

Dec. 23, 1930.

A. J. KECK

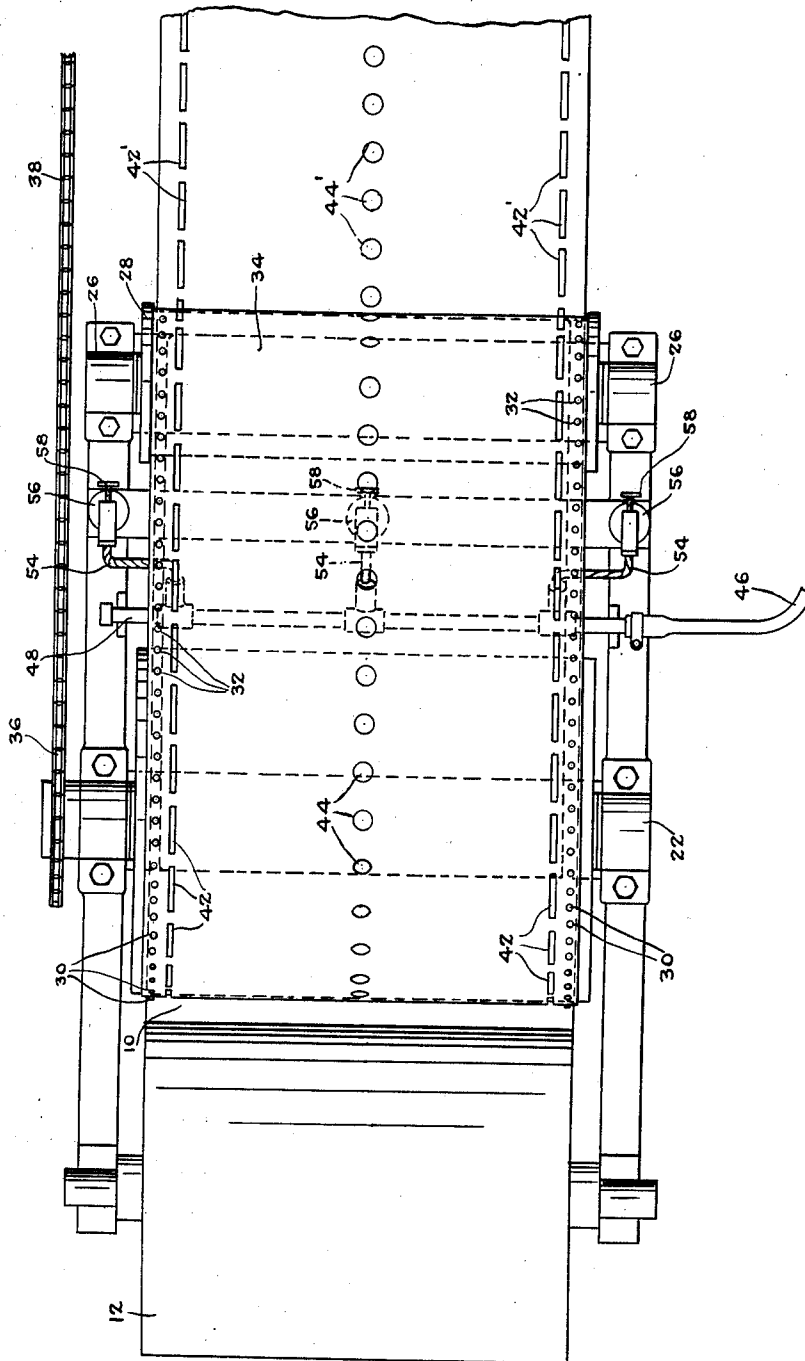
1,785,833

PRINTING DEVICE

Filed Nov. 15, 1928

3 Sheets-Sheet 1

Fig-1.



Inventor:
A. J. Keck.
By Whiteley and Ruckman
Attorneys.

