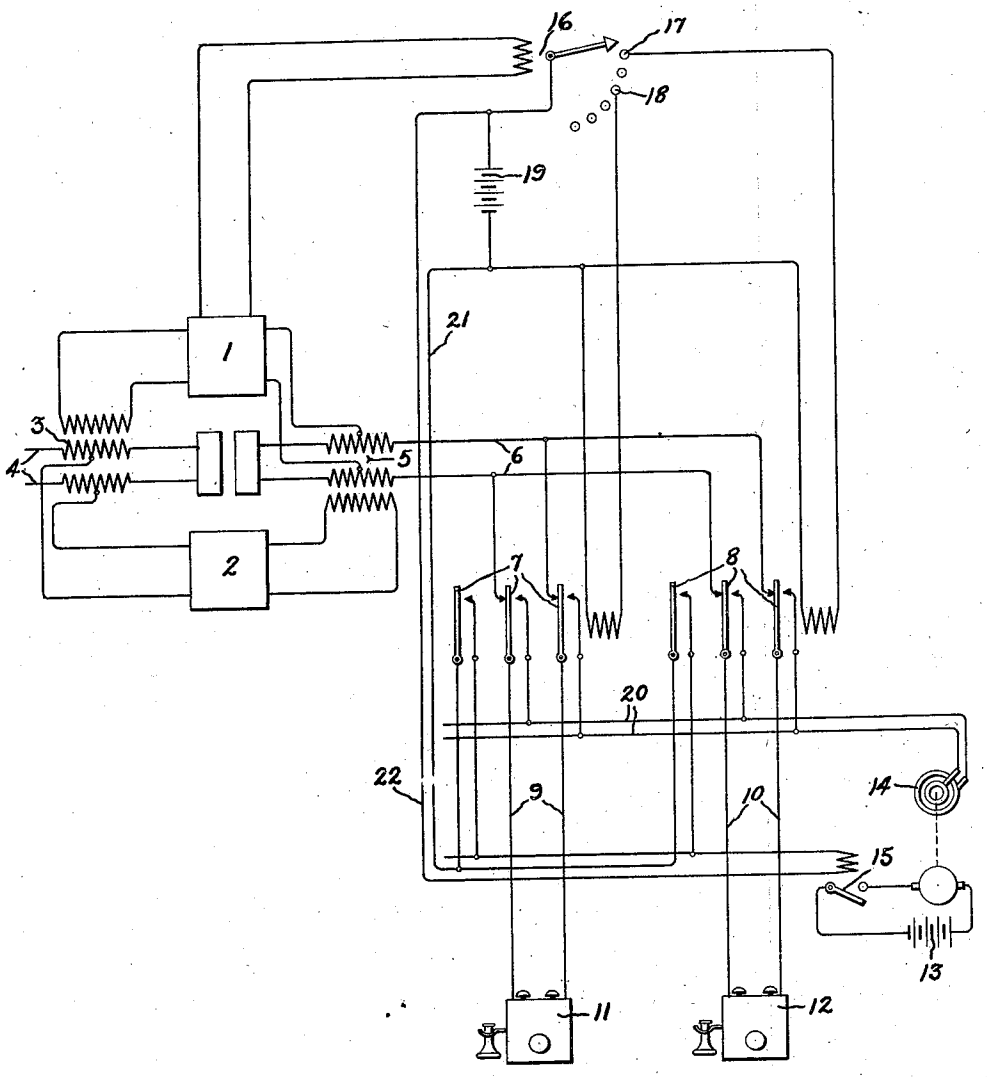
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SIGNALING SYSTEM

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SIGNALING SYSTEM

Application filed August 12, 1927. Serial No. 212,579.

My invention relates to signaling systems and more particularly to calling systems used in connection with telephone communication channels.

In connection with high frequency signaling systems such as those which are employed for communication by means of carrier currents transmitted over the lines of the usual power distribution system it is generally necessary and desirable to locate the high frequency transmitting and receiving equipment in proximity to the power system and to extend therefrom telephone circuits leading to the instruments of the different parties to whom service is provided. It is necessary to employ for calling purposes, and the like, signaling devices associated with these extensions and it is preferable that these devices be operated from a central source of energy. It is frequently desirable to operate these devices with energy of a different form from that available at the carrier station, and accordingly some translating apparatus such as a rotary converter or motor generator set is frequently employed. Where this is done it is uneconomical to maintain the translating apparatus in continuous operation and accordingly it is the purpose of my invention to provide means whereby it may be automatically started in response to a call received at the carrier station and connected to supply energy to the line of the called party. It is also the purpose of my invention to provide means whereby the line of the called party will be disconnected from the signaling channel while the translating apparatus is connected thereto. After the call has been completed the translating apparatus will be automatically disconnected from the energy source and from the line and restored to its normally idle condition.

The novel features which I believe to be characteristic of my invention are set forth with particularity in the appended claims. My invention itself, however, both as to its organization and method of operation together with further objects and advantages thereof may best be understood by reference to the following description taken in connection with the accompanying drawing in which the single figure represents one embodiment of my invention.

