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[54] **DEVICE FOR PRINTING CHARACTERS BY POINTS**

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[52] **U.S. Cl.** ..... **197/1 R,** 197/151, 197/170

[51] **Int. Cl.** **B41j 3/10**

[58] **Field of Search** ..... 197/1; 101/93 C

[56] **References Cited**

UNITED STATES PATENTS

1,874,700 8/1932 Gardner ..... 101/93 MN

3,312,163 4/1967 Muyshondt ..... 197/1 X

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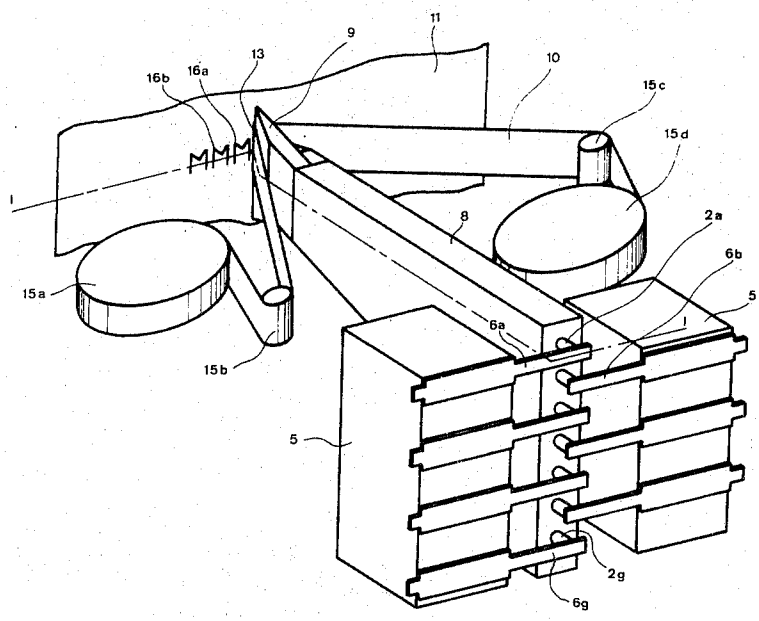
[57] **ABSTRACT**

This invention relates to a device for printing characters by points wherein an arrangement is provided for rendering visible the last character printed.

The printing of characters is effectuated by means of movable printing elements located in a guiding member. Said guiding member in the vicinity of the printing support is bevel-edged and provides a dihedron one face of which forms an angle of nearly 90° with the part of the said support located on the side of the already printed character so as to render the last printed character visible.

This arrangement permits to correct more easily printing errors.

