March 16, 1937. E. RICE ET AL 2,074,189

TELEGRAPHIC TAPE STOP

Filed April 22, 1935 2 Sheets-Sheet 1

Fig. 1.

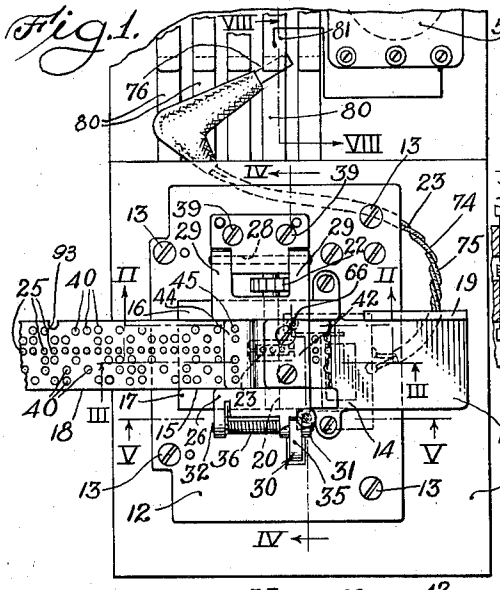


Fig. 2.

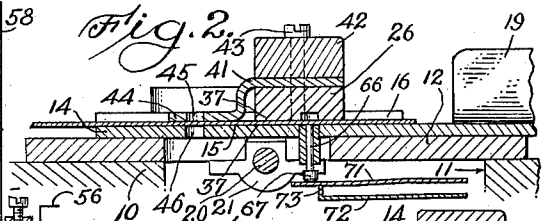


Fig. 3.

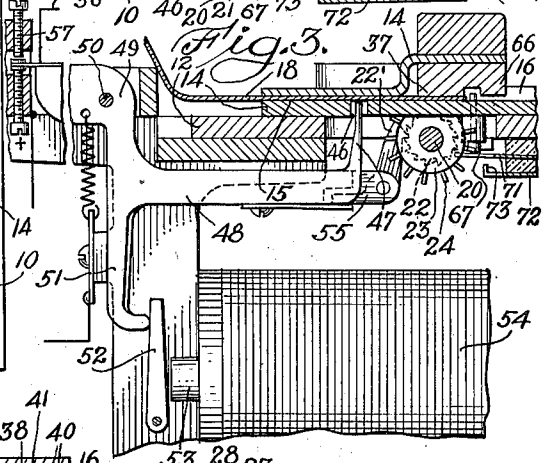


Fig. 4.

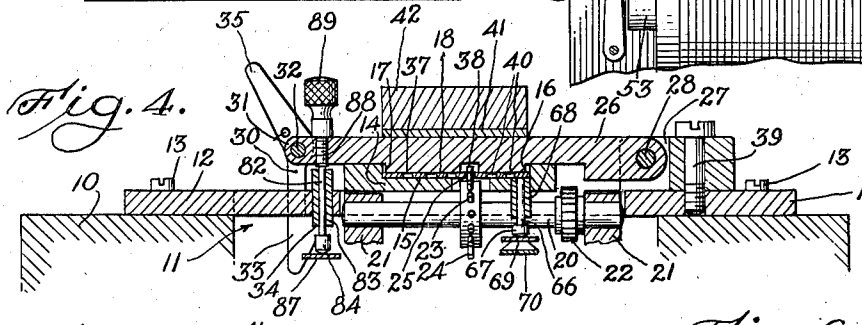


Fig. 5.

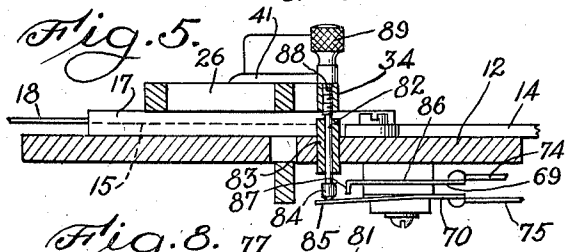


Fig. 6.

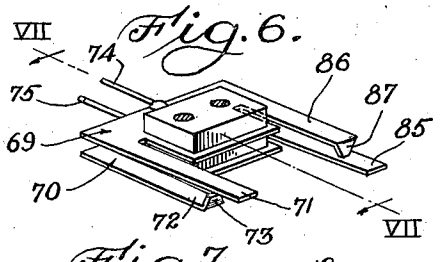


Fig. 8.

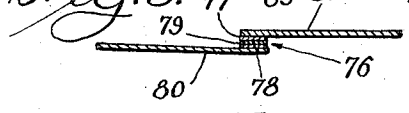


Fig. 7.

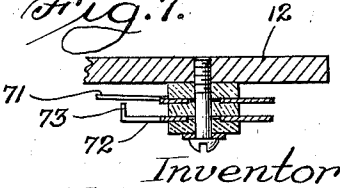
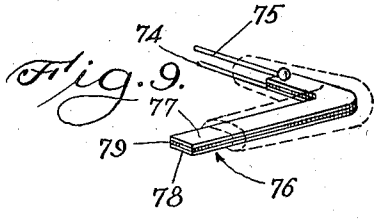


Fig. 9.



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Fig. 10.

