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C. R. DOTY

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PRINTING TELEGRAPH SYSTEM

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FIG. 1.

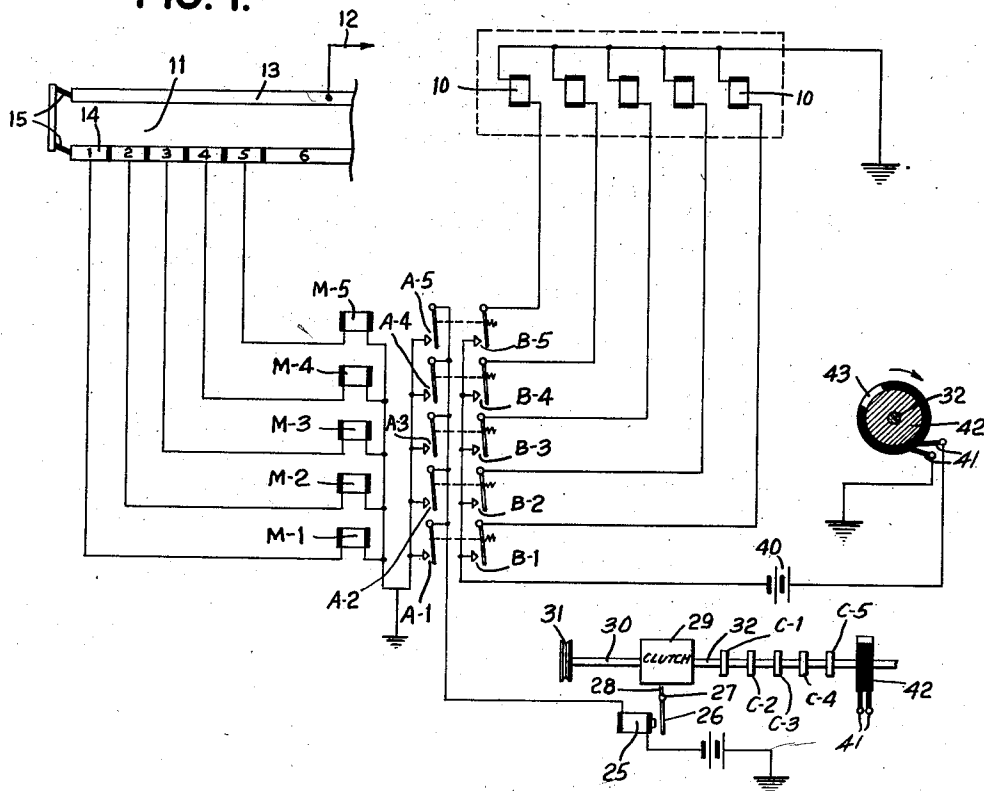
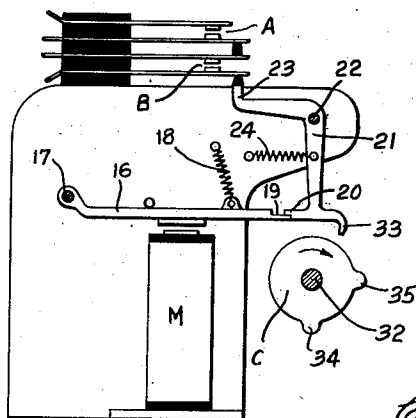


FIG. 2.



INVENTOR
Charles R. Doty
BY
W. M. Wilson
ATTORNEY

UNITED STATES PATENT OFFICE

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PRINTING TELEGRAPH SYSTEM

Charles R. Doty, Binghamton, N. Y., assignor
to International Business Machines Corpora-
tion, New York, N. Y., a corporation of New
York

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10 Claims. (Cl. 178—33)

This invention relates to printing telegraph systems and is particularly applicable to the Baudot or like systems wherein the receiving circuit is arranged to control the simultaneous operation of the receiving printer selector magnets.

An object of the present invention is to provide signal responsive means which control the selection and conditioning of the receiving printer selector magnets in accordance with the received signals and after receipt of the signals to energize the selector magnets simultaneously.

Another object is to provide a control circuit which is conditioned for operation upon operation of any one of the signal responsive means to render the selector magnet energizing means operative and then at a later interval in the cycle to restore the conditioned magnets and circuits to a normal condition.

