

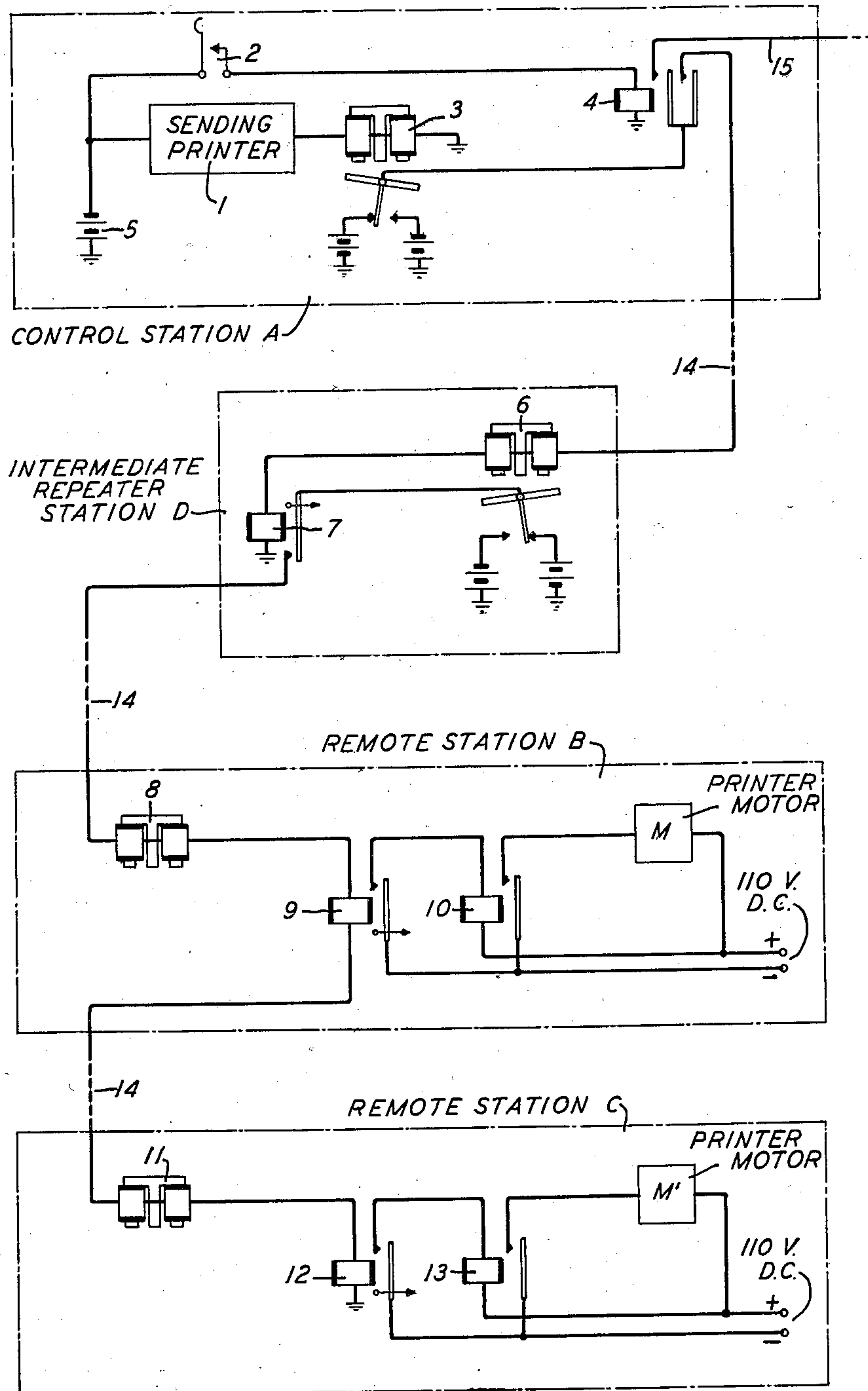
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REMOTE CONTROL SYSTEM

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## REMOTE CONTROL SYSTEM

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This invention relates to a remote control system, and more particularly to a method of and system for controlling the motor of a printing telegraph set from a distant transmitting station.

An object of this invention is to conveniently and effectively start and stop the apparatus at a printing telegraph station from a remote control station.

It is known in the art that printing telegraph apparatus may be conditioned for receiving or transmitting signals by the operation of a power switch at the telegraph station which will, in turn, apply power to start the motors for the printer set at that station. The motors will then revolve until stopped by opening the switch. This method involves the continual use of the motors during the interval signals are not being transmitted over the system and has proven to be uneconomical. The unnecessary use of power, the continual wear and tear on revolving parts and the required presence of an attendant at each station to manually operate the power switch add greatly to the maintenance cost of a printing telegraph system. These difficulties are obviated in systems in accordance with the present invention.

Broadly, this invention comprises a printing telegraph transmitting office connected to a plurality of remote printer stations. Communication circuits extend from the remote stations to the transmitting office. Over these circuits impulses of current, corresponding to printer signals, are transmitted to actuate the receiving apparatus and to control the printer motors. The motors of these printer sets may be automatically started and stopped simultaneously by the operation of a single key at the control office. In this manner any number of remote printer stations may be simultaneously conditioned for receiving signals by the actuation of a single key at the transmitting station.