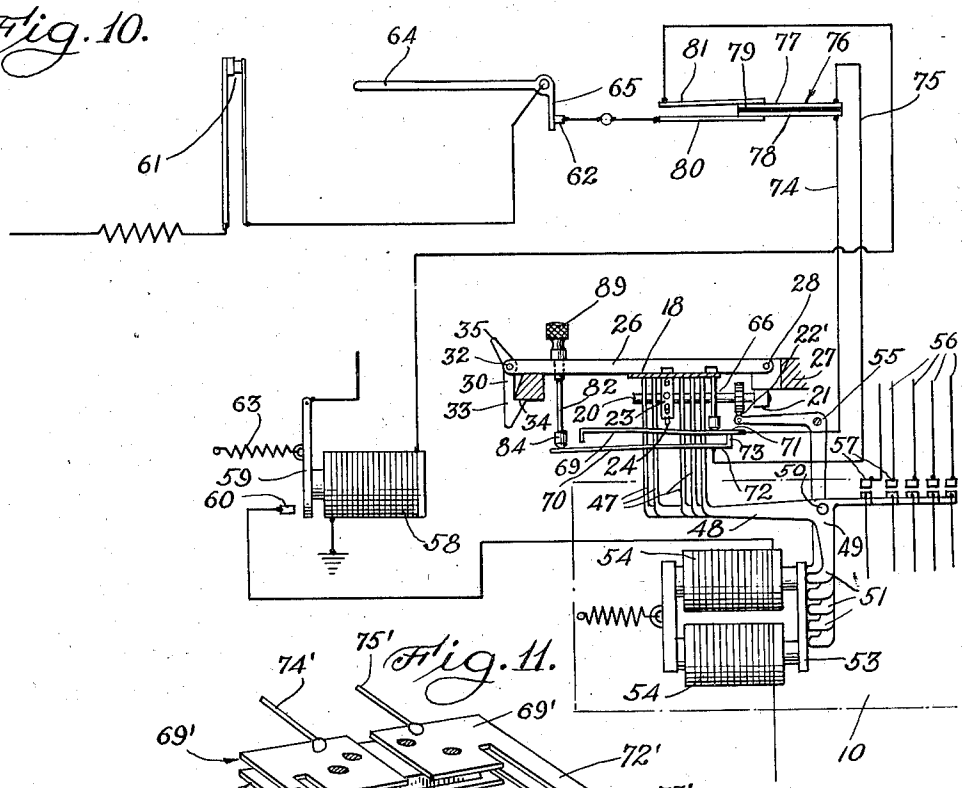
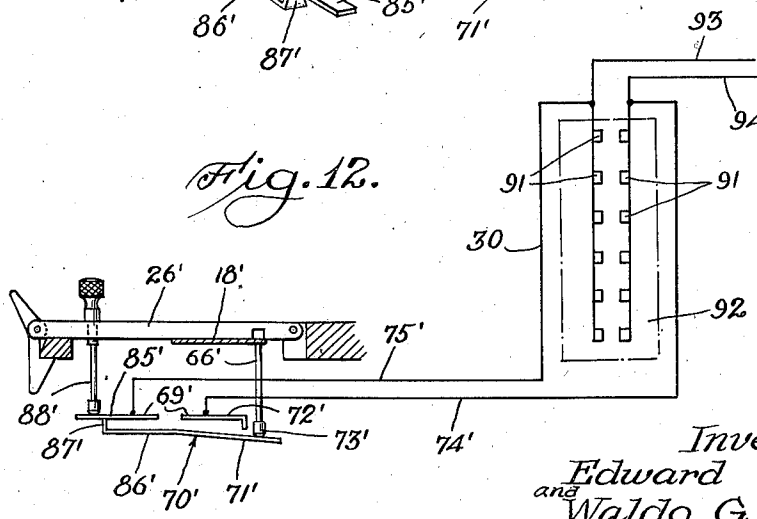


Fig. 11.

Fig. 12.



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Patented Mar. 16, 1937

2,074,189

UNITED STATES PATENT OFFICE

2,074,189

TELEGRAPHIC TAPE STOP

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Application April 22, 1935, Serial No. 17,626

16 Claims. (Cl. 178—42)

This invention relates to telegraphic mechanisms and more particularly to automatic telegraph stops for use in connection with transmitters, although it may be employed with equal advantage for other purposes.

It contemplates more especially the provision of means for automatically ceasing signal transmission and/or reception responsive to the break in the supply of paper to a transmitter without requiring any attendance or annoyance in consequence of repeated signal transmission and/or reception.

In the telegraphic transmission of messages through code perforations in paper or other mediums of message transmitting, there is a requirement for a steady supply of paper therethrough in order to prevent repetition of signals that prove very annoying and create a waste in paper consumption without serving any constructive purpose. This is primarily accountable to a break in the tape that renders the feeding mechanism inoperative for tape advances without stopping the operation of the transmitter and/or feeding mechanism. This will cause the receiving end to repeatedly print the code selection where the transmitter pins last strike the stalled tape. Should the code selection happen to repeat the line feed function, this will cause an unusual amount of annoyance at the distant receiving station and continue to indefinitely feed out roll paper or tape.

