

June 14, 1938.

J. F. BEATTIE ET AL
TELETYPEWRITER SYSTEM

2,120,235

Filed Jan. 2, 1936

2 Sheets-Sheet 1

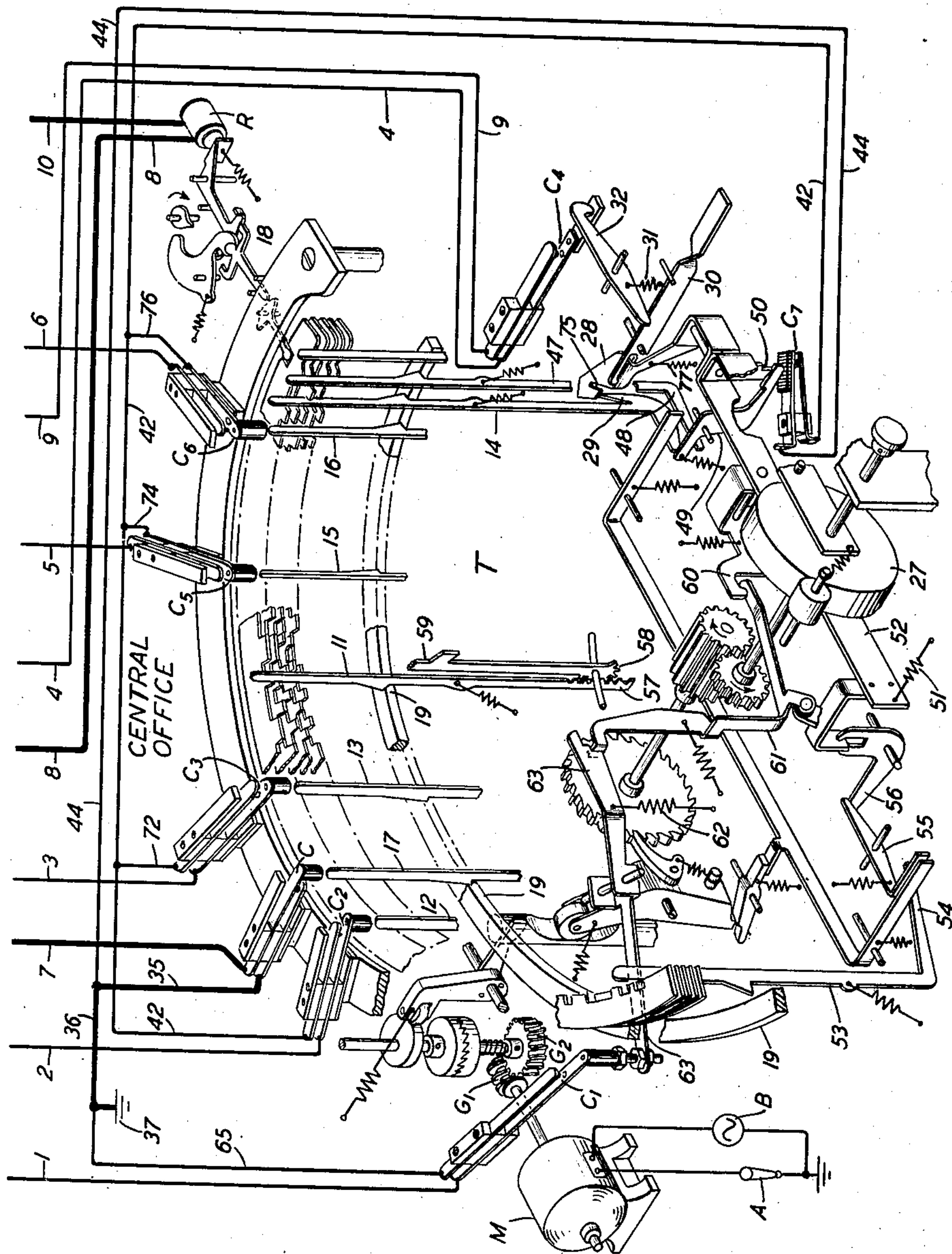


FIG. 1

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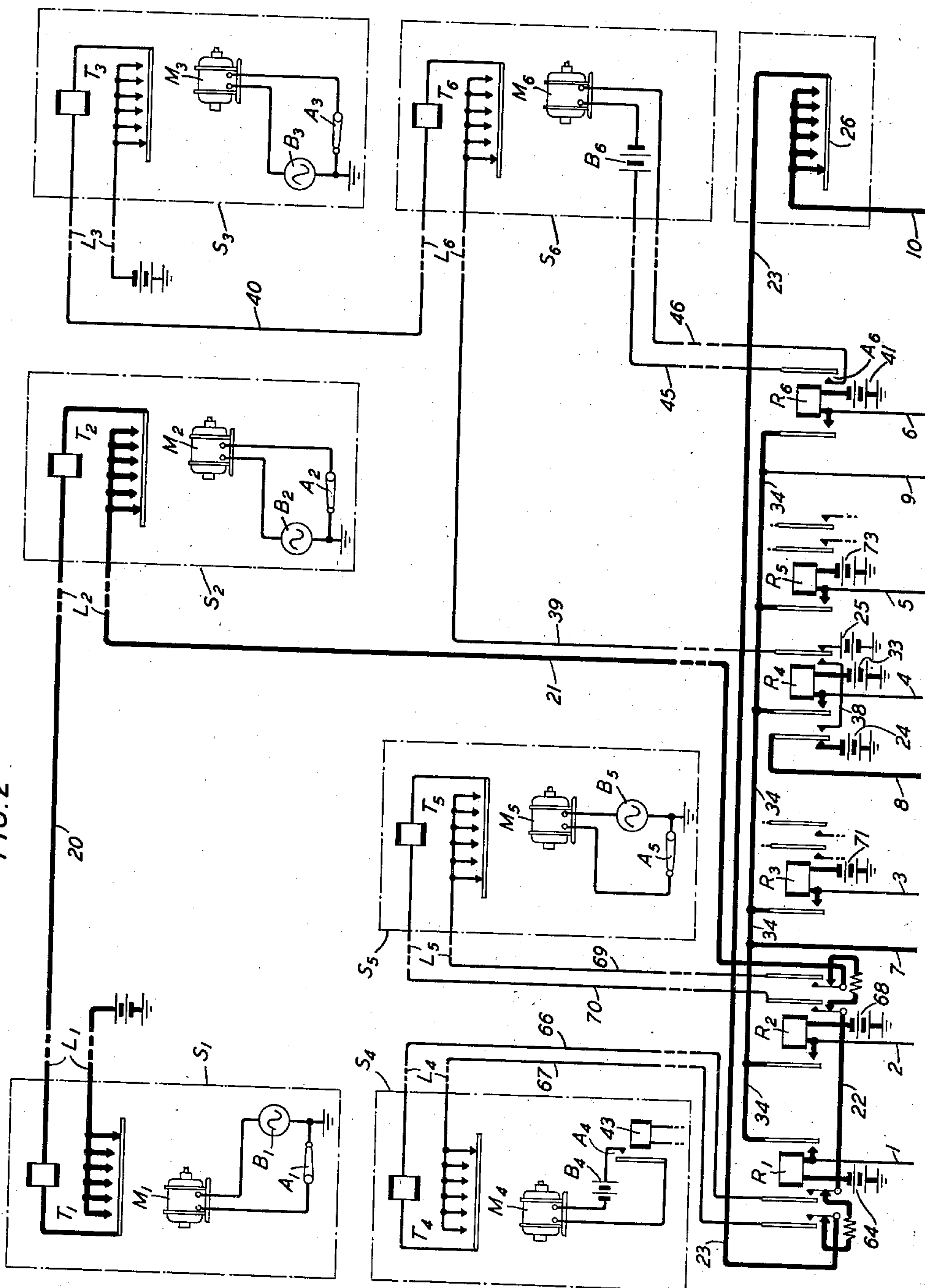
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2 Sheets-Sheet 2

FIG. 2



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UNITED STATES PATENT OFFICE

2,120,235

TELETYPEWRITER SYSTEM

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Application January 2, 1936, Serial No. 57,268

7 Claims. (Cl. 178—2)

This invention relates to teletypewriter systems and, more particularly, to systems which include a teletypewriter having contacts for performing various functions.

It is an object of this invention to mount contacts for performing various functions, in a teletypewriter to be operated by the teletypewriter mechanism.

It is also an object of this invention to open and close, by means of a central teletypewriter, telegraph lines leading from a teletypewriter office to other teletypewriter stations.

It is a further object of this invention to provide a central teletypewriter office with an improved switching device for switching various circuits.

It is an additional object of this invention to enable a subscriber at a teletypewriter station to connect his teletypewriter through a teletypewriter central office to another teletypewriter station without the assistance of an operator at the central office thereby effecting a saving in operating time.

It is a further object of this invention to enable subscribers having their lines connected together at a central office to disconnect their connection at the central office without the assistance of an operator at the central office thereby effecting a further saving in operating time.

