PORTABLE TICKET PRINTER

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3 Claims

ABSTRACT OF THE DISCLOSURE

For printing labels, tickets, tags, etc., mounted in succession on a tape by means of pressure-sensitive adhesive, a portable device of the dial-set type comprising a reciprocating printing head which snaps from retracted to printing position, a reciprocating carriage for cocking the printing head and feeding the tape and a rotary actuator for reciprocating the carriage when rotated in either direction.

Objects of the invention are to produce a device which is light and convenient and can be carried in one hand, which is simple and economical to produce, which can be operated by turning a rotor in either direction, which facilitates type setting, which permits quick change of printing heads, which is durable and reliable in use, and in which the tape, printing head and inking pad may each be replaced quickly and easily.

The invention involves a printing device comprising a platen, a printing head movable up and down, a spring yieldingly urging the printing head from a retracted position to printing position, an actuator movable through a complete cycle for each printing operation, cocking means responsive to the actuator for moving the printing head from printing to retracted position during a part of each cycle, a detent for holding the printing head in retracted position during a subsequent part of each cycle, and trip means responsive to the actuator at (or near) the end of the cycle to disengage the aforesaid detent, thereby permitting the spring to snap the printing head to printing position. Preferably the aforesaid actuator comprises a reciprocating carriage having a forward and rearward stroke during each cycle, the cocking means retracting the printing head during the forward stroke and the de- nent holding the printing head during the rearward stroke, the cocking means comprising a lever pivotally mounted on the carriage and engageable with the printing head on one side of its pivot and a detent on the opposite side of its pivot, and means in the path of the lever to swing it into cocking position during the aforesaid forward stroke, the actuator comprising a rotor and means to move the carriage back and forth through the aforesaid cycle when the rotor is turned one revolution in either direction.

According to this invention the printing device comprises a back, a front, a printing head movable back and forth between printing and cocked positions along a pre-determined path, a detent for holding the head in cocked position, a spring for snapping the head from cocked position to printing position when released from the detent, said back having a sideway extending transversely of said path, a carriage having back and forth movement in said sideway between advanced and retracted positions, means on said carriage for cocking said head, means on said front for actuating the cocking means in response to one of said movements, means for tripping said detent in response to the other of said movements, and means for holding the carriage in said guideway when the front is removed, whereby the carriage and parts carried thereby may be mounted on the back and adjusted before said front is applied to the back. The device has means for mounting the printing head on the back independently of the front so that the head or the front may be removed from the back without removing the other; of course neither head nor front can be removed without first removing the cover and the printing head has a row of type carriers and the back has an opening through which the carriers may be set.

For the purpose of illustration a typical embodiment of the invention is shown in the accompanying drawings in which:

FIG. 1 is an end view;
FIG. 2 is a front view with the cover broken away;
FIG. 3 is a front view with the cover and front removed and with the parts in idle position;
FIG. 4 is a section on line 4—4 of FIG. 3;
FIG. 5 is a view like FIG. 3 with the parts in printing position;
FIG. 6 is a similar view with the parts in inking position;
FIG. 7 is a section on line 7—7 of FIG. 2;
FIG. 8 is an end view of the printing head and cover;
FIG. 9 is a section on line 9—9 of FIG. 8.

The printer comprises a base 1, a cover 2, a cover 3 and 34 and moving back and forth between the retracted position shown in FIGS. 2, 3 and 6 and the printing position shown in FIG. 5. The front B is cup-shaped, facing forwardly, to receive a rolled strip of stock R to be printed, such as price-ticket stock, the printed stock feedind through an outlet O.

The printing head H comprises front and back plates 1 and 2 interconnected at the bottom by cross-bars 3 and 4 (FIG. 3) and at the top by shaft 6. Journaled on the shaft are pulleys 7 and gears 8 fastened to the pulleys respectively. Trained over the pulleys and cross-bar 4 are belts 9 carrying printing characters 11 such as numerals 0 to 9 (FIG. 9). The cross-bar 3 is adapted to carry a chase 12 which slides on the bar lengthwise and which carries printing characters 13 in the same plane as the characters 11 on belts 9. Preferably the cross-bars 3 and 4 comprise the legs of a U-shaped member.

