

scription

The invention relates to an electronic label-printing hand labeller according to the preamble part of claim 1.

Such an electronic thermal-printing hand labeller is known from US-A-4 176 603. The electronic thermal-printing hand labeller known from this reference necessitates two steps for forming a label guide passage, i.e., firstly opening a bottom cover and secondly rotating a platen open. It is therefore an object underlying the present invention to provide an electronic thermal-printing hand labeller according to the preamble part of claim 1 which enables label-strip threading to be performed reliably, speedily and very easily by the manual threading of the strip of labels so that, in the same way as with an ordinary hand labeller, the threading is completed in a single operation.

The solution of this object is achieved by the features of claim 1.

According to the present invention, the use of a manual system is proposed in order to simplify the threading of the roll of strip-shaped labels. This manual system is an improvement over techniques that are found on ordinary hand labellers.

The dependent claims contain advantageous embodiments of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a general perspective view of a printer-labeller unit, control unit and pen scanner set up according to this invention;

Figure 2 is a general side view of the printer-labeller unit.

Figure 3A is an enlarged cross-sectional view of the principal parts of the printer-labeller unit;

Figure 3B is an explanatory diagram of the label "outgoing" with the printer-labeller unit cover and platen arm in the opened state;

Figure 4 is a partially cutaway side view of the platen arm retaining device provided on the printer-labeller unit;

Figure 5 shows the drive transmission for the platen roller and traction roller of the printer-labeller unit;

Figure 6 is an exploded perspective view of the printer-labeller unit;

Figure 7 is a perspective view of a label cutting device provided in the cover; and

Figure 8 is an exploded perspective view of the control unit equipped with a keyboard, display and batteries.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The preferred embodiments of the present invention will now be described with reference to the accompanying drawings.

With reference to Figure 1, the electronic hand labeller of the present invention consists basically of a set of three components: a printer-labeller unit 1 that can be operated by one hand; a separate control unit 100 connected by a cable 2 to the printer-labeller unit 1; and a pen scanner 4 connected to the control unit 1 by a cable 5.

The control unit 100 and pen scanner 4, like the printer-labeller unit 1, are portable and so can be carried about one's person such as in the overall pocket (not shown) or on the belt (not shown) of the operator. The control unit 100 is also provided with a keyboard 103, display 104, batteries 105, and a holder 7 for holding the pen scanner 4. In the drawing numerals 3a, 3b and 6 denote cable plugs.

With reference to Figures 2, 3A and 3B, a label holder 13 for holding a continuous thermal-label roll 95 is provided on the upper portion of an outer frame 11 of the printer-labeller unit 1. At the rear thereof is formed a grip 20 to allow the unit to be gripped in one hand and operated. Inside the outer frame 11 is a thermal printing device 30, a label transport device 70 and a label applicator portion 90. At the label holder 13 portion, a more or less semicircular label case 14 that encases the roll of thermal label strip 95 is affixed to a spindle 15 at the forward part of the outer frame 11 so as to be freely openable and can stay opened toward the front of the main unit, and toward the rear (the operator side) is engaged at an engaging portion 16. With reference especially to Figures 1 and 2, a microswitch 22 operated by a pushbutton 21 is provided inside the grip 20. The microswitch 22 is detachably connected to a connector 8 and to the plug 3a of a cable 3 which is connected to batteries 105 provided inside the control unit 100. The microswitch 22 is also connected to the thermal print head 36 of a thermal printing device 30, a motor M of a label transport device 70, a diode type emission reflection lamp L and a reflection type sensor S.

With reference to Figures 3A, 3B and 6, the thermal printing device 30 attached to an inner frame 12 provided at one portion of the outer frame 11 is comprised of a combination of a thermal unit 31 and a platen roller 51. In more detail, a heat radiation member 34 is attached to the thermal unit 31 by means of the fixing screw 41 of a unit baseplate 32. By means of a thermal print head retainer plate 38, an O-ring 39 and a fixing screw 40, attached to the heat radiation member 34 at the forward portion thereof is a thermal print head 36 and a flexible ribbon cable 37 connected to the thermal print head 36 and running towards the rear

thereof, with the said O-ring 39 being arranged at the join portion for secure attachment. The ribbon cable 37 is wired to the connector 8 via the micro-switch 22, specifically by means of a circuit board 17 provided in the grip 20.