With the teachings of the instant invention, automatic means are proposed for ceasing the transmission of extraneous signals and stopping the operation of the feed wheel as the tape ends thereon. This avoids the necessity of an attendant constantly supervising the operation of transmitters and also enables the tape to be automatically stopped at any predetermined position where it is desired to terminate the message or make an insertion depending upon the dictates of any particular message requirement or to accordingly terminate such without control or care being exercised by the attendant. While it is a common practice to exercise manual control over tape feeding through a transmitter, it is not entirely reliable nor accurate and such, at best, entails a great deal of time and labor which is not available in many operating offices because one attendant may be called upon to supervise and operate a number of different machines for performing the functions thereof and thereby increase the work handled by one operator.

One object of the present invention is to provide an automatic tape stop in conjunction with a telegraph transmitter so as to cease signal transmission and/or reception responsive to a break in the supply of paper to the feeding mechanism.

Another object is to simplify the construction and improve the operation of devices of the character mentioned.

Still another object is to provide automatic means for terminating the operation of a transmitter responsive to an interruption of tape or roll paper thereto.

A further object is to provide means responsive to the traverse of paper through a transmitter to control the operation thereof and to terminate message transmission and/or reception responsive to an interruption in the paper supply.

A still further object is to provide a telegraphic transmitter with controls that cease signal transmission at any predetermined position along a code perforated tape or other medium of message transmission.

Still a further object is to provide means for opening the transmitter circuit responsive to a break or interruption in the supply of paper to the feeding mechanism of a telegraphic transmitter or at any predetermined point therealong in response to a special perforation provided therein.

Other objects and advantages will appear from the following description of an illustrative embodiment of the present invention.

In the drawings:

Figure 1 is a plan view of the device embodying features of the present invention.

Figure 2 is a sectional view taken substantially along line II—II of Figure 1.

Figure 3 is a sectional view similar to Figure 2 with a tape or roll paper supply interrupted so as to permit the displacement of the control member which opens the transmitter circuit in consequence thereof.

Figure 4 is a sectional view taken substantially along line IV—IV of Figure 1.

Figure 5 is a sectional view taken substantially along line V—V of Figure 1.

Figure 6 is a perspective view of the electrical contacts associated with the transmitter frame to enable the use of a control for ceasing transmission of signals responsive to the break in the supply of tape or roll paper to the feeding mechanism.

Figure 7 is a sectional view taken substantially along line VII—VII of Figure 6.

Figure 8 is a sectional view taken substantially along line VIII—VIII of Figure 1.

Figure 9 is a perspective view of the wedge

member shown in operative position between the contacts in Figure 1.

Figure 10 is a diagrammatic wiring diagram of a Mux circuit embodying the transmitter solenoids, relays, distributor contacts, transmitter mechanism, and auto-stop lever comprising conventional parts of a telegraph system, except for the transmitter structure which embodies features of the present invention.

Figure 11 is a perspective view of segregated contacts shown in series for use in connection with a start-stop system shown in Figure 12.

Figure 12 is a diagrammatic wiring diagram of a start-stop circuit embodying a transmitter and distributor contacts to illustrate the purpose of the teachings of the present invention in connection therewith.

The structure selected for illustration comprises a suitable support 10 that has an open area 11 for receiving a transmitter plate or frame 12 which extends thereover for detachable connection therewith through the medium of screw fasteners 13. A guide plate 14 is disposed above the transmitter plate or frame 12 and is substantially of rectangular configuration to provide a groove 15 therealong to define upstanding walls 16 and 17 serving as a gate to guide the code perforated tape 18 thereover. As shown, the tape guide plate 14 has upstanding guides 19 which are disposed rearwardly of the groove wall 16 to define a predetermined path for the tape 18 in its passage along the groove 15 which has a tape feeding mechanism cooperating therewith as will appear more fully hereinafter.

The tape feeding mechanism comprises, in this instance, a shaft 20 which is disposed transversely of the tape guiding groove 15 for journalled rotation in bearings 21 supported by the frame plate 12. As shown, a ratchet wheel 22 is fixed near one extremity of the shaft 20 for cooperation with a pawl 22' cooperating therewith to control the intermittent rotation thereof in conjunction with a feed wheel 23. The feed wheel 23 has a plurality of radically projecting studs 24 provided on the periphery thereof for meshing engagement with the linear line of feed perforations 25 provided in the tape 18 for positive feeding along a predetermined linear path.

In order to maintain the tape 18 in registry with the studs 24 provided on the feed wheel 23, a flat substantially rectangular tape retaining lid 26 is pivoted to a lug bracket 27 attached to the transmitter frame 12, to effect the connection therebetween through the medium of a pintle 28. To this end, the tape retaining lid 26 is provided with furcations 29 that receive a correspondingly shaped projection comprising a part of the bracket 27 therebetween for enabling their pivotal connection by virtue of the pintle 28 therethrough. In order to maintain the lid 26 in operative connection with the transmitter frame plate 12, a lever latch mechanism 30 is pivoted between a furcated extension 31 provided on the free end of the lid 26 for receiving a pintle 32 therethrough.

