

Description

This invention relates to a hand-held labelling machine comprising: a housing having a manually engageable handle, the housing having means for holding a label supply roll of a composite web having labels releasably adhered to a backing strip, means for printing on a label at a printing position, means for peeling the printed label from the backing strip, label applying means disposed adjacent the peeling means, means for advancing the web to peel a printed label from the backing strip at the peeling means and advance the printed label into label applying relationship with the label applying means and to advance another label into the printing position, means including data entry means on the housing for entering selected data to be printed, the printing means including a thermographic printing head having a plurality of individually selectable printing elements powered by a source of electrical energy for printing on a thermographic label at the printing position, means coupled to the data entry means for receiving and electrically processing data representative of the selected data entered via the data entry means, said data receiving and processing means including storage means for data representative of printable characters, means electrically coupling the data receiving and processing means and the thermographic printing head, and means for causing the data receiving and processing means to operate the thermographic printing head to print the selected data on the label.

A hand held labelling machine of the above-referenced type is disclosed in EP-A-0 000 657. Such labelling machine advantageously allows for purely electrically controlled printing by electrically processing data entered via a keyboard and selectively energizing the printing elements of the thermographic printing head to print out the entered data on the label. Although this purely electric printing process of the known hand-held labelling machine avoids many shortcomings of mechanical labeler it is still open for substantial improvements with respect to versatility and ease and safety of operation.

US-A-4,244,628 and US-A-4,254,409 disclose stationary thermographic printers comprising means for causing the print-out to be arranged in selected ones of prestored fonts and/or formats. Both printers receive their input data as a continuous stream of information from a host computer. While in the case of US-A-4,244,628 the control means for the printer is adapted to accept serial data, parallel data or analog data from the host computer which may be processed according to different print formats as controlled by software of a microcomputer contained in the control means, US-A-4,254,409 is designed for receiving a continuous sequence of control characters and printable characters in which the control characters are used to determine the font or printing format of the subsequent string of information. The type of font and/or format con-

trol used in these stationary printers has thus no effect on the operating mode of the input means and the printer responds to the input means without any need for the input means to assume different operating modes in response to control signals received from the printer control means.

Some simple type of font control to the effect that characters of different heights widths may be printed by a matrix printer of a ticket vending machine is disclosed in US-A-3,931,761. The selection of the different heights and widths of characters is caused by a predetermined program in a control processor for the matrix printer and there is no means to influence the sequence of fonts by external input of control characters.

It is thus an object of the present invention to provide a hand-held labelling machine of the above-referenced type in which an automatic cyclic control sequence is established which calls for selection of an admissible font and/or format and assures the entered printable data to comply with this selected font and/or format.

The present invention provides a hand-held labelling machine of the above-referenced type and further characterized in that said data receiving and processing means includes control means for causing the print-out of said data by said printing elements to be arranged in selected ones of a plurality of predetermined fonts and/or formats as defined by font and/or format identifying information stored in the storage means of said data receiving and processing means, said control means being operative to enable said data entry means to only accept input of predetermined font and/or format identifying data for selection of a desired font and/or format prior to entry of any printable data, and once the font and/or format has been selected, enabling said data entry means to only accept input of printable data which are restricted to comply with the selected font and/or format.

An exemplary embodiment of the present invention will be explained in the following description with reference to the drawings in which:

FIG. 1 is a perspective view of a hand-held labeler in accordance with one embodiment of the invention;

FIG. 2 is a fragmentary, partly broken away, side elevational view of the labeler;

FIG. 3 is a functional block diagram of the electronic control circuitry of the labeler according to the invention;

FIG. 4 is a schematic diagram of the microcomputer utilized in the labeler;

FIGS. 5 and 6 are illustrations of two different thermographic print heads usable in conjunction with the present invention;

FIG. 7 is an illustration of various types of characters that can be printed by the labeling machine according to the present invention; and
FIGS. 8-13 are logical flow diagrams describing the logical sequence of operations performed by the microcomputer during data input and label printing operations.

