

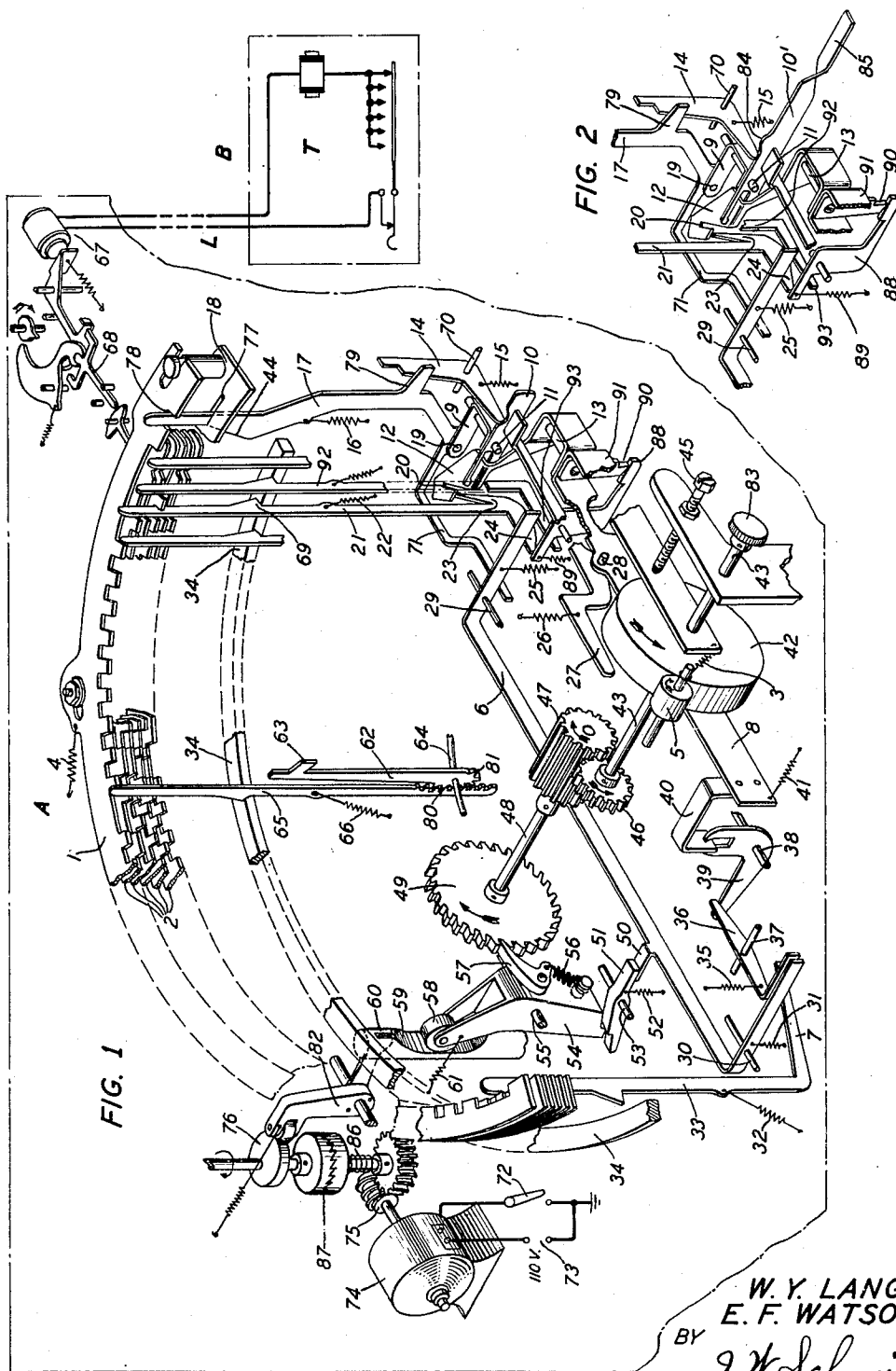
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W. Y. LANG ET AL

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TELETYPEWRITER

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TELETYPEWRITER

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This invention relates to teletypewriters and, more particularly, to mechanism for suppressing printing and spacing of a teletypewriter located at a remote point and for unlocking the suppressing mechanism.