Referring to the drawing, 1 and 2 represent respectively receiving and transmitting equipment of the usual high frequency signaling system, the input to the receiver and the output to the transmitter being each connected through the transformer 3 to the high frequency signaling channel 4. Likewise the output from the receiver and the input to the transmitter are connected through transformer 5 to the signaling channel 6. This latter signaling channel is extended by means of switches 7, 8 over a plurality of lines leading to the parties served and which are represented in the drawing by lines 9, 10. The usual telephone equipment which is associated with each of these lines and which is provided with the usual alternating current signaling device such as is used for calling purposes is represented at 11, 12. 13 represents a central source of direct current energy, such as is usually provided at the carrier current station. For the purpose of converting the direct current energy from the source 13 into alternating current for operating the bells of the stations 11, 12 suitable translating apparatus is provided such as a motor generator set, or rotary converter 14, the direct current circuit of which may be connected through a switch 15 to the source of energy 13 and the alternating current circuit of which may be connected through any of the switches 7, 8 to a corresponding circuit 9, 10. For purposes of economy it is desirable that this converter 14 should be normally idle and should be operated only in response to a call received at the carrier station and accordingly means are provided whereby this converter is caused to operate in response to operation of the selector switch which is associated with the receiving apparatus 1. This selector switch which is shown at 16, is operated in response to a received call to actuate its armature into engagement with one of a plurality of contacts 17 each of which correspond to a station 11, 12 and each of which is connected in circuit with the coil

of one of the switches 7, 8 a source of potential 19 and the armature of the switch 16.

As thus arranged the operation of my device is as follows. If it be assumed that a call is received at the receiving equipment 1 corresponding to the party 11, the selector 16 will move its armature into engagement with the contact 18, thereby closing a circuit leading from the positive side of the source of potential 19 through the armature of the selector switch 16, contact 18, actuating coil of the switch 7 back to the negative side of the source of potential 19. Switch 7 will then actuate all of its armatures to the right. By means of its central and right-hand contact telephone 11 will be disconnected from the signaling channel 6 and connected to the circuit 20 leading to the alternating current side of the converting apparatus. By means of its left-hand contact a circuit will be closed leading from the negative side of the battery 19 through conductor 21, left-hand contacts of the switch 7, actuating coil of the switch 15 and conductor 22 back to the positive side of the source of potential 19. Switch 15 will then close its contact to supply direct current energy to the rotary converter 14. This converter will then be caused to operate to supply alternating current energy through the circuit 20 and central and left-hand contacts of the switch 7 to the signaling device of the equipment 11. This condition will be maintained until the selector switch 16 again returns to its normal position corresponding to that shown in the drawing. The telephone equipment 11 will then be again connected to the signaling channel 6 and switch 15 will open its contact and thereby deenergize the converting apparatus stopping its operation until another call is received.

Similarly, if a call corresponding to station 12 is received the armature of switch 16 will engage contact 17 and switch 8 will respond causing operation of the converter as before.

While I particularly mention the use of my invention in connection with systems where alternating current is used for signaling purposes it will of course be understood that I contemplate its use where any energy translation between the energy source and signaling devices is required or in connection with the control of any normally inoperative energy source, to render it operative to supply current to the signaling devices.

While I have shown and described a single embodiment of my invention it is, of course, to be understood that I do not wish to be limited thereto since many modifications, both in the circuit arrangement and in the instrumentalities employed, may be made without departing from the spirit and scope of my invention as set forth in the appended claims.

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

1. In combination, a signaling channel, a signaling device, a normally unoperated energy translating device, an energy source, and switching means operable responsively to currents in said channel to connect said translating device to said energy source and to said signaling device whereby said translating device is operated to supply energy to the signaling device.

2. In combination, a signaling channel, a signaling device normally connected to said channel, a normally unoperated energy translating device, an energy source, and means responsive to currents in said channel to disconnect said signaling device from said channel and to connect said translating device to said energy source and to said signaling device whereby the translating device is operated to supply energy to the signaling device.

3. In combination, a signaling channel, a plurality of signaling devices, a normally unoperated energy source, selecting means operable responsively to currents in said channel and means responsive thereto for causing said device to operate to supply energy to a selected signaling device.

4. In combination, a signaling channel, a plurality of signaling devices, an energy source, an energy translating device, selecting means responsive to currents in said channel to connect said energy translating device to said source and to a selected signaling device.

5. In combination, a signaling channel, a plurality of signaling devices normally connected to said channel, an energy source, an energy translating device and selecting means operable responsively to currents in said channel to disconnect one of said signaling devices from said channel and to connect said energy translating device to said source and to said signaling device.

6. In combination, a signaling channel, a signaling device normally connected to said channel, a source of potential, a normally unoperated energy translating device, means operable responsively to currents in said channel, means operable responsively thereto to disconnect said signaling device from said channel and to connect said translating device to said signaling device, and means operable responsively to said last means for causing said translating device to operate to supply energy from said source to said signaling device.

In witness whereof, I have hereunto set my hand this 11th day of August, 1927.

EMMETT F. CARTER.