As shown, the lever latch 30 comprises an arm 33 which has a tongue catch 34 to engage the underside of the transmitter frame plate 12 while another arm 35 extends upwardly beyond the lid 26 to enable the manipulation thereof to effect engagement and disengagement thereof relative to the frame plate 12. A spring 36 envelopes the pintle 32 and normally urges the lever latch 30 in a counterclockwise position (viewed from Figure 4) to normally effect engagement of the lid 26 with the frame plate 12 responsive to its counterclockwise displacement in the direction of the transmitter frame 12.

Now, then, the lid 26 has a rectangular depending projection 37 which substantially conforms in shape and configuration with the tape receiving groove guide 15 provided in the tape guide plate 14, the groove guide 15 being somewhat larger so as to telescopically receive the lid projection 37 with the tape 18 therebetween so as to hold the latter in a taut position when the retaining lid latch 30 engages the transmitter frame 12 (Figure 4). The complemental association of the lid 26 with its projection 37 in the guide 15 of the plate 14 with the tape 18 therebetween, is effected without appreciable friction thereon so that the tape 18 is free for linear traverse responsive to the intermittent rotation of the feed wheel 23 that has its studs 24 in meshing engagement with the tape feed perforations 25.

In order to accommodate the studs 24 that project through the linear line of feed holes or perforations 25 in the tape 18, the underside of the lid 26 is provided with a notch 38 that extends inwardly from the surface of the depending projection 37 so that the studs 24 can project through the feed holes 25 and freely extend into the shoe 26 without obstruction thereto to insure proper meshing engagement with the feed perforations 25 of the tape 18. It is worthy of note that the lid mounting bracket 27 is secured or anchored to the transmitter frame plate 12 by means of threaded studs 39 which maintain the position of the lid 26 in alignment with the tape guide plate 14 so that the groove 15 therein will always be in registry with the shoe projection 37 that is releasably held in position by the lever latch 30.

In order to guide the code selector pins that are reciprocably mounted in the path of the tape 18 so as to cooperate with the message code perforations 40, a bracket plate 41 is mounted to the shoe or tape retaining lid 26 for retention thereon by means of a bar 42 that has fasteners 43 extending therethrough to effect the detachable engagement thereof. As shown, the bracket plate 41 has a downwardly off-set extension 44 which extends in the path of the tape 18 in horizontal alignment with the underside of the lid projection 37 so as to smoothly hold the tape in position in its traverse through the gate or tape guide plate 14.

A plurality of holes 45, in this instance five, extend transversely along the extension 44 for registry with corresponding holes 46 provided in a tape guide plate 14 for the purpose of receiving the code pins 47 therethrough. The code pins 47 are operatively connected to levers 48 that terminate in arms 49 pivoted as at 50. The lever arms 49 have depending projections 51 that cooperate with levers 52 pivoted to confront the armature cores 53 of a pair of transmitter solenoid coils 54 mounted beneath the frame plate 14 within the supporting casing 10 thereof. Similarly, the pawl 22' is rendered responsive to a lever 55 that is provided with an arm similar to those that serve as an integral part of the code pin levers 48, thereby intermittently rotating the shaft 20 that has the feed wheel 23 fixed thereto.

By this arrangement, the tape 18 is intermittently displaced along a linear path defined by the tape guide plate 14 and the code pins 47 respond to the perforations 40 in the tape 18 during the moment that the tape 18 is at rest, thereby conveying corresponding impulses to the sending distributors that are connected to lead

wires 56 that terminate in terminal contacts 57. These signals are created through the action of the relay coil 58 which cooperates with an armature 59 and its contact 60 that are embodied in the transmitter circuit which extends from the distributor six-pulse contact 61 through the relay coil 58 and thence through the auto-stop lever contact 62. When the relay armature 59 is in its inoperative position responsive to the urge of its spring 63, engagement is effected with the terminal contact 60 to close the circuit which controls the transmitter solenoid 54. When the distributor contact 61 is open, the transmitter solenoid 54 is held closed and, conversely, when the distributor six-pulse contact 61 closes, the transmitter solenoids 54 are released. With the six-pulse distributor contact 61 being open, the solenoids 54 hold the five code pins 47 in an inoperative position, clear of the tape 18.

With the closing of the six-pulse distributor contacts 61, the solenoids 54 are released and at the same time the code pins 47 tend to raise or ascend in the direction of the tape 18. If there is tape 18 in the transmitter tape guide plate 14 and all five code perforations 40 appear in the tape 18 in this position, the code pins 47 will pass up through the perforations 40 to cause the pulses to be transmitted for recordation at the distant end through the terminal contacts 57 that extend from the tongue leads 56 connected to the sending distributor at a remote stage.

Now, then, should the tape 18 show one or more of the code positions lacking perforations in the tape 18, that is the tape is blank at this position, the code pins 47 will be blocked against elevation or ascent by the tape 18 and no pulse or pulses will be transmitted. On every operation as a six-pulse contact 61 opens, the transmitter solenoids 54 close. As the latter closes, a lever operates the pawl 22' to displace the feed wheel 23 another step, thereby moving the tape 18 forward for a corresponding distance. In the same movement, the code pins 47 descend to clear the tape 18 as the latter moves forward.

