Oct. 30, 1934. E. A. FORD 1,978,898

PRINTING DEVICE

Filed July 26, 1933

FIG.1.

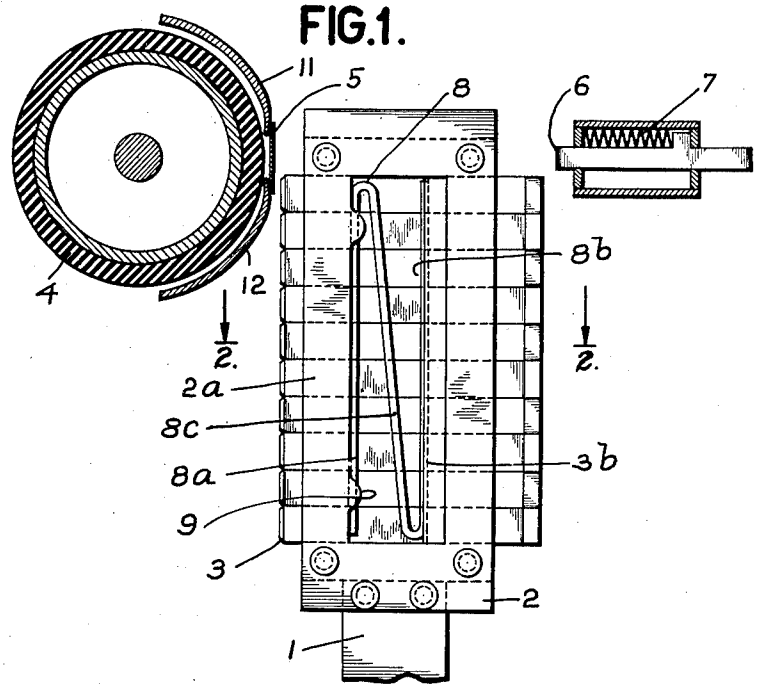


FIG.3.

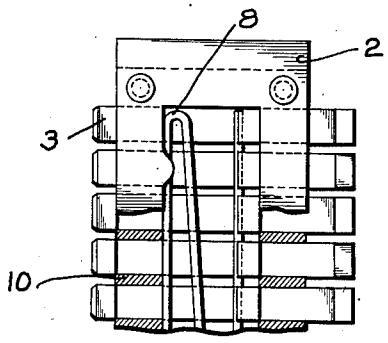
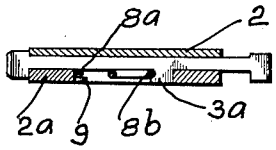


FIG.2.



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PRINTING DEVICE

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Application July 26, 1933, Serial No. 682,283

2 Claims. (Cl. 101—93)

This invention relates to type carriers adapted for use in adding machines, record controlled tabulating and other accounting or printing machines.

More particularly, it relates to means for restoring the individual type elements to their normal position with respect to the common type carrier.

One of the objects of the invention is to devise a resilient restoring member to restore the type elements to their normal position in the carrier, which is simpler and cheaper in construction than those heretofore employed.

Another object is to devise an arrangement in which the type elements can be placed more closely together in the carrier.

Another object is to devise a restoring spring adapted to restore the type elements which may be placed close together without the necessity of reducing the width of the type elements and weakening them.

Referring to the drawing:

Fig. 1 is a side elevation of a type carrier with the type elements mounted therein and also showing in section a platen with which the type elements are adapted to cooperate and a plunger for operating the individual type elements.

Fig. 2 is a section taken on line 2—2 of Fig. 1.

Fig. 3 is a slight modification of the type carrier construction shown in Fig. 1.

In the drawing, the type carrier is shown as comprising a vertical bar 1 provided with a head 2 fixed thereto and with the individual type elements 3, mounted in a head.

The type carrier is adapted to be raised so as to position any one of the type elements in printing position with respect to the platen 4 and ink ribbon 5.

When a type element is in printing position, it will be in alignment with a plunger 6 which, when actuated, will force the type against the ribbon and a sheet of paper mounted on the platen. The spring 7 serves to restore the plunger 6 to normal position.

Instead of employing a separate coil spring associated with each of the type elements to restore the latter after printing operations, a single spring 8 is employed.

One arm 8*a* of this spring rests against the portion 2*a* of the head and is held against displacement by projections 9.

Another arm 8*b* of this spring reaches across a shoulder 3*a* provided on each of the type elements.

The third arm 8*c* of the spring connects the arms 8*a* and 8*b* as shown. The common spring thus serves to restore any type element which may be moved to the left to effect printing.

This particular shape or arrangement of spring 8 renders it possible to confine the spring within the distance between the uppermost and lowermost type element 3, and without necessitating a spring too strong for some of the type elements or too weak for others. It will be noted that the projection 3*a* is provided with an undercut portion as indicated at 3*b* to hold the spring in place.

This spring arrangement makes it possible to employ very small type elements 3 where several type bars are to be employed close together to print in adjacent columns on record sheets which columns are very close together. Where individual springs are used for the type elements, it is necessary to cut away so much of the stem of the type element to make room for the spring as to weaken it and the springs themselves are very weak. With the present construction, much smaller type elements, placed closer together, can be used than would be possible where individual springs are employed.

In Fig. 1, the type elements 3 are shown resting one on top of the other, whereas in Fig. 3 the type elements are separated by intervening spacers 10. The arrangement of Fig. 1 makes it possible to confine the vertical upward and downward movements of the type bar 1 to a minimum. Where the arrangement of Fig. 3 is employed the actuation of any one of the type elements for printing will not tend to carry the adjacent type elements with it. In Fig. 1, although the type rest upon each other, inertia will normally prevent an adjacent type from following where the actuated type is impelled by a very quick blow. However, in order to prevent the type from following and making shadow impressions upon the record, shields 11, 12 may be employed. The type element which is in printing line will, when actuated, press the ribbon against the platen or sheet of paper at a point between the edges of the shields 11, 12. The type element above or below will, if they should tend to follow, be prevented by the shields from moving beyond that particular point.

While there have been shown and described and pointed out the fundamental novel features of the invention as applied to a single modification, it will be understood that various omissions and substitutions and changes in the form and details of the device illustrated and in its operation may be made by those skilled in the art without

departing from the spirit of the invention. It is the intention, therefore, to be limited only as indicated by the scope of the following claims:

What is claimed is:

1. In a printing device, a type carrier having a plurality of type elements, said elements being adapted to be moved relatively to the carrier to effect printing, and a common spring associated with all of said elements to restore them to normal position, said elements having undercut shoulders at the point of contact with the spring to hold the latter in position.

2. In a printing device, a platen, a type carrier movable with respect to said platen, a plurality of type elements mounted in said carrier and adapted by movement of the carrier, to be individually set in printing position with respect to the platen, means for operating a type element so set to effect printing on a sheet carried by the platen, and a shield for preventing adjacent type elements in the carrier from effecting printing on the sheet when said one of said elements is operated for printing, said shield being adapted to restore an actuated type element to normal position in its carrier when the carrier is restored after printing.

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