These and other objects of the invention are attained by means of a plurality of contacts mounted in a teletypewriter at various predetermined positions. The contacts are adapted to be operated by the teletypewriter mechanism in response to certain preassigned teletypewriter signals which may, if desired, be sent from other teletypewriter stations. In the preferred embodiment of the invention, the operation of the contacts serves to operate relays which operate and lock-up to perform any desired function, such as switching telegraph circuits. Also in the preferred embodiment of the invention, the operation of a particular contact unlocks the switching relays and causes them to deenergize thereby restoring the system to its normal condition. If desired, these relays may be designed to perform a variety of functions, such as switching on and off a teletypewriter motor at an outlying teletypewriter station.

These and other features of the invention will now be described in detail with reference to the drawings in which

Figure 1 represents a teletypewriter central office and shows a schematic diagram in perspective of a teletypewriter provided with special con-

tacts and circuit connections leading to the switching relays; and

Fig. 2 shows the switching relays at the central office and the telegraph lines leading to the other teletypewriter stations.

The teletypewriter T, shown in Fig. 1, is similar to the teletypewriter disclosed in Patent 1,745,633 granted February 4, 1930 to S. Morton et al. The disclosure of this Morton et al. patent is incorporated herein by reference as a part of this specification. However, the invention is not limited to this type of teletypewriter nor is it limited to the specific structure shown in the drawings which is a preferred embodiment of the invention and is shown and described in order to illustrate and explain the features and principles of operation of the invention.

For purposes of illustration, teletypewriter T, which is shown to be in its upper case position, is represented as being located at a teletypewriter central office although it may be located at an ordinary teletypewriter station if desired. Connected to this central office by telegraph lines L₁ to L₆, inclusive, are the subscribers' teletypewriter stations S₁ to S₆, inclusive, each of which is provided with a teletypewriter T₁ to T₆, inclusive, and a teletypewriter motor M₁ to M₆, inclusive. Each of the motors M₁ to M₆, inclusive, is operated by an individual power supply source B₁ to B₆, respectively. At stations S₁, S₂, S₃, and S₆ the energizing circuits leading from the respective local power supply sources to the motors are opened and closed by manually operable switches A₁, A₂, A₃, and A₆, respectively, controlled by the local attendant at each station.

The energizing circuit of the motor M₄ is normally open at the armature and contact A₄ of the normally unoperated relay 43. This energizing circuit is adapted to be opened and closed by any control method that may be desired, such as the method described in Patent 1,913,431 granted June 13, 1933 to W. Daum. The disclosure of this Daum patent is incorporated herein by reference as a part of this specification. The energizing circuit of motor M₅ is normally open at contact A₅ of relay R₅ located at the central office. It is to be understood that these different motor control circuits may be varied as desired to meet the particular requirements of a given system and that they are shown here for the purpose of illustrating the wide extent to which the invention may be applied. It should also be understood that the invention is capable of use with any other type of line circuits, such as duplex circuits.

The teletypewriter T at the central office has

a motor M which is operated by a power supply source B over an energizing circuit closed by a manually operable switch lever A. Motor M operates teletypewriter T by means of gears G₁ and G₂ which alternately raise and lower the printing bail 19 to operate the pull bars selected by the selecting mechanism 18 as is described in the Morton et al. patent. Mounted in the teletypewriter T is one normally closed contact C and six normally opened contacts C₁ to C₆, inclusive. Contacts C₁ and C₄ are operated by portions of the teletypewriter mechanism only in response to the reception by the receiving magnet R of upper case teletypewriter signals. Contact C is operated by a pull bar 17 which may, if desired, be selected by the selecting mechanism 18 only in response to the reception of a preassigned upper case code combination of signals. Contacts C₂, C₃, C₅ and C₆ are each designed to be operated, in this particular embodiment of the invention, by pull bars 12, 13, 15 and 16, respectively, in response to the reception of both upper and lower case signals. However, since these contacts C₂, C₃, C₅ and C₆ are connected in series with contact C₇, which is designed to be closed only when the platen 27 is in its upper case position, they will only be effective to perform their switching functions when the platen 27 is in its upper case position. Thus, the pull bars 12, 13, 15 and 16 associated with these contacts can be used for performing their normal lower case functions.

In the operation of the system, let it first be assumed that the subscriber at station S₁ wishes to connect himself through the central office to the subscriber at station S₃. The subscriber at station S₁ normally has his switch A₁ closed during business hours so that his motor M₁ is energized by his local power supply source B₁. Accordingly, the subscriber, by means of his teletypewriter T₁, first transmits a figures shift signal out over line L₁, conductor 20, line L₂, through station S₂, line L₂, conductor 21, through the normally closed contacts of relay R₂, conductor 22, through the normally closed contacts of relay R₄, conductor 23, sending contacts 26, conductor 10, receiving magnet R, conductor 8, outer left armature of normally unoperated relay R₄, and then to grounded battery 24. The shift signal transmitted over this path energizes the receiving magnet R which operates the selecting mechanism 18 to select the figures pull bar 47 which is then elevated by the printing bail 19. In rising, pull bar 47 causes its extension 48 to elevate the left end of bell crank 49. This causes the right end of bell crank 49 to dip down thereby releasing latch 50. The release of latch 50 allows spring 51 to pull the platen assembly 52 forward. In moving forward, the platen assembly 52 pulls lever 28 forward sufficiently to remove slot 75 from the path of travel of extension 29 of the so-called "blank" pull bar 14. This places the platen assembly 52 and its associated apparatus in the upper case position so that this apparatus is now in the condition shown in Fig. 1.