The entire thermal unit 31 is attached to the inner frame 12. More specifically, a pair of mounting bosses 32a provided on the baseplate 32 engage with socket portions in the inner frame 12 so that the front part of the thermal unit 31 can swing. A stepped portion 35 formed at the front edge of the heat radiation member 34 is positioned in spaced opposition to a main unit fixing portion 26.

On the upper part of the thermal unit 31, two resilient engaging members 33a and 33b comprised of a spring construction attached to the baseplate 32 are securely contacted, by utilizing the resiliency thereof, with a motor fixing portion 23a and a unit fixing portion 23b inside the inner frame 12.

The thermal print head 36 positioned at the lower front surface portion of the thermal unit 31 is aligned into position by means of an alignment step portion 35a formed on the heat radiation member 34. Thus, only when the front edge of the thermal print head 36 fits into this step portion 35a is the thermal print head 36 resiliently urged into its correct position, the construction working for parallelism between the thermal print head 36 and the platen roller 51 provided opposite thereto. The numeral 25a denotes through-holes for dissipating the heat of the motor M, while 25b is a window for the lamp L.

The platen roller 51 urged against the thermal print head 36 by the resilience of the resilient engaging members 33a and 33b is rotatably attached to a platen arm 50. The platen roller 51 is mounted on a spindle 52 the ends of which are housed in retainer portions 53 consisting of cutouts in the frame of the platen arm 50. The platen roller 51 is rotated by a driving source constituted by the motor M, as described later, and the desired thermal printing is performed on thermal labels 96 of the roll of thermal label strip 95 pressed against the thermal print head 36. At the tip of the platen roller 51 the strip-shaped backing sheet 97 is caused to be reversed and the thermal labels 96 provisionally attached to the upper surface of the backing sheet 97 peeled off by a sheet bending pin 54.

The platen arm 50 can rotate counterclockwise about a pivot 77. Provided in the main unit is a label retainer member 72 the movement of which is interlocked with the rotation of the platen arm 50. A coupling pin 76 provided on a coupling portion 55 which curves up towards the back of the platen arm 50 is fitted into a slot 75 in the label retainer member 72. In interlocked motion with the rotation of the platen arm 50, the label retainer member 72

is pivoted about a fixed guide roller 74 provided at one end of the label retainer member 72, so that a moveable guide roller 73 provided at the other end thereof is displaced in the direction from the solid line toward the double-dot chain line. Thus, the construction is such that both of the guide rollers 73 and 74 in contact with the inclined label guide passage surface 19 provided below the label holder 13 are separated from the label guide passage surface 19 to form a label insertion passage. Provided near the label retainer member 72 is the traction roller 71 of the label transport device 70 which is rotated by the motor M. A pressure roller 83 set inside the bottom cover 80 exerts pressure on the traction roller 71, so that the strip-shaped backing sheet 97 is pressed between the rollers 71 and 83 and fed out from the rear of the main unit in order to peel the thermal labels 96 from the backing sheet 97.

In this embodiment the roller 71 works by exerting traction on the strip-shaped backing sheet 97. However, this may also refer to a conveying roller for guiding out the strip-shaped backing sheet, including an engagement roller comprised of, for example, a rotating member having engaging pins on its circumference which engage with conveying holes or perforations provided in the strip-shaped backing sheet 97 to cause the thermal label roll 95 to be advanced.

As shown in Figure 5, the platen roller 51 which pays out the roll of thermal label strip 95 from the front of the main unit and the traction roller 71 that pays out the strip-shaped backing sheet 97 from the rear of the main unit are caused to rotate by the motor M. The rotation of the motor M is communicated to the platen roller 51 by the rotation of a motor gearwheel 42 via intermediate gearwheels 43 and 44 which mesh with a platen roller gearwheel 45. The rotation of the traction roller 71 is effected from the motor M via a belt 47 mounted on pulleys 46a and 46b to rotate a gearwheel 48 which rotates a traction roller gearwheel 49.

It is necessary for the traction roller 71 to be driven at a higher speed than the platen roller 51. The reason for this is that unless the arrangement is such that extra traction is applied to the strip-shaped backing sheet 97 after the separation of the thermal labels 96 by the driven rotation of the platen roller 51, good label separation will not be achievable.

