

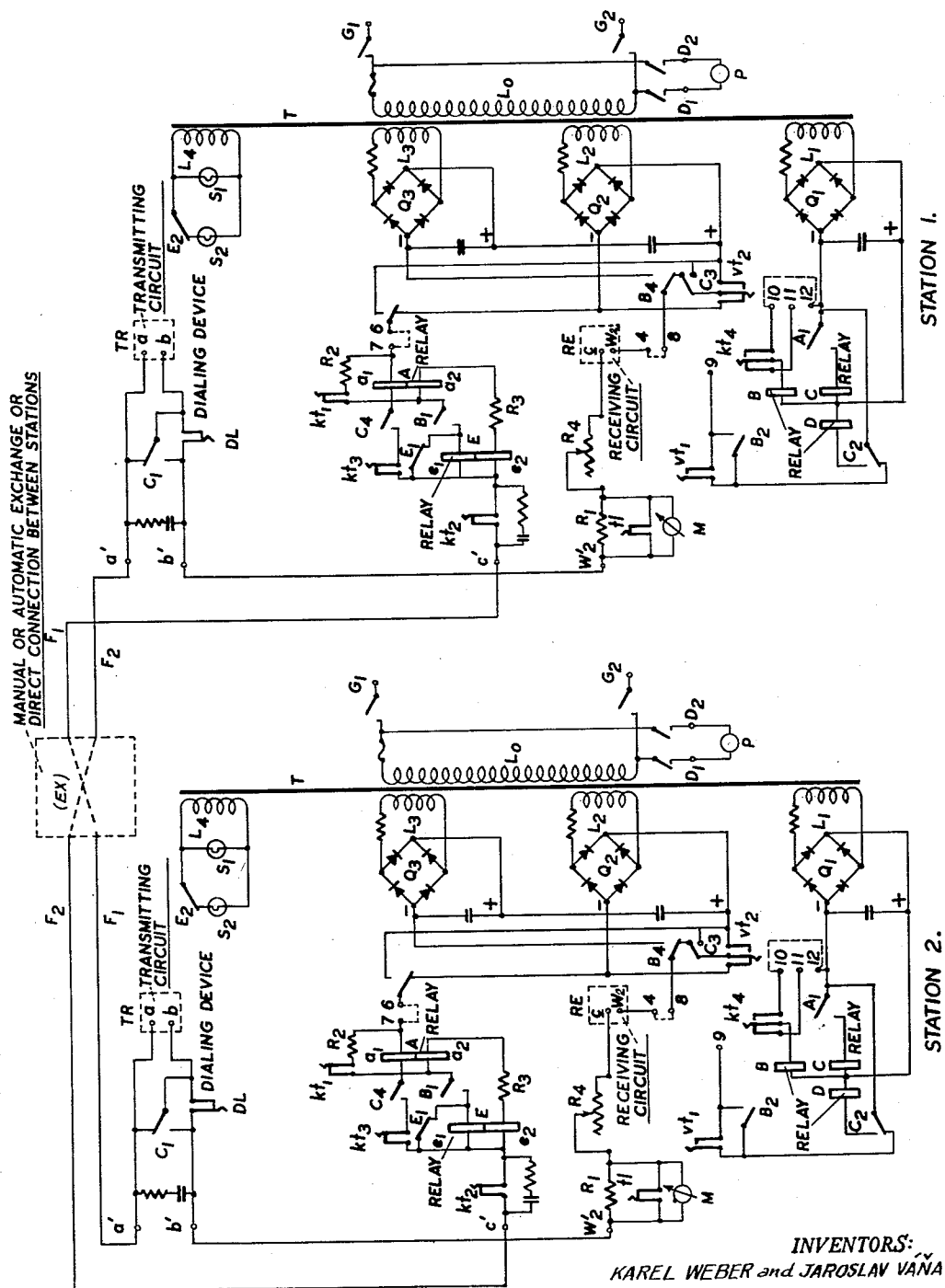
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CIRCUIT CLOSING AND BREAKING ARRANGEMENT FOR TELEPRINTERS

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CIRCUIT CLOSING AND BREAKING ARRANGEMENT FOR TELEPRINTERS

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The present invention relates to a circuit closing and breaking arrangement for teleprinters which both operate by way of a direct line and can be connected to a manual or automatic teleprinter exchange.