The subscriber at station S₁ now transmits a preassigned code combination of significant current variations which in this preferred embodiment of the invention, is known as a "blank" signal. Upon being received at the central office, the blank signal causes the selecting mechanism 18 to select pull bar 14. Accordingly, the printing bail 19 elevates the pull bar 14 with the result that extension 29 of pull bar 14 will engage with lever 28 and raise it up. This elevates the left

end of lever 30 and, consequently, lowers the right end of this lever 30 thereby allowing spring 31 to pull down the left end of lever 32. As a result, the right end of lever 32 is raised and allows the spring contact C₄ to close. This closing is only momentary because pull bar 14 is soon lowered by bail 19 and spring 77 then pulls lever 28 back into the position shown in the drawings.

The closing of contact C₄ momentarily closes the energizing circuit of relay R₄ from grounded battery 33 through the winding of relay R₄, conductor 4, contact C₄, conductor 9, conductor 34, conductor 7, through the normally closed contact C, conductor 35, conductor 36, and then to ground 37. As a result, relay R₄ becomes energized and operates both its armatures. Before contact C₄ opens, relay R₄ locks-up over a circuit from grounded battery 33, through the winding of relay R₄, inner left armature, conductor 34, conductor 7, through contact C, conductor 35, conductor 36, and then to ground 37. At the same time, the communication circuit is switched from grounded battery 24 to the joining conductor 38 and then to conductor 39, out over line L₆ to station S₆, over line L₆, conductor 40, line L₃, and then to station S₃.

Since the subscriber at station S₃ normally has his switch A₃ closed during business hours, his motor M₃ will be energized at this time by his local power supply source B₃. Accordingly, the system is now in condition for communication to take place between the subscriber at station S₁ and the subscriber at station S₃. Significant current variations transmitted by the teletypewriter T₁ will travel over line L₁, conductor 20, line L₂, through station S₂, line L₂, conductor 21, conductor 22, conductor 23, sending contacts 26, conductor 10, receiving magnet R, conductor 8, conductor 38, conductor 39, line L₆, through station S₆, conductor 40, line L₃, and then to station S₃.

When the subscriber at station S₁ wishes to effect a lower case selection, he transmits the so-called "letters" shift code signal for causing the selecting mechanism 18 of teletypewriter T to select pull bar 53. Upon being elevated by the printing bail 19, pull bar 53 elevates its extension 54 which correspondingly elevates the left end of lever 55 which depresses the right end of lever 55. When the right end of lever 55 is depressed, it causes the left end of bell crank 56 to be correspondingly depressed, which causes the top end of bell crank 56 to move backward to the rear of the teletypewriter. This acts as a lever to pull back the platen assembly 52. In traveling to the rear of the teletypewriter T, the platen assembly 52 causes latch 50 to also move to the rear of the teletypewriter T with the result that latch 50 will engage with the catch in the right end of bell crank lever 49 thereby holding the platen assembly 52 in this position and preventing spring 51 from pulling it forward. Thus, the platen assembly 52 is latched in its lower case position.

Since both stations S₄ and S₅ are disconnected from the communication circuit at the armatures of relays R₁ and R₂, respectively, neither teletypewriter T₄ nor teletypewriter T₅ will record the signals sent from teletypewriter T₁ at this time. Teletypewriter T₆ will also not record these signals due to the fact that the energizing circuit for its motor M₆ is open at contact A₆ of relay R₆. However, with the system in the condition shown in the drawings, teletypewriter T₂ will follow the signals transmitted by teletypewriter T₁ because the energizing circuit for its motor M₂

is closed at switch A₂. If the subscriber at station S₂ finds that the message being transmitted from station S₁ to station S₃ is of no interest to him, he can open switch A₂ which will shut down his motor M₂ with the result that his teletypewriter T₂ will not now record the signals being transmitted.