Referring initially to Fig. 1, there is shown a

hand-held labeler generally indicated at 20. The labeler 20 includes a housing generally indicated at 21 comprised of housing sections 22 and 23 which define opposite sides of the labeler 20. The housing 21 also includes a movable housing section 24 as shown to be pivotally mounted on the said axis as a label applicator 25 which is shown to comprise a rotatable roll. The housing also includes a handle 26 provided by the outer shell of a rechargeable battery. The handle 26 is removable as shown by phantom lines in Fig. 1. As seen, the applicator 25 is disposed at the front portion of the housing 21 and a label roll R is mounted to a rear portion of the housing 21. A keyboard 27 having a plurality of manually selectable keys 28 is shown to be disposed at a top portion of the housing 21. A visual display 29 is disposed adjacent the keyboard 27 and is shown to face upwardly and rearwardly. More specifically, the keyboard 27 and the display 29 are mounted on the movable section 24 of the housing 21. The movable section 24 is releasably latched in the closed position shown in Fig. 1 but may be released to be pivoted to an open position.

With reference to Fig. 2, there is diagrammatically illustrated a printed circuit board 32 disposed in underlying relationship with respect to the keyboard 27. The circuit board is shown to be adjacent and generally parallel to the keyboard 27. A flexible ribbon connector (not shown) is connected to a switch 34, the a stepping motor 35, and to a plurality of electrically selectable printing elements disposed on a thermographic print head 36. The switch 34 has a switch button 37 disposed at the handle 26 in a position to be operated by the user's index finger. By the intermediary of a reduction gear transmission the stepping motor 35 drives a feed wheel 44 having a plurality of peripherally spaced teeth 45. The teeth 45 engage a carrier web W at cuts C to draw the carrier web W and labels L which it carries from the label roll R. The web W is drawn over the roll R and passes over a resilient device 46 to between a brake roll 47 and a brake surface 48, to and partially around a roll 49, to between the printing elements 36 and a platen 50, through a sharp bend about a delaminator 51 where the leading label on the web W is dispensed into label applying relationship with respect to applicator 25, partially around a roll 52, partially around a roll 53, into engagement with the toothed feed wheel 44, and out of the apparatus as indicated at 54.

Referring now to Fig. 3, there is shown the interrelationship between many of the previously described mechanical and electromechanical portions of the labeler such as the keyboard 27, the display 29, the stepping motor 35, the print head 36, the trigger 37 and the control circuitry, which is responsive to inputs from the keyboard 27 and the trigger 37 and serves to control the display 29, the stepping motor 35 and the print head 36. The control circuitry is generally designated by the reference numeral 200 in Fig. 13, and comprises a microcomputer 202 which includes a central pro-

cessing unit, a read-only memory and a random-access memory (not shown in Fig. 3 but described in a subsequent portion of the application) which cooperate to perform the functions required to receive data from the keyboard 27 and provide the required computations to drive the display 29, the stepping motor 35 and the print head 36 in accordance with the instructions received from the keyboard 27. The control signals from the microcomputer 202 that drive the display 29 are applied to a display driver 204 and are processed thereby to convert the data from the microcomputer 202 to segment driving data that activate predetermined segments of the display 29. A motor driver 206 is responsive to step data from the microcomputer 202 and serves to energize various windings of the stepping motor 35 in a predetermined sequence in response to the step data in order to cause the motor 35 to rotate. A print head driver 208 provides power to the individual elements of the print head 36. The print head driver may be simply a plurality of amplifiers, one for each element, which amplify signals from the microcomputer 202, or may include a serial-to-parallel converter that converts serial digital data from the microcomputer 202 to parallel data for driving each of the individual elements of the print head 36.

A switch 210 is controlled by the trigger 37 and causes the microcomputer 202 to advance the stepping motor 35 in order to cause the motor 35 to feed the web whenever the trigger 37 is depressed. A stop feed switch 212, which may be controlled, for example, by a cam 35' driven by the motor 35, or by a notch or the like in the web, is coupled to the microcomputer 202 and serves to terminate the advancement of the web after the web has been advanced a predetermined amount, generally the length or width of a label. A reset circuit 214 is coupled to the source of power for the labeler, such as, for example, the output of the regulated voltage which powers the control circuitry, resets the microcomputer 202 each time the power is turned on to assure that no extraneous data is present in the microcomputer 202 prior to the entry of any data by the keyboard 27.