3 Claims, 2 Drawing Figures



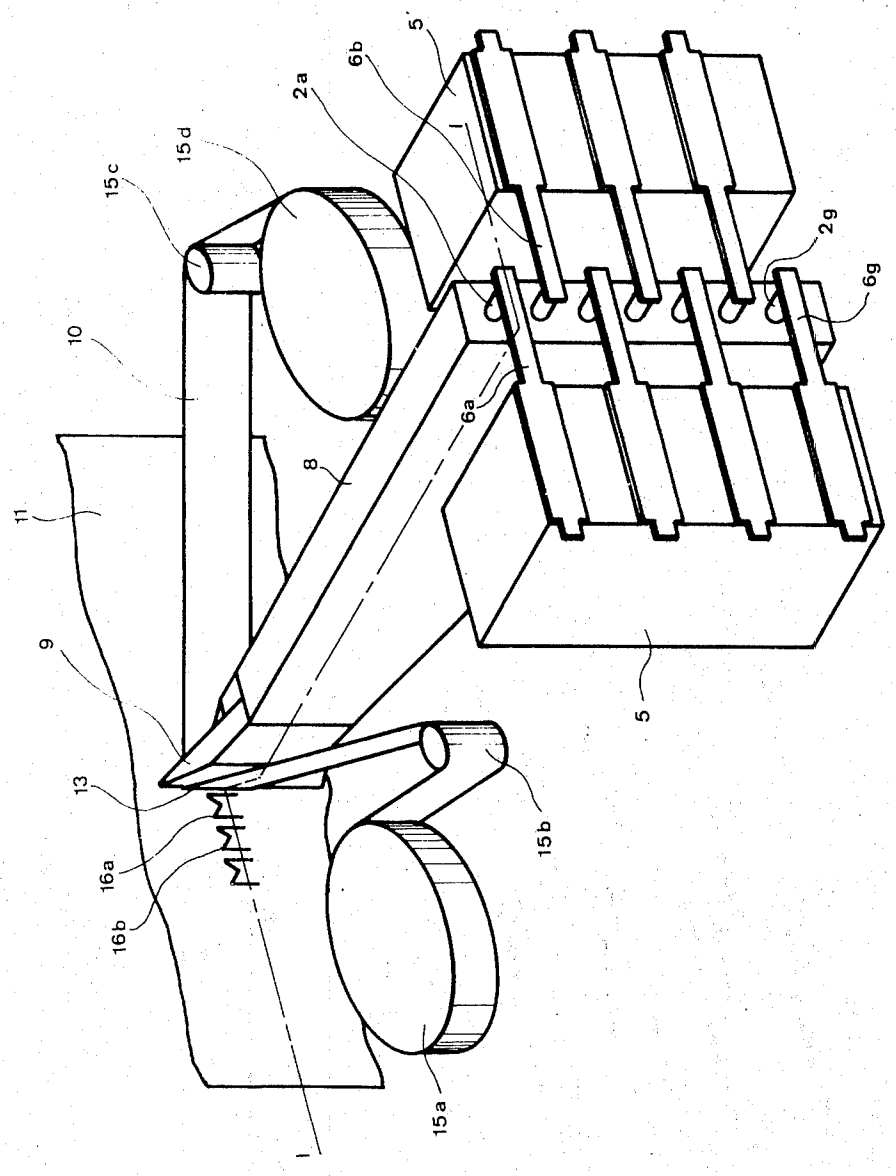


Fig 1

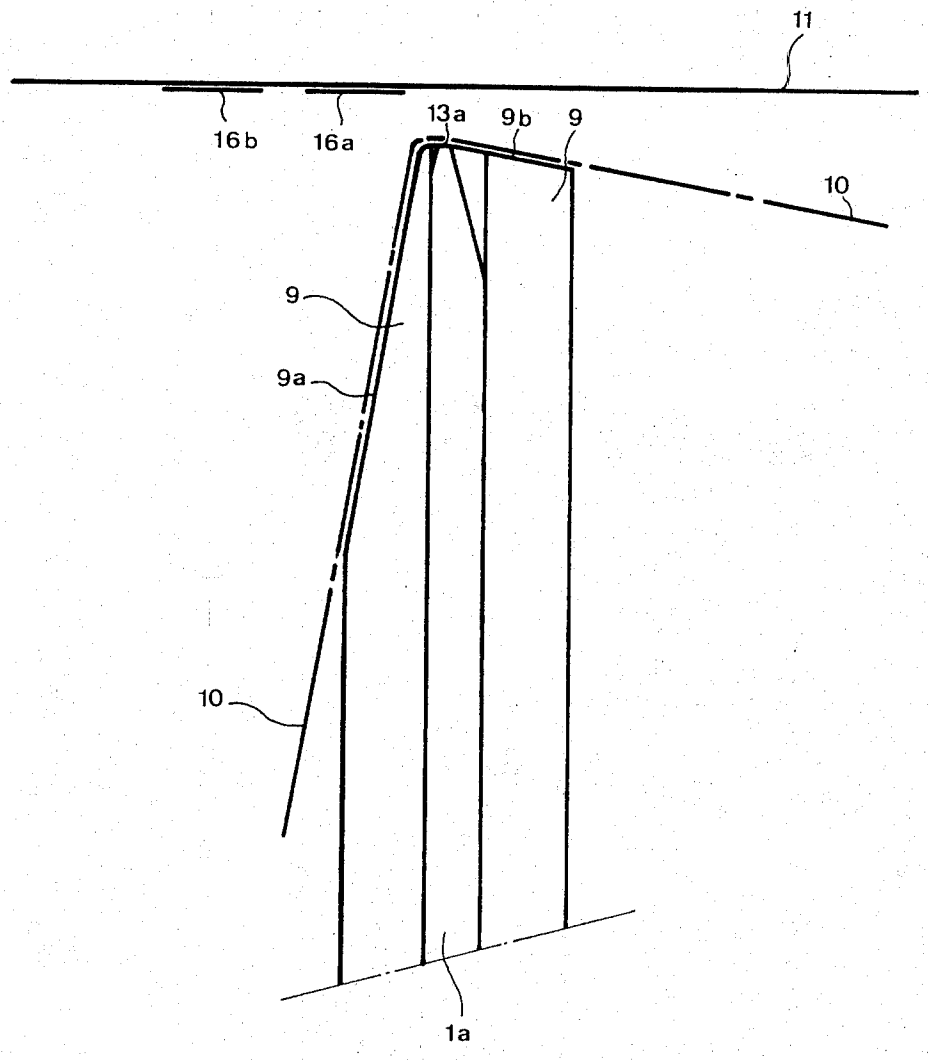


Fig 2

DEVICE FOR PRINTING CHARACTERS BY POINTS

The present invention is an improvement in devices for printing characters by points having mainly as its object a constructional arrangement permitting of making visible constantly the last character printed so as to facilitate the work of the operator of the printing machine.