Thus, the subscriber at station S₁, which may be located at a remote point, has connected himself through the central office to the distant subscriber's station S₃ without any assistance from an operator at the central office. In other words, the subscriber at station S₁ has switched both his and the other subscriber's lines 8 and 39 from their terminations at batteries 24 and 25 to the joining conductor 38 thereby switching the line conductors 8 and 39 together. Consequently, a considerable saving in operating time is effected since the subscriber at station S₁ simply transmits the upper case code combination assigned to select pull bar 14 which closes contact C₄ to operate relay R₄ which immediately switches the two lines 8 and 39 together without any act by an operator at the central office. This saving in operating time is of importance in certain types of business where time is of the essence and promptness in putting calls through is essential.

When the subscribers at stations S₁ and S₃ have finished communicating with each other, either one of them may effect a disconnection of their lines 8 and 39 at the central office by transmitting a preassigned telegraphic signal from either station S₁ or station S₃. This signal is received by the receiving magnet R at the central office which accordingly operates the selecting mechanism 18 to select pull bar 17. Bail 19 then elevates pull bar 17 thereby momentarily opening the normally closed contact C. The opening of contact C opens the locking-up circuit of relay R₄. Consequently, relay R₄ releases its armatures and switches the line conductors 8 and 39 from the joining conductor 38 to batteries 24 and 25 thereby disconnecting stations S₁ and S₃ from each other and restoring the system to its normal condition. If desired, the subscriber at station S₂ may also effect this disconnection. Since this disconnection is accomplished by any of the connected subscribers without the assistance of an operator at the central office, a further saving in operating time is effected.

The nature of the business of the subscriber at station S₁ may be such that it would be desirable for him to send a message to both the subscriber at station S₃ and the subscriber at station S₆ (which may, for example, be an outlying station near the central office) and have the message recorded practically simultaneously by the teletypewriters T₃ and T₆. To accomplish this conference connection, it is first necessary to start the teletypewriter-motor M₆ at station S₆ by energizing relay R₆. Accordingly, the subscriber at station S₁ transmits a shift signal for selecting pull bar 47 to effect the release of latch 50 to allow the platen assembly 52 to be pulled forward by spring 51. In moving forward, the platen assembly 52 carries latch 50 forward along the top edge of bell crank 49 thereby forcing down the right end of bell crank 49 to close contact C₇. Consequently, contact C₇ remains closed during the time that the platen 27 remains in its upper case position.

The subscriber at station S₁ next transmits a preassigned combination of code impulses out over line L₁, conductor 20, line L₂, through station S₂, conductor 21, conductor 22, conductor

23, sending contacts 26, conductor 10, receiving magnet R, conductor 8, and then to grounded battery 24. This code combination will cause the selecting mechanism 18 of teletypewriter T to select pull bar 16 which will then be momentarily operated by the printing bail 19 to close contact C₆ momentarily. A path for energizing relay R₆ is now closed from grounded battery 41, through the winding of relay R₆, conductor 6, through contact C₆, conductor 76, conductor 42, through contact C₇, conductor 44, conductor 36, and then to ground 37.

As a result, relay R₆ operates its armatures and locks-up through a path from battery 41, through the winding of relay R₆, operated left armature, conductor 34, conductor 7, through the normally closed contact C, conductor 35, conductor 36, and then to ground 37. At the same time, the right armature of relay R₆ is operated and closes a path from power supply source B₆ at station S₆, over line conductor 45, operated armature and contact A₆ of relay R₆, line conductor 46, motor M₆, and then back to power supply source B₆ thereby energizing motor M₆ and starting it into operation. The subscriber at station S₁ then transmits the code signal for selecting pull bar 14 in the teletypewriter T at the central office. When bail 19 elevates pull bar 14, contact C₄ is momentarily closed and relay R₄ operates its armatures and locks-up in the manner described above.

As soon as the platen assembly 52 moves back to its lower case position, the right end of bell crank 49 will be elevated sufficiently to allow contact C₇ to open. However, this has no effect on the switching relays R₄ and R₆ because these relays are locked up through the normally closed contact C.

Messages now sent from station S₁ will pass through station S₂, through the central office, and then through stations S₆ and S₃. The messages will thus be recorded practically simultaneously on both the teletypewriters T₃ and T₆. They will also be recorded on the teletypewriter T₂ at station S₂ provided the subscriber at this station has his switch A₂ closed. The subscriber at station S₃ can transmit messages to any of the connected stations and these messages will be practically simultaneously recorded by the teletypewriters T₁, T₂ and T₆. Likewise, the subscriber at station S₆ can also send messages which will be recorded on any of the connected teletypewriters.

At the close of communication, any of the subscribers at stations S₁, S₂, S₃, or S₆ may disconnect this conference connection by transmitting the code signal assigned to select pull bar 17 at the central office which will momentarily open the normally closed contact C as was described above. The opening of contact C will open the locking-up circuits of both relays R₄ and R₆ and will cause them to release their armatures. This switches the communication circuit from conductors 8 and 39 to batteries 24 and 25 as was described above. At the same time the energizing circuit of motor M₆ is opened at the contact A₆ of relay R₆. Consequently, motor M₆ stops running. The system is thus restored to its normal condition.

