Jan. 14, 1936. C. W. BURCKY 2,027,515

TWO-COLOR RIBBON MECHANISM

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FIG. 3

25	Nº 5634	2.00	1
60	" 006	15.50	2
12	SPECIAL	8.00	3
81	"	4.10	4
4	"	152.10	5
112	Nº 16	1.15	6
50	" 5-R	2.65	7

FIG. 2

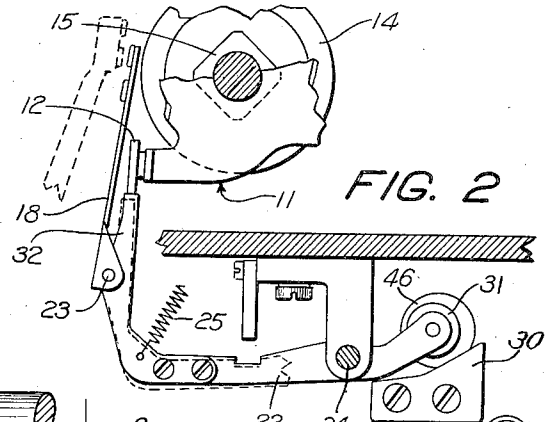
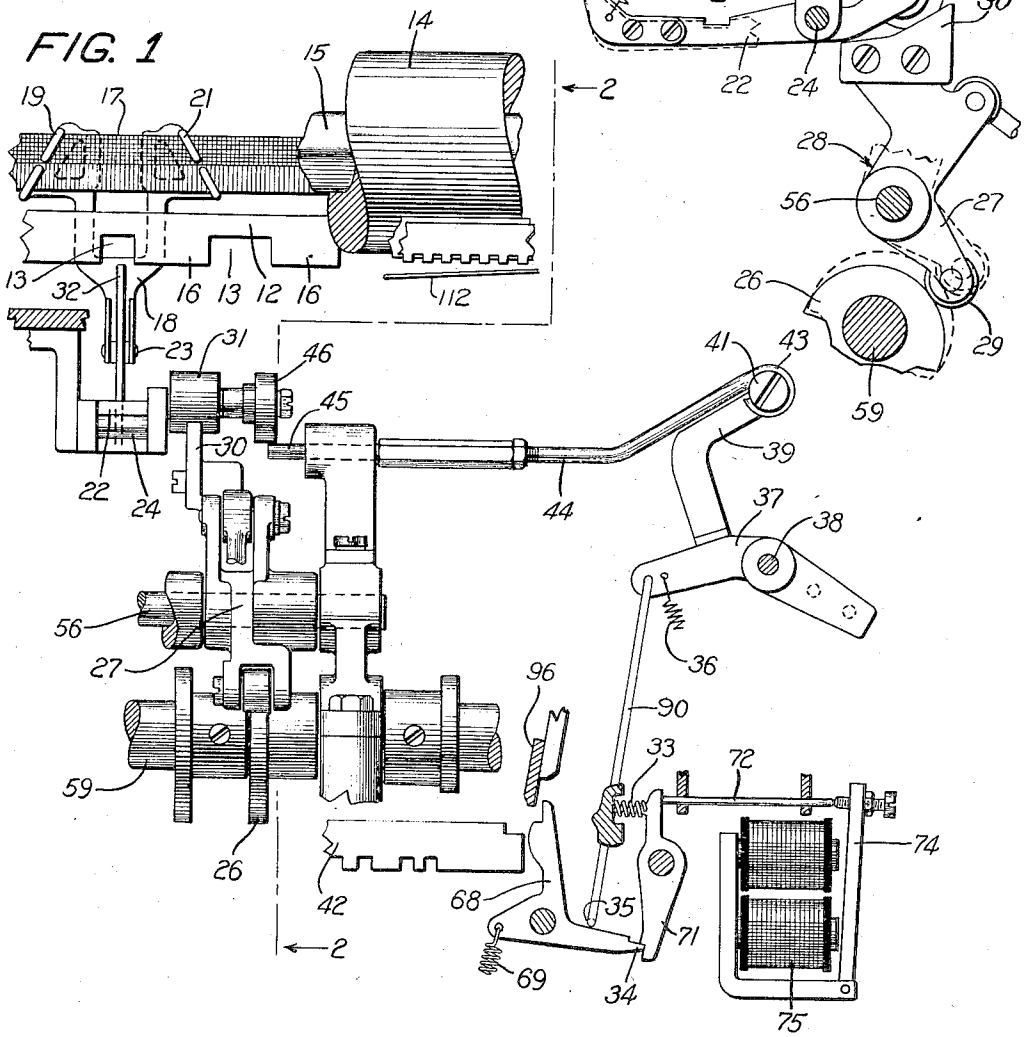