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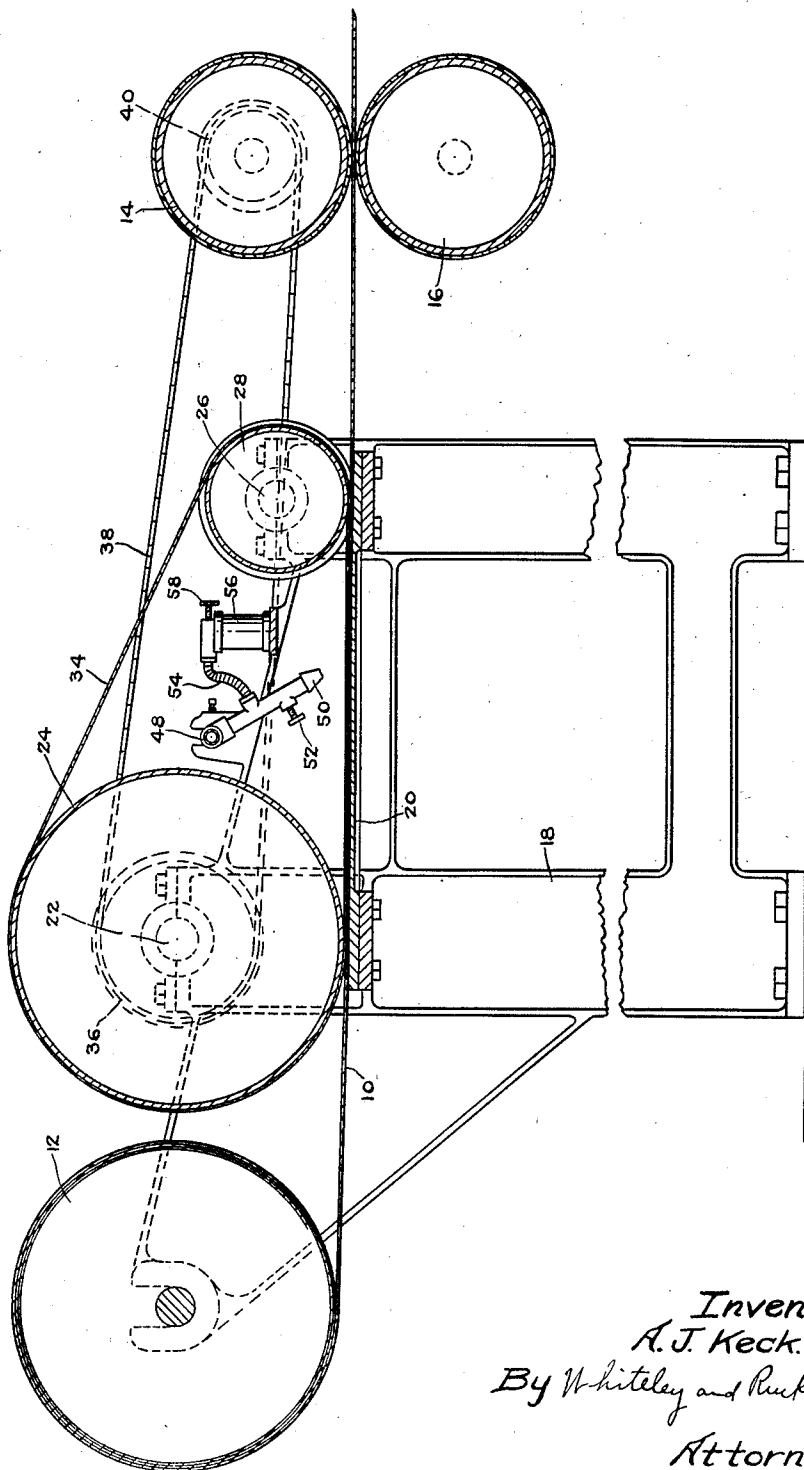
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3 Sheets-Sheet 2

Fig. 2.



Inventor:
A. J. Keck.
By Whiteley and Ruckman
Attorneys.