In operation, data to be printed is entered into the microcomputer 202 manually via the keyboard 27, or automatically from another computer or data output source, such as, for example, a cassette recorder (not shown). The entered data may be numeric, alphanumeric and may be of various fonts and sizes, depending on the complexity of the program stored in the microcomputer 202. For example, if the data were entered from the keyboard 27, any of the digits 0 through 9 could be entered, as well as a dollar sign, slash and period. Also, with an appropriate program, the font can be changed to larger or block letters, for example, by depressing the BK key on the keyboard 27. Spaces can be entered by depressing the S key, and the memory can be cleared in the event of an error by depressing the C key. Also, different fonts can be entered by

depressing various combinations of keys, for example, by simultaneously pressing the BK and \$ keys prior to or while entering data if the microcomputer 202 is programmed to recognize such combinations.

Each line of entered data is displayed on the display 29 as it is being entered, and if two lines of data are being entered, the display is cleared after the entry of the first line so that the second line can be displayed. Once the input data has been correctly entered, as evidenced by the display 29, any number of labels can be printed by depressing the trigger 37 to close the switch 210. The closing of the switch 210 causes the microcomputer 202 to energize the motor 35 via the motor driver 206, and to maintain the motor 35 energized until the switch 212 is closed, for example, by a notch or other indexing mark on the web, or by a cam 35' or the like driven by the motor 35 which indicates that a complete label has been printed. The motor is then deenergized, and the printing will stop until the trigger 37 is depressed again.

During the time that the motor 35 is being driven by the microcomputer 202, the various elements in the print head 36 are energized by the microcomputer 202 via the print head driver 208 in the sequence necessary to cause the input data to be printed in the desired font. The data from the microcomputer 202 is applied to the print head driver 208 in parallel or serial form, preferably in serial form, in which case the print head driver converts the input information into parallel form for simultaneously energizing all of the elements in the line array that need to be energized in order to define one line of the array forming the character or characters being printed.

The microcomputer 202 of Fig. 3 is illustrated in greater detail in Fig. 4. The microcomputer 202 can take on many different configurations, and a typical configuration is illustrated in Fig. 4. In the circuit illustrated in Fig. 4, the microcomputer 202 contains a central processing unit (CPU) 220 which contains, in the present embodiment, an onboard random-access memory (RAM) having a capacity of 128 bytes, as well as an internal clock whose frequency is controlled by a quartz crystal 222 and a pair of capacitors 224 and 226. In the present embodiment, an MC 6802 integrated circuit manufactured by Motorola, Incorporated, is used as the central processing unit 220; however, many similar integrated circuits manufactured by other manufacturers are available.

A read-only memory (ROM) 228 is used in conjunction with the central processing unit 220. The read-only memory 228 serves to store various data such as the program that controls the operation of the CPU 220, various data format data, error checking data, and various miscellaneous data necessary to assure proper operation of the labeler. As in the case of the central processing unit 220, various circuits suitable for use as the read-only memory 228 are available, but in the present embodiment, a type 2716 read-only memory, which is capable of storing 16,000 bits of

information, or 2,000 words of 8 bits each, is used as the read-only memory 228. The capacity of the read-only memory 228 may be either increased or reduced as necessary, depending on the number of functions desired of the labeling machine, and the number of fonts and formats required. The type 2716 read-only memory illustrated in Fig. 4 is manufactured by Motorola, Incorporated, Texas Instruments and other manufacturers.

The microcomputer 202 also contains a programmable timer module (PTM) 230 which operates in conjunction with the CPU 220 and provides various timing signals, such as, for example, timing signals for controlling the time duration that the thermographic printing elements are energized, as well as a 32 Hz signal (and a 32 Hz inverted signal from the inverting amplifier 232) necessary for the operation of the display driver 204. In addition, a 3 to 8 bit demultiplexer 234, which may be a 74 LS 138 demultiplexer available from various manufacturers, as well as a pair of peripheral interface adapters (PIA's) 236 and 238, which may be, for example, a type MC 6821 peripheral interface adapter available from various manufacturers, are also employed. The function of the 3 to 8 bit demultiplexer 234 is to select small portions of the memory 228 for further processing by the CPU 220, and the peripheral interface adapters 236 and 238 serve to provide an interface between the various peripheral elements of the labeling machine, such as, for example, the keyboard 27, the start feed trigger 37, the stop feed switch 212, as well as the print head driver 208 and display driver 204.