Further objects of the instant invention reside in any novel feature of construction or operation or novel combination of parts present in the embodiment of the invention described and shown in the accompanying drawing whether within or without the scope of the appended claims and irrespective of other specific statements as to the scope of the invention contained herein.

In the drawing Fig. 1 shows diagrammatically the circuit arrangement embodying the receiver control means.

Fig. 2 is a detailed view of one of the signal responsive means.

Referring now to Fig. 1, the reference character 10 indicates generally the printer selector magnets which, it is well known, are adapted to control the receiving printer means to record the characters in accordance with the received signals. These printer means are well known in the art and need not be explained herein in detail and may be constructed in accordance with any of the well-known receiving devices, one form of which is shown and disclosed in U. S. Patent No. 1,448,750. A receiving distributor generally indicated at 11 is provided and is adapted to be operated in synchronism with the incoming signals. This operation is well known in the art and need not be explained in further detail for it is known that one form may comprise a system employing a similar transmitting distributor and both of said distributors operated in timed relation to transmit the combinational code signals. The signals may be received over the line 12 which is shown to be connected to a common conducting ring 13 of the receiving distributor and the signals impressed on the said line are distributed to the signal responsive means by the various

conducting segments 14 as the brushes 15 are advanced to engage these conducting segments. The individual conducting segments 14 are connected to the individual signal responsive means shown in the form of magnets M—1 to M—5.

Referring now to Fig. 2, a detailed description of the signal responsive means will be given, and it is to be understood that all of the signal responsive means indicated as M—1 to M—5 are similar to the device shown in this figure. Associated with the magnet M is an elongated armature 16 pivoted at 17 and held in the normal inoperative position by spring 18. One end of the armature 16 is provided with an offset 19 normally adapted to engage the arm 20 of the bell crank lever 21 which is pivoted at 22. The lever 21 is provided with an arm 23 which is adapted to close the groups of contacts A and B, whenever the arm 21 is released by the armature 16. The release of arm 21 is effected upon energization of the magnet M which attracts the armature 16 thus drawing the offset portion 19 of the armature out of the path of the arm 20 of lever 21, thereby releasing the said lever which is then urged by a spring 24 in a clockwise direction to position the arm 23 upwardly thereby closing the groups of contacts A and B. The said contacts remain in the described operative position until the lever 21 is restored to normal position as shown in this figure which will be described later herein.

In Fig. 1, the A and B contacts are shown to be associated with the corresponding magnets M and are designated as contacts A—1 to A—5 and B—1 to B—5 and associated with the corresponding control magnets M—1 to M—5. From the description thus far it is seen that the magnets M—1 to M—5 are energized successively in accordance with the received signals to operate the associated contacts A and B and that upon deenergization of the control magnets the operated contacts A and B remain in the operated position until the associated bell crank levers 21 are operated to restore the said levers to their normal position, thus restoring the contacts A and B to their normal open position. The contacts A—1 to A—5 are connected in parallel to a clutch control magnet 25 so that upon energization of any one of the signal responsive means M—1 to M—5 one of the contacts of the group A—1 to A—5 is operated to close the circuit to the clutch control magnet 25 energizing this magnet. The energization of magnet 25 attracts the associated armature 26 which is pivoted at 27 so that the associated extension arm

28 is adapted to operate the clutch unit generally indicated as 29. This clutch unit may take the form of any of the well-known devices to connect the constantly rotating shaft 30 which is driven by any suitable means such as indicated at 31 secured to the shaft 32. A plurality of cams C—1 to C—5 are secured to the shaft 32 and are arranged so as to be able to cooperate with the arm 33 of the bell crank lever 21 (Fig. 2). One cam is provided for each of the bell crank levers 21 and as shown in Fig. 2 each cam is provided with two high spots 34 and 35. The armature 16, the bell crank lever 21 and cam C are so arranged that upon rotation of the cam C the high spot 34 is adapted to engage the arm 33 of the bell crank lever 21 and the high spot 35 is adapted to engage only the extended portion of armature 16. It will now be understood that the individual cams C act as restoring means for the associated armature 16 and bell crank lever 21 in the following manner.

