R. H. S. WOLVERTON.

PRINTING MACHINE.

APPLICATION FILED MAY 24, 1920. RENEWED JULY 18, 1921.

1,400,124.

Patented Dec. 13, 1921.

5 SHEETS—SHEET 1.

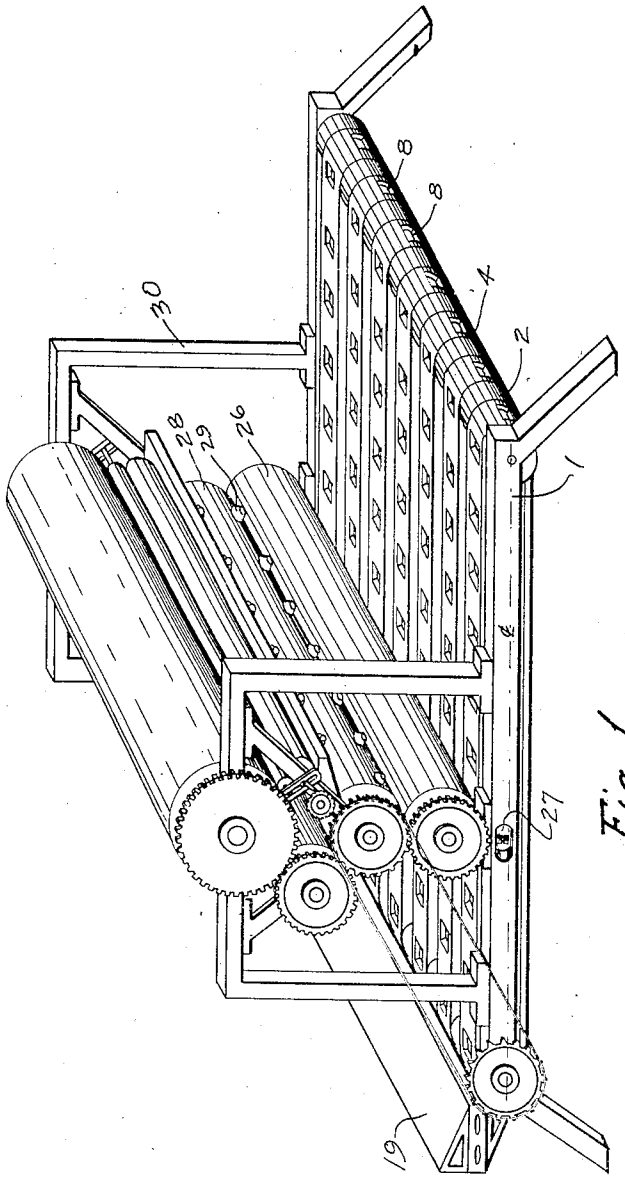


Fig. 1

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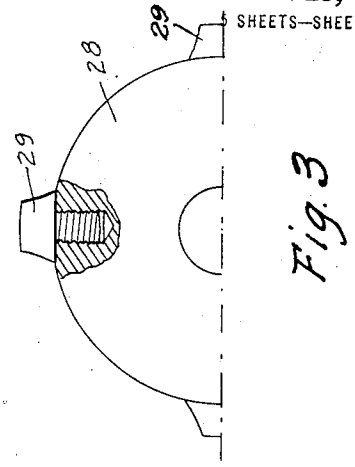