An auto-stop lever is provided in the circuit so that an arm 65 thereof cooperates with the contact 62 to provide means of stopping the operation of the transmitter 10 and also stopping the feeding of the tape 18. The auto-stop lever 64 may function by hand or by tape 18 passing thereunder in that a certain amount of slack is allowed to accumulate in the tape 18 as it is fed out of the perforator and into the transmitter. As long as there remains sufficient slack in the tape 18 between the perforator and the transmitter, the tape will not interfere with the stop lever 64. Should the slack be taken up sufficiently by slowing down of the perforator, the tape will come in contact with the lever 64 and cause the latter to rise, thereby opening its contact 62 which is connected to the six-pulse circuit of which the distributor contact 61 is a part thereof, thereby causing the transmitter to cease operating and also stopping the intermittent movement of the tape 18 forwardly.

If the lever 64 were not provided in the circuit, the tape 18 would tear in the event the perforator feed thereof did not keep pace with the operation of the transmitter. It will be clear, therefore, that the lever 64 and transmitter 10 function automatically providing there is an unsevered piece of tape 18 being fed or displaced through the transmitter tape guide plate 14. However, should a broken tape end reach the transmitter wheel 23 as the studs 24 thereof project upwardly through the tape guide plate 14, the transmitter will continue to pulsate and move the tape forward to a point where the studs 24 of the feed wheel 23 no longer engage the tape 18, and although the tape 18 has stopped moving forwardly, the code pins 47 continue to ascend and descend on the last perforation or perforations 40 where the tape 18 has been stalled by virtue of the broken end thereof arriving at the position of the feed wheel 23 with reference to the tape guide plate 14. This will cause the receiving end or the receiving distributor to record and print repeatedly the code selection where the code pins 47 strike the stalled tape 18. Should the code selection at this stalled position repeat the line feed function, an unusual amount of annoyance at the distant end occurs and continued feeding of the rolled paper continues indefinitely unless an attendant observes the severed tape in the transmitter 10 and is there to manually cease its operation.

In order to automatically stop the operation of the transmitter when the supply of tape 18 becomes exhausted or terminates because of a break therein, means are provided to accomplish this without manual interference or observance of the condition that has developed or occurs in otherwise normal operation. To this end, a pin 66 having an insulated head 67 is reciprocally mounted in a bushing 68 fixed to the tape guide plate 14 so that the upper extremity thereof will be urged against the edge of the tape 18 as it passes through the guide plate 14. Confronting terminal plates 69 and 70 are fixed to the underside of the transmitter plate 12 for insulation therefrom and from each other. The terminal plates 69 and 70 are preferably composed of contact metal and provide resilient contacts 71 and 72 that confront each other with the upper contacts 71 normally yieldable to impart an urge to the insulated head 67 of the pin 62 so that the upper extremity thereof is maintained in contact with the tape 18 or projected through the tape guide plate 14 for extension therebeyond in the absence of tape 18 underneath the tape retaining lid 26.

So that the presence of tape 18 underneath the tape retaining lid 26 will maintain the terminal contacts 71 and 72 in engagement, the latter is provided with an upstanding extension 73 which extends in the path of the upper terminal contacts 71 so that electrical contact is established therebetween against the normal resiliency thereof which tends to effect their operation. The contact terminals 71 and 72 are in series with the auto-stop lever contact 62 through the lead wires 74 and 75 that terminate in a double terminal 76 comprising electrically conductive plates 77 and 78 which are insulated from each other by means of an intermediate layer of insulation material 79. The double contact 76 serves as a wedge between the terminals 80 and 81 which are normally in sliding contact to provide a series connecton between the relay 58 and auto-stop lever 64.

This double contact 76 which is wedged in between the permanent contacts 80 and 81 of the six-pulse circuit, places the terminals 71 and 72 in series therewith for control by the pin 66 that is responsive to the presence or absence of tape 18 underneath the tape retaining lids 26 by virtue of its contact with the margin of the tape when such is existent therein or passes therethrough in the normal operation of the transmitter 10.

Should a break occur in the tape 18, the pins 66 will be placed upwardly responsive to the urge from the resilient terminal contact 71 and thus effect disengagement of the latter from the terminal 72 to break the circuit and cease the operation of the feeding mechanism and code pins 47. In consequence thereof, the transmitter will cease to pulsate and the feeding mechanism will be rendered inoperative so that the transmission of false signals is automatically prevented upon such an occurrence.

In order to render it possible, however, to send out start and stop signals to a distant station by manual use of the auto-stop lever 64, means are provided to close the lever six-pulse circuit by throwing a shunt around the separated terminal contacts 71—72 responsive to the ascent of the pins 66 because of the absence of tape 18 thereabove. This is accomplished by an additional pin 82 which is mounted in a bushing 83 fixed to the transmitter plate 12 so as to guide the pin 82 having an insulated head 84 in engagement with a terminal contact 85 spaced from the terminal contact 72, but comprising a part of its plate 70. The terminal contact 85 has, in this instance, another terminal contact 86 having a depending extension 87, which is spaced from the terminal contact 71, but comprises a part of its plate 69. The resilience of the terminal contact 85 will urge the pin 82 upwardly against a threaded stud 88 in fixed engagement with the tape retaining lid 26 near the free extremity thereof.