In the schematic diagram illustrated in Fig. 4, most of the connections to the various integrated circuits are designated by three different designations, namely, by the pin number of the integrated circuit package, by the integrated circuit manufacturer's mnemonic designation, and by an interconnection designation which defines the interconnections between the various integrated circuits. In the diagram of Fig. 4, the pin number designations are shown above each lead to each integrated circuit, and are positioned just outside of the blocks that represent each of the integrated circuits. Typical pin designations range from 1 through 16 for an integrated circuit requiring relatively few connections, such as the demultiplexer 234 to a range of 1 through 40 for integrated circuits requiring more connections, such as the CPU 220 and the peripheral interface adapters 236 and 238. The manufacturer's mnemonics are placed adjacent to the pin numbers inside the various blocks representing the various integrated circuits, and serve generally to identify the various functions performed. For example, mnemonics beginning with a prefix A indicate address bits and mnemonics beginning with the prefix D indicate data bits. Finally, the interconnection designations are placed adjacent to the pin numbers outside of the various blocks defining the various integrated circuits. These interconnection designations are also mnemonic

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in form, and if the same interconnection designation is present on leads extending from two or more different integrated circuits, it indicates that those leads are interconnected. Using this convention in a specific example, the lead designated AD 0 on the CPU 220 would be connected to the leads designated AD 0 on the ROM 228, the PIA1 236 and the PIA2 238.

In operation, data is entered into the CPU 220 from the keyboard 27 via the PIA1 236. The PIA1 236 is sensitive to interconnections between the terminals designated as COL1 through COL4 and ROW1 through ROW4 to determine which of the switches of the keyboard 27 have been closed by a depression of the corresponding keys during the entry of data. The data thus entered is converted by the PIA1 236 to display data at outputs D1 through D4 for driving the display driver 204, as well as to data usable by the CPU 220 appearing at the outputs DB0 through DB7 of the PIA1 236. The entered data is also applied to the PTM 230, as well as to the PIA2 238 which receives the entered data (after processing by the CPU 220) and drives various elements of the print head 36 corresponding to outputs DOT1 through DOT7 of the PIA2 238. The PIA2 238 also sequentially strobes the six digits of the display via the outputs DIG1 through DIG6.

In addition, the PIA1 236 drives the motor driver 206 by applying motor phase signals A1, A2, and B1, B2 sequentially to the motor driver 206 whenever the switch 210 is closed by depressing the trigger 37. The drive signals continue to be generated until the sensing switch 212 is closed by an index mark on the web, or otherwise.

In the illustrated embodiment, the individual printing elements are aligned in a straight line array disposed in a direction substantially perpendicular to the direction of travel of the carrier web W; however, the printing elements may be arranged in various patterns, and the print head 36 may be skewed with respect to the direction of travel of the web W, depending on practical design considerations and intended use. For example, a single line array provides a great deal of format flexibility, and permits virtually any character or symbol to be printed, depending on the sophistication of the microprocessor 220, its associated components and programming. If only a few characters of a particular type are required, the single line array may be skewed or even curved to accommodate the particular type of characters being printed, and thus permit a reduction in the complexity of the microprocessor 220 and its associated circuitry and programming. Also, for other applications, it may be desired to use a multiple line printing head, a matrix, or even to offset alternate ones of the printing elements in the direction of travel of the web W to compensate for web movement during an interval between their energization. If the printing elements are energized sequentially, the line may be skewed to compensate for web movement.