The bottom cover 80 is pivoted about an axis 92 of a label applicator roller 91 so that it can be opened in a clockwise direction. The bottom cover 80 comprises an auxiliary peeling pin 81 which in its closed state is situated adjacent to the bending pin 54 of the platen arm 50. The latter is provided toward its rear with a backing-sheet guide roller 82

against which the pressure roller 83 of the bottom cover is drawn. The ends of the axis 84 of the pressure roller 83 are fitted into retaining slots 85 formed in the frame of the bottom cover 80.

At the rear end of the bottom cover 80 are formed engaging insets 86 for accommodating therein a resiliently-urged set pin 27 that is fitted into a guide slot 28 formed in the outer frame 11.

The set pin 27 is interlocked with the retaining device 60 of the platen arm 50, as shown in Figure 4. More specifically, by means of a link 61 the set pin 27 is in contact with a spring 61b mounted on a spring shaft 61a attached to the inner frame 12. The spring 61b urges the link 61 toward the front end (toward the left in Figure 4); thus, the spring 61b urges the positioning pin 27 toward the left end of the guide slot 28. A hook 63 is affixed to the end of the link 61 by a coupling pin 62. The hook 63 can turn about a pivot shaft 64 and has at its tip an engaging portion 63a which can be disengageably engaged with an engaging projection 56 formed on the platen arm 50 (this is shown in Figure 6). Mounted on a spring shaft 65a provided on the inner frame 12 is a spring 65b one end of which fits against the link 61 and the other end of which abuts against a spring stop 24, the link 61 thereby being urged counterclockwise to facilitate the opening of the platen arm 50.

The inner frame 12 also supports a backing-sheet roller arm 66 which urges the traction roller 71 against the pressure roller 83 of the bottom cover 80. The roller arm 66 pivotally mounted on a fulcrum shaft 67 has a housing portion 68 in which is accommodated a spring 69 which abuts against a stepped portion 12a of the inner frame 12, the entire roller arm 66 being thereby urged to rotate clockwise. Therefore, the traction roller 71 provided at the lower part of the roller arm 66 is urged in a clockwise direction, so that the strip-shaped backing sheet 97 guided between the traction roller 71 and the pressure roller 83 which is in pressure contact with the traction roller 71 is paid out from the rear of the main unit, while at the same time any slip that might occur between the excessively-rotating traction roller and the strip-shaped backing sheet 97 is absorbed by the action of the spring 69 of the roller arm 66.

As shown in Figures 3B and 6, the platen arm 50 is provided with a screwdriver access hole 57. Preferably the screwdriver access hole 57 is positioned so that it is in alignment with the fixing screw 40 of the thermal printing device 30 when the platen arm 50 is in its inclined open position.

On the side of the platen arm 50 is provided an engaging projection 56 for engaging with the engaging portion 63a of the hook 63.

As shown in Figures 3A, 6 and 7, the bottom cover 80 is provided at the back with a rear cutter

87 for the strip-shaped backing sheet 97, and at the front with a front cutter 88 for the roll of thermal label strip 95, in the state in which the thermal labels 96 are provisionally attached to the strip-shaped backing sheet 97.

The label-strip threading operation will now be described with particular reference to Figures 3A, 3B and 4.

To load the thermal-label roll 95 in the main unit, first the bottom cover 80 is opened. The bottom cover 80 is opened by using a finger to pull a set pin 27 toward the rear of the unit. By pulling the set pin 27 backward along a slot 28 against the resilience of a spring 61b, as a first step, the engagement of the set pin 27 and the engaging slot 86 of the bottom cover 80 is released. As a result, as shown in Figure 3B, the whole bottom cover 80 swings open clockwise about a roller shaft 92, under its own weight.

In the second step, in interlocked motion with the movement of the set pin 27 as it is pulled backward, the platen arm 50 is rotated with a pivot 77 as the fulcrum. As shown in detail in Figure 4, with the rightward movement of the set pin 27, the spring 61 is moved towards the back, and in an interlocked motion the hook 63 is rotated counterclockwise with a pivot shaft 64 as a fulcrum. This movement disengages the hook portion 63a of the hook 63 from the projection 56 of the platen arm 50, and under its own weight and the urging of a spring 65b, the platen arm 50 rotates clockwise about a pivot 77. In synchronization with this rotation a retainer member 72 rotates counterclockwise so that the label guide passage surface 78 of the platen arm 50 is displaced to form a straight line with the label guide passage surface 19 of the label holder 13. With the counterclockwise rotation of the platen arm 50, the guide roller 73 of the retainer member 72 coupled with the coupling pin 76 of the coupling portion 55 thereof is sprung from its contact with the label guide passage surface 19 by the rise of the retainer member 72 thereof, as shown in Figure 3B, so that the label guide passage surface 19 is opened wide and also the label guide passage surface 19 and the label guide passage surface 78 of the platen arm 50 are formed into a continuous straight line. Thus, by the displacement of the platen arm 50, the label-strip threading of the thermal-label roll 95 is made very secure and simple.