As shown, the threaded stud 88 has an enlarged knurled head 89 that enables the manipulation thereof and adjustment in threaded connection with the lid 26 so as to serve as a stop for the pin 82 in axial alignment therewith. It will be observed that the terminals 85—86 are normally disengaged when the tape retaining lid 26 is in operative engagement with the transmitter plate 12 through the medium of its latch 30. This occurs because the pin 82 is displaced downwardly by the lid 26 so as to displace the resilient contact 85 downwardly from engagement with the extension 87 on the terminal 86, thereby closing the circuit only through the other terminals 71—72 when the tape 18 passes underneath the lid 26.

Now, then, in cases where the tape 18 has become torn in two parts and as a result the pin 66 is elevated because the contacts 71—72 become spaced and disengaged from contact, a shunt is established around the open contacts 71—72 by means of the auxiliary pin 82 in that the lid 26 is raised and contact its effected between the terminals 85—86 to enable this signal to be transmitted with the distant station. Then, too, should it become necessary to transmit the very last punch operation because of the severence of the tape 18 in two parts and where hand feeding becomes necessary together with the use of the auto stop signal lever 64, the shunt around the open terminals 71—72 is established without raising the lid 26 by turning the screw head 89 to allow the pin 82 to move upwardly for closing the contacts 85—86 even though the tape retaining lid 26 remains latched.

The above described circuit and contact structure is used in a Mux system that embodies an auto-stop hand lever utilized to send start and stop signals in lieu of written and punched requests or to indicate the connection of a reperforator in the receiving circuit for recording the message about to be transmitted. For apparatus and circuits not using the auto stop lever 64 and where a keyboard is available for sending purposes, a modified design of the contact assembly is provided (Figures 11 and 12). Instead of providing parallel contact assembly as illustrated in Figure 6 for use in connection with the auto control lever 64, a series contact assembly is provided in its stead (Figure 11). The modified embodiment of the contact assembly comprises an upper plate 69' which is split for connection of lead wires 74' and 75' to each section thereof so that the terminal contacts 71'—72' are in series with terminal contacts 85'—86' rather than connected in parallel as illustrated in Figure 6. Thus, the tape responsive pin 66' engages, in this instance, lower terminal 71' to keep the contact open as the pin 66' is pressed down by the tape 18'. When the end of the tape 18' passes beyond the pin 66', the latter moves upwardly and allows the resilient terminal 71' to engage the terminal 72', thereby closing a shunt circuit across the sending contacts 91 of the distributor 92 connected with the main line 93—94. With the main line 93—94 closed in this manner, not only false signals are prevented from being transmitted at the tape-end, but this shunting enables other stations on the line the immediate use of the wire rather than have same tied up unnecessarily by the transmitter striking on the tape-end for destructive rather than constructive purposes. The second pin 82' being in series with the first pin 66', affords breaking of the shunt around the sending distributor contacts 91 when the tape retaining lid 26' is lifted to open contacts 85'—86' responsive to the unlatched position that removes the pin 82' from the terminal 85'. This will now enable the operator to use the keyboard by hand for sending purposes instead of the tape transmitter, if so desired, or found necessary.

Another important advantageous use of the tape-end responsive pin 66 when used in connection with the auto-stop lever contact 62 principally in multiplex circuits (Figure 10) is to provide a means of stopping the tape 18 at any precise predetermined point upon being fed through the transmitter 10 (Figure 1). For instance, should it be desired to end the transmission of a message at any precise word or phrase perforated in code on the tape 18, a small perforation 93 is made with a hand punch on the margin of the tape 18 (see Figure 1) so that the pin 66 will rise at the exact position. In this manner the tape 18 is stopped automatically at any predetermined point without further concern rather than to leave the attendant laboriously watch the progress of the tape 18 with the auto-stop lever in hand and possibly inadvertently permit the tape 18 to slip by and beyond the objective point that was selected.

It is frequently necessary in some telegraph offices to stop the tape 18 while awaiting a signal from the distant office to start up after having prepared the printer with a book of carbon copies or to indicate that a reperforator has been attached or otherwise made ready for reception. The marginal perforation 93 is placed, in this instance, five punch holes forward of desired stop point, since this is the distance between the code pins 47 and the feed wheel 23 whose stud 24 is in its last effective feeding position. Then, too, this automatic tape-stop finds an additional advantage where there is no object or purpose in keeping the tape 18 as an unsevered piece, in affording the severance of the tape 18 by the operator

at the end of any message for transmission without any further attention. At the end of the message when the severed end of the tape 18 has reached the code pins 47, the transmitter 10 will cease operating and avoid mutilating the print copy at the distant end. The present practice is to feed out one hundred blanks, more or less, in order to allow the last of the perforations to reach the transmitter without severing the tape. It should be appreciated that the pins 66 and 82 or either one thereof, may be substituted by a suitable movably mounted member that serves the same or equivalent purpose.

Various changes may be made in the embodiment of the invention herein specifically described without departing from or sacrificing any of the advantages of the invention as defined in the appended claims.

