Feb. 21, 1933. E. F. WATSON 1,898,921

REMOTE CONTROL SYSTEM

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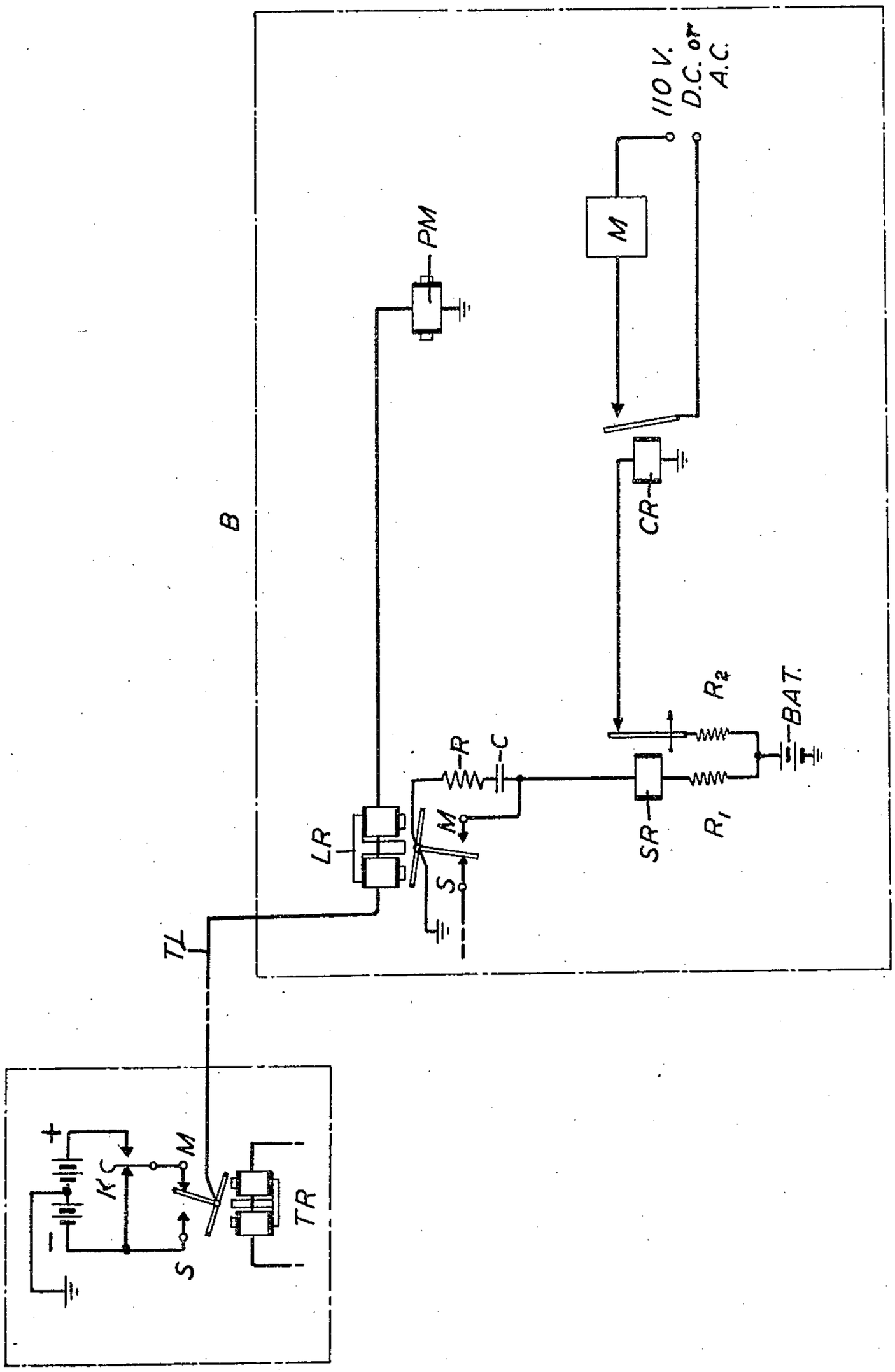

INVENTOR
E. F. WATSON
BY
ATTORNEY

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EDWARD F. WATSON, OF LARCHMONT, NEW YORK, ASSIGNOR TO AMERICAN TELEPHONE AND TELEGRAPH COMPANY, A CORPORATION OF NEW YORK

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 motors 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 the printing telegraph station from the remote control station.

It is well known in the art that printing telegraph apparatus at a distant station may be conditioned for receiving or transmitting signals by the operation of a power switch at that station which will, in turn, apply power to start the motor mechanism for the printer set. The motors will then revolve until stopped by opening the switch. This method involves continual use of the driving means 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 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.