Certain teletypewriter broadcasting systems employ a control, or central, teletypewriter station to transmit messages from the control station to a plurality of outlying teletypewriter stations. In this type of service, certain messages are sent simultaneously to some of the outlying stations and, after these messages have been sent, other messages are sent simultaneously to other of the stations. Frequently, these messages are classified, especially in stock market service, and the different classes of messages are distributed among the outlying stations according to the individual requirements of these stations.

During the transmission of these messages, there will often be a series of messages which will be of no interest to a particular station. Consequently, it is desirable to suppress printing and spacing of the teletypewriter at such a station so that it will not print these messages and will thereby reduce the consumption of stationery at that station and also reduce wear of the teletypewriter at that station. The operator at the control station also frequently desires to prevent the operation of the type bars of the teletypewriters at some of the outlying stations either because private information is to be transmitted to other of the outlying stations or because certain types of messages are not included in the service contracted for by the subscribers at some of the stations.

This suppression of printing and spacing of subscribers' teletypewriters could be accomplished by stopping the motors of those teletypewriters. However, if this were done, these teletypewriters would not be ready to receive pertinent messages because it would be necessary to start their motors and wait until they come up to speed.

Accordingly, it is an object of this invention to provide means for enabling an operator at a control broadcasting station to suppress printing and spacing of subscribers' teletypewriters without stopping the motors of these teletypewriters.

It is also an object of this invention to provide means whereby an operator at a control station may, after printing and spacing of certain subscribers' teletypewriters have been suppressed, restore these teletypewriters to their operative condition.

A further object of this invention is to locally

suppress printing and spacing and then locally release the suppressing mechanism.

In accordance with this invention, the subscribers' teletypewriters, in a system of the type described above, are each provided with an extra code bar having wards which in one position of the code bar prevent all the pull bars, except a minority, from being operated. When suppression of printing and spacing of a receiving teletypewriter is desired, the operator at the control station sends a special code signal to cause the extra code bar to assume the position for holding the pull bars as described above. At the same time, the extra code bar is locked in this position by a lever held in position by a bell crank pawl. In accordance with a modification of this invention, the lever which raises the space suppression ball to prevent spacing may also be operated manually by a local attendant.

To restore printing and spacing of the receiving teletypewriter by unlocking the suppressing mechanism, the operator at the control station sends a preassigned code signal to operate one of the free pull bars. In operating, this pull bar strikes a second lever which knocks the bell crank pawl to one side. This releases the first lever and restores the extra code bar to its normal unoperated position. In one form of the invention, the release of the suppressing mechanism is under the sole control of an operator at the control station. However, a modification of the invention enables a local operator to release the suppressing mechanism by means of a lever.

These and other features of the invention will now be described in detail in connection with the following description of the invention as applied to a teletypewriter of the type described in Patent 1,745,633 granted February 4, 1930 to S. Morton et al. which is hereby incorporated and made a part of this specification. In the drawing, which corresponds to a certain extent with Fig. 1 of the Morton et al. patent,

Fig. 1 is a schematic diagram in perspective of a teletypewriter in which the suppressing mechanism is under the sole control of an operator at the control station B which may be at a remote point; and

Fig. 2 illustrates a portion of a teletypewriter, such as that shown in Fig. 1, modified to enable the suppressing mechanism to be operated by a local attendant as well as by an operator at a distant station.

In Fig. 1, the mechanism for suppressing printing is shown to include a horizontal suppressing code bar 1 mounted above the five regular code

bars 2, a vertical camming bar 17 adapted to move bar 1 from its non-suppressing position to its suppressing position, a bell crank 14 for locking bar 17 in its suppression position, and a special type bar 62 for unlocking the bar 17.