In the print head illustrated in Fig. 5, the individual printing elements of the print head 36

are disposed on a single straight line that is disposed in a direction substantially perpendicular to the direction of advancement of the web carrying the labels (shown in dashed lines in Fig. 5). By making the length of the print head 36 at least equal to the width of the label web, printing can be made to occur on any area of the web, thereby permitting any size characters that can be accommodated by the web to be printed. In addition, reverse, or negative, characters wherein the background is darkened and the characters are light (unprinted) can also be printed utilizing the configuration of Fig. 5. Also, by appropriate programming of the microprocessor characters of various fonts and sizes, as well as various orientations, for example, perpendicular to or parallel to the direction of advancement of the web. Skew characters can also be printed. Also, by appropriate programming, or by utilizing a print head having two spaced groups of printing elements, such as the groups 36a and 36b (Fig. 6), certain areas of the web may be reserved as blank areas. Also, by appropriate programming or by utilizing two spaced groups of printing elements, two sets of identical labels can be simultaneously printed on a double width web. These labels can subsequently be separated, either by cutting, or by tearing if a perforated web is utilized. Fig. 7 shows few of the various types of characters that can be printed by the labeler according to the present invention, but it should be understood that many other characters including alpha and numeric characters, including script and non-standard characters, as well as designs can be printed.

Figs. 8-13 illustrate the various logical sequences followed by the logic circuits during the entry and printing of data. Figs. 8 and 9 illustrate the initialization routine wherein the various timers, clocks, registers, etc. are cleared prior to the entry of new data. In addition, Fig. 8 illustrates the font and/or format selection process along with some error checking wherein the font and/or format is selected by entering, via the keyboard or otherwise, data to identify the font and/or format selected. In addition, the program determines whether the data entered represents a valid font or format, and restricts the data that may be entered once the format has been selected. For example, if the dollar format has been selected, only numbers preceded by a dollar sign and having a decimal point between the dollars and cents figures may be entered and printed. If less restrictive formats are selected, any form of data may be entered. Also, the VALID KEY ENTERED block of Fig. 9 may incorporate various error checking logic, such as, for example, logic permitting only certain characters to be placed in a certain field, check digit logic, and logic requiring the data to be entered twice for verification purposes.

Fig. 10 in conjunction with the print subroutine of Fig. 12, illustrates the printing process. In the printing process, the stepping motor is started in order to advance the web, and the characters, in the selected font and format, are taken from the

print buffer. The data defining each column forming the selected characters is sequentially applied to the print head to form the selected characters on a column-by-column basis as the web is advanced. During the printing process, the length of time that each print element is maintained energized may also be adjusted depending on the size of the character being printed, and whether a continuously printed character, or a character wherein the individual imprints are visible, is desired. When the printing of a first character has been completed, the next character (or characters, when more than one character is being printed across the width of the web) is withdrawn from the print buffer and the process is repeated until all of the entered characters have been printed.

Fig. 11 illustrates a typical logic sequence that would be employed if a series of labels having a predetermined numeric or alphanumeric sequence were desired. As illustrated in Fig. 11, the keyboard is first enabled to receive data defining the first label as well as data defining the increment between successive labels (and possibly the number of increments required or the data defining the last label). In addition, data defining the quantity of each label required may be entered. Once the data has been entered and the print switch activated, the print routine is started to cause a label to be printed. After a label has been printed, a determination is made to see if all required labels of one type have been printed. If not, the print subroutine is continued until all have been printed. After all labels of one type have been printed, the number or character in the print buffer is incremented (or decremented) by the previously entered increment (or decrement). The routine then pauses until the print switch is again activated whereupon the required number of labels containing the incremented (or decremented) characters are printed.

Fig. 13 illustrates the logical sequence employed for the controlling of the web advancing stepping motor. Basically, the logic gradually slews the motor up to speed as the printing sequence begins, maintains the motor operating at relatively constant speed until the end of the label is reached, as indicated by a notch or the like in the web or otherwise, and gradually slows the motor to a stop after the end of the label has been sensed.

Claims

1. A hand-held labelling machine comprising: a housing (21) having a manually engageable handle (26); the housing having means for holding a label supply roll (R) of a composite web (W) having labels (L) releasably adhered to a backing strip; means for printing on a label at a printing position; means (51) for peeling the printed label from the backing strip; label applying means (25) disposed adjacent the peeling means; means (24) for advancing the web to peel a printed label from

