Aug. 8, 1939. R. E. PARIS 2,168,446

PRINTING MACHINE

Filed Feb. 28, 1936

FIG. 1

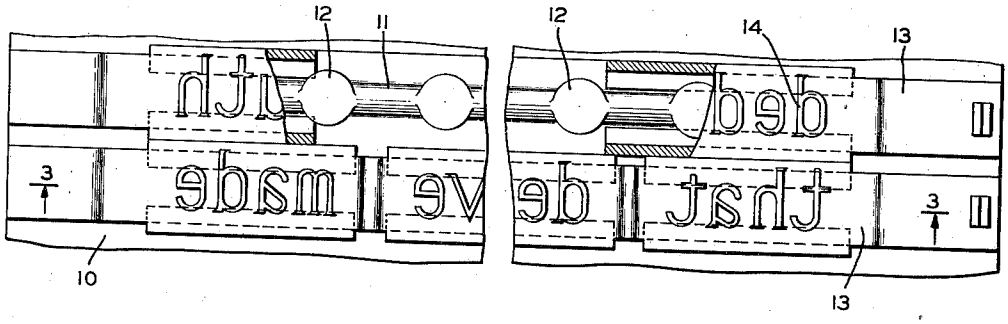


FIG. 2

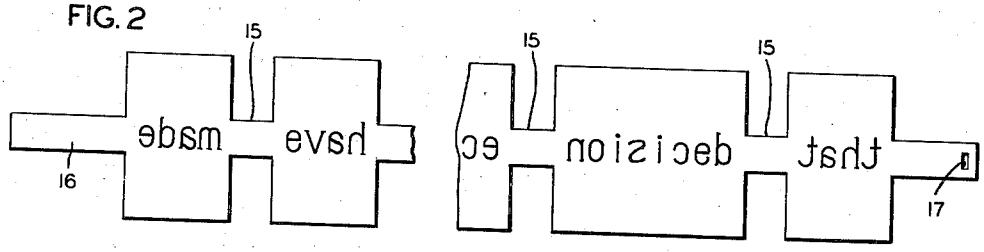


FIG. 3

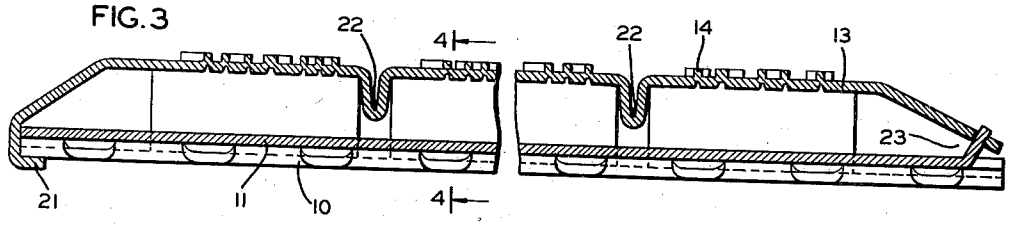


FIG. 4

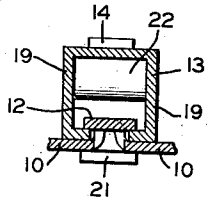


FIG. 5

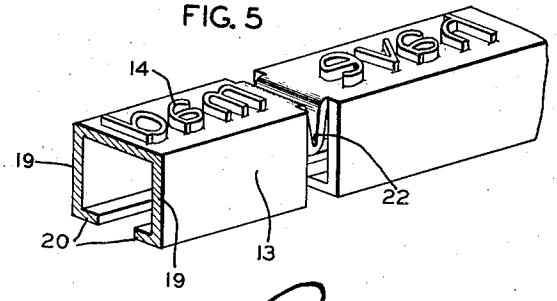
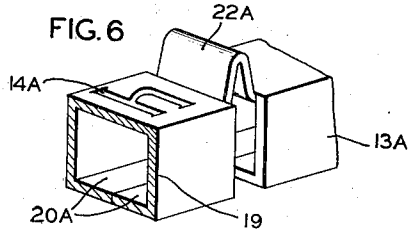


FIG. 6



INVENTOR.

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Patented Aug. 8, 1939

2,168,446

UNITED STATES PATENT OFFICE

2,168,446

PRINTING MACHINE

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Application February 28, 1936, Serial No. 66,161

14 Claims. (Cl. 101—368)

This invention relates to improvements in printing machines such as addressing machines, duplicating machines, etc., and is particularly directed to the printing strips which effect the actual printing whether through a ribbon or by ink.

There are now commercially in use machines for making such strips by embossing printing characters on ribbon-like blanks and for feeding such strips onto a flexible plate having strip-retaining means formed on it. Other machines are also now in use, upon which the plate may be fastened for operation in making numbers of duplicate copies. Or the plates may be small and used in addressing machines. This is old and well known.

However, in such machines, no means is provided for line justification of the printing characters of the several lines on a plate. It is a principal object of the present invention to produce strips of the character above mentioned which shall be constructed so that line justification may be attained.

In the prior art devices, the strips were more or less permanently fastened to the plate by squeezing. Another object of the present invention is to provide novel anchoring-means for the printing strips.