To operate the teletypewriter, the local attendant closes control switch 72 for connecting power supply 73 to motor 74. Upon being energized, motor 74 rotates gear 75 which in turn rotates drive shaft 86. When the parts of the clutch 87 are brought in contact by the selecting mechanism, as described in the Morton et al. patent, cam 76 rotates and forces operating lever 82 back and forth thereby causing the main ball plunger 60 to move up and down, in the manner described in the Morton et al. patent, to actuate the pull bars such as pull bars 33, 65 and 21. The plunger 60 has an indent 59 for receiving a roller 58 carried by the spacing operating lever 54 located in front of plunger 60 and pivotally attached to the frame of the teletypewriter by fulcrum 55. Roller 58 is held against indent 59 by spring 61 so as to ride into and out of indent 59 as the plunger 60 moves up and down. Attached to the lower part of lever 54 is the spacing feed pawl 57 which is constantly forced into engagement with the teeth of the spacing ratchet wheel 49 by spring 56. Ratchet wheel 49 is mounted upon shaft 48 geared to the platen shaft 43 by gears 46 and 47. Mounted upon shaft 43 is the platen wheel 42 which cooperates with a feed roller 5, held against the platen 42 under pressure by spring 3, for spacing or feeding message tape (not shown) one letter space at a time for each movement of plunger 60 on spacing signals.

Thus, during the operation of the teletypewriter, the tape is ordinarily spaced, or fed, one letter space each time the main ball plunger 60 rises to actuate a pull bar because when plunger 60 rises, indent 59 cams out roller 58. This causes the spacing operating lever 54 to pivot about fulcrum 55 thereby pulling the spacing feed pawl down to engage with the next lower tooth of the spacing ratchet wheel 49. Then, when plunger 60 moves down, roller 58 is pulled back into indent 59 by the spacing lever spring 61 thereby pulling lever 54 back into the position shown in the drawing. In moving back into this position, lever 54 causes pawl 57 to rotate ratchet wheel 49 clockwise one tooth space. This rotation of wheel 49 is transmitted by gears 46 and 47 to the platen 42 and roller 5 whereby the tape is fed forward a distance equal to one letter space. Since wheel 49 is rotated during the downward movement of plunger 60, feeding of the tape takes place immediately after the printing of a character. A knob 83 is secured to shaft 43 for manually rotating platen 42 when desired.

The spacing suppressing mechanism includes the spacing locking pawl 51 located beneath the spacing operating lever 54 and pivotally mounted on fulcrum 53. Pawl 51 is normally tilted out of engagement with the bottom end of lever 54 by the extension arm 50 of the spacing locking bail 6 pivotally mounted on fulcrums 29 and 30. Bail 6 is biased by springs 25 and 31 which pull the forward ends of bail 6 into engagement with extension arms 7, 24 and 93 of pull bars 33, 21 and 92, respectively. Thus, when the main printing bail 34 elevates either pull bar 33 or 21, the extension arm of the pull bar will raise the forward end of bail 6 and will cause bail 6 to pivot about fulcrums 29 and 30. This lowers exten-

sion 50 sufficiently to allow spring 52 to move the spacing locking pawl 51 about fulcrum 53 and into engagement with the lower end of the spacing operating lever 54. Consequently, lever 54 is locked in position and temporarily rendered inoperative thereby suppressing spacing, or feeding, of the tape by platen 42.

Platen 42 has two printing positions, namely, an upper case position and a lower case position. It is shifted from one position to the other in response to the operation of a pull bar 33 which has an extension arm 7 in engagement with the lever 36. Lever 36 is pivoted on fulcrum 37 and has one end pulled upward by a spring 35 thereby causing its other end to press on one end of a bell crank lever 39. Lever 39 is mounted on fulcrum 38 and has its other end bifurcated for engagement with an arm 40 mounted on an extension 8, pulled outward by a spring 41, of the platen assembly.

