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(54) PLATEN FOR AN IMPACT PRINTER

(71) We, ING. C. OLIVETTI & C., S.p.A., of Via G. Jervis 77, 10015 Ivrea, Italy, a body corporate organised and existing under the laws of Italy, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to a platen for an impact printer of the type comprising selectively actuatable printing wires and an ink ribbon.

Normally, in known impact printers, the platen consists of a rotating roll which operates also to feed the paper. In order to make the simultaneous printing of a large number of copies possible, the external surface of the roll is made of material of a considerable hardness such as, for example, very hard rubber or metal. The use of the roll does, however, have the disadvantage of a great degree of precision of the alignment of the stroke units with the roll itself being necessary in order to obtain a good quality of print. In addition, such rolls are expensive to manufacture.

In order to avoid these disadvantages, the use is known, as a printer platen, of a rigid metal bar which is fixed between the sides of the printer and which has a plane front surface parallel to guides on which the carriage which bears the printing head moves. In this case, suitable units adjacent to the bar feed the paper.

The use of a rigid bar does, however, have one disadvantage, especially if it is used as a platen for a wire printer. In fact, in this type of printer, it has been noted that the wires tend to become pointed after a certain number of strokes, presumably on account of the wearing of the points on the ink ribbon at the time of impact. Consequently, when the wires are pointed and the contrast unit consists of a rigid bar, the wires perforate the ink ribbon, making it unusable within a short space of time and reducing the average life of the ribbon considerably. This phenomenon of deterioration is accentuated in ribbons contained in cartridges.

The object of the present invention is to provide a platen for an impact printer which

makes the simultaneous printing of a large number of copies possible and which, at the same time, avoids excessive wear of the ink ribbon.

According to the present invention there is provided a non-rotatable, fixed bar type platen for an impact printer of the type comprising a plurality of selectively actuatable printing wires and an ink ribbon interposed between the printing wires and the platen, the platen comprising a rigid bar which is, in use, fixed in the printer with a surface disposed in front of the ink ribbon, a layer of flexible and shock absorbing material stuck on the said surface of the bar, and a thin sheet of hard material stuck on the said layer to yield under the impact force of the printing wires for reducing the wear of the wires on the ink ribbon.

The invention will be described in more detail, by way of example, with reference to the accompanying drawings, wherein:

Fig. 1 is a schematic plan view of an impact printer embodying the invention, and

Fig. 2 is a cross sectional view of an enlarged detail in Fig. 1.

A platen 10 (Fig. 1) for an impact printer includes a rigid bar 11 consisting of a metal (eg steel) which is fixed, in any known way, to two side parts 13 and 14.

A layer 16 of flexible and shock absorbing material, for example, expanded polyurethane, of the order of 1mm thick (say about 2 mm thick), is stuck on to the front part of the bar 11 (Fig. 2) and over the full length of the line of print. A thin sheet 18 of very hard and flexible material, for example, steel of the order of one tenth of a millimetre thick (say approximately 0.2 mm thick), is stuck on to the front surface of the layer 16.

The bar 11 is substantially parallel to two cross guides 19 and 20 on which there runs a carriage 21 which supports a printing head 22 of a known type, for example, of the type described in the Applicant's UK Patent No. 1,488,613.

The sheets of paper 23 to be printed are held in contact with the sheet 18 in any known way, while suitable movement devices, not shown on the drawings, effect line feed.

An ink ribbon 24 is arranged between the

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head 22 and the paper 23. By way of example, the ribbon 24 is shown enclosed in a cartridge 25 fitted on to the carriage 21. The printing head effects impact printing by striking the ribbon against the sheets of paper.

The particular structure of the contrast unit described makes it possible to print a large number of copies simultaneously (using carbon paper or no-carbon copy paper) since the sheet 18 is sufficiently hard. Furthermore, due to the yielding nature of the material in the layer 16, the sheet 18 bends locally at the time of impact. In this way, the ink ribbon 25 is not worn by the printing wires, even if these latter are pointed, while its characteristics remain virtually unchanged even after many millions of characters have been printed.

The material used to form the layer 16 can be other than expanded polyurethane, e.g. rubber, provided it has the necessary flexible and shock absorbing characteristics; likewise, the sheet 18 need not necessarily be of steel provided that it is sufficiently hard and flexible.

WHAT WE CLAIM IS:—

1. A non-rotatable, fixed bar type platen for an impact printer of the type comprising a plurality of selectively actuatable printing wires and an ink ribbon interposed between the printing wires and the platen, the platen comprising a rigid bar which is, in use, fixed

in the printer with a surface disposed in front of the ink ribbon, a layer of flexible and shock absorbing material stuck on the said surface of the bar, and a thin sheet of hard material stuck on the said layer to yield under the impact force of the printing wires for reducing the wear of the wires on the ink ribbon.

2. A platen according to claim 1, wherein the flexible and shock absorbing material is rubber.

3. A platen according to claim 1 or 2, wherein the layer of flexible and shock absorbing material has a thickness of the order of one millimetre.

4. A platen according to claim 1, 2 or 3 wherein the said sheet is steel having a thickness of the order of some tenths of a millimetre.

5. A non-rotatable, fixed bar type platen substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

6. An impact printer of the type comprising a plurality of selectively actuatable printing wires and an ink ribbon interposed between the printing wires and the platen wherein the platen is according to any of the preceding claims.

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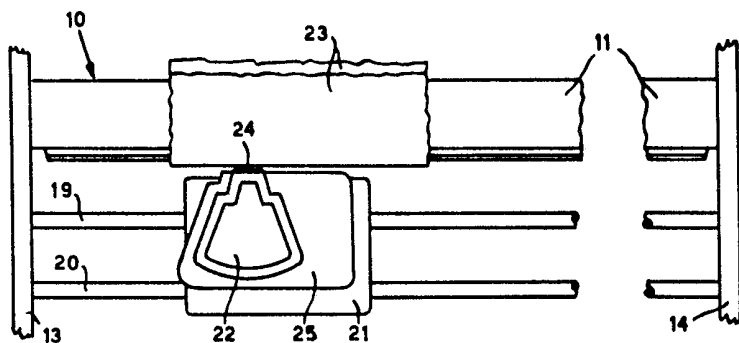


FIG. 1

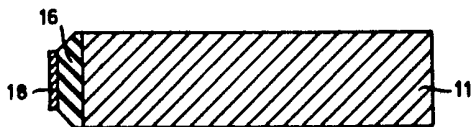


FIG. 2