Fig. 3

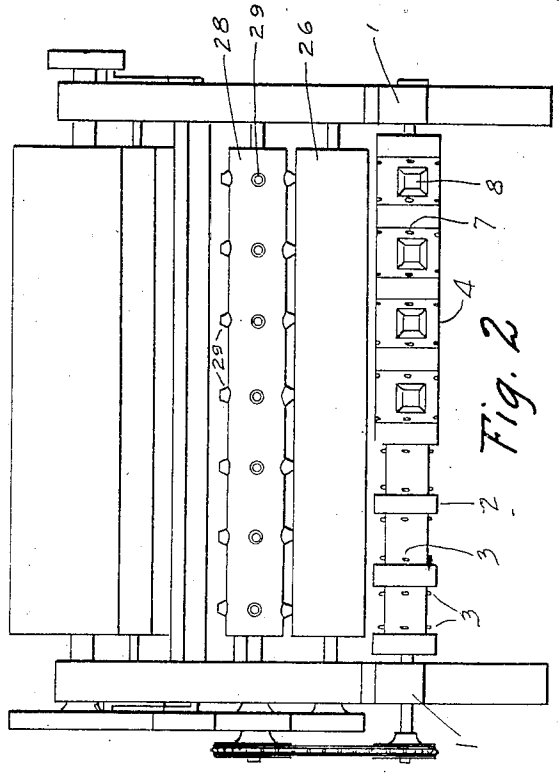


Fig. 2



Fig. 4

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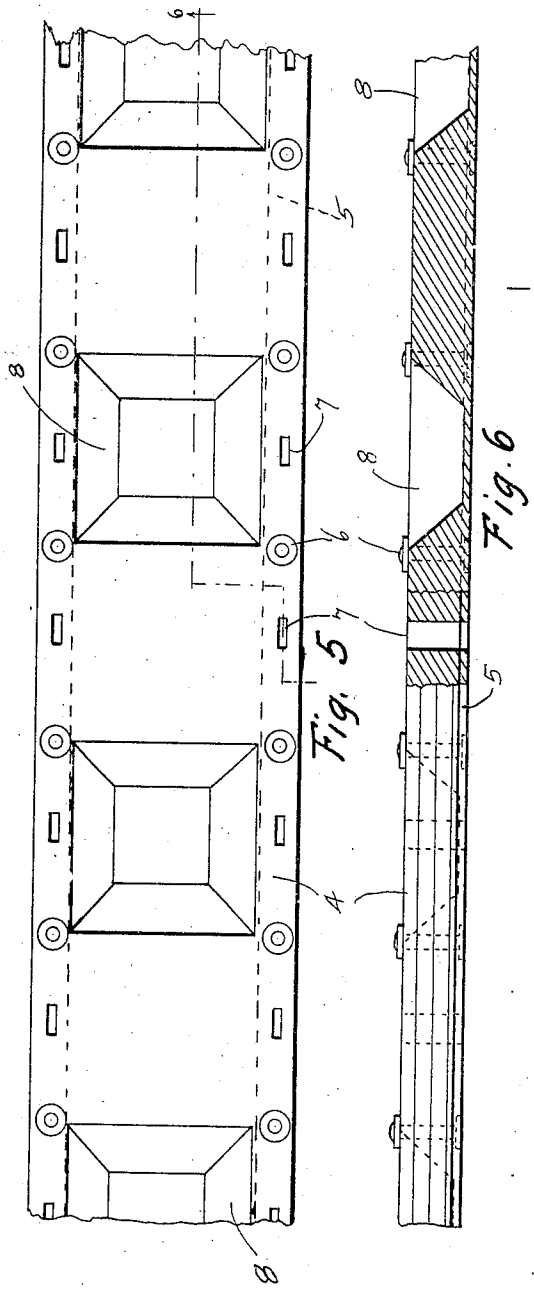


Fig. 5

Fig. 6

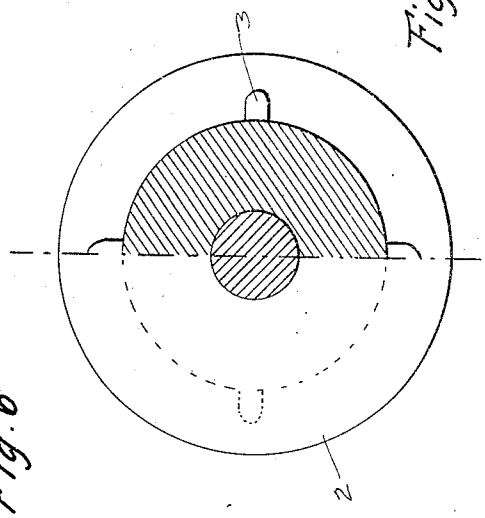


Fig. 7

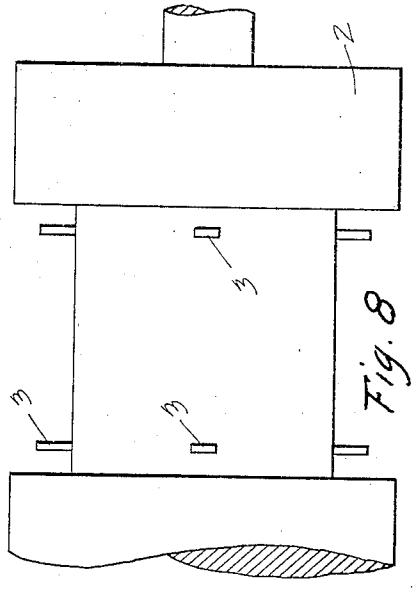


Fig. 8

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1,400,124.