FIG. 1



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TWO-COLOR RIBBON MECHANISM

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9 Claims. (Cl. 178—25)

The present invention relates to electrically controlled printing telegraph apparatus and more particularly to printing telegraph apparatus arranged to record the received information under alternatively different conditions.

The invention has for its salient object the provision of mechanism adaptable to printing telegraph apparatus whereby the information to be recorded will be distinctively allocated and printed to be readily distinguishable.

A feature of the invention contemplates a mechanism that is automatically responsive to a variable code of shift operations for alternatively presenting either of two color areas of a print ribbon in position so that in accordance with the selected code the information printed in different colors is allocated to several columns.

In attaining the above object and feature wherein the information is recorded in columnar arrangement, the mechanism employs a shift control code bar carried by the platen assembly which may be replaced by other bars having different codes to accommodate various code arrangements. The code bar is provided with notches corresponding to the alternative color shift sequence in accordance with the predetermined color printing selection for the different columns of printing. The ribbon shift apparatus carries with it a feeler device which senses the notches in the code bar and in accordance with the presentation of wards or notches accordingly permits the presentment of the colored ribbon areas into printing position.

Since in mechanisms of the general type to which this invention pertains there is provided means for horizontally moving or returning the printing platen and its carriage and since this carriage in returning would otherwise interfere with the ribbon shifting mechanism, means are provided which respond to the carriage return initiating signals for momentarily retracting or blocking the effectiveness of said ribbon shift device so as to prevent its interfering with the appurtenances of the platen carriage as the latter is moved horizontally in response to said carriage return signal.

For a more comprehensive understanding of this invention, reference should be had to United States Patent No. 1,665,594 issued to H. L. Krum April 10, 1928, wherein the printing telegraph apparatus to which the present invention pertains is more fully described and to the accompanying drawing in which like reference characters designate similar parts throughout and in which

Fig. 1 is a fragmentary rear elevation looking from the back of the printing platen towards the front of a machine, such as the one illustrated in Fig. 1 of the patent referred to above.

Fig. 2 is a fragmentary end elevation illustrating certain portions of the mechanism in section and taken approximately on line 2—2 of Fig. 1, and

Fig. 3 is a fragmentary detail view of a printed page illustrating the appearance of color tabulation such as may be obtained by a code controlled tabulation device such as the one shown in Figs. 1 and 2.

In order to assist in correlating certain elements of the present disclosure with the patent referred to above, corresponding elements have been designated with reference characters similar to the ones used in the patent, new reference characters being applied to certain mechanisms only, foreign to the disclosure in said patent.

The printing platen 14 is mounted on a substantially square spindle 15 and is adapted to be moved horizontally step by step as the various printing and spacing operations are executed. Suitable space feeding mechanism as disclosed in the foregoing patent is provided for accomplishing this purpose which in so moving the platen horizontally also moves with it appurtenant carriage mechanism indicated generally by the reference character 11, to which is secured a transversely extensive code bar 12, provided at its under edge with notches 13 and lug portions 16 suitably arranged in accordance with the predetermined allotment of vertical column various colored printing.

In accordance with the illustrated adaptation a two-color ribbon 17 is featured, though it may be understood how by providing the code bar 12 with variable depth notches and lug portions 13 and 16, three or more ribbon shift positions may be obtained for accommodating printing with more than two colors.

A ribbon guide 18 comprising angularly disposed guide arms 19 and 21 is pivotally carried by a reciprocable lever 22 to which it is pivotally secured at 23. The guide 18 is received within suitable clips or other confining elements (not shown) which direct it in vertical reciprocating movement.