We claim:

1. In a device of the character described, the combination with means for feeding message paper along a predetermined path, of a plurality of code pins in said path for cooperation with said paper, means including an electrical circuit for operating said code pins and paper feeding means for effecting signal transmission in timed relation with the feeding of said paper past said code pins, and means in the path of said paper for opening said electrical circuit responsive to a break in the supply of paper to said feeding means to automatically stop signal transmission.

2. In a device of the character described, the combination with a transmitter, of means for feeding message paper along a predetermined path through said transmitter, a plurality of code pins in said transmitter for cooperation with said paper, means including an electrical circuit for operating said code pins and paper feeding means for effecting signal transmission in timed relation with the feeding of said paper past said code pins, and means associated with said transmitter in the path of said paper for opening said electrical circuit responsive to a break in the supply of paper to said feeding means to automatically stop signal transmission.

3. In a device of the character described, the combination with a transmitter, of means for feeding message paper along a predetermined path through said transmitter, a plurality of code pins in said transmitter for cooperation with said paper, means including an electrical circuit for operating said code pins and paper feeding means for effecting signal transmission in timed relation with the feeding of said paper past said code pins, and a movably mounted pin associated with said transmitter in the path of said paper for controlling said electrical circuit responsive to a break in the supply of paper to said feeding means to automatically stop signal transmission.

4. In a device of the character described, the combination with a transmitter, of means for feeding message paper along a predetermined path through said transmitter, a plurality of code pins in said transmitter for cooperation with said paper, means including an electrical circuit for operating said code pins and paper feeding means for effecting signal transmission in timed relation with the feeding of said paper past said code pins, a movably mounted pin associated with said transmitter in the path of said paper, and a pair of confronting resilient contacts in said circuit in operative connection with said movably mounted pin for controlling said electrical circuit responsive to a break in the supply of paper to said feeding means to automatically stop signal transmission.

5. In a device of the character described, the combination with means for feeding message paper along a predetermined path, of a plurality of code pins in said path for cooperation with said paper, means including an electrical circuit for operating said code pins and paper feeding means for effecting signal transmission in timed relation with the feeding of said paper past said code pins, a stop and start signal means in said circuit, means in the path of said paper for opening said electrical circuit responsive to a break in the supply of paper to said feeding means to automatically stop signal transmission, and means for closing said circuit around said circuit opening means to enable the effective operation of said stop and start signal means.

6. In a device of the character described, the combination with a transmitter, of means for feeding message paper along a predetermined path through said transmitter, a plurality of code pins in said transmitter for cooperation with said paper, means including an electrical circuit for operating said code pins and paper feeding means for effecting signal transmission in timed relation with the feeding of said paper past said code pins, a stop and start signal means in said circuit, means associated with said transmitter in the path of said paper for opening said electrical circuit responsive to a break in the supply of paper to said feeding means to automatically stop signal transmission, and means associated with said transmitter for closing said circuit around said circuit opening means to enable the effective operation of said stop and start signal means.

7. In a device of the character described, the combination with a transmitter, of means for feeding message paper along a predetermined path through said transmitter, a plurality of code pins in said transmitter for cooperation with said paper, means including an electrical circuit for operating said code pins and paper feeding means for effecting signal transmission in timed relation with the feeding of said paper past said code pins, a stop and start signal means in said circuit, a pin reciprocally mounted in said transmitter to project in the path of message paper travel, a pair of confronting resilient contacts in said circuit in operative connection with said movably mounted pin to open said electrical circuit responsive to a break in the supply of paper to said feeding means to automatically stop signal transmission, and means associated with said transmitter for closing said circuit around said resilient contacts to enable the effective operation of said stop and start signal means.

8. In a device of the character described, the combination with a transmitter frame having means for guiding message tape along a predetermined path, of a shoe movably associated with said frame to enclose the path of the tape through said transmitter, means on said frame for feeding the tape through said transmitter frame, an electrical circuit connected to said last named means for controlling the movement of the message tape, a member reciprocably mounted in said frame to project into the path of tape travel therethrough in confronting relation with said shoe, and a pair of electrical contacts in said electrical circuit and mounted on said frame for cooperation with said reciprocally mounted member to stop the operation of said tape feeding means in re-

sponse to a break in the supply of paper to said feeding means.

9. In a device of the character described, the combination with a transmitter frame having means for guiding message tape along a predetermined path, of a shoe movably associated with said frame to enclose the path of the tape through said transmitter, means on said frame for feeding the tape through said transmitter frame, a plurality of code pins reciprocably mounted on said frame for cooperation with said tape, means including an electrical circuit for operating said code pins and feeding means to effect signal transmission, a member reciprocably mounted in said frame to project into the path of tape travel therethrough in confronting relation with said shoe, and a pair of electrical contacts in said circuit, said electrical contacts being mounted on said frame for cooperation with said member to terminate transmission of code signals, and restore line circuit to inoperative condition responsive to a break in the supply of paper to said feeding means.