Next, in a third step, the thermal-label roll 95 is drawn out and smoothly guided along the inclined straight line of the label guide passage surface 78 formed by the label guide passage surface 19 and the label guide passage surface 78. The strip of thermal-label roll 95 thus drawn out is redirected at the bending pin 54 portion located at the front of the platen arm 50 for location in a backing sheet

passage 79.

The thermal labels 96 on the length of strip-shaped backing sheet 97 in this backing sheet passage 79 are peeled off by hand. The platen arm 50 in the open state shown in Figure 3B is rotated clockwise about the pivot 77 into the closed state shown in Figure 3A. In this process, the disengaged engaging means 60 is engaged. Specifically, the projection 56 of the platen arm 50 engages with the hook portion 63a of the book 63 against the resistance of the spring 65b.

The bottom cover 80 shown in the opened state in Figure 3B is closed by being rotated counterclockwise about a roller shaft 92. In this process, the disengaged engaging slot 86 of the bottom cover 80 is engaged with the set pin 27 against the resiliency of the spring 61b.

As described, the control unit 100 is constituted separately from the printer-labeller unit 1 and is provided with a keyboard 103, a display 104 and batteries 105. The control unit 100 consists of a controller section 101 provided with the keyboard 103 and the display 104, and a battery section 102 provided with the batteries 105.

The controller section 101 is provided with a cover 106 which has a keyboard faceplate 107 which fits on the keyboard 103 and a display window 108 which fits onto the display 104; an electronic component circuit board 110 provided with a connector 112 for connecting the keyboard 103, an electronic device board 109, display 104 and electronic devices 111 with a personal computer or the like, a connector 113 for connecting the printer-labeller unit 1 and a connector 114 for connecting the pen scanner 4; and support frame 115 provided with a switch 116 and the like.

The battery section 102 is provided with a battery cover 119 that has formed thereon a dovetail groove 120; batteries 105 provided with a connector 123 for connecting up to an outside power source for charging and a connector 122 for connecting to the controller section 101; and a lower cover 124.

The battery section 102 is connected to the controller section 101 by a hook member 117. The hook member 117 is guided by the dovetail groove 120 on the battery cover 119 into engagement in a junction opening 118 formed in the support frame 115 and is resiliently maintained by the battery section 102 and the controller section 101.

Also, the connector 122 of the batteries 105 is connected to the plug 121 of the controller section 101 to provide an electrical connection therebetween.

The operation of the present embodiment will now be explained with reference to Figures 2, 3A, 3B, 5 and 8, using as an example the printing of a bar code.

The switch 116 of the control unit 100 is switched to ON and the data to be printed is input via the keys of the keyboard 103. Specifically, the merchandise code and price and the like are input, followed by the required quantity of labels. On the basis of this data input, check digits are computed automatically and displayed on the display 104 of the control unit 100.

Next, in the first stage of the printing, the microswitch 22 is switched on by pressing the pushbutton 21 on the printer-labeller unit 1, whereupon in accordance with commands from the control section the specific heating elements in the thermal print head 36 heat up, producing coloration on the thermal label 96 which is in pressure contact with the platen roller 51.

The rotation of the motor M by a specified amount on the one hand causes the platen roller 51 to be rotated by a specific amount via the gearwheels 42, 43, 44 and 45 so that the roll of thermal label strip 95 on the platen roller 51 is thereby fed forward, and on the other hand causing the traction roller 71 to be rotated by a specific amount, via the belt 47 and the gearwheels 48 and 49, so that by the cooperative action of the pressure roller 83 the strip-shaped backing sheet 97 is drawn a predetermined distance.

As a result, the thermal labels 96 on the paid-out roll of thermal label strip 95 start to be peeled from the strip-shaped backing sheet 97 at the sheet bending pin 54. Following this, the thermal print head 36 is again used as described above and the next determined amount of printing performed on a thermal label 96, advancing the roll of thermal label strip 95, and following the completion of the printing of one label, the roll of thermal label strip 95 continues to be advanced until a sensing mark (not shown) provided on the reverse side of the strip-shaped backing sheet 96 is detected by a sensor S.

