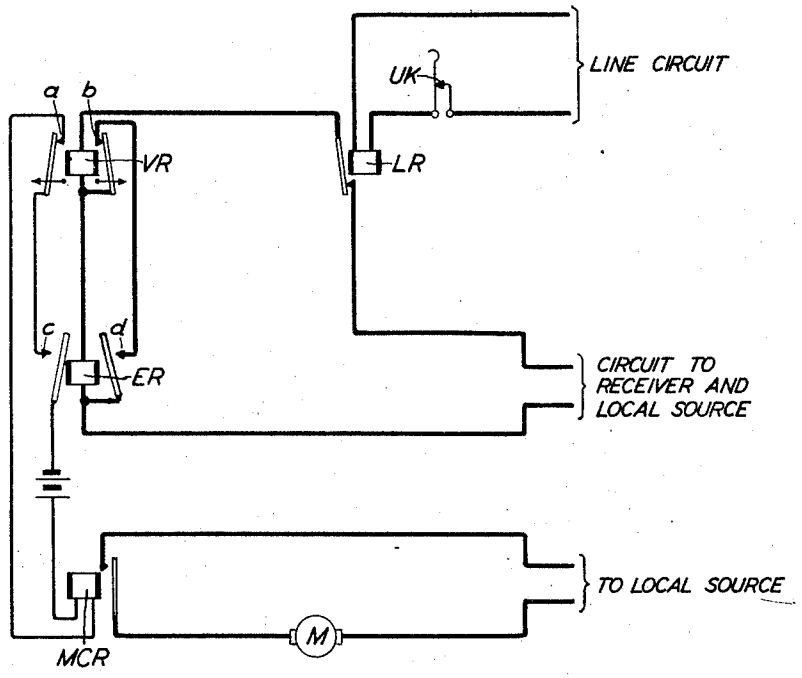
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CONTROL ARRANGEMENT FOR PRINTING TELEGRAPH MOTORS

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CONTROL ARRANGEMENT FOR PRINTING TELEGRAPH MOTORS

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For remote controlling, starting or stopping of the motors or driving mechanisms of printing telegraph apparatus current impulses of another duration, intensity, or polarity than those serving for the proper transmission of printer code impulses are commonly used. In case of teleprinters for closed circuit working their remote control is effected by current interruption.

The present invention uses two current interruptions graduated as regards duration, short and long, to cause the start and stop, respectively, of the motors by means of two relays accordingly graduated in their attracting and dropping speed.

A circuit diagram of one arrangement embodying the invention is shown in the drawing.

A single station is shown in the drawing. This station may be connected over the "line circuit" to one or a plurality of other stations. The printer motor may be started and stopped either from the local station or a distant station under the control of the live current.

The system of the drawing consists of a relay set which comprises two relays, one of which is a sluggish relay VR with two make contacts *a*, *b* and the other of which is a low-resistance-winding quick acting relay ER with two break contacts *c*, *d*.

The release time of relay VR is made so long that the longest interruptions occurring in the teleprinter operation (a number of blank signals successively) are received without the relay being released.

The windings of both relays ER and VR are connected in series with each other and with the contacts of the receiving magnet LR of the teleprinter or its receiving relay respectively.

In the resting condition (after cutting in the line current) the current flows through the receiving magnet LR (or receiving relay) and relay VR of the additional equipment. All the relays are shown in the positions assumed under these circumstances.

A momentary interruption of the sending circuit by means of the interrupting key UK or its corresponding key at the remote end of the line causes the quick release relay ER to release. This occurs because the armature of relay LR falls back and opens momentarily the circuit through relay ER and VR. However the slow releasing relay VR retains its armature in attracted condition. Thereby the circuit for the motor controlled relay MCR is closed over the left hand contacts of relays ER and VR. When the relay ER releases, it short-circuits itself through its right hand contact.

The power relay in operating connects the teleprinter motor M.

To stop the printer motor either from the local or the remote station longer interruption of the line circuit by means of the interrupting key UK or a corresponding element at the distant station causes the relay VR to release.

The circuit of the motor or power controlling relay MCR is interrupted at the contact *a*. The motor controlling relay remains interrupted at the open left hand contact of relay ER when the line circuit is again closed because contact *c* will be opened at least as soon as contact *a* is closed. The short-circuit of relay ER is prevented by the open right hand contact *d* of ER. Consequently, after one short line interruption the motor M is started. Under these circumstances, the occurrence of one long line interruption causes the relays VR and ER both to remain in attracted position as shown in the drawing and the motor M is stopped. Between the short and the long interruptions signaling may take place for any desired time.

What is claimed is:

1. A system comprising the drive motor of a printing telegraph apparatus and means for starting and stopping said motor under the control of line current comprising two relay devices, one of which is fast-acting and the other of which is slow-acting, in combination with circuit arrangements whereby the fast-acting relay is operated to a different position by a short line impulse to start the motor and circuit arrangements whereby the slow-acting relay is operated to a different position by a long line impulse to stop the motor characterized in this, that the circuit arrangements include conductive

paths whereby the slow-acting relay when operated closes a short circuit around the fast-acting relay.

2. A system according to claim 1 in which with the line open both the fast and slow-acting relay devices are unenergized, and upon closing the line, current is supplied to energize both the fast and slow-acting relay devices.

3. A system in accordance with claim 1 in which with the line open the fast and slow-acting relays are deenergized and upon closure of the line, current is supplied to energize both the fast and the slow-acting relay devices and in which also the fast-acting relay when released by a short line impulse short-circuits itself.

4. A system according to claim 1 wherein a circuit is provided whereby if the fast-acting relay is short-circuited following a short-line impulse, the slow-acting relay, when released, removes the short circuit.

In witness whereof, I hereunto subscribe my name this thirteenth day of April, 1931. 1931.

WILHELM DAUM.