

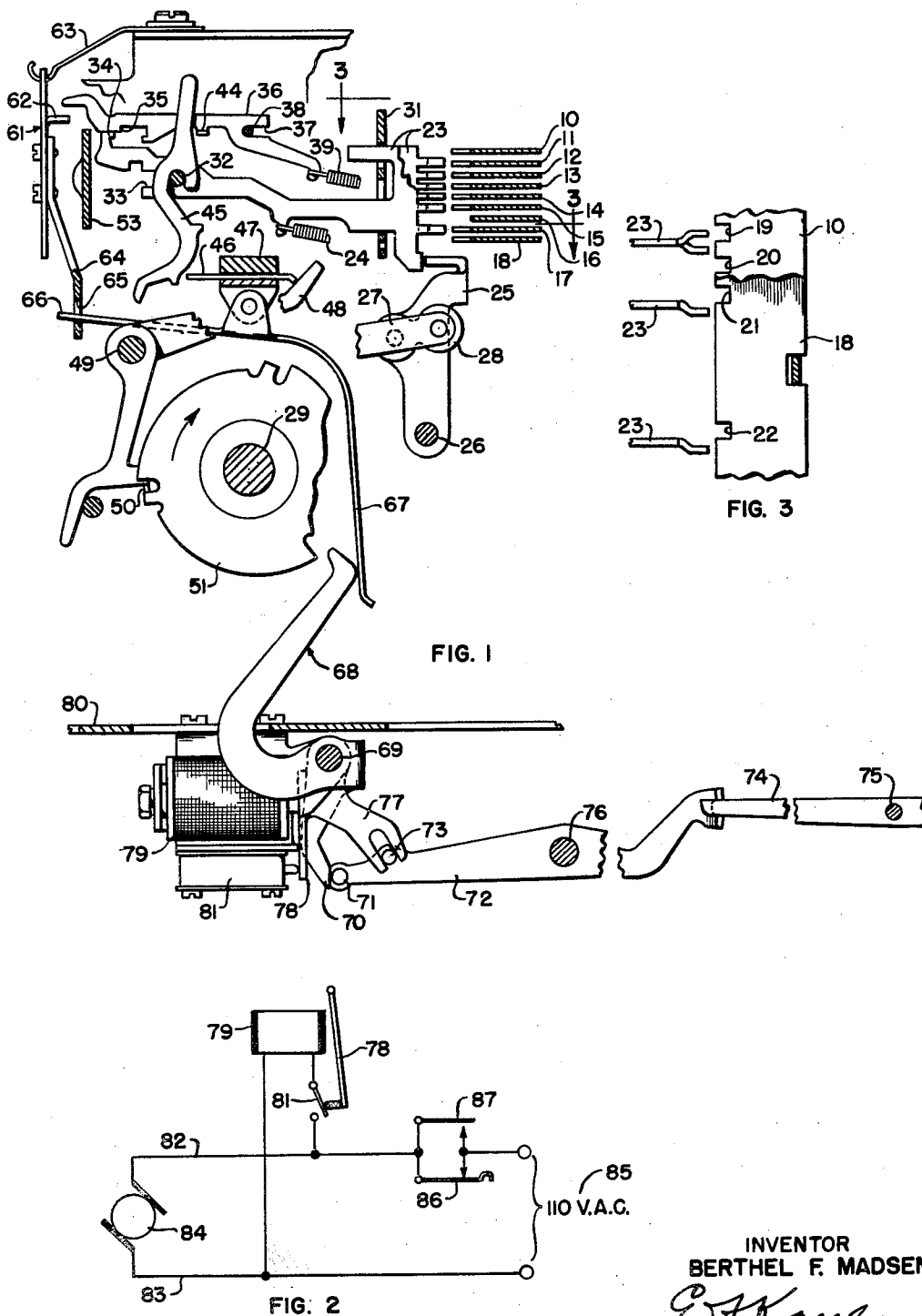
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FUNCTION DISABLING MECHANISM FOR TELEGRAPH PRINTERS

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FUNCTION DISABLING MECHANISM FOR TELEGRAPH PRINTERS

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This invention relates to function disabling mechanism for printing telegraph printers and more particularly to a function disabling mechanism for page printers that is selectively operable to cause the printer to respond differently to identical received code combinations.