In the case of a direct connection between two teleprinters, the switching on and off of these installations has heretofore been effected as follows: A special battery or power supply is interposed in the series circuit connection between the two teleprinter stations by way of the long-distance line for the purpose of actuating the receiving magnets of the two teleprinters. If printing is not being carried out on the teleprinters, a spacing current of 40 ma. flows in the above described circuit. In this inoperative condition, the teleprinter motors are switched off. To start operation of the teleprinter installations, the calling key of the home or sending teleprinter is depressed momentarily. As a result of this operation, the spacing current is interrupted and a mechanical circuit closing and breaking device located in the teleprinter is closed. The mechanical switch in the opposite or receiving teleprinter is also actuated by this operation. A special contact connects the motor of the teleprinter to the power supply and the installations are ready for operation. Through constant interruptions in the keyed letter combinations, a toothed wheel provided in the switch is repeatedly brought to the inoperative position and does not influence the disconnecting contact of the motor.

When the teleprinter correspondence has been terminated, the toothed wheel actuates the disconnecting contact after 45 seconds, so that the disconnecting contact opens and the teleprinter motors are again disconnected from the power supply. Apart from the long idling time of 45 seconds for the motors after every call, there is a further complication resulting from this circuit closing and breaking device. The speeds of the two teleprinters have different time constants, so that the home teleprinter motor is still running while the opposite teleprinter has already switched off its motor. If printing is now continued on the teleprinter which is still running, the distant motor must first start again and wrong letters are printed during the interval before the latter has reached its proper speed.

The mechanical circuit closing and breaking device itself is a special supplementary device of the teleprinter and must be fitted where there is a direct connection of the kind described. If the teleprinter is connected to manual or automatic teleprinter exchanges, the mechanical circuit closing and breaking device must be put out of action. The circuit closing and breaking device consists of a large number of complicated component parts and the design of the teleprinter must take into account the drive and the space required for the circuit closing and breaking device.

In addition to the above described existing arrangement for switching the two teleprinters on and off, other arrangements exist which operate on an acoustic or optical signalling system. In these instances not only is there the drawback of requiring constant supervision at the stations, but special manual changeovers are necessary for switching on the motor and producing the calling condition. Acoustic signals are difficult to distinguish if several teleprinters are contained in one room and in addition

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they may not be heard. Moreover, these signalling arrangements require special supplementary apparatus which must be mounted outside the teleprinter.

All these drawbacks are eliminated by the present invention which provides a circuit closing and breaking arrangement by which improved teleprinter communication is rendered possible. A direct teleprinter connection can be established with this arrangement and in addition it can be connected to a manual or automatic teleprinter exchange.

The entire arrangement, including the current supply, may be produced as an independent apparatus or may be in the form of a structural unit contained in the teleprinter itself. In the form of an independent apparatus, the dimensions of which are about 250 x 180 x 140 mm. and the weight about 3.8 kg., the arrangement offers several advantages. Thus, for example, all conventional types of teleprinters can be connected without the teleprinters requiring special supplementary devices for a direct connection. Apart from its use for conventional teleprinter communication, this independent apparatus may also be employed for local testing of teleprinters, as, for example, in the factory test shops or in repair workshops. It is also very suitable as a portable apparatus for outside use.

The appropriate change in the circuit arrangement for each individual method of operation, whether by direct connection or connection to a manual or automatic teleprinter exchange, is effected by means of a combination plug or a rotary switch.

If there is a direct connection between two teleprinters, depressing the circuit-closing key, causes both the home and the opposite teleprinter to be immediately switched on. A further advantage of this invention is the fact that when the teleprinter traffic has been terminated, both the teleprinters are immediately switched off by depressing the circuit-breaking key. The one-way and two-way circuit closing and breaking thus achieved is of great value for more rapid operation. Thus, one station can switch on both teleprinters by the depression of the circuit-closing key and switch off both teleprinters at the end of the transmission by the depression of the circuit-breaking key, or both teleprinters are switched on at one station and switched off at the other station. Consequently, the new circuit-closing and breaking arrangement has the advantage that the subscriber whose machine last prints a message can also break the existing connection by depressing the circuit-breaking key independently of the call.