In the event that the subscriber at station S₁ wishes to communicate with the subscriber at station S₄ (which may, for example, be an outlying station near the central office), he will transmit the shift signal to cause the platen 27 to be shifted to its upper case position as

shown in the drawings. The subscriber will then transmit a preassigned upper case code signal which, upon being received by the receiving magnet R, will effect the selection of pull bar 11 by the selecting mechanism 18 of teletypewriter T. The elevation of pull bar 11 by bail 19 will, by means of the ratchet 57 and gear 58, drive the top of type bar 59 downward in an arcuate path. Bar 59 will then hit lever 60 thereby tilting downward the right end of lever 61. This drives the top end of lever 61 to the right and allows spring 62 to pull down the right end of lever 63 into latching engagement with the top end of lever 61. Consequently, the left end of lever 63, which is normally located immediately beneath the printing bail 19, as shown in the drawings, is driven upward to close contact C1 momentarily.

The closure of contact C1 closes a path from grounded battery 64, through the winding of relay R1, along conductor 1, through contact C1, conductor 65, and then to ground 37. Consequently, relay R1 operates both its armatures and locks-up through its right armature over a path from grounded battery 64, winding of relay R1, operated right armature and contact of relay R1, conductor 34, conductor 7, normally closed contact C, conductor 35, conductor 36, and then to ground 37. It is necessary that relay R1 be designed to lock-up quickly because, when the reciprocating bail 19 comes down, it strikes the left end of lever 63 thereby knocking the right end of lever 63 up out of latching engagement with the top end of lever 61. This permits contact C1 to resume its normally open position.

The operation of the two left armatures of relay R1 opens the normally closed left contacts of relay R1 and closes a path from conductor 22, over the inner left armature of relay R1, conductor 66, line L4, through station S4, back over line L4, conductor 67, outer left armature of relay R1, conductor 23, sending contacts 26, conductor 10, magnet R, conductor 8, and then to grounded battery 24. The subscriber at station S1 now transmits motor start signals, such as those described in the Daum patent mentioned above, which effect the energization of a relay 43 at station S4, similar to the motor control relay disclosed in the Daum patent. Upon being energized, motor control relay 43 operates its armature to close the contact A4 thereby closing the energizing circuit of motor M4 and starting motor M4 into operation.

Communication may now take place between stations S1, S2 and S4, the signals passing out over line L1, conductor 20, line L2, through station S2, conductor 21, conductor 22, conductor 66, line L4, through station S4, conductor 67, conductor 23, and then to grounded battery 24 as was described above. These signals will also pass through the receiving magnet R. It might be mentioned here that this is the case with all connections between the various subscribers' stations; that is, receiving magnet R follows all the signals sent between these stations.

At the close of communication, any of the subscribers at the three connected stations S1, S2, and S4, may send the code signal for selecting pull bar 17 which momentarily opens contact C, as described above, with the consequent opening of the locking-up circuit of relay R1. Relay R1 now releases its armatures, thereby opening the circuit leading to station S4 and con-

necting conductor 22 directly to conductor 23 without passing through station S4. Incidentally, the motor at station S4 may be stopped by any of the subscribers in the manner described in the Daum patent. It might also be stated here that the central office operator can effect any of the disconnections between any of the subscribers' stations because her sending contacts 26 are always connected in series with the communication circuits. This circuit construction can be modified in accordance with the requirements of different systems.

If the subscriber at station S1 wishes to send a message to be recorded by the teletypewriters T3 and T4 at stations S3 and S4 (leaving station S2 out of consideration for the sake of simplicity) he will send the code signals to select pull bars 11 and 14 for closing contacts C1 and C4. This will operate relays R1 and R4 which will lock-up as described above to close the lines leading to stations S3 and S4. Any of the connected subscribers may disconnect this conference connection by sending the code signal to select pull bar 17 for opening contact C. This opens the locking-up circuits of both relays R1 and R4 thereby restoring the system to its normal condition.

Also, if the subscriber at station S1 wishes to send a message to be recorded by the teletypewriters at each of the stations S3, S4 and S6 (again leaving station S2 out of consideration for the sake of simplification), he will follow the same procedure as that outlined in the preceding paragraph except that he will, in addition, send the code signal to select pull bar 16. The operation of pull bar 16 will close contact C6 and operate relay R6 which will lock-up and close the energizing circuit of motor M6 at station S6 thereby conditioning station S6 for the reception and/or transmission of messages. Any of the connected subscribers, or the central office operator, may disconnect this conference connection in the manner described above.