In known machines printing characters by characters in which stylets or printing elements disposed in a line or in columns strike an ink ribbon or directly a printing support, the actual head, due to the space required for the guides of the stylets, has a relatively large dimension in the direction of the line of characters in course or printing so that several of the characters previously printed are hidden from the operator's sight at the time of the striking of a certain character. There is however provided in certain machines a relative temporary displacement of the paper or of the writing head in relation to one another between two character strikings perpendicularly to the line of writing which causes the whole of the characters of the line already printed to appear. These machines are sophisticated and furthermore when the striking is rapid, the operator sees the last character printed in a fleeting and consequently inadequate manner. The arrangement of the guide of the printing elements permits, according to the invention, of cancelling this drawback and rendering the last character printed constantly visible.

The invention will be better understood by referring to the description which will follow of a preferred embodiment in which the printing elements, by way of a non limiting example, are those described in U.S. Pat. application Ser. No. 223,950, now abandoned and to the attached drawings in which:

FIG. 1 shows a perspective view of the device according to the invention;

FIG. 2 shows a view partly in section on the plane I—I of the device of FIG. 1.

In these figures, the same elements have the same reference numbers.

In FIG. 1 the tips of the printing elements are represented by 2*a* to 2*g*, the printing sheet at **11**, the tip of the guiding member of the printing elements at **9**, the guiding member at **8**, the electro-magnets for control of the printing elments at **5** and **5'**, the movable blades of the electromagnets from **6***a* to **6***g*. The inking ribbon **10** is driven in continuous or discontinuous rotation by means of drums **15***a*, **15***b*, **15***c*, **15***d* by means which do not form a part of the invention. The seven printing elements which are superimposed blades pass inside the guiding member **9**, but according to the invention, this member **9** terminates towards the sheet **11**, in a dihedron of which the left face on the side towards the characters already printing forms an angle of nearly 90° with the sheet **11**. This arrangement is clearly visible in FIG. **2**. The printing elements are superimposed blades, the section being effected level with the element **1***a* for example. The ribbon **10** is supported on the two faces **9** *a* and **9***b* of the guiding member **9**. This member **9** is bevel-edged so that the face **9***a* is almost perpendicular to the sheet **11**, the face **9***b* forming a slight angle with this sheet **11**. The ribbon **10** is likewise in contact with the calibration hole **13** of the member **9** which allows the ends of the operated printing elements to pass. In FIG. **2** the ribbon **10** therefore passes in the immediate

vicinity of the end **13***a* of the printing blade **1***a*. The last character printed has been shown at **16***a*. It is clear in the two figures that this character is visible to the operator of the machine from the end of its printing.

The printing device of the invention shown in FIGS. **1** and **2** comprises elongated printing elements **1***a* to **1***g* set in a vertical plane. Control means are provided for the printing element by the groups of electromagnets **5** and **5'** for longitudinally moving said printing elements and a guiding member **8** surrounding said printing elements which is generally perpendicular to the printing sheet **11** and which is bevelled at its end **9** near said printing sheet so that said end has the shape of a dihedron having one face **9***a* (FIG. **2**) making an angle slightly less than 90° with the part of said printing sheet located on the side of the already printed characters. Means (not shown) are provided for moving said guiding member in the direction of said printing line.

The stop position of the writing head in fact is located on the right of the character to be printed and, according to an essential feature of the invention, the difference of length between the writing step and the width of a character is greater than the distance between the end of the guiding member near the printing sheet on the side of already printed characters and the vertical plane of the printing members. The operator may therefore check constantly and without any delay the text which he is instructed to print.

The arrangement according to the invention can also be used in the case of machines in which the printing elements strike directly a special inking paper without having therefore an inking ribbon. In a machine of this type, the ribbon **10** as well as its driving members must be dispensed with, the arrangement of the other parts remaining the same. It is obvious that the omission of the thickness of the ribbon facilitates still more the obtaining of the result sought.

What we claim is:

1. Printing device for printing on a printing sheet columns of marks belonging to a character of a printing line comprising:

elongated printing elements set one upon another in a vertical plane;

control means for longitudinally moving said printing elements;

a guiding member comprising two parts the first of which is generally perpendicular to said printing sheet and which is bevelled at its end near said printing sheet so that said end has the shape of a dihedron having one face making an angle slightly less than 90° with the part of said printing sheet located on the side of the already printed characters for rendering visible the last printed character and a second part having a face forming a slight angle with respect to the printing sheet; said printing elements passing between the two guiding member parts for printing; and

means for moving said guiding member in the direction of said printing line.

2. Printing device according to claim **1** wherein said characters have a fixed step and a fixed width on the printng line, characterized in that the difference in length between said step and said width is greater than the distance between the end of the guiding member near the printing sheet on the side of already printed characters and the vertical plane of the printing members.

3. Printing device according to claim **1** further comprising an inking ribbon applied against the faces of said dihedron and against a calibration hole provided in said guiding member in which are lodged said printing elements.

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