In order to utilize printing telegraph page printers in the most economical manner, in some types of operations, the printer is used during a given period of the day to accept intraoffice signals for the purpose of typing forms such, for example, as invoices and then during other portions of the day is connected to a telegraph line to receive regular telegraph messages. For example, during the ordinary day time business hours a printing telegraph page printer may be used to print such items as invoices and then be connected to a line to accept messages from remote stations during the night hours. When a page printer is so used, a given code combination, constituting a complete command directed to the printer, may be used during the day time hours for such operations as either vertical tabulation or horizontal tabulation of a form, that is, line spacing or character spacing, and during the night hours this identical code combination may be used for other functions. In order to utilize a page printer in this manner certain of the functions used during one portion of the day must be disabled so that the code signals received by the page printer would have a different effect at the other portion of the day.

It is an object of the present invention to provide a telegraph printing apparatus that may be selectively set to respond differently to the receipt of identical code combinations.

Another object of the invention is to provide a function disabling mechanism for a telegraph page printer to arrange the printer to perform different functions upon the receipt of identical signals.

One embodiment of the invention may be applied to a telegraph page printer of the general type disclosed in Patent No. 2,505,729 to W. J. Zenner, issued April 25, 1950, equipped with a keyboard mechanism such as that shown in Patent No. 2,607,848 to W. J. Zenner, issued August 19, 1952, and with a function controlling mechanism such as shown in Patent No. 2,667,533 to W. J. Zenner, issued January 26, 1954. In order to simplify the disclosure of the present invention these three patents to W. J. Zenner are incorporated herein by reference insofar as is necessary to afford a complete understanding of the present invention. In this embodiment of the invention an apparatus of the type covered in such patents is provided with a function disabling key lever for moving the armature of a holding magnet into operative association with the magnet and for simultaneously closing a circuit to the magnet. The armature of the magnet actuates a leverage mechanism for holding a blocking member out of blocking engagement with secondary function members or pawls that may be selectively actuated under control of function slides that are selected for operation by the code bars of the apparatus. The key lever in being moved to position to move the armature of the holding magnet to its operated position also closes a circuit to supply current to the electromagnet from the main power supply of the apparatus whereby when the main power supply to the apparatus is interrupted the electromagnet will be released thereby

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to release the leverage mechanism and permit the blocking member to be moved to position to block selected ones of the secondary function members or pawls. This will restore the apparatus to regular operation where it will respond to regular telegraph codes to effect the regular function usually effectuated by a given function signal until the suppression key is again operated.

A complete understanding of the invention may be had by reference to the accompanying drawing wherein:

FIG. 1 is a sectional view taken through a printer apparatus in the area occupied by the function mechanisms;

FIG. 2 is a circuit schematic showing the manner in which the electromagnet is connected into the power circuit of the apparatus, and

FIG. 3 is a fragmentary plan sectional view taken substantially along the line 3—3 of FIG. 1 in the direction of the arrows showing an illustrative arrangement of the code bars and function slides.

In the drawing wherein like reference characters designate the same parts in the several views there is illustrated in detail only so much of the printer mechanism as is necessary to an understanding of the invention and the aforementioned three patents to Zenner are incorporated herein by reference for detailed disclosure of the other parts of the printer apparatus.

A plurality of code bars 10 to 18, which correspond to the code bars 62 to 70 of Zenner Patent No. 2,505,729, are provided which are set to selected positions under control of signals received in the apparatus and these code bars in turn align their notches, such as the notches 19 to 22 (FIG. 3), with the coded ends of function slides 23 which are the same as the function bars 39 of said Zenner Patent No. 2,505,729. The function slides 23 which have substantially the same configuration as the function slides of Patent No. 2,667,533 will be permitted to move toward the code bars 10 to 18 under the influence of their springs 24 once in each cycle of the apparatus upon being released by a reset bail blade 25.