The thermally-printed labels 96 thus conveyed are then peeled from the strip-shaped backing sheet 97 at the sheet bending pin 54 provided in front of the platen roller 51 and are issued from an outlet 29 to a label applicator section 90.

Thus, the labels are fed out below the label applicator roller 91 while actually resting on the auxiliary peeling pin 81. The operator carrying the printer-labeller unit 1 by the grip 20 can, by sliding the label applicator roller 91 portion across the merchandise, apply thermal labels on which have been printed bar codes. When the preset number of labels have been produced, the electrical and mechanical operations of the printer-labeller unit 1 and the control unit 100 are halted, having reached completion.

This device is also provided with online capabilities. By connecting the connector 112 of the

control unit 100 to a personal computer, data input from the personal computer or stored on disk can be communicated to the printer-labeller unit 1 to have the required printing performed on the thermal labels. In addition, data can also be input via the pen scanner 4.

The thermal print head replacement device will now be described with reference to Figures 3A, 3B and 6. As already described, the platen arm 50 is provided with screwdriver access holes 57. Specifically, there is a pair of screwdriver access holes 57 positioned to correspond with the fixing screws 40 of the thermal printing device 30 when the platen arm 50 is in its inclined open position.

When the print head 36 wears, with the platen arm 50 in the inclined open state a screwdriver (not shown) or suchlike unfastening means is used to loosen the fixing screw 40 via the access holes 57, the interlocked motion of which loosens the thermal print head retainer plate 30, enabling the removal of the print head 36, which had been held by the pressure applied by the O-ring 39, and the fitting of a new replacement print head 36. The new thermal print head 36 is aligned into position by means of the alignment step portion 35a formed on the heat radiation member 34. The fixing screw 40 is then tightened so that the print head 36 is pressure-held by the thermal print head retainer plate 38 and the O-ring 39, to complete the installation of the new print head. The flexible ribbon cable 37 is connected to the thermal print head 36 by an engagement at the stepped portion thereof, and it is therefore necessary to exercise care when carrying out the replacement.

The thermal print head replacement device as described enables a worn print head 36 to be replaced by a new print head extremely easily, involving as it does just the loosening of the retainer plate 38 of the thermal unit 31.

Conventionally, when the print head 36 became worn, it was not possible to replace just the print head and so the whole thermal unit 31 had to be replaced, i.e. comprising the unit baseplate 32, the heat radiation member 34, the print head 36 and the retainer plate 38, which was very uneconomical. Because the construction of the present device enables just the print head itself to be replaced, it has the advantage of being economical.

The thermal unit positioning device will now be described with reference to Figures 3 and 6.

As described, the entire thermal unit 31 is attached to the main unit by means of a pair of mounting bosses 32a and is urged in the direction of the platen 51 which is swingably provided at the front part thereof, which, with the two resilient engaging members 33a and 33b, enables it to be detachably affixed inside the main printer-labeller unit 1. That is, a portion of the resilient engaging

member 33a comprised of a spring construction attached to the baseplate 32 is securely contacted with the motor fixing portion 23a, and the resilient engaging member 33b is engaged against its resiliency with the unit fixing portion 23b, to complete the attachment of the thermal unit 31 in the main unit.

The replacement thermal print head 36 is installed simply by aligning it with the alignment step portion 35a of the thermal unit 31 and tightening the fixing screw 40.

Thus, the screws and other such adjusting means of the conventional devices are no longer needed and there is the advantage that parallelism between the platen roller 51 and the print head 36 is promoted. There is the additional advantage that the thermal unit 31 can be attached to the main unit simply by means of the mounting bosses 32a and the two resilient engaging members 33a and 33b, facilitating the installation.

The main unit of the present invention is provided with a pivotally openable bottom cover 80, a platen arm 50 having a platen roller 51 positioned in opposition to the thermal print head 36, said platen arm 50 being rotatable in a direction opposite to that of the bottom cover 80, and an engaging means 60 constituted by a hook 63 formed on the platen arm 50, and when the bottom cover 80 and the platen arm 50 are opened for when the label strip is to be threaded, they are displaced so that the label guide passage surface 19 on the label holder 13 and the label guide passage surface 78 of the platen arm form a straight, inclined guide surface. Therefore, the label roll can be securely and conveniently loaded in one operation.