When it is desired to shift platen 42 into its lower case, or "letters", printing position, the code signal for shifting is transmitted to station A by an operator at station B. This shift signal actuates the code bars 2 which align their cut-out spaces for enabling spring 32 to force the "letters" pull bar 33 back for operation by the main printing bail 34. Bail 34 elevates pull bar 33 thereby causing extension arm 7 to lift up both the forward end of the spacing locking bail 6 and one end of lever 36. Consequently, lever 36 pivots around fulcrum 37 and forces down one end of bell crank lever 39 which turns around its fulcrum 38 and causes its bifurcated end to pull arm 40 and extension 8 toward the rear of the teletypewriter. In so doing, extension 8 causes platen 42 to shift in its bearings toward the rear of the teletypewriter, this being its lower case position. Platen 42 is locked in this lower case position by latch 88, biased by a spring 89, which engages with a projection 90 mounted on the platen assembly frame 91.

To place platen 42 in its upper case, or "figures" position, the code combination for operating the "figures" pull bar 92 is transmitted. In operating, pull bar 92 elevates its extension 93 which trips latch 88 thereby effecting the release of projection 90. This permits spring 41 to pull extension 8 and platen 42 into the upper case printing position which is adjustably determined by means of screw 45.

The mechanism for suppressing printing includes extension arms 23 and 24 attached to the bottom end of the "blank" pull bar 21. Located directly above arm 23 is a rocker arm 12 having a slot 20 and pivotally attached to the platen assembly frame 91 by pin 13. Rocker arm 12 engages with the bifurcated end of the locking lever 10 pivotally mounted on pin 11 which is held by a link 9 pivotally attached to camming bar 17 at point 19. Bar 17 is normally pulled downward by spring 16. The lower end of bar 17 has a projection 79 and the upper end has a camming surface 44 which normally passes through a slot 77 in a fixedly located stripper plate 18 and a cut-out space 78 in the movable code bar 1. A bell crank 14 is pivotally mounted on pin 70 for engagement with lever 10 and projection 79. Bell crank 14 is biased by spring 15 so as to bear down upon lever 10.

If an operator at control station B which may be either a central office or a subscriber's station, desires to suppress printing and spacing of the teletypewriter at station A when platen 42 is in its upper case printing position, as is shown in

the drawing, the operator at station B will transmit a preassigned combination of code impulses, such as the upper case "blank" code combination, from her teletypewriter T. These significant current variations travel over line L to the receiving magnet 67 at station A. Receiving magnet 67 actuates swords, such as sword 68, for arranging the code bars 2 in the manner described in the Morton et al. patent, to align their cut-out spaces for enabling pull bar 21 to be pulled into the aligned cut-out spaces by spring 22. Then, when the printing bail 34 operates, it engages with the projection 69 on the back of bar 21 and raises bar 21 vertically.

The raising of pull bar 21 causes its extension arm 24 to tilt the spacing locking ball 6 thereby causing pawl 51 to lock lever 54 for suppressing spacing. At the same time, extension arm 23 on the opposite side of the lower end of pull bar 21 now engages and raises rocker arm 12 which raises one end of locking lever 10. When this end of lever 10 is raised, it raises pin 11 and link 9 thereby pushing camming bar 17 up through slot 77 in the stripper plate 18 and also through the cut-out 78 in pull bar 1. The camming surface 44 now slides against the left end of slot 77 and, since stripper plate 18 is fixedly located, pushes the top end of bar 17 to the right. Because the printing suppressing code bar 1 is movable, the top end of bar 17, in moving to the right, will force code bar 1 to also slide to the right sufficiently to place the wards on code bar 1 behind all the pull bars except the "letters" pull bar 33, the "blank" pull bar 21, the "figures" pull bar 92, and the "J" pull bar 65. This prevents any of the other pull bars from being operated by the printing bail 34, thereby suppressing printing. As bar 17 is raised, projection 71 raises and positions the space suppression bail 6 in its up position. Just before bar 17 reaches the limit of its upward movement, it is locked in this position by bell crank 14 which is pulled forward by spring 15 to engage with projection 79 on bar 17.