Likewise, the subscriber at station S1 may connect himself through the central office to the station S5 by first transmitting the shift signal for shifting platen 27 in teletypewriter T to its upper case position thereby closing contact C7. The subscriber at station S1 then transmits the preassigned code combination for selecting pull bar 12. The elevation of pull bar 12 by bail 19 closes contact C2 thereby closing the energizing path for relay R2 from grounded battery 68 through the winding of relay R2, conductor 2, contact C2, conductor 42, contact C7, conductor 44, conductor 36, and then to ground 37.

Upon being energized relay R2 operates its armatures and locks-up from battery 68, through the winding of relay R2, operated left armature, conductor 34, conductor 7, through the normally closed contact C, conductor 35, conductor 36, and then to ground 37. In operating its two right armatures, relay R2 switches the line circuit from along conductor 21, over the outer right operated armature of relay R2, conductor 69, line L5, teletypewriter T5 at station S5, back over line L5, conductor 70, inner operated right armature of relay R2, conductor 22, conductor 23, and then through the receiving magnet R, to grounded battery 24. If a conference connection is desired, other stations may be connected into the communication circuit in the manner described above. At the close of communication, any of the connected subscribers may disconnect the connection by effecting the operation, or opening, of the

normally closed contact C at the central office in the manner described above.

In the event that it is desired to connect some other station into the communication circuit, or to perform any other switching function, the platen 27 is first shifted to its upper case position as has been described above thereby closing contact C7. Then the upper case code combination is transmitted for selecting pull bar 13 which, when operated by bail 19, momentarily closes contact C3 to enable relay R3 to operate over a path traced from grounded battery 71 through the winding of relay R3, conductor 3, contact C3, conductor 72, conductor 42, through contact C7, conductor 44, conductor 36, and then to ground 37.

Upon being energized, relay R3 operates its armatures and locks-up over a path from grounded battery 71, through the winding of relay R3, operated left armature, conductor 34, conductor 7, through the normally closed contact C, conductor 35, conductor 36, and then to ground 37. In operating its right armatures, relay R3 will perform the desired switching function. When it is desired to discontinue the switching operation, the code signal is sent for causing pull bar 17 to open the normally closed contact C which opens the locking-up circuit of relay R3 thereby causing its release and restoring the system to its normal condition.

If it is desired to perform still other switching functions, they may be effected by shifting the platen 27 to its upper case position to again close contact C7. The upper case code combination for selecting pull bar 15 is then transmitted. The operation of pull bar 15 closes a path from grounded battery 73, through the winding of relay R5, conductor 5, contact C5, conductor 74, conductor 42, contact C7, conductor 44, conductor 36, and then to ground 37 thereby energizing relay R5. Upon operating its armatures, relay R5 will lock-up over a path from grounded battery 73, through the winding of relay R5, operated left armature, conductor 34, conductor 7, through the normally closed contact C, conductor 35, conductor 36, and then to ground 37. In operating its right armatures, relay R5 will perform the desired switching functions. When it is desired to terminate this switching operation, the signal for effecting the opening of the normally closed contact C is transmitted thereby opening the locking-up circuit of relay R5 which now releases its armatures and restores the system to its normally unoperated condition.

Whereas the operation of the system has been described principally with reference to connections originating from the dominant station S1, it is to be understood that these connections may be effected and disconnected in a similar manner by the subscriber at the other dominant station S2. It is to be further understood that other dominant stations may be added to the system according to the particular requirements of an individual system.

For the purpose of illustration, contact C1 has been shown to be operable only by an upper case code combination by means of a particular arrangement of the teletypewriter apparatus which obviates the necessity for having contact C1 in series with the platen contact C7. If it is desired to have levers 60, 61 and 63 perform some other function, contact C1 may be mounted above a pull bar and connected in series with the contact C7 the same as contacts C2, C3, C5, and C6. The same applies to contact C4 which has also been shown to be operated in response to a particular

upper case code combination due to a particular arrangement of the teletypewriter apparatus. If it is desired to have levers 28, 30 and 32 perform some other function, this may readily be done by placing contact C4 above a pull bar and connecting it in series with the contact C7 the same as contacts C2, C3, C5 and C6. Contact C may be arranged to be operated in response to the reception of either an upper or a lower case code combination. It may be preferable to design the selecting mechanism of teletypewriter T in such a manner that pull bar 17 will only be selected in response to an upper case selection.

Thus, by means of this invention, the various pull bars of the teletypewriter T at the central office may be used for performing their regular printing functions in response to lower case selections. The restriction of the switching functions of the pull bars to upper case selections thereby facilitates regular communication between the stations. Otherwise if the pull bars were not connected in series with the platen contact C7, whenever the pull bars were operated, they would close their contacts to operate the particular switching relays associated therewith.