the backing strip at the peeling means and advance the printed label into label applying relationship with the label applying means (25) and to advance another label into the printing position; means including data entry means (27) on the housing for entering selected data to be printed; the printing means including a thermographic printing head (36) having a plurality of individually selectable printing elements powered by a source of electrical energy for printing on a thermographic label at the printing position; means (202) coupled to the data entry means (27) for receiving and electrically processing data representative of the selected data entered via the data entry means; said data receiving and processing means (202) including storage means (228) for data representative of printable characters; means (208) electrically coupling the data receiving and processing means (202) and the thermographic printing head (36); and means (37, 210) for causing the data receiving and processing means (202) to operate the thermographic printing head (36) to print the selected data on the label; characterized in that said data receiving and processing means (202) includes control means for causing the print-out of said data by said printing elements to be arranged in selected ones of a plurality of predetermined fonts and/or formats as defined by font and/or format identifying information stored in the storage means (228) of said data receiving and processing means (202); said control means being operative to enable said data entry means (27) to only accept input of predetermined font and/or format identifying data for selection of a desired font and/or format prior to entry of any printable data; and once the font and/or format has been selected, enabling said data entry means (27) to only accept input of printable data which are restricted to comply with the selected font and/or format.

2. A hand-held labelling machine as recited in claim 1, characterized in that said storage means includes means for storing alpha numeric characters and said receiving and processing means (202) includes means for incrementing the alpha numeric characters by a predetermined increment after a predetermined number of labels have been printed.

3. A hand-held labelling machine as recited in either of claims 1 or 2, characterized in that said data receiving and processing means (202) includes means (230) for altering the length of time that the individual print elements are energized to alter the appearance of the printed character.

4. A hand-held labelling machine as recited in any of claims 1 to 3, characterized in that said data receiving and processing means (202) includes error checking means for the entered printable data.

5. A hand-held labelling machine as recited in any one of the preceding claims, characterized in that said data receiving and processing means (202) includes error checking means for checking whether the entered data represents valid font and/or format identifying data.



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print buffer. The data defining each column forming the selected characters is sequentially applied to the print head to form the selected characters on a column-by-column basis as the web is advanced. During the printing process, the length of time that each print element is maintained energized may also be adjusted depending on the size of the character being printed, and whether a continuously printed character, or a character wherein the individual imprints are visible, is desired. When the printing of a first character has been completed, the next character (or characters, when more than one character is being printed across the width of the web) is withdrawn from the print buffer and the process is repeated until all of the entered characters have been printed.

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the backing strip at the peeling means and advance the printed label into label applying relationship with the label applying means (25) and to advance another label into the printing position, means including data entry means (27) on the housing for entering selected data to be printed, the printing means including a thermographic printing head (36) having a plurality of individually selectable printing elements powered by a source of electrical energy for printing on a thermographic label at the printing position, means (202) coupled to the data entry means (27) for receiving and electrically processing data representative of the selected data entered via the data entry means, said data receiving and processing means (202) including storage means (228) for data representative of printable characters, means (208) electrically coupling the data receiving and processing means (202) and the thermographic printing head (36), and means (37, 210) for causing the data receiving and processing means (202) to operate the thermographic printing head (36) to print the selected data on the label, characterized in that said data receiving and processing means (202) includes control means for causing the print-out of said data by said printing elements to be arranged in selected ones of a plurality of predetermined fonts and/or formats as defined by font and/or format identifying information stored in the storage means (228) of said data receiving and processing means (202), said control means being operative to enable said data entry means (27) to only accept input of predetermined font and/or format identifying data for selection of a desired font and/or format prior to entry of any printable data, and once the font and/or format has been selected, enabling said data entry means (27) to only accept input of printable data which are restricted to comply with the selected font and/or format.