Whenever the individual magnets M are energized to attract the associated armature 16 releasing the associated bell crank lever 21 by means of positioning the offset portion 19 of the said armature away from the arm 20 of lever 21 thus permitting the spring 24 to rotate lever 21 in clockwise direction, as described hereinabove, the associated contacts A and B are then operated by the arm 23 and it is also seen that the arm 33 of lever 21 is positioned so as to ride on the surface of the cam C. Operation of any one of the A contacts causes the clutch control magnet 25 to be energized to operate the clutch unit 29, thereby operating the shafts 30 and 32 in unison. Rotation of shaft 32 in turn rotates cams C and causes the high spots 34 and 35 thereof to approach the arm 33 and armature 16. When the high point 34 engages the arm 33, the bell crank lever 21 is rotated in a counterclockwise direction and is restored to normal position as shown in Fig. 2. Immediately upon the positioning of the bell crank lever 21 in its normal position, the high point 35 of the cams C is adapted to engage the armature 16 and thus positively reset the armature so that the offset portion 19 engages the arm 20 of the bell crank lever to lock the said lever in normal position as shown in the figure. The high points 34 and 35 of the cams C—1 to C—5 are effective simultaneously to restore the individual bell crank levers 21 associated therewith to the normal position indicated in Fig. 2.

It was mentioned that upon operation of any one of the signal responsive means, namely, the magnets M—1 to M—5, in addition to operating the A contacts the associated B contacts are also operated. It is noted that the individual contacts B—1 to B—5 are connected to the individual selector magnets 10 of the receiving printer unit. The group of contacts B—1 to B—5 are also connected by a common conductor to the battery 40 and brushes 41 which engage a rotary slip ring 42 provided with a single conducting segment 43. The slip ring 42 is mounted on the driven shaft 32 and is so arranged thereon that the conducting segment 43 is adapted to engage the brushes 41 at such a time in the cycle after the code signals have been received or, in other words, the slip ring 42 is so arranged on the shaft 32 that the circuit to the conditioned or selected magnets 10 is closed at a time in the cycle to correspond to the time the brushes 15 of the distributor 11 engage the segment 6. The time interval represented by segment 6 is equivalent

to the time required for the brushes 15 to traverse the segments 14—1 to 14—5. Therefore, it is seen that the contacts B—1 to B—5 are operated in succession in accordance with the code combinations of impulses, thus selecting and conditioning the selector magnets 10 accordingly for energization at a timed interval later in the cycle. As mentioned hereinabove, receipt of the first impulses of the code combination is effective by means of one of the A contacts to energize the clutch control magnet 25 operating the clutch 29 to rotate the cams C—1 to C—5 and the slip ring 42. Upon receipt of all the impulses of the code combination, the conducting segment 43 of the slip ring 42 is adapted to engage the brushes 41, thus completing a circuit to all the selected selector magnets 10 to energize simultaneously the said selector magnets. The timing of this operation is such that the brushes 41 do not engage the conducting segment 43 for a predetermined timed interval after the brushes 15 engage the fifth conducting segment 14. The time required for the said conducting segment to be engaged upon operation on the cam shaft is equivalent to the time required for the brushes 15 to traverse the first five conducting segments 14 and to engage the sixth segment of the distributor 11. Upon operation of the selector magnets, the receiver printer is operated in the well-known manner to effect recording of the character in accordance with the received code combination and impulses. Upon energization of the selector magnets, the cams C—1 to C—5 are effective to restore the associated bell crank levers 21 of the corresponding operated signal responsive means to restore the associated contacts A and B to normal open position. It is seen by opening the contacts A—1 to A—5 that the clutch control magnet 25 is de-energized thus restoring the clutch unit 29 to its inoperative position and thereby preventing further rotation of the shaft 32.

It has been found that the described elements can be restored to normal inoperative positions described before completion of the printing operation of the printer controlled by the selector magnets. In this manner overlap can be provided by again conditioning the signal responsive means M—1 to M—5 while the printer is completing the printer operation.

While there has been shown and described and pointed out the fundamental novel features of the invention as applied to a single modification, it will be understood that various omissions and substitutions and changes in the form and details of the device illustrated and in its operation may be made by those skilled in the art without departing from the spirit of the invention. It is the intention therefore to be limited only as indicated by the scope of the following claims.

