

A METHOD OF POSITIONING CUT PAPER IN A PRINTER

This invention relates to methods of setting or positioning cut paper in printers.

Many types of printer have a paper guide disposed opposite to a platen, the paper guide being provided on a printing head which reciprocates parallel to the axis of the platen. An opening for exposing an ink ribbon is formed in the paper guide opposite to a nose portion of the printing head. The paper guide has a width almost the same as that of the printing head and, in general, is horizontally symmetrical.

As one example of a method of positioning cut paper in a printer of this construction, the printing head is shifted so as to be positioned almost at the centre of the platen, the cut paper being then inserted between the printing head and the platen and fed until it reaches a printing start position.

However, with the printing head positioned almost at the centre of the platen until the cut paper is fed to the printing start position and with the ink ribbon exposed through an opening in the paper guide, the result is that when the cut paper is inserted, an upper edge or side of the cut paper may be brought into contact with an exposed portion of ink ribbon to stain or mark the cut paper.

The present invention seeks to prevent cut paper from being stained or marked when it is positioned or set in a printer.

According to one particular aspect of the present invention, there is provided a method of positioning cut paper in a printer, said printer comprising a paper

guide having an extended portion parallel to the axis of a platen and opposed to said platen, a printing head carrying said paper guide and arranged to reciprocate in a direction parallel to the axis of the platen, and an opening in said paper guide for exposing an ink ribbon, said opening being positioned opposite to a nose portion of said printing head so that when cut paper is inserted between said printing head and said platen printing may be performed, said method comprising: placing said printing head at a position where the extended portion of said paper guide faces said cut paper and said opening is disposed away from said cut paper; feeding said cut paper between said extended portion and said platen as far as a position where an upper side of said cut paper passes said opening; moving said printing head substantially to a central portion of said cut paper; and feeding said cut paper to a printing start position.

The invention is illustrated, merely by way of example, in the accompanying drawings, in which:-

Figure 1 is a front view, partially cut away, indicating the relation between a paper guide and cut paper when a printing head is placed in a home position;

Figure 2 is a rear elevation, partially cut away, indicating a state where the cut paper is carried as far as the position exceeding an opening in the paper guide; and

Figure 3 is a rear elevation, partially cut away, indicating a state where the cut paper is carried as far as the printing start position.

As shown in Figures 1, 2 and 3, a printing head 1 is disposed on a carriage 2 opposite to a platen 3. The

carriage 2 is slidably mounted on guide shafts 6, 7 positioned between side plates 4, 5 and extending parallel to the axis of the platen 3. The printing head 1 is reciprocated together with the carriage 2 in a direction parallel to the axis of the platen 3 by a driving mechanism (not shown). As shown in Figure 1, a printing part 1a is formed on a nose portion of the printing head 1, and a paper guide 8 is provided on the printing head 1 in opposition to the platen 3. The paper guide 8 consists of a synthetic resin guide plate 80 and an ink ribbon mask 81 formed from a thin metallic sheet. An opening 81a for exposing an ink ribbon (not shown) is formed at a position where the ink ribbon mask 81 faces the printing part 1a. An extended portion 80a in opposition to and parallel with the axis of the platen 3, is formed on the guide plate 80. Cut paper 9 is fed between the printing head 1 and the platen 3 by a cut paper feeding mechanism (not shown).

Described next is the operation for positioning or setting the cut paper 9.

Before inserting the cut paper 9, the printing head 1 is placed in a home position shown in Figures 1 and 2. Thereafter, the printing head 1 is kept in the home position, and the cut paper 9 is inserted between the printing head 1 and the platen 3, and then fed to a position where an upper edge or side of the cut paper 9 passes the opening 81a, or near to an upper edge or side of the guide plate 80, as shown by chain lines in Figure 1. In this case, since the cut paper 9 does not come between the opening 81a and the platen 3, it will not be stained or marked by coming into contact with the ink ribbon exposed through the opening 81a. However, the cut paper is guided to this position by the extended portion 80a of the paper guide. The printing head 1 is

then shifted nearly to the centre of the platen, as shown in Figure 3, and the paper guide 8 is placed in a position opposite to a central portion of the cut paper 9. Then, the cut paper 9 is fed until it reaches a printing start position as shown in Figure 3. In this case, the paper guide 8 guides the central portion of the cut paper 9 over a relatively wide region, and therefore deviation will not result on sliding resistance between the paper guide 8 and the cut paper 9, and the cut paper 9 will not become inclined relative to the axis of the platen during feeding.

As discussed above, the position for feeding the cut paper 9 is set to a position where the cut paper 9 faces the extended portion 80a and is kept away from the opening 81a because the printing head 1 is kept in a home position. However, the position for feeding the cut paper 9 may be set otherwise at the centre of a shift range of the printing head 1, and the printing head 1 may be shifted to a position where the cut paper 9 faces the extended portion 80a and is kept away from the opening 81a when the cut paper 9 is fed. Further, the position where the cut paper 9 is fed and kept away from the opening 81a may be that at which an upper edge or side of the cut paper 9 passes an upper edge of the opening 81a and the upper edge or side of the cut paper 9 may be positioned near an intermediate portion of the paper guide 8 if the upper edge or side of the cut paper 9 passes an upper edge of the opening 81a. Then, the guide plate 80 and the ink ribbon mask 81 may be formed integrally of, for example, synthetic resin or metallic sheet material.

Needless to say, the present invention is applicable not only to printers in which cut paper is used exclusively, but also to printers in which

continuous paper and cut paper can be used selectively.

As described in detail above, according to the method of positioning or setting cut paper according to the present invention, inserted cut paper is, during feeding, guided by the extended portion 80a of the paper guide as far as the position where it passes an opening 81a without ever facing the ink ribbon exposed through the opening. Thereafter, the cut paper, during further feeding to a printing start position, is guided by the paper guide in its entirety which is shifted to a position opposite to a central portion of the cut paper from the position exceeding the opening. Therefore stains or marks will not result on the cut paper at the time of setting the cut paper in the printer and the cut paper will not become inclined to the axis of the platen.

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C L A I M S

1. A method of positioning cut paper in a printer, said printer comprising a paper guide having an extended portion parallel to the axis of a platen and opposed to said platen, a printing head carrying said paper guide and arranged to reciprocate in a direction parallel to the axis of the platen, and an opening in said paper guide for exposing an ink ribbon, said opening being positioned opposite to a nose portion of said printing head so that when cut paper is inserted between said printing head and said platen printing may be performed, said method comprising: placing said printing head at a position where the extended portion of said paper guide faces said cut paper and said opening is disposed away from said cut paper; feeding said cut paper between said extended portion and said platen as far as a position where an upper side of said cut paper passes said opening; moving said printing head substantially to a central portion of said cut paper; and feeding said cut paper to a printing start position.
2. A method of positioning cut paper in a printer substantially as herein described with reference to the accompanying drawings.

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opening for exposing an ink ribbon is formed on said paper guide at a position opposite to a nose portion of said printing head, thus printing on a cut paper inserted between said printing head and said platen, the improvement characterised in that: said printing head is placed at a position where the extending portion of said paper guide faces to said cut paper and said opening is disposed away from said cut paper; said cut paper is fed between the said extending portion and said platen as far as a position where an upper side of said cut paper passes said opening; said printing head is then shifted nearly to a central portion of said cut paper; and said cut paper is fed thereafter to a printing start position.

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