A further object is to utilize the anchoring means as determining means for defining the limits of the justification.

A further object is to produce a form of strip wherein a plurality of such strips may be clamped together for forming means whereby a matrix may be produced from which the usual electro for printing presses may be obtained.

Other objects will appear from the following detailed description and will be specifically pointed out in the claims. All of these objects are attained by the following means illustrated in the accompanying drawing, in which:

Fig. 1 is a fragmentary plan view of one of the plates with a plurality of printing strips attached thereto.

Fig. 2 is a fragmentary plan view on a reduced scale of one of the blanks for a printing strip after embossing and before the final forming operation.

Fig. 3 is a sectional view taken on line 3—3 of Fig. 1.

Fig. 4 is a sectional view taken on line 4—4 of Fig. 3.

Fig. 5 is a fragmentary perspective view of a printing strip.

Fig. 6 is a view similar to Fig. 5 but showing the form of embodiment required for the forming of matrices for making electros for printing presses.

Like characters of reference refer to like parts in all views.

Referring to the drawing in detail, 10 represents a strip-supporting plate of well known construction, formed with ribs 11 carrying disk-like anchoring elements 12. It is, of course, understood that the plate 10, ribs 11, and elements 12 are formed from a single blank and are integral. The printing strips are slipped onto the ribs 11 and held thereon by elements 12.

Each printing strip 13 is preferably made from a band of metal embossed with printing characters 14. But the embossing machines should be provided with proper escapement and skip mechanisms so as to space the words several letter spaces apart as at 15. The embossing machine is also provided with proper dies to effect cutting out of the strip to form narrow portions at 15, and for cutting off the strip as at 16, and with a punch for forming an anchor hole 17 at the same time that the final end 16 of the preceding strip is sheared from the roll of metal.

After the blank is cut and embossed, as in Fig. 2, the wide portions of the strip are bent downwardly and inwardly forming walls 19 which make the strip comparatively rigid as to each word, and also forming flanges 20. The way between the flanges 20 is of such width as to permit the strip to be slipped onto a rib 11 with the elements 12 overlying the flanges 20 and thus holding the strip on the plate 10. The strip has the end formed with the anchor hole 17 bent at an incline, and the opposite end bent with a similar incline and formed into a hook or anchoring element 21. The spaces 15 between the words are folded down as at 22 bringing the several words of the strip into comparatively close relationship. After the strip is completely formed, it is slipped onto the appropriate rib 11 until hook 21 engages the edge of plate 10. The end bearing anchor hole 17 is then pulled until anchor hole 17 registers with a respective anchor pin 23 formed as a lug on plate 10. The hole 17 is slipped over the pin or lug 23, and the strip is securely fixed on the plate without any crushing or pressing action as is at present used. In the pulling which effects registry of hole 17 and pin 23, the folds 22 are opened up more or less, thus effecting justification. Since the distances from the end letters to the adjacent end of the strip 16 or the hole 17 remains always the same for the same end of the line (except at paragraphs), it

follows that the lines are necessarily justified regardless of whether one fold 22 may open a trifle more than another in the line. Actual experiment indicates that folds 22 will open with surprising evenness.

Since the strips may be secured to the plate without forcing down the elements 12, the strips may readily be removed from the plate, and the latter may be used for a number of different runs.

At the beginning of the first line of each paragraph a greater distance is left between the hole 17 and the first letter, and at the end of the last line of each paragraph a greater blank space may be left according to the exigencies presented by the particular matter to be printed.

It will thus be seen that I have produced a strip for addressing machines and other printing machines which is capable of line justification. The strip may be produced in many different ways by various types of known machines modified slightly as would be understood easily by any good mechanic. The strip could also be made by hand, and hence no claim is made to the method of making the strip, but merely to the strip per se and in combination with the supporting plate.

It remains only to be described the manner in which the strip is modified when it is desired to produce a matrix for the production of electros for use with printing presses in the production of books, newspapers, etc. Referring now particularly to Fig. 6, the type strip 13A is formed with depressed characters 14A, side portions 19 and flanges 20A which meet to form a box-like structure. Between words, the strip is bent upwardly at 22A. When a plurality of these strips (made otherwise like strips 13), are fastened to a base like 10 and clamped together, a plastic material may be applied to form a matrix from which electros may be made for use on printing presses. Of course, in this case the expansion permitted by folds 22A provide for line justification.

While I have described what I deem to be the best embodiments of my invention, it is to be understood that many changes in form could be made without departing from the spirit of my invention, and I therefore do not limit myself to the specific embodiments shown nor to anything less than the whole of my invention as above described and as now claimed.

I claim:

1. The combination with a supporting means of a plurality of printing strips secured thereto and each formed with a pair of anchoring elements and a plurality of printing characters so arranged that the first printing characters of all strips are equi-distant from their adjacent anchoring elements and that the last printing characters of all strips are equi-distant from their adjacent anchoring elements, and means intermediate the ends of said strips for keeping the strips straight.