If the platen 42 is in its lower case printing position, printing and spacing cannot be suppressed because, when platen 42 is in this position, rocker arm 12 is pulled back into the teletypewriter since it is attached to the platen assembly by pin 13. As a result, when pull bar 21 is now raised, its extension arm 23 will pass freely through slot 20 in arm 12 and will consequently be unable to elevate arm 12 at this time. Thus, the suppression mechanism is operable only by an upper case signal; namely, the upper case "blank" signal. However, it is to be understood that this is a matter of choice and that the suppression mechanism may be designed to operate in response to the reception of any other suitable signal.

Consequently, if it is desired to suppress printing and spacing at a time when platen 42 is in its lower case position, it is first necessary to place it in its upper case position. This is done by operating the "figures" pull bar 92 as was described above. After platen 42 is placed in its upper case position, the code combination for operating pull bar 21 is transmitted from station B. Pull bar 21 is now elevated and causes the elevation of bar 17 with the consequent suppression of printing and spacing as was described above.

The mechanism for releasing the suppressing mechanism includes a lever 27 pivotally attached to the platen assembly by a pin 28. The right

end of lever 27 is flattened for engagement with one end of bell crank 14. The left end of lever 27 is normally pulled upward by a spring 26 and is so located as to be struck by a projection 63 on a special type bar 62 which is blank in its upper case except for the aforesaid projection 63. Type bar 62 is pivoted on pin 64 and is adapted to be operated by the rack 80 and pinion 81 arrangement, shown in the drawing, when pull bar 65 is elevated. It is to be noted that projection 63 hits lever 27 only when platen 42 is in its upper case position because, when the platen assembly is shifted to the lower case position, lever 27 is also shifted to the rear of the teletypewriter beyond the striking point of projection 63.

When it is desired to discontinue suppressing printing and spacing, the operator at the remote station B sends a shift signal which shifts the platen assembly to its upper case printing position in the manner described above. Next, the code combination, such as that for upper case J, is transmitted to cause the code bars 2 to align their cut-out spaces so as to allow spring 66 to draw pull bar 65 into the aligned cut-out spaces. Then, when the main printing bail 34 rises, pull bar 65 is elevated. In rising, rack 80 actuates pinion 81 thereby causing type bar 62 to move down and cause projection 63 to strike the left end of lever 27. This forces the left end of lever 27 down and thrusts the right end upward against bell crank 14 sufficiently to overcome the pull exerted by spring 15 and to move bell crank 14 around its pivot 70. Consequently, the top end of bell crank 14 is knocked out of engagement with projection 79 thereby releasing camming bar 17 which is now pulled down into the position shown in the drawing by spring 16.

The recession of the top end of bar 17, permits the code bar spring 4 to pull code bar 1 back into the position shown in the drawing thereby conditioning the pull bars for printing. Downward movement of bail 34 enables spring 66 to restore pull bar 65 and the special type bar 62 to the positions shown in the drawing. This, in turn, enables spring 26 to place lever 27 in its normal position. At the same time, projection 71 resumes its normal position thereby allowing springs 25 and 31 to pull the locking bail 6 into its normal position. Extension 50 now hits against the front end of pawl 51 and knocks its back end out of engagement with the spacing operating lever 54 to condition the spacing mechanism for operation. Thus, all the apparatus is now restored to its normal condition as shown in the drawing.

Fig. 2 illustrates a portion of the teletypewriter shown in Fig. 1 but which has been modified to enable a local attendant to operate and release the suppressing mechanism. The modifications include an extension 85 of locking lever 10' and a small raised portion 84, or projection, on that portion of lever 10' which is directly below bell crank 14.