Patented Dec. 13, 1921.

5 SHEETS—SHEET 4.

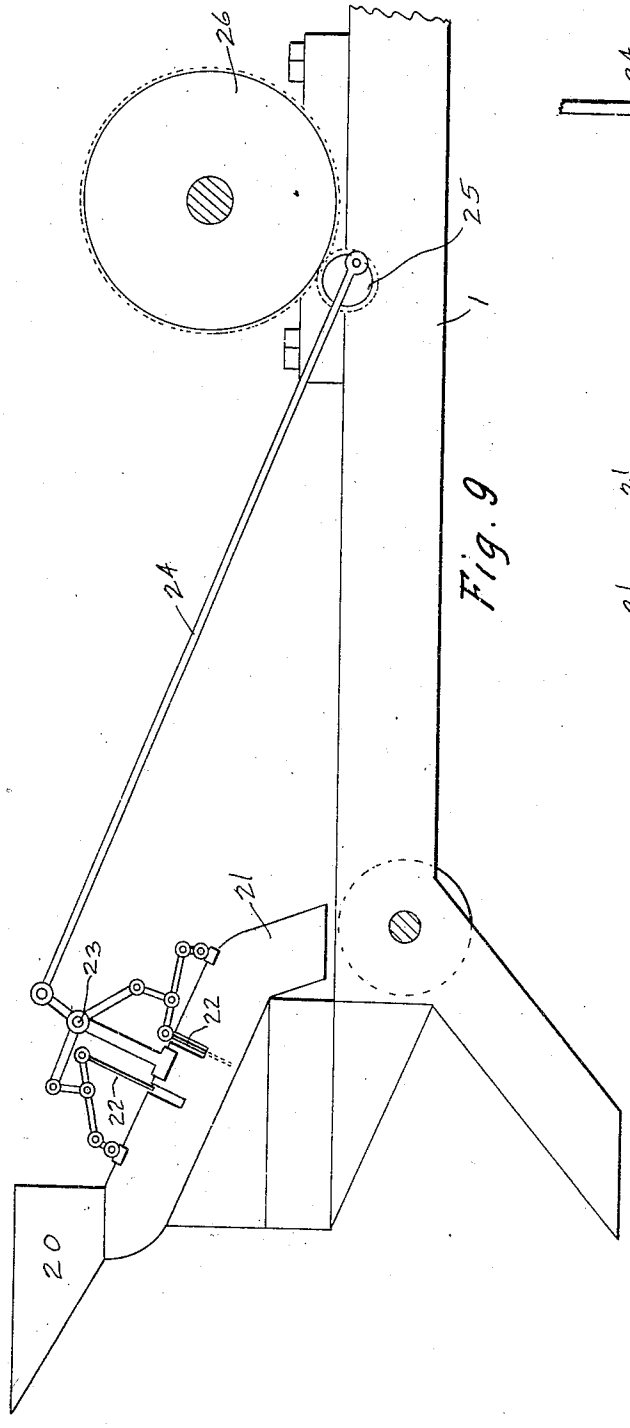


Fig. 9

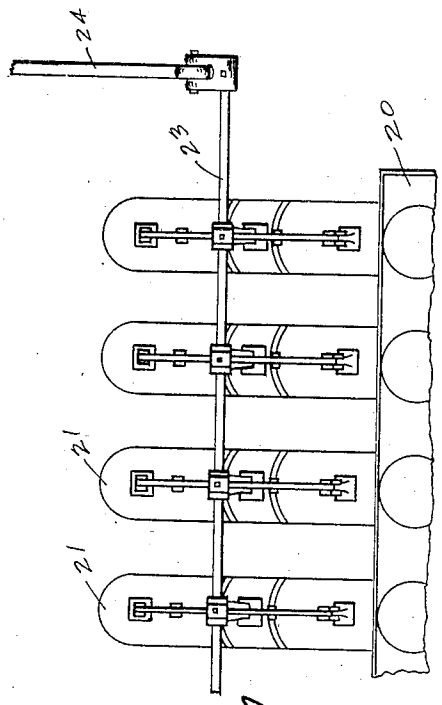


Fig. 10

INVENTOR.
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PRINTING MACHINE.