The printing head slides back and forth in a frame comprising front and back plates 14 and 16 which are interconnected at the top by a shaft 17 and at the bottom by a rod 18 extending through slots 19 and 21 in the front and back plates of the printing head (FIGS. 2, 3 and 5). The back plate 2 of the printing head also carries a pin 22 which projects through a slot 23 in the back plate 16 of the aforesaid frame. A screw 24 extends through the back A and threads into the back plate 16 to hold the frame on the back (FIG. 8).

Pivotedly mounted on shaft 17 are two arms 25 interconnected by a shaft 26, the ends of which extend through slots 27 in the frame plates 14 and 16 (FIG. 2). Slidably mounted on shaft 26 is a gear 28 adapted to mesh with any one of the gears 8. The gear 28 projects through an opening in the top of the back A, the opening having a cover 29 pivotally mounted on the back at 30. The gear 28 is normally held in the raised positions shown in FIGS. 2, 3, 5 and 6 by coiled springs on shaft 17 engaging the arms 25 but may be pushed down successively into engagement with the gears 8 to set the belts 9 for printing any desired combination of characters (FIG. 9). A compression spring S between cross-bar 4 and rod 18 yieldingly urges the printing head from retracted to printing position.

The back A has a shallow longitudinal recess 31 forming a sideway for a carriage 32 comprising a plate having a thickness approximating the depth of the recess, the carriage being held in the recess by guides 33 and 34 and moving back and forth between the retracted position shown in FIGS. 3 and 5 and the advanced position shown
in FIG. 6. The carriage is actuated by an eccentric 36 which is carried by shaft 37 and which bears on flanges 38 projecting forwardly from opposite ends of an opening 39 in the carriage. The shaft 37 is journaled in a collar 41 mounted on front B and held in place by snap ring 42 (FIG. 7). The shaft is rotated by a rotor 43 journaled in the front B, the rotor having an off-center handle 44 and being rotatable either clockwise or counterclockwise. Shaft 37 has a semi-circular end fitting into a semi-circular recess in rotor 43 and the cover is held on by a spring-pressed detent 46 which snaps into position when the cover is placed on the back A (FIG. 7).

Pivoted on the front of the carriage 32 at 47 is a lever 48 for lifting the printing head to retracted or cocked position when the carriage is moved to retracted position to advanced position, the rear end of the lever riding under a roller 49 mounted on the side of back A by means of a shaft extending through slot 50 in the carriage 32 to swing the lever counterclockwise (FIGS. 3, 4 and 6) and the forward end of the lever engaging the pin 22 to lift the printing head against the action of spring 5. The lever is urged counterclockwise by a spring 51. The printing head is held in cocked position by detent 52 pivotally mounted on the carriage at 53 and actuated by a spring 54. When the carriage is returned to retracted position the detent engages stop 56 to disengage the detent from the lever and permit the head to be snapped by spring 5 to printing position.

An ink-pad 57 is pivotally supported on the carriage at 58 and is urged into the idle position shown in 3, 4 and 5 by the spring 54. When the carriage reaches advanced position the upper end of lever 45 engages a stop 60 on the inside of back A to swing the ink-pad into position to ink the type (FIG. 6).

The strip of stock is fed under the printing head and thence through the outlet O by a pawl 59 engaging the usual feed perforations in the strip. After snapping off the cover C the front B may be removed by first removing snap ring 42 (FIG. 7) after which the mechanism on carriage 32 is exposed for adjustment or repair; and the printing head may be removed without removing the front.

I claim:

1. A printing device comprising a back, a front, a printing head movable back and forth between printing and cocked positions along a predetermined path, a detent for holding the head in cocked position, a spring for snapping the head from cocked position to printing position when said head is released from the detent, said back having a slideway extending transversely of said predetermined path, a carriage having back and forth movements in said slideway between advanced and retracted positions, means on said carriage for cocking said head, means on said front for actuating the cocking means to move said head to cocked position in response to one of said movements, means for tripping said detent in response to the other of said movements, and means for holding the carriage in said slideway when the front is removed, whereby the carriage and means carried thereby may be mounted on the back and adjusted before said front is applied to the back.

2. A device according to claim 1 further characterized by means for mounting the printing head on the back independently of the front so that the front may be removed from the back without removing the head.

3. A device according to claim 1 further characterized in that the printing head has a row of type carriers and the backing has an opening through which the carriers may be set.

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