A further novel feature of the circuit closing and breaking arrangement embodying the invention consists in that, where there is a direct connection, optical signalling by means of Morse signals is also possible in addition to the communication in writing through the teleprinters. If one or the other of the teleprinters is not ready for operation because of some fault or trouble, emergency operation by means of Morse signals can be carried out when the circuit-closing key is depressed and the signal lamp is lit up.

The direct connection previously described requires a current of about 40 ma. for satisfactory operation of the teleprinters. Owing to this high current intensity, which also flows through the long-distance line, the range of this teleprinter connection is comparatively short. Thus, the winding of a polarized telegraph relay can be energized in place of the teleprinter receiver previously mentioned in connection with the circuit. The high operating sensitivity of this relay enables the line current intensity to be reduced from 40 ma., which has been previously used, to 10 ma, whereby a far greater range is obtained for the teleprinter connection. The contact of the polarized relay controls the teleprinter receiver at a current intensity

of 40 ma. by way of a rectified voltage from the same transformer. The circuit-closing and breaking functions are the same whether or not a telegraph relay is interposed in the circuit.

The above, and other objects, features and advantages of the invention, will be apparent in the following detailed description of an illustrative embodiment thereof which is to be read in connection with the accompanying drawing showing a wiring diagram of the circuits at two teleprinter stations that may be connected directly together or connected through a manual or automatic exchange.

Referring to the drawing in detail, it will be seen that the circuitry at each of the two stations 1 and 2 includes two contacts G_1 and G_2 by which the primary L_0 of a feeding transformer T is adapted to be connected to A.C. power supply lines. When contacts G_1 and G_2 are closed, the alternating current passing through primary L_0 induces alternating currents in four secondary windings L_1, L_2, L_3, L_4 of transformer T . The currents obtained in the windings L_1, L_2, L_3 , are rectified in rectifiers Q_1, Q_2, Q_3 , respectively, the purposes of which will be explained later. The rectifiers Q_1 and Q_2 give a D.C. voltage of 60 volts each. If connected in series, the total output voltage of the two rectifiers Q_1 and Q_2 will be 120 volts. The fourth secondary winding 14 of feeding transformer T serves as an A.C. source for two signal lamps S_1 and S_2 . The first lamp S_1 remains lighted so long as there is a current induced in the winding L_4 and thus indicates that the teleprinter station is connected to the power-supply network. The second lamp S_2 is lighted only if the contact E_2 is in its on-position. This contact is controlled by a relay E , as will be explained later.

Each station further comprises a signal transmission circuit TR represented diagrammatically by its two terminals a, b and a signal receiver circuit RE represented also by its two terminals c and W_2 . Details of the transmission circuit TR and of the receiver circuit RE are not illustrated because these two circuits may have arrangements well known in the art. Each station has a dialing device DL for the transmission of dialing pulses when the two stations 1 and 2 are to be connected indirectly over a teleprinter exchange (EX). Each station further has five relays A, B, C, D, E . Relay A is a polarized relay which becomes energized if it receives a voltage of 60 volts of a certain polarity and which releases thereafter only if it has received a voltage of 120 volts of opposite polarity. Moreover, relay A has two windings a_1 and a_2 and is operated if at least one of its windings receives a voltage in the above indicated manner. Relay E is a non-polarized relay, but also has two windings e_1, e_2 and is therefore energized if at least one of these windings carries a sufficient energizing current. The other three relays B, C, D are normal relays and have only one winding each. Relay A controls a contact A_1 , relay B controls four contacts B_1, B_2, B_3 and B_4 , relay C controls four contacts C_1, C_2, C_3 and C_4 , relay D controls two contacts D_1 and D_2 , and relay E controls two contacts E_1 and E_2 , the latter of which has been already mentioned above. Each station has a circuit-making key which is represented in the drawing by its two coupled contacts vt_1 and vt_2 , and a circuit-breaking key represented by its four coupled contacts kt_1, kt_2, kt_3, kt_4 , all of which are therefore operated simultaneously. The keys themselves are not shown because their mechanical arrangement may be of any known kind commonly used in multiple switches. The teleprinter motor is indicated at P .

Each station has eight terminals or sockets 4, 5, 6, 7, 8, 9, 10, 11, 12 which may be interconnected in two different ways, depending on whether the two stations 1 and 2 are to be connected directly to each other, that is without interposition of the teleprinter exchange (EX), or indirectly, over such exchange.