It is to be understood that this specific application of the invention has been shown and described for purposes of explaining the principles and features of operation of the invention. Many changes may be made in the construction shown without exceeding the scope of the invention. More switching contacts to be operated by the pull bars of the teletypewriter at the central office may be added whenever desired to perform any functions that may be required. Likewise, the circuit connections of the various subscribers' stations may be varied as desired to meet the requirements of any particular communication system. In short, the scope of the invention is to be limited only by the claims appended hereto.

What is claimed is:

1. A teletypewriter having pull bars, selecting mechanism for selecting certain of the pull bars, a reciprocating bail for elevating those pull bars selected by the selecting mechanism, switching contacts located in the teletypewriter above the pull bars and adapted to be selectively operated individually by the pull bars when the pull bars are elevated, circuits adapted to be opened and closed by the switching contacts, a control contact connected in series with said circuits whereby the operation of said switching contacts is normally ineffective to perform any useful function, an instrumentality for operating said control open contact for rendering the operation of said contacts effective, and a special contact located in the teletypewriter for discontinuing the effect of the operation of any one of the switching contacts following the operation of the control contact.

2. A teletypewriter system including in combination a teletypewriter central office having a teletypewriter with a platen assembly provided with an upper case position and a lower case position, shift mechanism for shifting the platen from one of said positions to the other, a plurality of telegraph lines, a plurality of teletypewriter stations connectable to the central office by the telegraph lines and normally disconnected from each other, normally ineffective instrumentalities for enabling an operator at one of the teletypewriter stations to connect himself through the central office to one of the other teletypewriter stations, a control contact located in the teletypewriter at the central office for con-

ditioning said instrumentalities for effective operation, and means operating in response to the operation of the platen assembly for operating said control contact.

5 3. A teletypewriter system including in combination a teletypewriter central office having a teletypewriter with a platen assembly provided with an upper case position and a lower case position, shift mechanism for shifting the platen
10 from one of said positions to the other, a plurality of teletypewriter stations connected to the central office by a plurality of telegraph lines, normally unoperated switching apparatus at the central office for switching said telegraph lines
15 together, and a control contact for conditioning the switching apparatus for operation in response to the reception by the teletypewriter at the central office of permutation code signals of a pre-assigned case transmitted over one of the lines
20 by one of the stations.

4. A teletypewriter system including in combination a central office having a teletypewriter with a plurality of pull bars and a platen assembly provided with an upper case and a lower case
25 position, shift mechanism for shifting the platen from one of said positions to the other, a plurality of subscribers' teletypewriter stations, a plurality of communication lines extending from the subscribers' stations to the central office but
30 normally disconnected from each other, switching means for selectively connecting the communication lines together at the central office, said switching means including contacts mounted in the teletypewriter at the central office for operation
35 by the pull bars, a control contact for controlling the effectiveness of the operation of said contacts, and means for operating said control contact in response to the reception by the teletypewriter at the central office of permutation
40 code signals of a preassigned case.

5. A teletypewriter having shift mechanism, a plurality of pull bars, selecting mechanism for selecting certain of the pull bars, a reciprocating bail for operating those pull bars selected by the
45 selecting mechanism, switching contacts mounted

ed in the teletypewriter in operative relationship with the pull bars, circuits adapted to be opened and closed by the switching contacts, a normally open contact connected in series with said circuits whereby the operation of said contacts is
5 normally ineffective, an instrumentality for closing said normally open contact for rendering the operation of the switching contacts effective, and means for operating said instrumentality in response to the selection and operation of a pre-assigned pull bar.
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6. A teletypewriter system comprising in combination a teletypewriter central office having a teletypewriter with a plurality of pull bars, a plurality of teletypewriter stations connected to
15 the central office by a plurality of telegraph lines for the transmission and reception of signals, normally unoperated switching apparatus at the central office for switching said telegraph lines together, operating means for operating said
20 switching apparatus, and a control contact mounted in the teletypewriter at the central office for rendering said operating means ineffective to perform any useful function.

7. A teletypewriter system including in combination a teletypewriter central office having a teletypewriter with a plurality of pull bars, operating means for operating the pull bars, a plurality of teletypewriter stations, a plurality of
25 telegraph lines connecting the teletypewriter stations to the central office for the transmission and reception of signals, normally unoperated switching apparatus at the central office for switching said telegraph lines together, operating means
30 for operating said switching apparatus, a control contact mounted in the teletypewriter at the central office for rendering said operating means ineffective to perform any useful function, and an instrumentality for closing said control contact
35 in response to the operation of one of the pull bars and for opening said control contact in response to the operation of a different pull bar.
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