Claims

1. An electronic thermal-printing hand labeller having a label-strip threading device comprising a pivotally openable bottom cover (80) provided near at the front of a printer-labeller main unit (1) and a platen arm (50) characterised by a retaining device (60) consisting of a link (61) operated by a set pin (27);

a hook (63) connected to said link (61) and pivotally fixed to the main unit (1);

an engaging projection (56) on the platen arm (50) engageable by the hook (63); and

a spring (65) biasing the platen arm (50) to an opening direction.

2. An electronic thermal-printing hand labeller according to claim 1, characterised by a thermal

control unit 100 to a personal computer, data input from the personal computer or stored on disk can be communicated to the printer-labeller unit 1 to have the required printing performed on the thermal labels. In addition, data can also be input via the pen scanner 4.

The thermal print head replacement device will now be described with reference to Figures 3A, 3B and 6. As already described, the platen arm 50 is provided with screwdriver access holes 57. Specifically, there is a pair of screwdriver access holes 57 positioned to correspond with the fixing screws 40 of the thermal printing device 30 when the platen arm 50 is in its inclined open position.

When the print head 36 wears, with the platen arm 50 in the inclined open state a screwdriver (not shown) or suchlike unfastening means is used to loosen the fixing screw 40 via the access holes 57, the interlocked motion of which loosens the thermal print head retainer plate 30, enabling the removal of the print head 36, which had been held by the pressure applied by the O-ring 39, and the fitting of a new replacement print head 36. The new thermal print head 36 is aligned into position by means of the alignment step portion 35a formed on the heat radiation member 34. The fixing screw 40 is then tightened so that the print head 36 is pressure-held by the thermal print head retainer plate 38 and the O-ring 39, to complete the installation of the new print head. The flexible ribbon cable 37 is connected to the thermal print head 36 by an engagement at the stepped portion thereof, and it is therefore necessary to exercise care when carrying out the replacement.

The thermal print head replacement device as described enables a worn print head 36 to be replaced by a new print head extremely easily, involving as it does just the loosening of the retainer plate 38 of the thermal unit 31.

Conventionally, when the print head 36 became worn, it was not possible to replace just the print head and so the whole thermal unit 31 had to be replaced, i.e. comprising the unit baseplate 32, the heat radiation member 34, the print head 36 and the retainer plate 38, which was very uneconomical. Because the construction of the present device enables just the print head itself to be replaced, it has the advantage of being economical.

The thermal unit positioning device will now be described with reference to Figures 3 and 6.

As described, the entire thermal unit 31 is attached to the main unit by means of a pair of mounting bosses 32a and is urged in the direction of the platen 51 which is swingably provided at the front part thereof, which, with the two resilient engaging members 33a and 33b, enables it to be detachably affixed inside the main printer-labeller unit 1. That is, a portion of the resilient engaging

member 33a comprised of a spring construction attached to the baseplate 32 is securely contacted with the motor fixing portion 23a, and the resilient engaging member 33b is engaged against its resiliency with the unit fixing portion 23b, to complete the attachment of the thermal unit 31 in the main unit.

The replacement thermal print head 36 is installed simply by aligning it with the alignment step portion 35a of the thermal unit 31 and tightening the fixing screw 40.

Thus, the screws and other such adjusting means of the conventional devices are no longer needed and there is the advantage that parallelism between the platen roller 51 and the print head 36 is promoted. There is the additional advantage that the thermal unit 31 can be attached to the main unit simply by means of the mounting bosses 32a and the two resilient engaging members 33a and 33b, facilitating the installation.

The main unit of the present invention is provided with a pivotally openable bottom cover 80, a platen arm 50 having a platen roller 51 positioned in opposition to the thermal print head 36, said platen arm 50 being rotatable in a direction opposite to that of the bottom cover 80, and an engaging means 60 constituted by a hook 63 formed on the platen arm 50, and when the bottom cover 80 and the platen arm 50 are opened for when the label strip is to be threaded, they are displaced so that the label guide passage surface 19 on the label holder 13 and the label guide passage surface 78 of the platen arm form a straight, inclined guide surface. Therefore, the label roll can be securely and conveniently loaded in one operation.