(1) Direct connection of two stations

If it is desired to adapt stations 1 and 2 for a direct

connection over a two-wire teleprinter line F_1, F_2 , it is necessary to connect sockets 6 with 7, 4 with 8, and 10 with 12 in station 1 and similarly in station 2, as indicated by broken lines on the drawing. After doing so, the two stations 1 and 2 are ready for a direct connection over the line F_1, F_2 although no current as yet passes through said line.

If one of the subscribers or stations, for instance station 1, wants to establish communication with station 2, the circuit-making key is operated at station 1, thereby switching over the contacts vt_1 and vt_2 in station 1. The contacts vt_1 and vt_2 in the called station 2 remain, of course, in unchanged position. The switching over of contact vt_1 in station 1 is of no importance for the direct connection between station 1 and station 2 and its function in the case of an indirect connection over a teleprinter exchange will be explained later.

The operation of contact vt_2 in station 1 opens the way for the electric current supplied by the rectifier Q_1 into the following circuit (1) which is identified by referring to the reference numerals of the components successively passed through by the current:

Circuit (1)—minus Q_2 (station 1)— B_3 —6—7—

R_2 — kt_1
 a_1

(parallel connection)— a_2 — R_3 — e_2 — kt_2 — c' — F_2 — a' (station 2)— C_1 — DL — b' — w'_2 — $t1$ — r_4 — RE (c — w_2 —4—8— B_4 — C_3 — vt_2 — B_3 —6—7—

R_2 — kt_1
 a_1

(parallel connection)— a_2 — R_3 — e_2 — kt_2 — c' — F_1 (back to station 1)— a' (station 1)— C_1 — DL — b' — w'_2 — $t1$ — R_4 (c — w_2)—4—8— B_4 — C_3 — vt_2 —plus Q_2 .

As is apparent in the above description of circuit (1), both the relay A in station 1 and the relay A in station 2 become energized and switch over their contacts A_1 thus closing the following circuit (2) in station 1 and in station 2:

Circuit (2)—minus Q_1 — A_1 — C —plus Q_1

Thus the relays C in station 1 and station 2 also become energized and switch over their contacts C_1, C_2, C_3 and C_4 . The closing of contact C_1 renders ineffective the dialing device DL which is of no use for a direct connection between the two stations 1 and 2 and which, in the case of such direct connection, could only produce undesired effects if operated by mistake. The contact C_2 closes a further circuit (3):

Circuit (3)—minus Q_1 — C_2 — D —plus Q_1

The current passing through this circuit (3) energizes the relay D which switches on the two contacts D_1 and D_2 and thus starts the teleprinter motor P . Contacts C_3 and C_4 which were also switched over by relay C change the circuit (1) connecting station 1 with station 2 into the following circuit (4):

Circuit (4)—minus Q_2 (station 1)— B_3 —6—7—

R_2 — kt_1
 a_1

(parallel connection)— C_4 — kt_3 — kt_2 — c' — F_2 — a' (station 2)— TR (a — b)— C_1 — b' — w'_2 — $t1$ — R_4 — RE (c — w_2)—4—8— B_4 — C_3 —plus Q_2 —minus Q_2 — B_3 —6—7—

R_2 — kt_1
 a_1

(parallel connection)— C_4 — kt_3 — c' — F_1 (back to station 1)— a' (station 1)— TR (a — b)— C_1 — b' — w'_2 — $t1$ — R_4 — RE (c — w_2)—4—8— B_4 — C_3 —plus Q_2 .

In this way the contact vt_2 is rendered ineffective and the two stations 1 and 2 remain connected by the two-

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wire line F_1 , F_2 until the circuit-breaking key with its contacts kt_1 , kt_2 , kt_3 and kt_4 is operated, as will be explained later. As long as no pulses of code combinations are transmitted over the line F_1 , F_2 , this line is traversed by a spacing current supplied by the D.C. source Q_2 . This current may be adjusted by the variable resistor R_4 and can be measured by a milliammeter M after opening the contact t_1 which normally shunts the milliammeter M in order to protect it against repeated changes of current during the transmission of code combinations.

The transmission of the code combinations by the transmission circuit TR in station 1 and their reception by the receiver circuit RE in station 2 is performed in the usual manner, as in any known teleprinter.