An advantage of this invention is that the circuit may be designed to function with open and closed signals as well as with positive and negative signals.

Broadly, this invention comprises a circuit for controlling the motor mechanism at a remote printing telegraph station from a distant transmitting station.

In accordance with the principles underlying this invention, the motors of any number of remote stations may be controlled simultaneously from a control station by arranging the line and printer relays of each remote station in series with the transmission line.

Referring to the drawing, A represents a transmitting station and B a distant printer station. Control station A is of a type well known in the art and comprises a sending relay TR and a motor control key K for conditioning the equipment at A for transmitting signals. A telegraph line TL extends between stations A and B. Polar relay LR and polarized printer magnet or relay PM are serially connected in the telegraph line circuit at B. If it is desirable to transmit open and closed signals over the system, LR and PM may be provided as neutral relays instead of polar relays. Relay SR is a slow release relay and is arranged in a local circuit to respond to the operation of polar relay LR for starting and stopping the printer motor or motors M. This will be described subsequently. Although only one station B is shown in connection with the drawing it will be understood that any number of stations may be serially connected in the circuit by arranging the polar relay and printer relay of each station in series with the transmission line.

The manner of operation of the motor control arrangement will now be described in detail. The actuation of key K to the right will condition the equipment at A for transmitting signals. The operation of sending relay TR to its marking contact will cause the transmission of a marking impulse over telegraph line TL which will operate polar relay LR and printer magnet PM connected in series with the line. The operation of relay LR to its marking contact in response to the marking signal will operate slow release relay SR over a circuit traced from battery through resistance R_1 and the winding of relay SR to ground on the marking contact and armature of polar relay LR. Control relay CR is normally held operated on a circuit traced from battery through resistance R_2, break contact of relay SR to ground through the winding of relay CR. The operation of relay SR, as hereinbefore described, will open the operating path for relay CR at the contacts of relay SR and cause relay CR to release, which will, in turn, close an obvious path to operate the motor or motors M. Station B is now in condition to receive message signals transmitted from control station A. Slow release relay SR will stay operated while polar relay LR is following the printer signals received from station A.

The application of a long spacing signal

over telegraph line TL will cause polar relay LR to move to its spacing contact, in turn releasing relay SR after a short interval of time. The release of relay SR to normal will cause the operation of relay CR and the consequent stopping of the motor driving means M. In this manner, the motor mechanism of printer set B will be under the control of the transmitting station and will start in response to a marking signal and will continue to run while message signals are being transmitted, automatically disconnecting itself when a spacing impulse is impressed on the line for a given minimum interval greater than the interval of any spacing impulse in the regular transmission of message signals.

The circuit comprising the resistance R in series with condenser C, connected between the marking contact and armature of polar relay LR, is a "spark killer" for minimizing the arcing at the contacts of relay LR during operation. Resistances R_1 and R_2 are provided in cases where it is necessary to limit the current flow through the windings of relays SR and CR.

It is to be understood that this invention is not limited to controlling the motor of a 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. For example, A may be a telegraph station transmitting open and closed signals by means of a telegraph key.

What is claimed is:

1. Means for controlling the motor mechanism of a printing telegraph set from a remote transmitting station comprising a printer set, a control circuit extending from said set to the transmitting station, a polar line relay in said control circuit responsive to impulses of current over said circuit, a slow-releasing relay under control of said polar line relay, an additional relay for applying power to the motor mechanism of said printer set, said additional relay being normally energized from a contact on said slow-releasing relay and adapted to supply power to said motor mechanism subsequent to the operation of said slow release relay and consequent to the release of said additional relay.

2. In combination, in a printing telegraph system, a transmitting printing telegraph set, a remote printer station, motor driving means at said station, a telegraph line extending between said set and said station, and adapted to be energized by telegraph line current from said transmitting set, a polar relay at said remote station serially connected in said line and responsive to said line current, a slow-releasing relay responding to the continuous energization or intermittent energization of said relay in one sense for starting the motor driving means of said printer station, said slow-releasing means responding differently to a sustained energization of said relay in another sense for stopping the motor driving means of said printer station.

3. In a telegraph system, a transmitting station, a recording station, a line connecting both of said stations, power mechanism at said recording station for conditioning said station for receiving, means at the transmitting station for impressing marking and spacing current impulses of different polarity upon said line, circuit controlling devices at said recording station including a slow release relay responsive to a marking current impulse (of one polarity) for thereafter applying power to said power mechanism to cause it to condition said recording station for receiving during the transmission of message signals, said circuit controlling devices being responsive to the transmission of a spacing current impulse of another polarity of a duration longer than any spacing impulse included in the regular message signals for removing the applied power from said power mechanism.

In testimony whereof, I have signed my name to this specification this 23rd day of September, 1930.

EDWARD F. WATSON.