What is claimed is as follows:

1. A system of the character described comprising means to receive code combinations of electrical impulses, a plurality of control magnets, having associated armatures controlled successively by the electrical impulses, individual control members including means whereby the said members are retained in a normal inoperative position by said armatures and released upon operation of the corresponding control magnets and armatures, printer selector magnets, a plurality of selector contacts controlled by the released control members to select and condition the selector magnets successively for energization in accordance with the received code combination

binations of impulses, rotary means including means whereby the rotary means is operated by the operation of any one of the said control magnets, and including additional means to energize the conditioned selector magnets simultaneously, and means to restore the released control members and selector contacts to the normal inoperative condition.

2. A system of the character described comprising means to receive code combinations of electrical impulses, printer selector magnets, individual means responsive to the said impulses to control successively the selecting and conditioning of the selector magnets for operation in accordance with the received code combinations of impulses, and control means having means whereby the control means is controlled by the operation of any one of the said individual means to operate simultaneously the selected and conditioned selector magnets.

3. A system of the character described comprising means to receive code combinations of electrical impulses, printer selector magnets and controlling circuits therefor, circuit selecting and conditioning means, individual means responsive to the code combinations of impulses to control successively the operation of the said circuit selecting and conditioning means whereby conditioning the selector magnets for energization, and control means having means whereby the control means is controlled by the operation of any one of the said individual means to energize simultaneously the selected and conditioned selector magnets.

4. A system of the character described comprising individual means responsive to code combinations of electrical impulses, control means having means whereby the said control means is rendered operative by the operation of any one of the said individual means, printer selector magnets and control circuits therefor, circuit selecting means controlled by the individual means to condition successively the said control circuits and selector magnets for energization in accordance with the received code combinations of impulses, means controlled by the said control means to energize simultaneously the conditioned selector magnets, additional means controlled by the said control means to restore the said conditioned control circuits to normal, and further means controlled by the said control means to render inoperative the said control means.

5. A system of the character described comprising individual means responsive to code combinations of electrical impulses, printer selector magnets and control circuits therefor, circuit selecting means controlled by the said individual means to condition successively the said control circuits and selector magnets for energization in accordance with the received code combinations of impulses, rotary means including means to energize simultaneously the conditioned magnets, and means to restore the conditioned control circuits to normal condition.

6. The invention set forth in claim 5 including control means having means whereby the control means is controlled by the operation of any one of the said individual means to control the operation of the said rotary means.

7. A system of the character described comprising individual means responsive successively to code combinations of electrical impulses, printer selector magnets, a control circuit and means whereby the control circuit is conditioned upon operation of any one of the said individual means, means rendered operative by the said conditioned control circuit and including means to energize simultaneously the printer selector magnets.

8. A system of the character described comprising means responsive to code combinations of electrical impulses, printer selector magnets and control circuits therefor, contacts selectively controlled by the said means to select and condition successively the selector magnet control circuits in accordance with the received code combinations of impulses, additional contacts and means associated therewith whereby the said additional contacts are operated by the first mentioned means, and means controlled by the said additional contacts to energize simultaneously the conditioned control circuits and selector magnets.

9. A system of the character described comprising means responsive to code combinations of electrical impulses, printer selector magnets and control circuits therefor, contacts selectively controlled by said means to select and condition successively the selector magnet control circuits in accordance with the received code combinations of impulses, additional contacts including means whereby the said additional contacts are operated by said means, and rotary means having means whereby the operation of the rotary means is controlled by the said additional contacts including additional means to control the simultaneous energization of the conditioned control circuits and selector magnets.

10. A system of the character described comprising means responsive successively to code combinations of electrical impulses and groups of contacts having means whereby the contacts are controlled by the first mentioned means, printer selector magnets and control circuits therefor, one of said groups of contacts connected to said selector magnets so that upon operation thereof the said contacts are effected to condition successively the selector magnet control circuits in accordance with the received code combinations of impulses, and rotary means having means whereby the said rotary means is rendered operative by the second group of contacts to control the simultaneous energization of the conditioned control circuits and selector magnets, and means to restore the said groups of contacts to a normal inoperative condition and including means for rendering the rotary means inoperative upon energization of the said magnets.

CHARLES R. DOTY.