If the operator of station 1 or of station 2 wants to break the connection established between the two stations over the line F_1 , F_2 , he depresses the circuit breaking key in his station and thus switches over the contacts kt_1 , kt_2 , kt_3 and kt_4 . In doing so, circuit (4) is interrupted by opening the contact kt_2 , whereas relay B becomes energized by the current flowing through the following circuit (5):

Circuit (5)—minus Q_1 —12—10— kt_4 —B—plus Q_1

In consequence of the closing of circuit (5), relay B switches over its four contacts B_1 , B_2 , B_3 and B_4 . In the case of the contacts B_1 and B_2 this change has no particular effect at that moment, but the switching over of contacts B_3 and B_4 causes the line F_1 , F_2 to receive a current supplied by the two sources Q_2 and Q_3 connected in series and thus yielding a voltage of 120 volts. Moreover, the polarity of this voltage of 120 volts is opposite to the polarity of the voltage of 60 volts previously applied to the line F_1 , F_2 and also opposite to the polarity of the source Q_2 of the other station. Thus the polarized relays A are released by the difference of the two voltages both in station 1 and in station 2 and their contacts A_1 revert to the open position shown in the drawing. Circuit (3), which has hitherto kept the relay D in energized condition, is interrupted at the contact A_1 , relay D releases its contacts D_1 and D_2 and the teleprinter motor P is stopped. Both station 1 and station 2 return to their idle condition.

It is to be noted that the contact C_1 also returns to its initial position shown in the drawing. This is of importance for establishing connection between the two stations 1 and 2 at the next opportunity. In fact, if the transmission circuit TR remains interrupted after the end of the previous transmission, contact C_1 ensures the initial closing of the above described circuit (1) when the next call is made.

(2) Indirect connection of stations 1 and 2 over a teleprinter exchange

For this purpose the previously mentioned pairs of sockets or terminals 6 and 7, 4 and 8, 10 and 12 must be disconnected and, instead thereof, the following sockets must be connected: 4 with 7, and 9 with 11. As long as a station is in its idle condition a rest current passes through the following circuit (6):

Circuit (6)—Teleprinter exchange (EX)— F_1 — a' — C_1 —DL— b' — w'_2 — t_1 — R_4 —RE ($c-w_2$)—4—7—

$$\frac{R_2-kt_1}{a_1}$$

(parallel connection) — a_2 — R_3 — e_2 — kt_2 — c' — F_2 —teleprinter exchange (EX)

This rest current of approximately 10 ma. passing through circuit (6) energizes relay E. The second contact E_2 controlled by this relay E extinguishes the signal lamp S_2 . The rest current is, however, too weak to put into operation the signalling device in the teleprinter exchange.

If one station wants to call another station over the teleprinter exchange, the operator of the calling station

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depresses the circuit-making key, that means he switches over the contacts vt_1 and vt_2 . The contact vt_2 is of no importance in this case, but the contact vt_1 closes the following circuit (7):

5 Circuit (7)—minus Q_1 — C_2 — vt_1 —9—11— kt_4 —B—plus Q_1

The current passing through circuit (7) energizes relay B which, once it has been operated, holds itself in energized condition by its contact B_2 which closes the following circuit (7a):

10 Circuit (7a)—minus Q_1 — C_2 — B_2 —9—11— kt_4 —B—plus Q_1

15 Relay B switches over all its contacts mentioned above, among others the contact B_1 which increases the current passing through the circuit (6) by reducing the resistance which this current has to overcome. In fact, said current had to pass previously between the components a_1 and kt_2 through the following components: a_2 (120 ohms)— R_3 (10,000 ohms)— e_2 (3800 ohms), whereas it can now flow between the components a_1 and kt_2 also over a parallel line rendered effective by the closing of the contact B_1 , namely the line B_1 — e_1 (350 ohms) so that circuit (6) is now changed into the following circuit (8):

25 Circuit (8)—Teleprinter exchange (EX)— F_1 — a' — C_1 —DL— b' — w'_2 — t_1 — R_4 —RE ($c-w_2$)—4—7—

$$\frac{R_2-kt_1}{a_1}$$

(parallel connection)—

$$\frac{a_2-R_3-e_2}{B_1-e_1}$$

(parallel connection)— kt_2 — c' — F_2 —teleprinter exchange (EX).

This reduction of ohmic resistance increases the current from 10 ma. to 40 ma.