To locally operate the suppressing mechanism, the local operator depresses extension 85 of locking lever 10' thereby elevating the other end of lever 10' which, by means of link 9, pushes up the camming bar 17. The elevation of bar 17 operates the suppressing code bar 1 to suppress printing as was described above. At the same time, the extension arm 71 of bar 17 lifts up one of the front extensions of the spacing locking bail 6 and tilts bail 6 about its pivots 29 and 30. This lowers extension arm 50 of bail 6 thereby allowing spring 52 to pull pawl 51 into engagement

with the bottom end of the spacing operating lever 54. This suppresses spacing as was described above. Spring 15 pulls bell crank 14 forward and locks bar 17 in this position thus maintaining the suppression of printing and spacing.

To locally release the suppressing mechanism after it has been operated, the local attendant raises extension 85 thereby causing projection 84 to engage and elevate the left end of bell crank 14 thereby pushing the top end of bell crank 14 out of engagement with projection 19 of bar 17. This releases bar 17 which is then pulled down by spring 16. The recession of bar 17 effects the restoration of code bar 1 and spacing operating lever 54 to their normal positions and conditions the teletypewriter for printing and spacing as was described above.

Various changes and modifications may be made in the details of construction without departing from the principles and features of the invention. For example, to insure that, in the form of the invention shown in Fig. 1, locking lever 10, bell crank 14 and lever 27 are under the sole control of an operator at station B, these instrumentalities and their associated apparatus may be enclosed in a suitable housing which will guarantee their inaccessibility to the local attendant. Therefore, the scope of the invention is to be limited only by the claims appended thereto.

What is claimed is:

1. A communication system comprising in combination a first station having a teletypewriter, a second station having a teletypewriter and connected to the first station by a communication line, instrumentalities at the second station for suppressing printing and spacing of the teletypewriter at that station, and means for operating said instrumentalities.

2. A communication system comprising in combination a first station having a teletypewriter, a second station having a teletypewriter and connected to the first station by a communication line, instrumentalities at the second station for suppressing printing and spacing of the teletypewriter at that station, and means for operating said instrumentalities solely by an operator at the first station.

3. A communication system comprising in combination a first station having a teletypewriter, a second station having a teletypewriter and connected to the first station by a communication line, instrumentalities at the second station for suppressing printing and spacing of the teletypewriter at that station, and means for operating said instrumentalities by an operator at the first station and also by an operator at the second station.

4. A teletypewriter system including a first teletypewriter station, a second teletypewriter station having a teletypewriter with pull bars for recording received intelligence, a communication line connecting the two stations, said second station having a motor, control means for operating the motor, instrumentalities at the second station for rendering the majority of the pull bars in the teletypewriter at the second station inoperative, and means for operating said instrumentalities while the motor is operating.

5. A communication system comprising in combination a first station having a teletypewriter, a second station having a teletypewriter and connected to the first station by a communication line, instrumentalities at the second station for

suppressing printing and spacing of the teletypewriter at that station, and means for operating said instrumentalities by an operator at the first station.

6. A teletypewriter comprising a printing ball, a plurality of pull bars adapted to be operated by the printing ball, a plurality of code bars for selecting the particular pull bar to be operated at a given time, and a special code bar having a normally unoperated position and an operated position, said special code bar having wards for rendering the majority of the pull bars inoperative when the special code bar is in its operated position.

7. A teletypewriter comprising a printing ball, a plurality of pull bars adapted to be operated by the printing ball, a plurality of code bars for selecting the particular pull bar to be operated at a given time, an extra code bar having a normally unoperated position and an operated position for rendering a majority of the pull bars inoperative, control means for placing the extra code bar in its operated position, and an instrumentality operable by one of the free pull bars for returning the extra code bar to its unoperated position.

8. A teletypewriter comprising a printing ball, a plurality of pull bars adapted to be operated by the printing ball, a plurality of code bars for selecting the particular pull bar to be operated at a given time, and a special code bar having a normally unoperated position and an operated position, said special code bar having wards for rendering the majority of the pull bars inoperative when the special code bar is in its operated position, an instrumentality for placing the special code bar in its operated position, and locking means for locking the special code bar in its operated position.