10. In a device of the character described, the combination with a transmitter frame having means for guiding message tape along a predetermined path, of a shoe movably associated with said frame to enclose the path of the tape through said transmitter, means on said frame for feeding the tape through said transmitter frame, an electrical circuit connected to said last named means for controlling the movement of the message tape, a plurality of code pins reciprocably mounted on said frame for cooperation with said tape, a member reciprocably mounted in said frame to project into the path of tape travel therethrough in confronting relation with said shoe, a pair of electrical contacts in said electrical circuit and mounted on said frame for cooperation with said member to stop the operation of said code pins and tape feeding means responsive to a break in the supply of paper to said feeding means, stop and start signal means in circuit with said contacts, and means for closing said circuit subsequent to a break in the supply of paper to said feeding means to enable the effective operation of said stop and start signal means in circuit therewith.

11. In a device of the character described, the combination with a transmitter frame having means for guiding message tape along a predetermined path, of a shoe movably associated with said frame to enclose the path of the tape through said transmitter, means on said frame for feeding the tape through said transmitter frame, an electrical circuit connected to said last named means for controlling the movement of the message tape, a plurality of code pins reciprocably mounted on said frame for cooperation with said tape, a member reciprocably mounted in said frame to project into the path of tape travel therethrough in confronting relation with said shoe, a pair of electrical contacts in said electrical circuit and mounted on said frame for cooperation with said member to stop the operation of said code pins and tape feeding means responsive to a break in the supply of paper of said feeding means, stop and start signal means in circuit with said contacts, and screw means associated with said shoe for cooperation with said last named means, for closing said circuit subsequent to a break in the supply of paper to said feeding means to enable the effective operation of said stop and start signal means in circuit therewith.

12. In a device of the character described, the combination with a transmitter frame having means for guiding message tape along a predetermined path, of a shoe movably associated with said frame to enclose the path of the tape through said transmitter, means on said frame for feeding the tape through said transmitter frame, an electrical circuit connected to said last named means for controlling the movement of the message tape, a plurality of code pins reciprocably mounted on said frame for cooperation with said tape, a member reciprocably mounted in said frame to project into the path of tape travel therethrough in confronting relation with said shoe, a pair of electrical contacts in said electrical circuit and mounted on said frame for cooperation with said member to stop the operation of said code pins and tape feeding means responsive to a break in the supply of paper to said feeding means, stop and start signal means in circuit with said contacts, and means responsive to removing said shoe from the path of tape travel for closing said circuit subsequent to a break in the supply of paper to said feeding means to enable the effective operation of said stop and start signal means in circuit therewith.

13. In a telegraphic tape transmitter, the combination with a frame, of means for guiding message tape along a predetermined path in said frame, tape feeding means in said path for cooperation with the tape, means including an electrical circuit for operating said feeding means, confronting contacts in said circuit, said contacts being associated with said frame, a member movably mounted in said frame for engagement with one of said contacts to normally project the free extremity of said member into the path of said tape travel, and a lid movably associated with said frame to displace said member through the medium of the tape against the normal urge of said contacts to render said feeding means operative responsive to the uninterrupted supply of tape to said feeding means.

14. In a telegraphic tape transmitter, the combination with a frame, of means for guiding message tape along a predetermined path in said frame, tape feeding means in said path for cooperation with the tape, an electrical circuit connected to said last named means for controlling the movement of the message tape, confronting contacts in said electrical circuit and associated with said frame, a member movably mounted in said frame for engagement with one of said contacts, the free extremity of said member normally projecting into the path of said tape travel, a lid movably associated with said frame to displace said member through the medium of the tape against the normal urge of said contacts to render said feeding means operative during an uninterrupted supply of tape to said feeding means, and another member movably mounted relative to said contacts for momentarily closing the circuit opened by said contacts for enabling manual signal transmission.

15. In a telegraphic tape transmitter, the combination with a frame, of means for guiding message tape along a predetermined path in said frame, tape feeding means in said path for cooperation with the tape, an electrical circuit connected to said last named means for controlling the movement of the message tape, a plurality of code pins cooperating with the tape for message tranmission, confronting contacts in said electrical circuit and associated with said frame, a member movably mounted in said frame for engagement with one of said contacts, the free

extremity of said member normally projecting into the path of said tape travel, a lid movably associated with said frame to displace said member through the medium of the tape against the normal urge of said contacts to render said code pins and feeding means operative responsive to the uninterrupted supply of tape to said feeding means, said member being operative responsive to an interruption in the tape to render said code pins and feeding means inoperative to effect signal transmission, and another member movably mounted relative to said contacts for momentarily shunting the circuit controlled by said contacts for enabling manual signal transmission.

16. In a telegraphic tape transmitter, the combination with a frame, of means for guiding message tape along a predetermined path in said frame, tape feeding means in said path for cooperation with the tape, an electrical circuit connected to said last named means for controlling the movement of the message tape, a plurality of code pins cooperating with the tape for message transmission, confronting contacts in said electrical circuit and associated with said frame, a member movably mounted in said frame for engagement with one of said contacts, the free extremity of said member normally projecting into the path of said tape travel, a lid movably associated with said frame to displace said member through the medium of the tape against the normal urge of said contacts to render said code pins and feeding means operative responsive to the uninterrupted supply of tape to said feeding means, said member being operative responsive to an interruption in the tape to render said code pins and feeding means inoperative to effect signal transmission, another member movably mounted relative to said contacts for momentarily shunting the circuit controlled by said contacts for enabling manual signal transmission, and another member movably mounted relative to said contacts for selectively closing said circuit to enable manual signaling.

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