Lever 22 to which the guide 18 is secured is at all times urged in a clockwise direction, as viewed in Fig. 2, about its pivot 24 by a spring 25. As the main operating shaft 59 consummates its single revolution cycle in accordance with the reception of each signal and the printing of a character or other functional response, it operates

through a cam 26 to impart reciprocal motion to one arm 27 of a bell crank lever 28 by reason of its engagement with the follower roller 29 carried by arm 27. Lever 28 is pivotally supported upon an intermediate shaft 56 located parallelly with respect to and above the main operating shaft 59.

As lever 28 is reciprocated, a cam segment 30 carried thereby comes into engagement with the roller 31 of lever 22, imparting to it counterclockwise motion in opposition to spring 25. The normal position of operating shaft 59 is as illustrated in broken lines in Fig. 2, whence it presents the apex portion of cam 26 to the follower roller 29. During its cycle, however, when lever 28 is permitted to rock clockwise and spring 25 moves lever 22 clockwise (Fig. 2), an upstanding portion 32 integrally formed with lever 22 may encounter a lug 16 or a notch 13 of the ribbon shift code bar 12. If a lug 16 is encountered the roller 31 is prevented from responding fully to the urge of spring 25 and the ribbon guide 18 is not permitted to rise sufficiently to present the lower color area of the ink ribbon in effective printing position. Under such conditions the ribbon guide 18 is held so as to present the upper color area into printing position so that when the type levers strike against the platen, a color corresponding to the upper area is imparted to the paper which engages the surface of the platen 14.

If, however, the platen has advanced horizontally to a position such as that illustrated in Fig. 1 whence the upstanding arm 32 encounters a space 13 in the color code bar 12, lever 22 is permitted to rotate farther than as shown in Fig. 2, raising the ribbon guide 18 to a position in which the lower color area is brought into registration with the printing elements of the type bars as they are brought against the platen surface 14, and during each printing operation, lever 28 under the stimulus of cam 26 retracts lever 22 and with it the ribbon guide 18, and thereafter presents it to a new position in accordance with the color code bar 12. Thus it will be understood that as the printing operations progress horizontally across a page, various colored vertical columns of printing are obtained, as illustrated in Fig. 3, which columns correspond to the arrangement of notches 13 and lugs 16 in the color code bar or templet 12.

The practice has become well established that in order to obtain a carriage return operation referred to above, a so-called all-space signal is employed. Under the conditions of this signal, the several code selecting bars 42 are presented in the extreme left position as viewed in Fig. 1. The telegraph signals are received over a receiving distributor and are comprised of component impulse intervals during each of which one of two electrical conditions may be received. Upon reception, the electrical condition is channelled to an associated one of a set of selector magnets comprised of a pair of windings 75 the cores of which act upon an armature 74. In accordance with the energization or deenergization of the winding 75, the armature 74 is or is not attracted and thrust leftwardly, as viewed in Fig. 1.

When a marking condition is received, the armature is attracted by the energized condition of the windings 75, causing its associated pin 72 to be moved leftwardly and rocking a latch lever 71 counterclockwise against the tendencies of its associated spring 33. When this is done, a controlled lever 68 is permitted to respond to the urge of its spring 69 by the freeing of its projection 34 and in moving counterclockwise, lever 68 thrusts its associated code bar 42 leftwardly. A bail 96 functioning cyclically, serves to withdraw the several levers 68 in unison after the transfer of each signal to the code bars 42. By referring to the patent mentioned above, the sequence and details under which these selecting operations are performed may be comprehensively understood.