The reset bail blade 25 is moved to the position shown in FIG. 1 once in each function cycle of the apparatus, being rocked about its pivot shaft 26 by a rocker arm 27 which is interconnected with the reset bail 25 by a link 28. The rocker arm 27 will have oscillatory movement imparted to it upon the tripping of the function clutch as shown in said Patent No. 2,505,729 to W. J. Zenner. The rocker arm 27 receives its operating power from a main shaft 29 which is the equivalent of the main shaft 27 of the Zenner Patent No. 2,505,729 and serves to supply power for operating the various portions of the apparatus through clutches such as the line feed clutch 30 shown in FIG. 1.

The function slides 23 are slidable in a bracket 31, positioned adjacent to the code bars 10 to 18, and on a support shaft 32 which supports their left ends as viewed in FIG. 1. Each of the function slides 23 is slotted as shown at 33 to engage the support shaft 32. The left end of each of the function slides 23 has a shoulder portion 34 which extends upwardly from it for cooperation with a shoulder 35 formed on the underside of a secondary member or function pawl 36. In a condition of rest the undersurface of the function pawl 36 rests on the upper surface of the shoulder portion 34 of the function slide 23 whereby the function slide 23 is slidably supported with respect to the function pawl 36. The right end of the function pawl 36 has a slot 37 formed in it to slidably engage a support rod 38 and each of the secondary members or function pawls 36 is normally urged to the right (FIG. 1) by a contractile spring 39 individual to it.

In the normal operation of the apparatus the code bars 10 to 18 are set to selected positions in response to permutation code signals received in the apparatus selectively to align notches such as the notches 19 to 22 with pro-

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jections formed on the function slides 23. After a signal has been received in the apparatus and the code bars 10 to 18 have been set to their respective positions the rocker arm 27 will rock the bail blade 25 clockwise about the pivot shaft 26 thereby to permit the springs 24 to move the function slides 23 over to sense or read the position of the code bars 10 to 18. When the signal received in the apparatus calls for a particular function, the function slide 23 for controlling the operation of this function will be permitted to move to the right (FIG. 1) since the code bars 10 to 18 will be aligned in such a manner that the right end of the function slide 23 will be permitted to move into aligned notches in the code bars. When this occurs the shoulder portion 34 of the selected function slide 23 will slide to a position where the left edge of it will be to the right of the shoulder 35 on the secondary member or function pawl 36 aligned with it. Consequently, when the reset bail blade 25 is returned to the position shown in the drawings, the function pawl 36 will be moved to the left from the position shown in the drawing.

Each function pawl or secondary member 36 has a laterally extending projection 44 formed on it for engagement with a function lever 45 individual to it. The function levers 45 are oscillatably mounted on the support shaft 32 and when the reset bail blade 25 pushes the function slide 23 to the left thereby to move the function pawl 36 to the left, the function lever 45 associated with that particular pawl 36 will be rocked counterclockwise about the support shaft 32. When a function lever 45 is rocked counterclockwise, about the support shaft 32, its lower end will engage with a function slide arm such as the slide arm 46 which is slidable in a block 47. The slide arm 46 has its right end positioned in cooperative relation to a clutch trip arm 48 which is pivoted on a shaft 49 and upon being rocked clockwise about the shaft 49, the trip arm 48 will move its blocking extension 50 out of engagement with a disc 51 forming a part of the clutch 30 for the selected function to initiate a function operation.

When a function operation is initiated the clutch for that function will be tripped in the manner just described. Obviously, this function could well be a function such as "tabulation" in either a vertical or a horizontal direction and could respond to a code combination such as upper case "G." If the operation involved a vertical tabulation a clutch such as one of the clutches 105 to 109 of the Zenner Patent No. 2,505,729 could be operated to control such function. In any event, at the end of any function operation or at least prior to the setting up of function pawls 36 of a succeeding function, the previously selected function pawl 36 is stripped from its function slide 23 by a function pawl stripper bail 53 similar to the bail 182 of Zenner Patent No. 2,667,533 to restore the apparatus to condition to operate in accordance with succeeding line signals received by it.

