and particularly described the preferred embodiment of my invention, I do not limit myself to the precise construction and arrangement as herein set forth, but

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

1. A selective signaling system comprising a central station and a plurality of substations united by an electric circuit, a branch circuit for associating a substation with said main electric circuit, step-by-step selective means at the branch substation, devices at the central station for impressing selective impulses on said electric circuit, means interposed between said electric circuit and said branch circuit to transfer said impulses to said branch circuit to selectively actuate said step-by-step means, and means between said electric circuit and said branch circuit to establish telephonic continuity therebetween.

2. A selective signaling system comprising a central station and a plurality of substations united by an electric circuit, a branch circuit for associating a substation with said main electric circuit, step-by-step selective means at the branch substation, devices at the central station for impressing selective impulses on said electric circuit, a relay interposed between said electric circuit and said branch circuit to transfer said impulses to said branch circuit to selectively actuate said step-by-step means, and means between said electric circuit and said branch circuit to establish telephonic continuity therebetween.

3. A selective signaling system comprising a central station and a plurality of substations united by an electric circuit, a branch circuit for associating a substation with said main electric circuit, step-by-step selective means at the branch substation, devices at the central station for impressing selective impulses on said electric circuit, means interposed between said electric circuit and said branch circuit to transfer said impulses to said branch circuit to selectively actuate said step-by-step means, telephones at said central station and said substations, and means between said electric circuit and said branch circuit to establish telephonic continuity therebetween.

4. A selective signaling system comprising a central station and a plurality of substations united by an electric circuit, a branch circuit for associating a substation

with said main electric circuit, step-by-step selective means at the branch substation, devices at the central station for impressing selective impulses on said electric circuit, a relay interposed between said electric circuit and said branch circuit to transfer said impulses to said branch circuit to selectively actuate said step-by-step selective means, telephones at said central station and said substations, and means between said selective circuit and said branch circuit to establish telephonic continuity therebetween.

5. A selective signaling system comprising a central station and a plurality of substations united by an electric circuit, a branch circuit for associating a substation with said main electric circuit, step-by-step selective means at the branch substation, devices at the central station for impressing selective impulses on said electric circuit, and means interposed between said electric circuit and said branch circuit to transfer said impulses to said branch circuit to selectively actuate said step-by-step means.

6. A selective signaling system comprising a central station and a plurality of substations united by an electric circuit, a branch circuit for associating a substation with said main electric circuit, step-by-step selective means at the branch substation, devices at the central station for impressing selective impulses on said electric circuit, means interposed between said electric circuit and said branch circuit to transfer said impulses to said branch circuit to selectively actuate said step-by-step means, telephones at said central station and said substations, and a repeating coil between said electric circuit and said branch circuit to establish telephonic continuity therebetween.

7. A selective signaling system comprising a central station and a plurality of substations united by an electric circuit, a branch circuit for associating a substation with said main electric circuit, step-by-step selective means at the branch substation, devices at the central station for impressing selective impulses on said electric circuit, a relay interposed between said electric circuit and said branch circuit to transfer said impulses to said branch circuit to selectively actuate said step-by-step selective means, telephones at said central station and substations, and a repeating coil between said selective circuit and said branch circuit to establish telephonic continuity therebetween.

8. A selective signaling system comprising a central station and a plurality of substations united by an electric circuit, a branch circuit for associating a substation with said main electric circuit, step-by-step selective means at the branch substation, devices at the central station for impressing selective impulses on said electric circuit, a

relay interposed between said electric circuit and said branch circuit to transfer said impulses to said branch circuit to selectively actuate said step-by-step selective means, telephones at said central station and said substations, a repeating coil between said selective circuit and said branch circuit to establish telephonic continuity therebetween,

and condensers associated with the circuit leading to said repeating coil.

In witness whereof, I hereunto subscribe my name this 10th day of July, A. D. 1909.

HARRY O. RUGH.

Witnesses:

JEAN ELLIOTT,
O. M. WENNICH.