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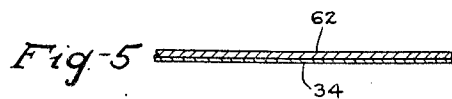
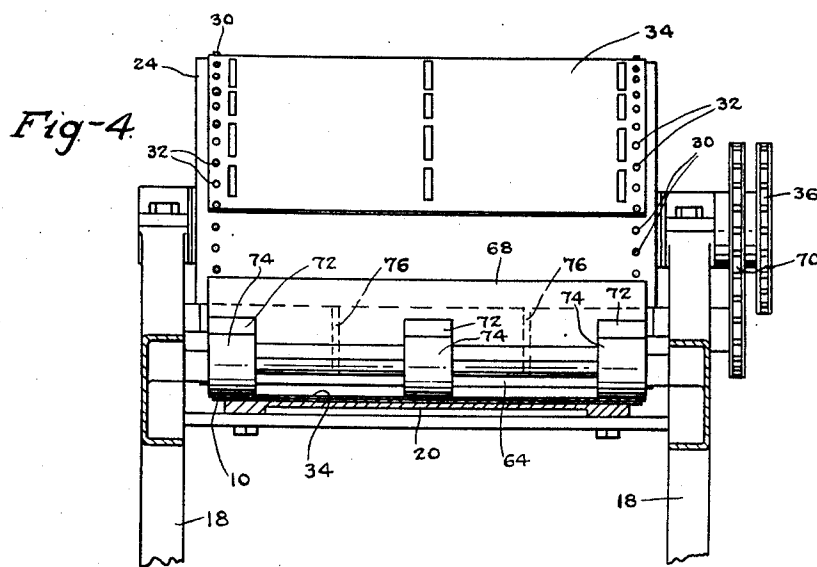
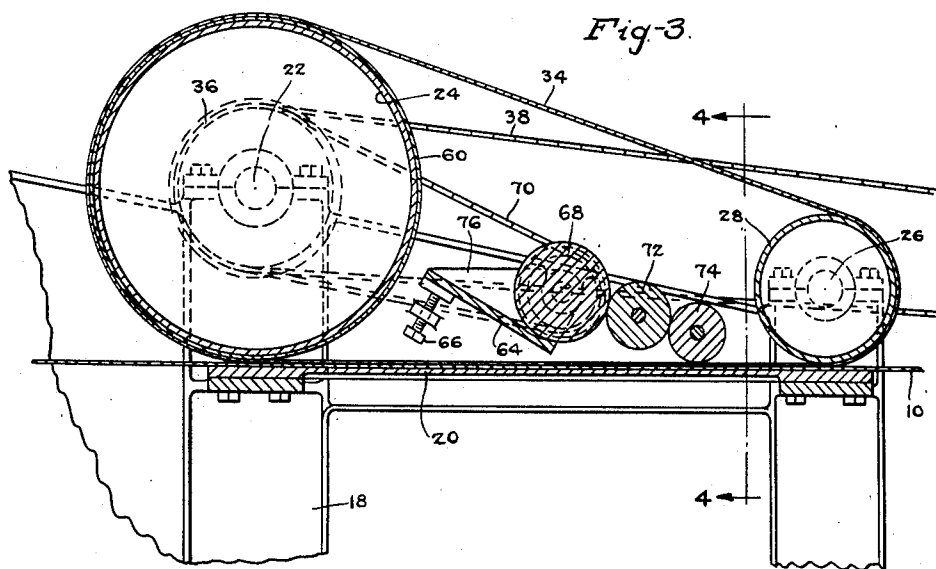
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3 Sheets-Sheet 3



Inventor:
A. J. Keck.
By Whiteley and Ruckman
Attorneys.

UNITED STATES PATENT OFFICE

ALBERT J. KECK, OF NEWPORT, MINNESOTA

PRINTING DEVICE

Application filed November 15, 1928. Serial No. 319,580.

My invention relates to printing devices and an object is to provide a device which may be used to apply different colors to newspapers or other printed matter, in addition to the usual printing thereon produced by passing through a printing press. My device may be employed to produce attractive borders on the printed matter or to tint the printed matter with any desired color in the nature of a background or to produce certain letters in color so as to make an attractive display of a firm name or headline, or to fill in the outlines of cuts impressed by the usual printing mechanism. A particular object is to improve on the device disclosed in my Patent No. 1,493,156 granted May 6, 1924. I am aware of the fact that it has been proposed to apply coloring material through stencil rollers or drums. In my present invention, I provide an endless stencil belt arranged to rest upon sheet material to be printed in combination with mechanism for applying coloring material to the sheet material through openings in the stencil belt. By employing a stencil belt in place of a stencil roller, the stencil may be caused to rest flat upon the sheet material during the application of the coloring material.

The full objects and advantages of my invention will appear in connection with the detailed description thereof, and the novel features of my inventive idea will be particularly pointed out in the claims.

In the accompanying drawings which illustrate the application of my invention, Fig. 1 is a top plan view of the device. Fig. 2 is a view in central vertical section. Fig. 3 is a view similar to Fig. 2 but showing a modified form. Fig. 4 is a view in section on the line 4—4 of Fig. 3. Fig. 5 is a fragmentary view of one form of stencil which I may employ.