Referring to the drawing, A represents a control office for a printing telegraph system having remote stations B and C. Only two remote stations are shown in the drawing but it is to be understood that any number of stations may be included in the system. D is an intermediate repeater station which may be employed in the system if any of the remote stations are located at a great distance from the central office A. A single telegraph channel 14 extends between stations. At control office A a key 2 is provided for controlling the motors at offices B and C for conditioning the printer sets for receiving signals.

The operation of key 2 will operate relay 4

over a circuit traced from battery 5 through the contact of key 2 to ground through the winding of relay 4. The operation of relay 4 will close a circuit to start the motors of all printer sets connected to the system. This will be described subsequently. Although only two stations B and C are shown connected to telegraph line 14, it will be understood that line 15 extends to another group of stations and that there may be as many telegraph lines connected to relay 4 as are considered necessary for a particular system. It is also to be understood that relay 4 need not be local to station A but may be located at any distance from the control station.

The operation of relay 4 completes a circuit to operate polar relay 6 and alternating current relay 7 at intermediate repeater station D. This path is traced from positive battery on the contact and armature of relay 3, at the control station A, through the make contacts of relay 4, windings of relays 6 and 7 in series to ground, operating relays 6 and 7, respectively. Relay 7 is an alternating current relay which is designed to operate and remain operated on alternations of current. Relays of this type have properties similar in some respects to a slow release relay and are well known in the art. Both the alternating current relay and the slow release relay have slow release properties so that, when operated, they do not release instantaneously but remain operated for a slight interval of time after the current has been removed from the winding of the relay. Although an alternating current relay is preferred in this invention, a slow release relay may be employed, if considered desirable. Relay 7 will not follow the printer signals transmitted over telegraph channel 14 by transmitting printer 1. Relay 6 will follow the printer signals. The operation of relay 7 will now complete a circuit to operate relays 8, 9, 11 and 12 from battery on the contact and armature of polar relay 6 through the make contact of A. C. relay 7, through the windings of relays 8, 9, 11 and 12 in series, to ground at station C. It is to be understood, of course, that there may be other remote stations added to the circuit by extending telegraph line 14 to serially include the relays of the other stations. Relays 8 and 11 are polar signal magnets and will follow the printer signals transmitted over the communication line 14. The printing mechanism at each station is not shown but the actual printing operation is accomplished by electrical and mechanical means controlled through magnets 8 and 11. Relays 9 and 12 are also alternating current



relays and do not follow the received impulses of current. The operation of relay 9 will complete an obvious path to operate control relay 10 which will, in turn, apply power to operate printer motor M. In a similar manner, printer motor M' at station C will start upon the operation of relays 12 and 13. Thus the actuation of key 2 at the control station will start the motors of all the remote printer sets connected to the system and condition the printer sets for receiving signals from printer 1.

The operation of sending printer 1 will cause polar relay 3 to operate in accordance with the transmitted signals over an obvious circuit. The movement of the armature of relay 3 will cause relays 6, 8 and 11, in series with telegraph line 14, to follow the printer signals. Relays 7, 9 and 12 will stay operated during the transmission of the signals and will keep the printer motors at the respective stations operated. These relays are of the type designed to operate on the first impulse of a train of current impulses and to remain operated until the cessation of signals.

It is to be understood that this invention is not limited to controlling the motors of the telegraph station by the precise arrangement of parts disclosed but may be embodied in other arrangements of relays or equivalent devices to accomplish the desired purpose.

What is claimed is:

1. In combination, a main station comprising printing telegraph transmitting means, a remote station comprising printing telegraph receiving means, a telegraph line extending from said remote station to said transmitting station, switching means at said transmitting station, a relay responsive to the movement of said switching means to an operative position and adapted upon actuation to connect said telegraph line to said transmitting station for automatically conditioning the printing telegraph receiving means at the remote station for receiving signals, said relay responding to the movement of said switching means to a non-operative position for automati-

cally rendering said printing telegraph receiving means inert.

2. In combination, a main station comprising printing telegraph transmitting means, a plurality of remote stations each comprising printing telegraph receiving means, a single conductor telegraph line connecting said main station with said remote station in series, switching means at said main station, a relay responsive to the movement of said switching means to an operative position and adapted upon actuation to connect said telegraph line to said main station for automatically conditioning for operation the printing telegraph receiving means at each of the remote stations, said relay responding to the movement of said switching means to a non-operative position for automatically rendering inert said printing telegraph receiving means at each of said remote stations.

3. In combination, a main station comprising a printing telegraph set, a remote station comprising another printing telegraph set, a telegraph transmission line extending from said remote station to said main station, an inductive element and a source of telegraph signals at said main station, and switching means at said main station for operating said element to thereby connect said line directly to said signal source whereby the printer set at said remote station is automatically conditioned for receiving signals from said source.

4. A system, according to claim 3, wherein said telegraph transmission circuit includes, in series connection, a pair of electromagnets one of which is the operating magnet of said printing set and the other, the controlling relay of the motor driving means for said set, said operating magnet being arranged to operate and release in accordance with the incoming printer signal impulses and said relay being arranged to be maintained in one operated position during the time said inductive element is operated.

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