APPLICATION FILED MAY 24, 1920. RENEWED JULY 18, 1921.

1,400,124. Patented Dec. 13, 1921.

5 SHEETS—SHEET 5.

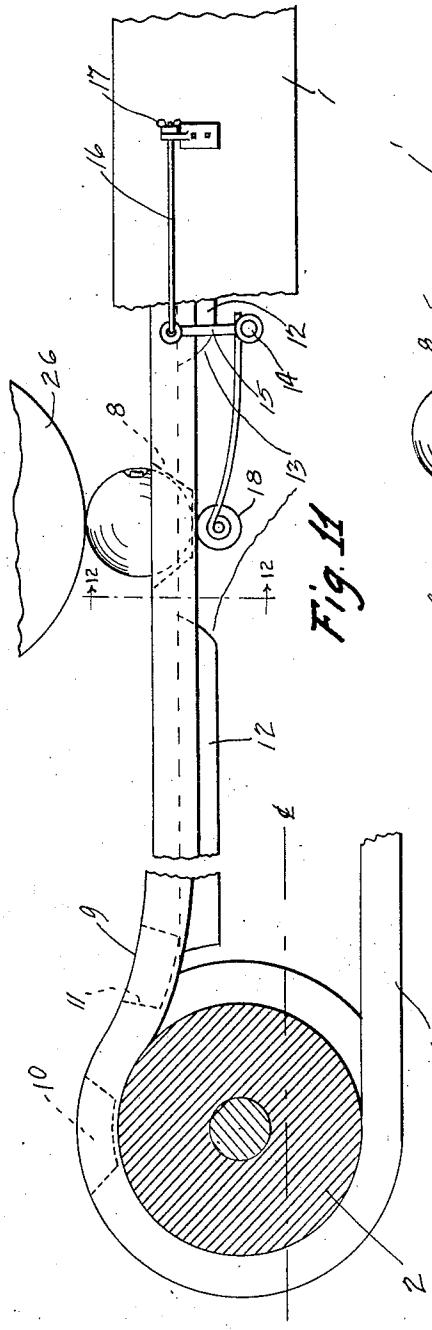


Fig. 14

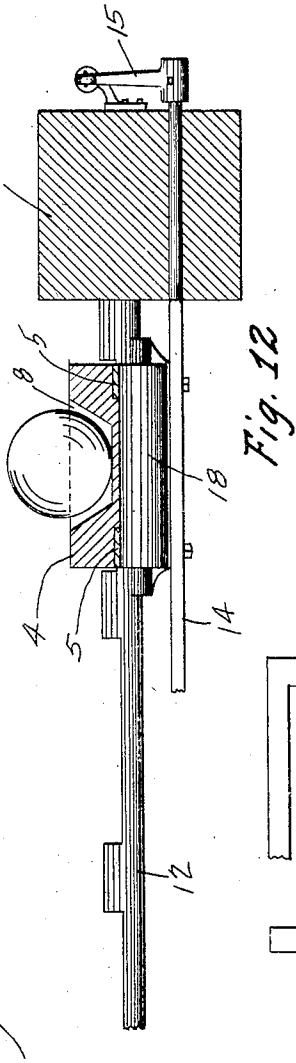


Fig. 12

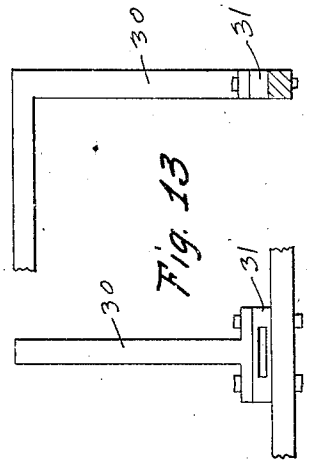


Fig. 13

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UNITED STATES PATENT OFFICE.

RALPH H. S. WOLVERTON, OF WALLA WALLA, WASHINGTON

PRINTING-MACHINE.

1,400,124. Specification of Letters Patent. Patented Dec. 13, 1921.

Application filed May 24, 1920, Serial No. 383,633. Renewed July 18, 1921. Serial No. 485,791.

To all whom it may concern:

Be it known that I, RALPH H. S. WOLVERTON, a citizen of the United States, residing at Walla Walla, in the county of Walla Walla and State of Washington, have invented certain new and useful Improvements in Printing-Machines, of which the following is a specification.