In the case of a manual exchange, the increased current of 40 ma. sets into operation the calling signal in the exchange and the exchange operator reverses the polarity of the current by the answering plug, asks the calling subscriber in the usual manner to what station he wants to be connected and effects the desired connection.

30 In the case of an automatic exchange the above mentioned increased current of 40 ma. sets into operation the line finder and causes a break of the current for 30 milliseconds. This break releases relay E which hitherto remained energized by its low-ohmic winding e_1 and from now on cannot be energized any more, because after its release the contact E_1 short-circuits the winding e_1 . The contact E_2 controlled by the relay E extinguishes the signal lamp S_2 and thus informs the calling subscriber that he may begin the selection of the desired called station. The selection is carried out by interrupting the current flowing through the above described circuit (8). The interruptions are effected by operating the dial DL in known manner. If the desired connection has been established, the teleprinter exchange reverses automatically the polarity of the current passing through the line F_1 , F_2 and the relay A in the calling station switches over its contact A_1 thus closing the above described circuit (2). As in the case of the previously described direct connection, relay C is operated by circuit (2) and thereafter relay D by circuit (7a) thus releasing relay B, but before this happens, two other contacts C_1 and C_4 controlled by relay C change circuit (8) into the following circuit (9):

60 Circuit (9)—Teleprinter exchange (EX)— F_1 — a' —TR ($a-b$)— C_1 — b' — w'_2 — t_1 — R_4 —RE ($c-w_2$)—4—7—

$$\frac{R_2-kt_1}{a_1}$$

(parallel connection)— C_4 — kt_3 — kt_2 — c' — F_2 —teleprinter exchange (EX).

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The teleprinter motor P is started by the contacts D₁ and D₂ controlled by the relay D.

In the called station, the reversal of polarity of the current effected by the exchange operates the polarized relay A which closes the circuit (2) whereafter all the operations which have been described above for the calling station develop identically in the called station.

If the subscriber wants to abandon the selection before he has obtained connection through the exchange (manual or automatic), he depresses the circuit-breaking key which by its contact *kt*₄ breaks the circuit (6a) and releases relay B.

If the subscriber wants to terminate the connection after the connection between the calling and the called station has been established through the teleprinter exchange, he holds the circuit-breaking key depressed and thus its contacts *kt*₁, *kt*₂, *kt*₃ and *kt*₄ opened for a longer time. In the case of a manual exchange this long-lasting interruption gives notice to the exchange operator that the connection is to be terminated whereafter the operator interrupts the connection in known manner, reverses the polarity of the current passing through the line F₁, F₂ and thus causes relay A to release. This interrupts the circuits (2) and (3) in the above described manner so that only a rest current of 10 ma. continues to flow over the circuit (6). In the case of an automatic exchange, the change of polarity of the current passing through the line F₁, F₂ is effected automatically in known manner when the depression of the circuit-breaking key in the subscriber's station has lasted a predetermined time.

The crossing dotted lines F₁, F₂ in the exchange indicated at (EX) in the drawing denote that the lines F₁, F₂ may either continue to run without interruption, as in the case of a direct connection between stations 1 and 2, or that they may be broken in this region and a manual or automatic teleprinter exchange interposed between them as explained above.

When there is a direct connection between stations 1 and 2, as described above, signalling between the two stations may be conducted while the teleprinters are inoperative. Such signalling is effected by depressing the circuit closing key which closes the contacts *vt*₁ and *vt*₂ operated thereby, so that the relay E is energized to open its contact E₂ and thereby extinguish lamp S₂. When the circuit closing key is released, relay E is deenergized to again close contact E₂ and thereby cause illumination of lamp S₂. Thus, by suitably regulating the rhythm with which the circuit closing key is repeatedly depressed and released, the illuminating and extinguishing of the lamp S₂ can be made to constitute signals in the Morse code or otherwise.

Although an illustrative embodiment of the invention has been described in detail herein with reference to the accompanying drawing, it is to be understood that the invention is not limited to that precise embodiment, and that various changes and modifications may be made therein without departing from the scope or spirit of the invention, except as defined in the appended claims.

We claim:

1. A circuit closing and breaking arrangement for teleprinters comprising switching circuits connected to a plurality of terminals and including a polarized relay for each teleprinter station, key operated circuit closing means for operating said polarized relay, a 60 volt circuit closed by operation of said polarized relay and control means for a motor of the associated teleprinter including an auxiliary relay operated by closing of said 60 volt circuit, and switch means engageable with said terminals and having at least two different positions, said switching circuits serving to operatively connect the respective circuits of teleprinters at two directly connected stations in one of said positions of the switch means and to operatively connect the circuits of one of the teleprinters to an exchange in another of said positions of the switch means.