The signal initiating a tabulating operation could be the signal for upper case "G" which in the normal operation of the printer would print an ampersand. While this particular case has been adopted for illustration other code combination signals could be used in the same manner. If it be assumed that, for example, during the day time the printer is to be used for intraoffice use wherein invoices are being typed which require vertical tabulation, the tripping mechanism for vertical tabulation could be made to respond to the upper case "G" permutation code signal. During night time use it might be desired to utilize the symbol for the ampersand and this function or printing operation might be assigned the same code combination for upper case "G" which controlled the day time tabulation operation.

When a printer is to be used in this manner it is provided with mechanism for blocking predetermined ones of the function pawls or secondary members 36 from being selected. This mechanism includes a blocking member 61 having tabs 62 formed on it for engagement with those function pawls 36 which during day time would be selected

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upon receipt of a predetermined code combination. The blocking member 61 is suspended on suitable leaf springs 63 mounted on a stationary portion of the apparatus which springs normally urge the blocking member 61 upwardly to move the tabs 62 into engagement with their associated function pawls 36 to rock the pawls about the support rod 38 in a clockwise direction to a limited extent sufficient to lift the under surface of these pawls 36 off of their associated function slides 23. This will prevent selection of those pawls. The blocking member 61 has fixed to it an arm 64 which is provided with a slot 65 for receiving the extending end of a lever 66. This lever 66 is pivoted on the block 47 and has its lower end 67 in engagement with a cam actuated lever 68 which is pivoted on a suitable pivot shaft 69 and has a cam arm 70 in engagement with a camming pin 71. The camming pin 71 is mounted on the end of a key actuated lever 72 which also carries a second camming pin 73. The lever 72 may be actuated by a key lever 74 operated by a suitable key on the keyboard of the apparatus (not shown). When the key on the keyboard is depressed the key lever 74 will rock about a pivot rod 75 in a clockwise direction (FIG. 1) to rock the lever 72 in a counterclockwise direction about the pin 76 which pivotally supports it.

The pin 73 on the lever 72 is slidable in the bifurcated end of an armature lever 77. This armature lever 77 is formed integrally with an armature 78 which is pivoted on the pivot shaft 69 and the armature 78 will be held in the position shown in FIG. 1 by an electromagnet 79 that is mounted on a base plate 80 of the apparatus. The electromagnet 79, as shown in FIG. 2, is connected through a microswitch 81 to the power supply lines 82 and 83 which supply power to drive the motor 84 of the apparatus. The electromagnet 79 is designed so that it will hold the armature 78 in the position shown in the drawings after the armature has been moved into proximity to the electromagnet 79 but the magnet 79 is not sufficiently strong to attract the armature 78.

The power supply line 83 is connected directly to one side of a source of power 85 whereas the line 82 is connected to the other side of the power supply through a manually operable switch 86 or a mechanically actuated switch 87. The manually operable switch 86 may be closed (as shown in the drawing) to supply power continuously to the motor 84 during the operation of the apparatus for intraoffice purposes whereas the switch 87 may be closed, as usual in printing telegraph systems, upon the receipt of a motor start signal.

In the operation of the apparatus, the switch 86 may be closed for use of the apparatus for intraoffice purposes and this will supply power continuously to the motor 84 provided the key lever 74 is operated mechanically to rock the lever 68 to the position shown in the drawings thereby to close the microswitch 81 and hold the lever 68 in the position shown. This will permit any of the function pawls 36 to be selected for operation since blocking member 61 will be drawn downwardly against the action of the leaf springs 63. At the end of the intraoffice operation of the apparatus, the switch 86 may be opened thereby to break the holding circuit to the electromagnet 79. When the electromagnet 79 is released, the cam actuated lever 68 will be permitted to rock in a counterclockwise direction under the influence of the leaf springs 63 which are interconnected with it through the blocking member 61 and lever 66. The operation of the apparatus in response to line signals may be initiated by closing the switch 87 upon receipt in the apparatus of a motor start signal and the apparatus will then respond to line signals but those function pawls 36 that are blocked by tabs 62 will not be selected in response to line signals and the functions controlled by the blocked pawls 36 will not be performed. The apparatus may be used in this manner until the key lever 74 is again actuated to cam the cam 70 and the armature lever 77 clockwise about the pivot shaft 69 whereupon the apparatus will be restored to the