9. A teletypewriter comprising a printing ball, a plurality of pull bars adapted to be operated by the printing ball, a plurality of code bars for selecting the particular pull bar to be operated at a given time, and a special code bar having a normally unoperated position and an operated position, said special code bar having wards for rendering all but a minority of the pull bars inoperative when the special code bar is in its operated position, an instrumentality for placing the special code bar in its operated position, and locking means connected in operative relationship with only one of said minority of pull bars for locking the special code bar in its operated position.

10. A teletypewriter comprising a printing ball, a plurality of pull bars adapted to be operated by the printing ball, a plurality of code bars for selecting the particular pull bar to be operated at a given time, and a special code bar having a normally unoperated position and an operated position, said special code bar having wards for rendering the majority of the pull bars inoperative when the special code bar is in its operated position, an instrumentality for placing the special code bar in its operated position, locking means for locking the special code bar in its operated position, and manually operable means for operating said locking means.

11. A communication system comprising in combination a first station having a teletypewriter, a second station having a teletypewriter and connected to the first station by a communication line, instrumentalities at the second station for suppressing printing and spacing of the teletypewriter at that station, and signal respon-

sive means responsive to significant current variations transmitted from the first station to the second station and connected in operative relationship with said instrumentalities for controlling the operation of said instrumentalities.

12. A communication system including a first station having a teletypewriter with a plurality of pull bars, a second station having a teletypewriter and connected to the first station by a communication channel, suppressing means at the second station operable by a first preassigned pull bar for suppressing printing and spacing of the teletypewriter at that station, and restoring means at the second station operable by a second preassigned pull bar for discontinuing the operation of the suppressing means and for conditioning the teletypewriter at the second station for printing and spacing.

13. A communication system comprising in combination a first station having a teletypewriter, a second station having a teletypewriter connected to the first station by a communication line, and instrumentalities at the second station including camming means for suppressing printing and spacing of the teletypewriter at that station.

14. A communication system comprising in combination a first station having a teletypewriter, a second station having a teletypewriter and connected to the first station by a communication line, and instrumentalities at the second station including camming means and a lever responsive to received signal impulses for operating the camming means for suppressing printing and spacing of the teletypewriter at that station.

15. A communication system comprising in combination a first station having a teletypewriter, a second station having a teletypewriter and connected to the first station by a communication line, and instrumentalities in the teletypewriter at the second station including camming means and a lever for operating the camming means in response to the operation of a preassigned pull bar in the teletypewriter at that station for suppressing printing and spacing of the teletypewriter at that station.

16. A communication system comprising in combination a first station having a teletypewriter, a second station having a teletypewriter and connected to the first station by a communication line, camming means at the second station having a normally unoperated position and an operated position, operating means for moving said camming means from its normally unoperated position into its operated position, and a latching device for latching the camming means in its operated position for suppressing printing and spacing of the teletypewriter at that station.

17. A communication system comprising in combination a first station having a teletypewriter, a second station having a teletypewriter and connected to the first station by a communication line, camming means at the second station having a normally unoperated position and an operated position, operating means for moving said camming means from its normally unoperated position into its operated position, a latching device for latching the camming means in its operated position for suppressing printing and spacing of the teletypewriter at that station, and releasing means responsive to the operation of a preassigned pull bar for releasing said locking means for restoring said camming means to its normally unoperated position.

18. A communication system comprising in combination a first station having a teletypewriter, a second station having a teletypewriter and connected to the first station by a communication line, camming means at the second station having a normally unoperated position and an operated position, operating means for moving said camming means from its normally unoperated position into its operated position, a latching device for latching the camming means in its operated position for suppressing printing and spacing of the teletypewriter at that station, and a manually operable lever for releasing said locking means for restoring said camming means to its normally unoperated position.

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