This invention relates to printing machines and has for its object to provide a machine that will print on the skin of the most delicate fruit without damage to the fruit and that is applicable to the dating and otherwise marking eggs without crushing them.

A further object of this invention is to provide a means that will handle vast quantities of printable articles in a minimum of time.

With these and other objects in view reference is had to the accompanying drawings in which—

Figure 1 is a perspective view of the printing machine with the feeding mechanism removed and in condition for hand feeding;

Fig. 2 is a rear elevation of the machine with some of the carriers removed;

Fig. 3 is a partial end elevation of the type roller with part in section;

Fig. 4 shows the positive face of one of the type;

Fig. 5 is a plan view of part of one of the carriers;

Fig. 6 is a side elevation thereof partly in section;

Fig. 7 is an end elevation partly in section of the carrier roller;

Fig. 8 is a fragment of a carrier roller showing the groove and studs.

Fig. 9 is a side elevation of an automatic feeding mechanism;

Fig. 10 is a partial plan view thereof;

Fig. 11 is an enlarged view of a portion of a carrier and showing the adjustable spring tension;

Fig. 12 shows an end view of the parted carrier guide and a front view of the spring tension; and

Fig. 13 shows an adjusting means for the inking mechanism supports.

Having reference to the drawings like numerals refer to like parts throughout and the numeral 1 refers to the frame upon each end of which are mounted grooved rollers 2 in the grooves of which are a series of studs 3.

These grooved rollers receive the carriers 4 which are composed of a flexible material which is resilient and of the nature of soft rubber and may be laminated if desired for further flexibility.

On the bottom of the carrier are strips of metal 5 or other non-stretching material which are riveted to the carriers by rivets 6 to prevent stretching of the whole.

Through the metal strips and carriers are perforations 7 which register with the studs 3 of the grooved roller 2 to prevent the carrier from slipping on the roller and thus maintaining register between the pockets 8 of the carrier and the printing surface of the printing roll.

The pockets 8 are built in the carrier which is of relatively thick material for that purpose, and the pockets enlarge and contract when curved: this is clearly shown in Fig. 11 wherein the roller is the drive roller which is slightly elevated above the center line shown by the broken and dotted line in this figure and which raising the carrier above the guides gives the carrier a drop at the point 9 as it comes over the roller to the grooved carrier guides to be explained.

In Fig. 11 the dotted lines 10 and 11 respectively show the pockets deformed, while the pocket 8 therein, (dotted) shows undeformed; thus the pocket, as at 10, in passing over the roller is opened and in a position to receive the fruit; the pocket 11 on the reverse curve closes and holds the fruit until the carrier assumes a horizontal position when it is unnecessary to hold the fruit longer.

This gripping of the fruit is necessary for the rapid feeding of the fruit whether fed by hand or automatically.

The grooved carrier guide 12 is attached to the frame 1 and is parted as at 13 to provide a yielding space beneath the printing point of the machine. The guide is positioned to register with the lower side of the upper portion of the carrier to maintain a true alinement of the carrier 4.

In the parted space, centrally of the grooved carrier guide and beneath the carrier 4, is an adjustable spring tension which consists of a shaft 14 which extends later-

ally of the machine and carries on its outer end an arm 15 to which is attached a screw threaded adjusting rod 16 and thumb nut 17. On the shaft is a series of spring mounted rollers 18 which yieldingly holds the fruit in the proper printing position, tension being regulated by the adjusting rod 16 and the thumb nut 17.

A feeding table 19 is conveniently attached to the frame 1. Over this feeding may be carried on by hand if desired although the automatic feed means shown in Figs. 9 and 10 is preferred.

This feeding means consists of a receptacle 20, or hopper, from which is extended a conductor 21 to register with the carriers, one for each carrier, and above the conductors are operably mounted double gates 22 which acts to permit only one piece of fruit to pass through the conductor at a time.

The operating mechanism for all the gates is connected together by the rod 23, and this rod is operably connected to the printing mechanism by the connecting rod 24 and the spur gear 25 for a synchronized operation therewith.

Above the carriers 4 is positioned a laterally extending resilient printing roller 26. This roller is of a soft resilient material and carries the print to the fruit. Regulation of this roller is by means of the capstan headed screw 27.

Above the printing roller is a type roller 28 in which is detachably mounted positive face type 29, and above the type roller is located the usual printing mechanism which supplies the proper inking to the type of the type roller, which in turn prints upon the printing roller, the print being conveyed by the printing roller to the article to be printed.