Claims

1. An electronic thermal-printing hand labeller having a label-strip threading device comprising a pivotally openable bottom cover (80) provided near at the front of a printer-labeller main unit (1) and a platen arm (50) characterised by a retaining device (60) consisting of a link (61) operated by a set pin (27);

a hook (63) connected to said link (61) and pivotally fixed to the main unit (1);

an engaging projection (56) on the platen arm (50) engagable by the hook (63); and

a spring (65) biasing the platen arm (50) to an opening direction.

2. An electronic thermal-printing hand labeller according to claim 1, characterised by a thermal



head replacing device comprising:

a detachable attachment in the printer-labeller main unit (1) of a thermal unit (31) to a thermal unit base plate (32) by means of a thermal print head retainer plate (38) and a fixing screw (40); and a screw driver access hole (57) formed in the platen arm (50) which is swingably provided on the outer side of the thermal unit.

3. An electronic thermal-printing hand labeller according to claim 2, wherein the thermal print head (36) is brought into a position of alignment by means of an alignment step portion (35a) provided at the front portion of the thermal unit (31).

Revendications

1. Etiqueteuse électronique manuelle à impression thermique ayant un dispositif d'enroulement de bande d'étiquettes, comprenant un couvercle inférieur (80) à ouverture pivotante placé près de l'avant d'une unité principale imprimante-étiqueteuse (1) et un bras de cylindre (50) caractérisée par un dispositif de retenue (60) composé d'une tige (61) actionnée par un goujon d'assemblage (27) : un crochet (63) relié à ladite tige (61) et fixé de façon pivotante à l'unité principale (1) : une saillie de contact (56) sur le bras de cylindre (50) pouvant venir en contact avec le crochet (63) : et un ressort (65) sollicitant le bras de cylindre (50) dans une direction d'ouverture.
2. Etiqueteuse électronique manuelle à impression thermique selon la revendication 1, caractérisée par un dispositif de remplacement de tête thermique comprenant : la fixation amovible dans l'unité principale imprimante-étiqueteuse (1) d'une unité thermique (31) à une plaque de base (32) d'unité thermique au moyen d'une plaque de retenue (38) de tête d'impression thermique et d'une vis d'assemblage (40) : et un trou d'accès (57) pour tournevis formé dans le bras de cylindre (50) qui est placé de façon oscillante sur le côté extérieur de l'unité thermique.
3. Etiqueteuse électronique manuelle à impression thermique selon la revendication 2, dans laquelle la tête d'impression thermique (36) est amenée dans une position d'alignement au moyen d'une partie étagée d'alignement (35a) formée dans la partie avant de l'unité thermique (31).

Patentansprüche

1. Ein elektronisches thermo-druckendes Handetikettiergerät, mit einer Etiketten-Streifenvorschubeinrichtung, beinhaltend eine schwenkbar öffnende Bodenabdeckung (80), die in der Nähe der Vorderseiten einer Etikettendruck-Haupteinrichtung (1) angeordnet ist, und einen Plattenarm (50),

gekennzeichnet durch

eine Halteeinrichtung (60), welche einen Hebel (61) aufweist, der durch einen Setzstift (27) betätigt wird;

einen Haken (63), welcher mit diesem Hebel (61) verbunden ist, und welcher schwenkbar an der Haupteinrichtung (1) befestigt ist;

einen Eingriffsvorsprung (56) an dem Plattenarm (50), welcher in Eingriff mit dem Haken (63) bringbar ist; und

eine Feder (65), welche den Plattenarm (50) in eine Öffnungsrichtung drückt.

2. Ein elektronisches thermo-druckendes Handetikettiergerät gemäß Anspruch 1, **gekennzeichnet durch** eine Thermokopf-Auswechseleinrichtung, beinhaltend:

eine lösbare Befestigung der Etikettendruck-Haupteinrichtung (1), einer Thermoeinheit (31) an einer Thermoeinrichtung-Basisplatte (32), mittels einer Thermodruckkopf-Halteplatte (38) und einer Fixierschraube (40); und einer Schraubenzieherzugangsöffnung (57), welche in dem Plattenarm (50) ausgebildet ist, welcher schwenkbar an der äußeren Seite der Thermoeinrichtung vorgesehen ist.

3. Ein elektronisches thermo-druckendes Handetikettiergerät nach Anspruch 2, wobei der Thermodruckkopf (36) in eine ausgerichtete Position gebracht wird, und zwar mittels einem Ausrichtstufenteil (35a), welches an dem vorderen Teil der Thermoeinrichtung (31) angeordnet ist.

