

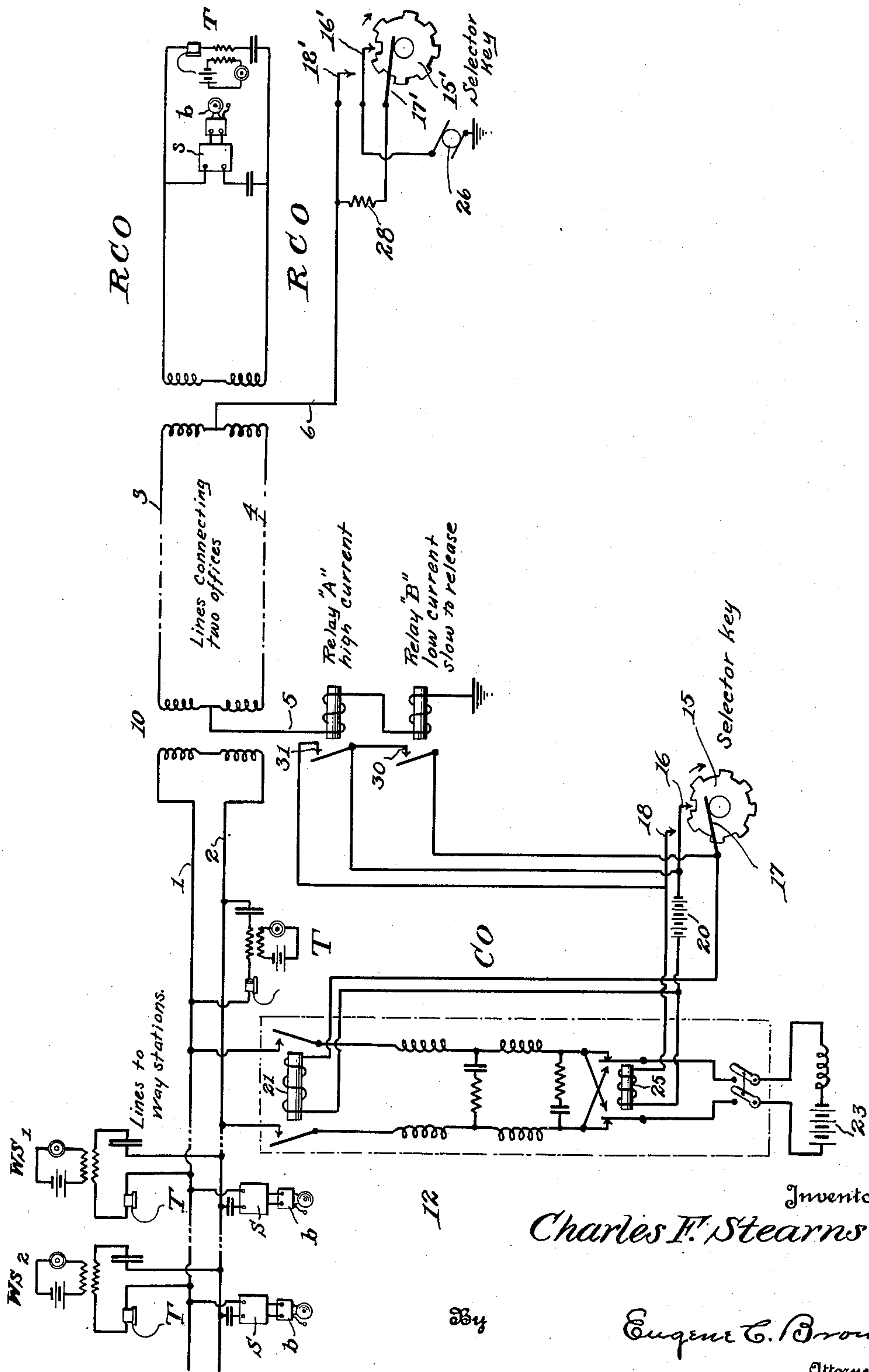
Nov. 12, 1929.

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1,735,838

REMOTE CONTROL OF SELECTOR APPARATUS

Filed March 6, 1928



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REMOTE CONTROL OF SELECTOR APPARATUS

Application filed March 6, 1928. Serial No. 259,487.

This invention relates to signaling systems and more particularly to selectively operated signaling systems in which a plurality of waystations connected with a single line circuit are each provided with a selectively operated signal controlling device.

In telephone way circuits of this character in which only one selector apparatus is used or can be permitted on the line, it is sometimes desirable that it should be controlled from more than one office.

The object of my invention is to provide means for additionally controlling the selector apparatus from a station or office remote from the main control office.

The accompanying drawing is a diagram showing one arrangement of circuits embodying my invention.