2. A circuit closing and breaking arrangement as in

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claim 1; wherein said switching circuits further include a second relay operated with said auxiliary relay, a circuit for carrying a spacing current for the associated teleprinter and being under the control of said second relay when said switch means is disposed for directly connecting the teleprinter stations; and means for adjusting said spacing current including a variable resistor interposed in said circuit for carrying the spacing current, a milliammeter for measuring the spacing current, and a key-operated switch normally short-circuiting said milliammeter.

3. A circuit closing and breaking arrangement for teleprinters as in claim 2; wherein said switching circuits further include a 120 volt circuit of opposite polarity relative to said 60 volt circuit, a key-operated circuit-breaking switch effective, upon operation, to connect said 120 volt circuit of opposite polarity to said polarized relay, in place of said 60 volt circuit, to effect change-over of said polarized relay and corresponding release of said second and auxiliary relays, thereby to interrupt the circuit for carrying a spacing current and to halt operation of the teleprinter motor, respectively.

4. A circuit closing and breaking arrangement for teleprinters as in claim 3; further comprising a signal controlling relay connected with said polarized relay when said switch means is disposed for connection to an exchange, and circuit means then controlled by said key-operated circuit closing means to increase the current in the line to 40 ma. for operating said signal controlling relay, in the case of a manual exchange, and the line finder, in the case of an automatic exchange, and further being operative to cause a reversal of polarity in said line after an interval of 30 msec.

5. A circuit closing and breaking arrangement for teleprinters as in claim 4; wherein said reversal of polarity is effected by the operator, in the case of a manual exchange, to start the teleprinter at the calling station and to permit enquiry as to the station to be called, whereas, in the case of an automatic exchange, said signal controlling relay releases to signalize that the circuits are in condition for the dialed selection of the receiving station, while the automatic exchange causes the reversal of polarity following connection to the desired receiving station.

6. A circuit closing and breaking arrangement for teleprinters as in claim 5; wherein, in the case of connection to an exchange, initial operation of said circuit-breaking switch causes interruption of the connection to the desired receiving station before the latter answers, and further operation of said circuit breaking switch causes opening of the circuit of said polarized relay and of said signal controlling relay to terminate the connection with the receiving station by reversing polarity of the line current, in the case of an automatic exchange, so that only a supervising current thereafter flows through the line, and, in the case of a manual exchange, to signal to the operator that the connection is to be disrupted.

7. A teleprinter station comprising, in combination, a plurality of terminals, switch means engageable with said terminals and operative to connect the latter in first and second positions, a plurality of mutually coupled circuit-making contacts, a plurality of mutually coupled circuit-breaking contacts, a first polarized relay controlling a contact, a second relay controlling a plurality of contacts, circuit means selectively operating said second relay by way of said contact of the first relay and by way of one of said circuit-breaking contacts, when said switch means connects said terminals in said one position, and further operating said second relay by way of one of said circuit-making contacts when said switch means connects the terminals in said second position, transmission line means connected to said terminals for selectively connecting the teleprinter with a teleprinter exchange and directly with another teleprinter station when said terminals are connected in said first and second positions, respectively, a

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parallel line closed by one of said contacts of the second relay to increase the rest current flowing through said transmission line means when the latter connects the teleprinter to a teleprinter exchange, and means connected to two other contacts of said second relay to increase the voltage and reverse the polarity of the current flowing in said transmission line means when the latter connects the teleprinter station directly to another station.

8. A teleprinter station as in claim 7; further comprising a parallel line including another of said contacts controlled by said second relay and operative to shunt said circuit-making contact through which said second relay is operated when said terminals are connected in said second position.

9. A teleprinter station as in claim 8; further comprising

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ing a third relay controlling a plurality of contacts and being operated by said contact controlled by said first relay, a dialing device, one of said contacts controlled by said third relay being effective to render inoperative said dialing device, a teleprinter motor, a fourth relay controlling contacts for respectively starting and stopping said motor, and circuit means for operating said fourth relay including another of said contacts controlled by the third relay.

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