In response to an all-space signal condition, the carriage return operation is executed. As explained in the patent referred to above, this function is manifest by a leftward movement (as viewed in Fig. 1) of the platen 14 and its appurtenances when a latching pawl is released and the platen return spring acting through a strap 112 is permitted to restore the platen carriage. Upon the receipt of a carriage return signal, none of the windings 75 is energized, and consequently the several code bars 42 as well as the levers 68 remain in the condition illustrated in Fig. 1. Under these conditions, the transversely bent lower portion 35 of a link 90 is permitted to drop to its lowermost level, as indicated in Fig. 1, influenced by a spring 36, and causing to be rotated a lever 37 which is pivoted about shaft 38. An extended arm 39 carried by lever 37 is provided with a pivot stud 41 which passes through an eyelet 43 of a stop bar 44. The influence of spring 36 in rotating lever 37 counterclockwise, causes the stop bar 44 to be presented so that its foremost end 45 blocks the path of an eccentric disc 46 carried by an extended portion of lever 22. With bar 44 in its effective or stop position, lever 22 is prevented from rotating, and accordingly the upstanding portion 32 thereof is withheld from engagement with the color code bar 12.

Thus it will be understood that following the reception of an all-space signal when the platen 14 and its carriage is to be returned to its start position, the upstanding portion 32 of lever 22 is withheld from engagement with the notches and lugs 13 and 16, which would otherwise occur and cause an interference with the movement of the platen carriage.

While this invention has been explained and described with reference to a particular adaptation, it will be understood that numerous modifications and variations may be made without departing from the spirit or scope thereof. Accordingly it is not intended to be limited by the details of the accompanying drawing nor by the language of the foregoing specification, except as indicated by the hereinafter appended claims.

What is claimed is:

1. In a telegraphically controlled printing apparatus, a plurality of type elements, a platen, shift mechanism associated with said platen, a set of notched code bars variously positionable for accordingly controlling the performance of type elements, and a notched bar for controlling the performance of said shift mechanism.

2. In a printing telegraph apparatus, a longitudinally movable printing platen, a shiftable ribbon carrier, a notched templet carried by said platen, a sensing device presentable against said templet for accordingly controlling said ribbon shifting device during a printing operation, and means for withholding the sensing device from engagement with said templet during a platen return operation.

3. In a printing telegraph apparatus, a longitudinally movable printing platen, a shiftable ribbon carrier, a notched templet carried by said

platen, a sensing device presentable into the path of said templet for accordingly controlling said ribbon shifting device, and a blocking element interposed in the path of said sensing device under the control of a signal which functions to return said printing platen.

4. In a page printing mechanism, a movable platen, means under the control of telegraph signals for returning said platen after the execution of a predetermined number of print operations, a tabulation device, a templet carried by said platen, a sensing mechanism for controlling said tabulation device including a portion presented in a path of said templet, and means responsive to said signal for withdrawing said sensing device from the path of said templet during the return movement of said platen.

5. In a printing telegraph apparatus, a platen, a shiftable ribbon carrier, a notched bar for determining the position of said ribbon carrier, means for shifting said ribbon carrier as determined by said bar, a typing mechanism, means for effecting relative movement between said platen and said typing mechanism, and means effective during such relative movement in one direction for rendering said shifting means non-responsive.

6. In a printing telegraph apparatus, a longitudinally movable printing platen, a plurality of type elements to be brought into engagement with said platen, a notched bar movable with said platen, oscillatable sensing means adapted for engagement with said bar, means for oscillating said sensing means, and an ink ribbon holder supported by said sensing means.

7. In a printing telegraph apparatus, a longitudinally movable printing platen, a ribbon carrier, a plurality of printing elements, a notched templet carried by said platen, and a sensing device presentable against said templet and supporting said ribbon carrier for controlling said ribbon carrier in accordance with said templet.

8. In a printing telegraph apparatus, a longitudinally movable printing platen, a plurality of printing elements, a ribbon carrier, a notched templet movable with said platen, a sensing device oscillatable into and out of cooperative association with said templet and supporting said ribbon carrier, and means for oscillating said sensing means in synchronism with the actuation of each printing element for controlling said ribbon carrier in accordance with said templet.

9. In a printing apparatus, a longitudinally movable printing platen, a plurality of type elements to be brought into printing engagement with said platen, a multi-colored ink ribbon interposed between said printing elements and said platen, a shiftable support for said ink ribbon, a rotatable eccentric for shifting said support, and means comprising a templet associated with said platen for determining the extent of the shifting of said shiftable support in accordance with predetermined positions of said platen for thereby effecting multi-color printing tabulation.

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