Uprights 30 support the inking and printing mechanism and adjustment of this mechanism with relation to the article to be printed is made by any simple means such as the blocks 31 shown in Fig. 13 wherein the block is shown resting on the frame and supporting the upright 30. The use of the block is an old expedient and in this case will be applied between the support of the roller 26 and the frame 1 as well as between the frame and the uprights. The block between the support of the roller 26 and frame is not shown in the drawings, Fig. 13 being deemed sufficient to show the principle involved.

The pockets 8 in the carrier 4 will be of a proper size to accommodate the article to be printed which is placed in the hopper 20 from whence it passes through the conductors 21 to the carrier at its high point on the grooved roller 2. The pocket 10 is now open to receive the fruit and closes thereupon about the time that the print passes from under the feeding means opening to its normal position as the carrier assumes a flat position on the grooved carrier guides 12.

The fruit is now conveyed over the parted portion 13 of the grooved carrier guides and under the printing roller 26, when the spring tension together with the resiliency of the printing roller exerts just sufficient pressure upon the fruit to furnish the proper contact for good printing without harm to the most delicate fruit or other article to be printed.

The fruit now passes on and discharges at the rear end of the machine.

In this machine the type face is positive and only comes in contact with the soft non-wearing surface of the inking roller and the soft resilient printing roller, thus there is relatively no wear to the type.

The printing roller receives the impression and delivers it to the article to be printed with no undue pressure; and with the soft carrier even eggs may be printed in this machine without danger of breakage.

It is understood that slight modifications may be made without departing from the spirit of my invention.

Having thus described my invention, I claim,

1. In a printing machine, a frame, rollers mounted in said frame, a flexible resilient carrier mounted on said rollers and provided with pockets, a grooved parted carrier guide attached to said frame and positioned to register with the lower side of the upper portion of said carrier, an adjustable yielding roller positioned to register against the under side of the upper portion of said carrier, a feeding table, a resilient printing roller, a type roller to register with said printing roller and an inking mechanism, an inking mechanism, and an adjusting means for regulating the height of said inking mechanism with relation to the article to be printed.

2. In a printing machine, a frame, rollers mounted in each end of said frame, flexible, resilient, non-stretchable carriers mounted on said rollers and carrying pockets, a grooved parted carrier guide attached to said frame and positioned beneath the upper portion of said carrier, an adjustable yielding roller attached to said frame and positioned to register against the underside of the upper portion of said carrier, a feeding means, a resilient printing roller journaled in said frame, a type roller carrying detachably mounted positive face type and suitably journaled in said frame to register with said printing roller and an inking mechanism, an inking mechanism, and adjustable uprights to support said inking mechanism.

3. In a printing machine, a frame, a grooved roller mounted in each end of said frame, a plurality of flexible, resilient, non-

stretchable carriers provided with a multiplicity of pockets, a grooved parted carrier guide attached to said frame, an adjustable yielding roller attached to said frame, and positioned to register against the under side of the upper portion of said carrier, a feeding means consisting of a receptacle, a conductor registering with said carriers, a double gate in said conductor, said double gate being connected with the mechanism of said printing machine for a synchronized operation therewith, a resilient printing roller adjustably journaled in said frame and positioned above said carriers, a type roller journaled in said frame, detachably mounted type in said type roller, said type positioned to register with said printing roller and an inking mechanism, an inking mechanism, and adjustable uprights to support said inking mechanism.

4. In a printing machine, a frame, a grooved roller mounted in each end of said frame and carrying a series of studs in said grooves, a plurality of flexible, resilient, non-stretchable carriers consisting of a yielding resilient structure mounted on non-stretchable bands, said bands and carrier being perforated to register with the studs of said grooved roller, pockets in said carrier, said carrier being of a nature to maintain the formation of said pockets while traveling in a straight line and to assume a deformation when traveling in a curved line, a grooved, parted carrier guide attached to said frame, an adjustable yielding roller disposed beneath the upper portion of said carrier, a feeding mechanism, a resilient printing roller adjustably journaled in said frame, a type roller carrying detachably mounted type and positioned to register with said printing roller and an inking mechanism, an inking mechanism, and adjustable uprights to support said inking mechanism.

In testimony whereof I affix my signature.

RALPH H. S. WOLVERTON.