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Patentansprüche

1. Handetikettiergerät mit einem einen von der Hand zu ergreifenden Handgriff (26) aufweisenden Gehäuse (21), das eine Einrichtung zur Halterung einer Etikettenvorratsrolle (R) aus einem mit lösbar auf einem Tragstreifen haftenden Etiketten (L) versehenen zusammengesetzten Band (W) aufweist, einer Einrichtung zum Bedrucken eines Etiketts in einer Druckstellung, einer Einrichtung (51) zum Abziehen des bedruckten Etiketts von dem Tragstreifen, einer in der Nähe der Abzieheinrichtung angeordneten Etikettenaufbringeinrichtung (25), einer Einrichtung (44) für einen Vorschub des Bandes zum Abziehen eines bedruckten Etiketts von dem Tragstreifen an der Abzieheinrichtung und Förderung des bedruckten Etiketts in eine Etikettenaufbringstellung bezüglich der Etikettenaufbringeinrichtung (25) und zur Förderung eines weiteren Etiketts in die Druckstellung, einer Dateneingabeeinrichtung (27) an dem Gehäuse zur Eingabe ausgewählter zu druckender Daten aufweisenden Einrichtung, wobei die Druckeinrichtung einen thermografischen Druckkopf (36) aufweist, der mit einer Mehrzahl von einzeln wählbaren Druckelementen versehen ist, welche durch eine elektrische Energiequelle zum Bedrucken eines thermografischen Etiketts in einer Druckstellung erregbar sind, einer mit der Dateneingabeeinrichtung (27) gekoppelten Einrichtung (202) zur Aufnahme und elektrischen Verarbeitung von den über die Dateneingabeeinrichtung eingegebenen ausgewählten Daten entsprechenden Daten, wobei die Datenaufnahme- und Verarbeitungseinrichtung (202) eine Speichereinrichtung (228) für druckbaren Zeichen entsprechende Daten aufweist, einer die Datenaufnahme- und Verarbeitungseinrichtung (202) und den thermografischen Druckkopf (36) elektrisch koppelnden Einrichtung (208) und einer Einrichtung (37, 210) durch die die Datenaufnahme- und Verarbeitungseinrichtung (202) zur Betätigung des thermographischen Druckkopfes (36) für ein Drucken der gewählten Daten auf dem Etikett veranlaßbar ist, dadurch gekennzeichnet, daß die Datenaufnahme- und Verarbeitungseinrichtung (202) eine Steuereinrichtung aufweist, durch die eine Anordnung des Ausdruckes der Daten durch die Druckelemente in ausgewählten Schriftarten und/oder Formaten aus einer Mehrzahl vorbestimmter Schriftarten und/oder Formate, wie sie durch in der Speichereinrichtung (228) der Datenaufnahme- und Verarbeitungseinrichtung (202) gespeicherte Schriftart- und/oder Formatidentifikationsinformation festgelegt sind, veranlaßbar ist, wobei die Steuereinrichtung dahingehend wirksam ist, die Dateneingabeeinrichtung (27) zur ausschließlichen Annahme einer Eingabe vorbestimmter Schriftart- und/oder Formatidentifikationsdaten für die Auswahl einer gewünschten Schriftart und/oder eines gewünschten Formates vor der Eingabe jedweder druckbarer Daten zu erregen, und nach einmal erfolgter Auswahl der Schriftart und/oder des For-

mates die Dateneingabeeinrichtung (27) zur ausschließlichen Annahme der Eingabe solcher druckbarer Daten, die auf eine Einhaltung der gewählten Schriftart und/oder des gewählten Formates beschränkt sind, zu erregen.

2. Handetikettiergerät nach Anspruch 1, dadurch gekennzeichnet, daß die Speichereinrichtung eine Einrichtung zur Speicherung alphanumerischer Zeichen und die Aufnahme- und Verarbeitungseinrichtung (202) eine Einrichtung zur Inkrementierung der alphanumerischen Zeichen um ein vorbestimmtes Inkrement nach Drucken einer vorbestimmten Anzahl von Etiketten aufweist.

3. Handetikettiergerät nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß die Datenaufnahme- und Verarbeitungseinrichtung (202) eine Einrichtung (230) zur Änderung der Erregungszeitdauer der einzelnen Druckelemente für eine Änderung des Erscheinungsbildes des gedruckten Zeichens aufweist.

4. Handetikettiergerät nach einem der Ansprüche 1 bis 3, dadurch gekennzeichnet, daß die Datenaufnahme- und Verarbeitungseinrichtung (202) eine Fehlerprüfeinrichtung für die eingegebenen druckbaren Daten aufweist.

5. Handetikettiergerät nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die Datenaufnahme- und Verarbeitungseinrichtung (202) eine Fehlerprüfeinrichtung für eine Prüfung aufweist, ob die eingegebenen Daten gültige Schriftart- und/oder Formatidentifikationsdaten darstellen.