Lines 1, 2 lead from the main controlling office CO to the various waystations WS_1 , WS_2 , etc., each of which is equipped with a telephone set T and a code selector S of any well known type, provided with an audible signal b . The main office is connected for telephonic communication with a remote office or station RCO by lines 3, 4 through the usual simplex coil couplings or repeating coils. The station RCO is provided with the usual telephone set T and code selector S. The stations are also connected by a direct grounded circuit through conductors 5, 6, superposed on the telephone circuit in the usual manner of simplex circuits.

The apparatus for sending the code signals from a code selector key over the lines connecting the several waystations, indicated diagrammatically within the dotted rectangle 12 is a standard equipment known as a "selector apparatus case". Its function and operation are well known. When the code selector key 15 is actuated, a circuit is first closed through the contacts 16 and 17 from the battery 20 to the circuit-closing magnet 21, which attracts its armatures and thereby connects battery 23 with the lines 1, 2. Each time the spring contact 16 is lifted by a tooth of the code wheel or selector key 15, a circuit is closed through the contacts 16 and 18 from battery 20 to the pole-changer magnet 25, which momentarily attracts its

armatures and reverses the poles of the battery 23 to the lines. In this manner the code signal represented by the combination of teeth of the particular code wheel of the selector key which is actuated, is sent over the lines to actuate a selector S at a waystation.

As previously stated, it is the purpose of this invention to provide a means for actuating the selector apparatus 12 from a remote station in the same manner that it is locally actuated by the selector key 15 at the main station. To this end I provide relays A and B in the conductor 5 at station CO, having their armature contacts in parallel with the contacts of the selector key. The relay A is constructed to operate upon a high voltage or current, while the relay B operates on a lower current and is preferably designed to be slow to release, the terms "high" and "lower" being merely relative. At the remote control office or station RCO, I provide a selector key 15' having cooperating contacts 16', 17' and 18' adapted to connect a generator source 26 to the conductor 6.

When the operator at the remote station RCO desires to send a code signal into the lines 1, 2 through the selector apparatus case 12 at the main office CO, he first listens in his telephone T to find out whether signals are being transmitted by the operator at the main office. If no selector signals or conversation is heard, he starts the code wheel of the selector key 15' into operation. The contact 16' first closes a circuit from ground through generator 26, contact 16', code wheel 15', contact 17', resistance 28, conductor 6, conductors 3, 4, conductor 5 and relays A and B to ground. The resistance 28 prevents the flow of sufficient current to operate the relay A and hence only relay B is actuated. Its armature engages front contact 30 and closes a circuit from battery 20 through the circuit closing magnet 21, thereby connecting battery 23 to the waystation lines 1, 2. As the code wheel 15' continues to rotate the contact 16' is lifted successively by the teeth into engagement with the contact 18', thereby shortcircuiting the resistance 28 and increasing the current sufficiently to actuate the relay A. Its armature engages

front contact 31 and thus closes a circuit from battery 20 to pole-changer magnet 25. In this manner the code signals of the selector key at remote station RCO are transmitted to the waystation lines under the direct control of its operator. By using a "slow to release" relay B, the maintenance of the circuit through the circuit-closing magnet 21 is ensured. In order that the operator at the main office may not interrupt signals that are being transmitted from the other station, he can first listen in his telephone.

I have shown only one remote control station but it is obvious that other stations may be connected in the same manner to control the selector apparatus at the main office. Among the advantages of employing only one selector apparatus is the fact that it obviates the danger of imposing a high voltage which might break down arresters and injure other apparatus which might result from the simultaneous operation of a plurality of selector apparatus.

It will be evident that various modifications in the circuit arrangements may be made without departing from the invention. Thus I have shown two relays to control the selector apparatus from the remote station, but it is obvious that I may employ a single relay having two armatures to separately control the contacts 30 and 31, these armatures responding to different strengths of current; or a relay may be employed having an armature which moves to different positions depending upon the strength of the current, one of the contacts being closed in one position and the other contact being closed in the other position.

I claim:—

1. In a signaling system, way stations, a main station, a signaling circuit extending from said main station to said way stations, and a remote station, signaling apparatus at the main station for transmitting current impulses of opposite polarities upon said signaling circuit, means for controlling said signaling apparatus from the remote station comprising relays at the main station operating to control the actuation of said apparatus, control means at the remote station for independently actuating said relays and a circuit connecting said relays and said control means.

2. In a signaling system as set forth in claim 1, said relays being respectively responsive to currents of different values.

3. In a signaling system as set forth in claim 1, said relays being respectively responsive to currents of different strengths, the relay responding to the lower current being slow to release.

4. In a signaling system, a main station and a remote station, signaling apparatus at the main station for transmitting impulses of opposite polarities upon a signaling circuit

including a source of current, a magnet to connect said source to said signaling circuit and a magnet to reverse the connection with the terminals of said current source, means for controlling said signaling apparatus from a remote station comprising electro-responsive means at the main station responding to currents of different values to separately control said magnets, a conductor connecting said electro-responsive means and said remote control station, and means at said remote station for impressing currents of different values upon said conductor.

In testimony whereof I affix my signature.

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