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condition shown in the drawing and any function pawl 35 may be selected for operation until the connection from the power source 85 to the line 82 is again broken whereupon the electromagnet 79 will be de-energized to release its armature 78 and thus permit the blocking member 61 to move upwardly to block selected functions from being performed.

Although only one embodiment of the invention is shown in the drawings and described in the foregoing specification it will be understood that the invention is not limited to the specific embodiment described but is capable of modification and rearrangement and substitution of parts and elements without departing from the spirit of the invention.

What is claimed is:

1. In a telegraph printer having a selector mechanism comprising a plurality of permutation code bars permutatively shiftable to predetermined positions in response to received code combination signals, a plurality of function slides slidably mounted for movement toward and away from said code bars, a function pawl associated with each function slide and disposed in alignment therewith for selective actuation by its associated function slide when its slide is moved toward the permutation code bars to a predetermined extent, a function actuating blade for moving those function slides that have moved beyond said predetermined point away from the code bars, a separate function lever for actuation by each function pawl, a function clutch for actuation by each of said function levers, in combination with

- (a) a blocking member normally biased to block at least one of said pawls from being operatively engaged with its associated function slide,
- (b) a leverage mechanism for moving said blocking member out of blocking relation with said function pawls,
- (c) manually operable means for actuating said leverage mechanism,
- (d) electromagnetic means for holding said leverage mechanism actuated, and
- (e) switch means actuated by said leverage mechanism for supplying current to hold said electromagnetic means operated.

2. An apparatus in accordance with claim 1 wherein a holding circuit is provided for holding the electromagnetic means energized and is interrupted by interrupting the power supply to the apparatus.

3. In a telegraph printer having a selector mechanism comprising a plurality of permutation code bars permutatively shiftable to predetermined positions in response to

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received code combination signals, a plurality of function slides slidably mounted for movement toward and away from said code bars, a function pawl associated with each function slide and disposed in alignment therewith for selective actuation by its associated function slide when its slide is moved toward the permutation code bars to a predetermined extent, a function actuating blade for moving those function slides that have moved beyond said predetermined point away from the code bars, a separate function lever for actuation by each function pawl, a function clutch for actuation by each of said function levers, in combination with

- (a) a blocking member normally biased to block at least one of said pawls from being operatively engaged with its associated function slide,
- (b) a leverage mechanism for moving said blocking member out of blocking relation with said function pawls including a cam actuated lever,
- (c) a key actuated pin on it for operating said cam actuator lever,
- (d) a second camming pin on said key actuated lever,
- (e) an armature having an armature lever fixed to it for actuation by said second camming pin to move the armature to a predetermined position,
- (f) an electromagnet for holding said armature and cam actuated lever in said predetermined position, and
- (g) switch means actuated by the cam actuator lever for supplying current to said electromagnet to hold it energized.

4. An apparatus according to claim 3 wherein the current for holding said electromagnet operated is sent in parallel also to the main motor for the apparatus whereby interruption of the supply of current to the main motor will interrupt the flow of current to the electromagnet to release it.

5. An apparatus according to claim 3 wherein said second camming pin rides in a bifurcated end of said armature lever and holds the armature lever in a position to retain the armature away from the electromagnet unless the key lever is operated.

6. An apparatus according to claim 4 wherein switch means are provided whereby the circuit for supplying current to the main motor may be re-established without re-energizing the electromagnet.

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