Revendications

1. Etiqueteuse à main comportant: un carter (21) comprenant une poignée (26) que l'on peut tenir en main, le carter comprenant des moyens pour tenir un rouleau d'alimentation d'étiquettes (R) constitué d'un support composite d'étiquettes (W) contenant des étiquettes (L) adhérent, de façon amovible, à un ruban support, un moyen pour imprimer sur une étiquette en position d'impression, un moyen (51) pour séparer l'étiquette imprimée d'avec le ruban support, un moyen (25) d'application de l'étiquette disposé près du moyen séparateur, un moyen (44) pour faire avancer le support d'étiquettes pour permettre de séparer une étiquette imprimée d'avec le ruban support, à l'endroit du moyen séparateur, et pour faire avancer l'étiquette imprimée pour l'amener dans une relation, avec le moyen applicateur (25), qui permette d'appliquer l'étiquette et pour faire avancer une autre étiquette à la position d'impression, un moyen, incluant un moyen (27) d'entrée des données, sur le carter, pour entrer des données sélectionnées à imprimer, le moyen d'impression incluant une tête d'impression thermographique (36) présentant une pluralité d'éléments d'impression à sélectionner individuellement et mis sous tension par une source d'énergie électrique pour imprimer sur une étiquette thermographique à la position d'impression, un moyen (202) couplé au moyen (27)



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d'entrée des données pour recevoir et traiter électriquement des données représentatives des données sélectionnées entrées par l'intermédiaire du moyen d'entrée des données, ledit moyen (202) de réception et de traitement des données incluant un moyen de mémorisation (228) pour des données représentatives des caractères imprimables, un moyen (208) couplant électriquement le moyen (202) de réception et de traitement des données et la tête d'impression thermographique (36) et un moyen (37, 210) pour obliger le moyen (202) de réception et de traitement des données à manoeuvrer la tête d'impression thermographique (36) pour qu'elle imprime sur l'étiquette les données sélectionnées, caractérisé en ce que ledit moyen (202) de réception et de traitement des données inclut un moyen de commande pour faire que l'impression desdites données par lesdits éléments d'impression soit réalisée dans la police qui a été sélectionnée parmi une pluralité de polices prédéterminées et/ou dans le format qui a été sélectionné dans une pluralité de formats prédéterminés, tels que définis par l'information d'identification de la police et/ou du format mémorisée dans le moyen de mémorisation (228) dudit moyen (202) de réception et de traitement des données, ledit moyen de commande étant opérationnel pour valider ledit moyen (27) d'entrée des données à n'accepter que l'entrée de données prédéterminées d'identification de la police et/ou du format pour permettre la sélection de la police et/ou du format désirés avant d'entrer les données imprimables et, après que la police et/ou le format ont été sélectionnés, validant ledit moyen (27) d'entrée des données à

n'accepter que l'entrée de données imprimables qui sont limitées à se conformer à la police et/ou au format sélectionnés.

2. Etiqueteuse à main comme décrite dans la revendication 1, caractérisée en ce que ledit moyen de mémorisation inclut un moyen pour mémoriser des caractères alpha numériques; et en ce que ledit moyen (202) de réception et de traitement des données inclut un moyen pour incrémenter les caractères alpha numériques d'un incrément prédéterminé après qu'un nombre prédéterminé d'étiquettes a été imprimé.

3. Etiqueteuse à main comme décrite dans l'une ou l'autre des revendications 1 ou 2, caractérisée en ce que ledit moyen (202) de réception et de traitement des données inclut un moyen (230) pour modifier la période de temps pendant laquelle les différents éléments d'impression sont mis sous tension de façon à modifier l'aspect du caractère imprimé.

4. Etiqueteuse à main comme décrite dans l'une quelconque des revendications 1 à 3, caractérisée en ce que ledit moyen (202) de réception et de traitement des données inclut un moyen de vérification des erreurs pour les données imprimables entrées.

5. Etiqueteuse à main comme décrite dans l'une quelconque des revendications précédentes, caractérisée en ce que ledit moyen (202) de réception et de traitement des données inclut un moyen de vérification des erreurs pour vérifier si les données entrées représentent ou non des données valides d'identification de la police et/ou du format.

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