Referring first more particularly to Figs. 1 and 2, the numeral 10 designates a web of paper or similar sheet material which is delivered from a roll 12 and which passes between printing rollers 14 and 16 of usual construction. A frame or support 18 carries an abutment 20 across the upper surface of which the web 10 passes on its way to the printing rollers. The support 18 is extended upwardly beyond the abutment 20 in order to provide bearings 22 for a roller 24 and bearings 26 for a roller 28 spaced therefrom. The roller 28 is considerably smaller than the roller 24 but the axes of the two rollers are so positioned that the peripheries of both rollers come into engagement with the web 10 as it is moved across the abutment 20 except that a stencil sheet shortly to be described is interposed. As will be understood from Fig. 1, the two margins of the roller 24 are provided with a succession of teeth 30 which engage in perforations 32 formed in the two margins of an endless stencil belt 34 which passes around the sustaining rollers 24 and 28. The stencil belt 34 may be made of any suitable sheet material such as oiled paper and it is prevented from slipping with relation to the roller 24 by means of the perforations 32 in which the teeth 30 engage. The axis of the roller 24 has a sprocket wheel 36 secured thereto while a sprocket chain 38 passes around this sprocket wheel and a sprocket wheel 40 secured to the axis of the printing roller 14. The printing rollers and the stencil belt 34 are therefore driven in synchronism with no liability of displacement relatively to each other. It will be understood that the stencil belt 34 is provided with cutout portions of any desired pattern and arrangement. As shown in Fig. 1, this belt is provided with a succession of perforations 44 of a different character along its two margins and a succession of perforations 44 of a different character along its median line. In order to stencil the design on the web 10, apparatus is provided for applying coloring material from the inside of the stencil belt. In the form shown in Figs. 1 and 2, a tube 46 leads from any suitable source of compressed air. The tube 46 is connected to a pipe 48 extending transversely between the upper and lower stretches of the stencil belt. The pipe 48 is provided with spraying nozzles 50 controlled by regulating valves 52 and adapted to spray through the openings in the stencil. The nozzles are connected by tubes 54 with the tops of receptacles 56, the passageway into the tubes 54 being controlled by regulating valves 58.

The receptacles 56 contain quick drying coloring material which may be of any desired color and it will be understood that different colors may be placed in the different receptacles. The blast of air passing through the pipe 48 sucks the coloring material from the receptacles and delivers it through the nozzles 50 so that the design in the desired color is placed on the web 10 as indicated at 42' and 44' before the web passes to the customary printing mechanism. Absorbent material such as blotting paper is preferably employed to absorb the surplus coloring material. As shown in Fig. 3, a layer of absorbent material 60 is placed around the roller 24 while as shown in Fig. 5, a layer of absorbent material 62 is placed on the inside surface of the stencil belt. For some classes of work the form of invention shown in Figs. 3 and 4 is considered desirable. In this form of the invention, ink is applied through the openings in the stencil belt by means of a trough and rollers. The trough has an inclined bottom 64 which is adjustable by means of set screws 66 in the usual manner. The front of the trough is constituted by a steel roller 68 driven from the roller 24 by a sprocket chain 70. The roller 68 extends preferably for the full length of the trough and it engages short composition rollers 72 which are of the proper length to engage corresponding composition rollers 74 arranged to rest upon the inside surface of the stencil belt and applied through the openings in the belt and upon the surface of the sheet material, ink which is taken out of the trough by the roller 68 and taken up by the composition rollers which smooth it out. It will be understood that while three of the rollers 74 are shown carried by a common axis, any suitable number of such rollers may be employed according to the nature of the cut-out portion of the stencil belt. Different colors of ink may be applied to the different ones of these short rollers and to accomplish this result, the trough is provided with the proper number of partitions 76.

I claim:

1. A printing device comprising a fixed horizontal abutment in engagement with the upper surface of which, sheet material to be printed is adapted to be fed, two sustaining rollers spaced from each other horizontally and positioned adjacent said upper surface, a stencil belt passing around said rollers so that the lower stretch of the belt is held in engagement with the portion of said sheet material which rests upon said upper surface, means for applying coloring material to said portion of the sheet material through openings in said belt, printing rollers beyond said fixed abutment between which the sheet material is passed, and mechanism for driving one of said sustaining rollers in synchronism with said printing rollers.

2. A printing device comprising a fixed

horizontal abutment, means for feeding sheet material to be printed in engagement with the upper surface of said fixed abutment, two sustaining rollers spaced from each other horizontally and positioned adjacent said upper surface, a stencil belt passing around said rollers so that the lower stretch of the belt is held in engagement with the portion of said sheet material which rests upon said upper surface, mechanism for applying coloring material to said portion of the sheet material through openings in said belt, said sustaining rollers and belt constituting cooperating members, and absorbent material carried by at least one of said members.

In testimony whereof I hereunto affix my signature.

ALBERT J. KECK.