2. The combination with a supporting means formed with an anchoring element, of a printing strip formed with an anchoring element cooperative with said anchoring element of said means for removably locking said strip to said supporting means, said supporting means and said strip being formed with cooperative elements for holding said strip straight.

3. A printing strip formed with embossed words or the like, anchoring means at each end, expansible portions between words, and supporting and securing means at each word.

4. The combination with a printing strip support including stationary anchor pins and strip anchoring elements, of a plurality of unitary type strips each formed of a single length of in-elastic material with portions for coaction with said anchor pins and with other portions for coaction with said strip anchoring elements.

5. A printing strip formed from material provided with printing characters and having a plurality of folded box-like sections, each section having a printing face on which the characters are placed and having longitudinal marginal supporting and anchoring folds on each side of the face, said box-like sections being interconnected at their ends by transverse folds of the material comprising the printing strip whereby the box-like sections are extensibly interconnected to permit the box-like sections to be adjustably separated by tension applied to the ends of said strip, the end sections being provided with supplemental strip anchoring means.

6. The combination with a supporting means having a plurality of anchoring elements formed therein, of a plurality of printing strips each formed with an anchoring element at its end cooperating with one of the anchoring elements on the support to secure said strips to support, each of said strips having expansible portions and supporting and securing elements intermediate the expansible portions.

7. The combination with a supporting means, a plurality of printing strips each formed with anchoring elements having an interlocking relationship with the supporting means to secure the strips to said supporting means, said strips also being provided with one or more folds extending transversely of the strips whereby the strips may be longitudinally extended, said strips between the transverse folds being formed with longitudinal marginal folds adapted to support the strip intermediate the folds and give rigidity to the sections between the folds, said longitudinally folded portions also being interlocked with the supporting means.

8. The combination with a support, of a plurality of printing strips each provided with groups of relatively fixed characters and formed with expansible portions between the groups whereby the strips may be longitudinally extended variable extents for line justification, said strips intermediate the expansible portions being formed with longitudinal stiffening and securing portions having an interlocking relation with the support to mount said strips on said support.

9. A printing strip comprising a single unitary in-elastic strip having one or more transverse folds dividing said strip into a plurality of word sections or character groups whereby the ends of the strip may be variably moved longitudinally to cause said strip to conform to a standard line length, said sections each having a plurality of longitudinal stiffening folds certain of which extend at an angle to the portions having the character groups to impart rigidity to the sections while others of said folds extend at an angle to the stiffening folds to provide a means for anchoring the individual sections of the strip to a support, the end sections of said strip being provided with anchor portions for securing the ends of the strip to a support.

10. A type strip formed of a single piece of in-elastic material and having one or more transverse cut-away portions formed with transverse folds adjacent the cut-away portions whereby the strip is divided into inextensible portions extensibly formed by the folded portions whereby the length of the strip may be varied to conform to

an arbitrary standard of line length, said sections being individually provided with means to anchor the type strip to a support.

11. A type strip formed of a single strip of in-elastic material divided into character group sections by transverse cuts, the material comprising said strip being transversely folded or pleated in the narrow portions of the strip resulting from the cuts whereby the original length of the strip is compressed an extent depending upon the number of transverse cuts, said fold permitting the ends of the strip to be moved longitudinally to cause said strip to conform to an arbitrary standard of line length without deforming the material in the several sections, said strip between the folds being provided with marginal stiffening folds extending longitudinally of the strip, said marginal folds being further folded to provide a means for anchoring each section individually to a support.

12. In combination, a support plate having formed therein ranks of aligned anchoring elements, and a plurality of type strips, said type strips being initially formed from varying lengths of in-elastic strip material upon which characters are initially disposed in groups longitudinally of the strip, said strips being cut away transversely between the character groups and folded transversely at the cut-away portions whereby the ends of the strips may be moved longitudinally variable extents dependent upon the number of character groups in each to make the strips conform to an arbitrary line length without deforming the material intermediate the folds, said strips being further folded longitudinally intermediate the transverse folds to provide interlocking portions engaging the ranks of anchoring elements in the support to retain said strips in spaced relation upon the support.

13. In combination, a support plate having formed therein ranks of aligned anchoring elements, and a plurality of type strips, said type strips being initially formed from varying lengths of in-elastic strip material upon which characters are initially disposed in groups longitudinally of the strips, said strips being cut away transversely between the character groups and folded transversely at the cut-away portions to enable the strips to be manipulated to vary the length thereof to conform to an arbitrary line length without deforming the material intermediate the folds, said strips being further folded longitudinally intermediate the transverse folds to provide interlocking portions engaging the ranks of anchoring elements in the support to retain said strips in spaced relation upon the support, the end sections of said strips being provided with supplemental anchoring means having an interlocking relationship with the support to anchor the strips at the ends.

14. A printing strip formed from a single strip of in-elastic material divided into a plurality of character group sections by transverse folds or pleats, said pleats permitting the length of the strip to be changed to make the strip conform to an arbitrary line length, said strip, intermediate the pleats, being further folded a plurality of times longitudinally of the strip to form the strip into rigid box-like sections whereby a plurality of such strips may be laid side by side in intimate contact to form a composite matrix or master for producing a printing plate.

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