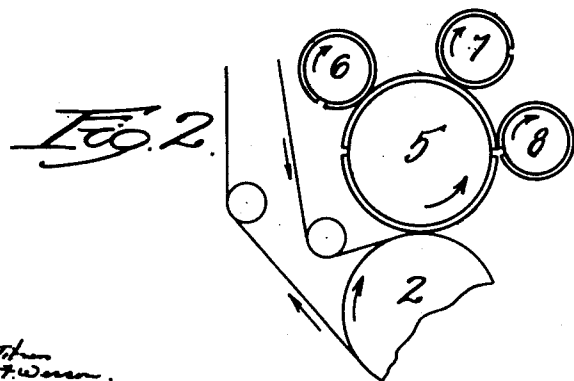
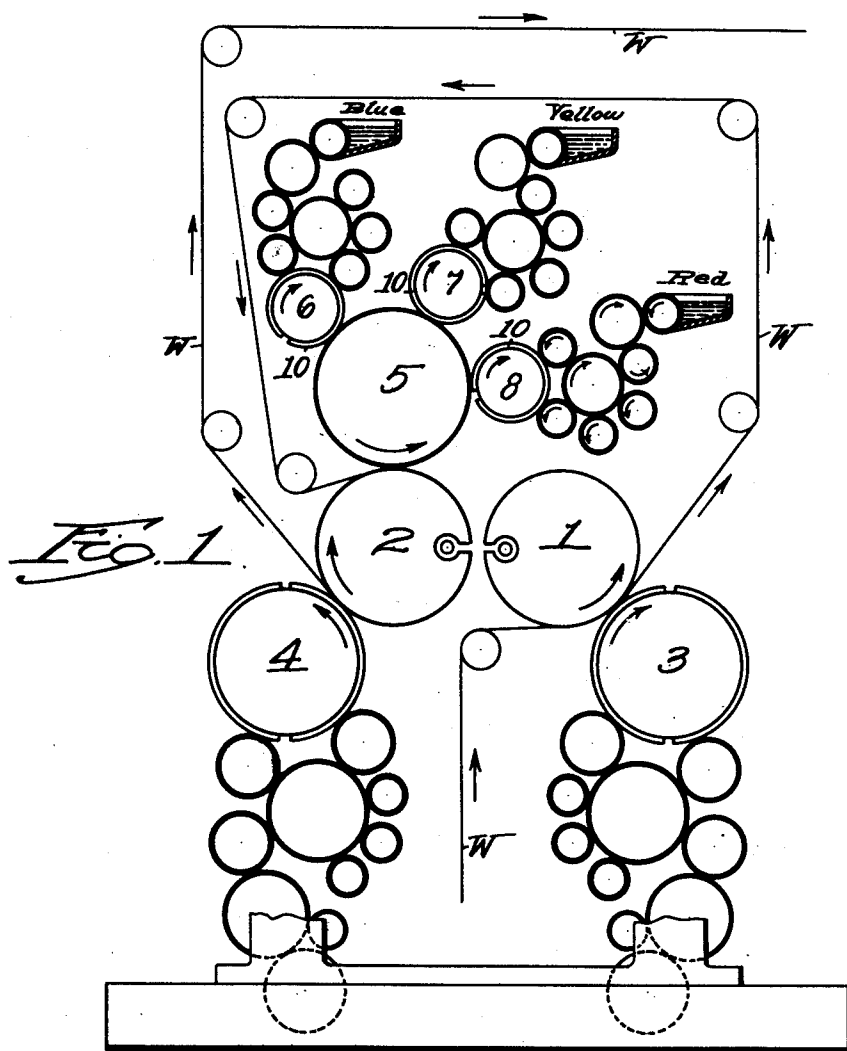


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H. A. W. WOOD
 COLOR PRINTING PRESS
 Filed Sept. 2, 1930

1,883,227



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COLOR PRINTING PRESS

Application filed September 2, 1930. Serial No. 479,249.

This invention relates to a color press for printing purposes of the general type represented in my application for patent filed June 19, 1930, Serial No. 462,352.

5 The principal object of the invention is to provide a construction in which the original relief designs are soft and are printed directly on a hard gathering cylinder so that the printing can be made sharp and clear by making the impression between a hard and a soft surface.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawing in which

Fig. 1 is a diagrammatical end view of a printing press constructed in accordance with a preferred embodiment of this invention, and

20 Fig. 2 is a similar view of a part of a press showing a modification.

In the form shown in Fig. 1, I provide a pair of impression cylinders 1 and 2 and they cooperate with a pair of plate printing cylinders 3 and 4, each provided with a black ink distribution system as is usual. The web W passes first between the couple 1—3, up around guide rolls, and then around the impression cylinder 2 and up between the two cylinders 2 and 4 to be perfected and then guided away to the folders or other mechanism.

In addition to this I provide a color printing cylinder 5 having a smooth metallic surface to cooperate with the impression cylinder and apply color on the front surface of the sheet. In this way a hard impression is secured for the color and at high speeds accurate printing is provided for, with a sharp outline. The color design in three or more colors is laid on the surface of the plates on the cylinder 5 by three or more form color cylinders 6, 7 and 8. These form color cylinders are surrounded in each case by a soft surfaced plate 10 containing the entire design which is to be transferred to the paper from that cylinder. The form of that plate is not material and I have shown a substantially cylindrical plate clamped around the cylinder in any desired manner. Each of

the color form cylinders is equipped with its own ink motion to produce the different colors. The cylinder 5 is a color printing cylinder carrying a blank hard surface upon which the design is laid by the cylinders 6, 7 and 8.

Each of the plates 10 takes only that portion of the picture which it is desired to print in that particular color. These colors are laid on the surface of the cylinder 5 in exactly their proper order and they are adjusted mechanically, or originally built, so that they will lay their colors in proper relationship to each other on the cylinder 5.

It is, of course, possible to arrange the black printing couples in any desired or usual manner. In the drawing I have shown them so arranged that the paper receives its black impression on the reverse side first and its three colors on the front side and finally the black on the front side. By this arrangement there is nothing to smear the color after it leaves the press and before it enters the folder. It will be understood that the complete press may consist of any number of such units, any or all of them being equipped with the color arrangement for either one or both sides of the paper.

It will be seen also that both requisites for the proper printing of color are present, namely the close register between the several color impressions and a hard printing cylinder with which the proper amount of impression can be obtained on the paper. By this process I can use as the composite printing plate one that contains the whole design, as above described, or a blank plate which has no design whatever. In both cases the plate cylinders print the whole design upon the composite printing plate, whether that plate itself contains the design or merely a blank surface. In either case a composite plate prints the design upon the paper. If the composite plate carries the design engraved upon it, its work will be sharp and clean. If it is merely a blank plate, its work will be slightly ragged and "soft". Either plan may be used as the occasion requires. The blank plate, however, may be given a grain, or strip, which has no relation what-

ever to the design itself, but merely provides the plate with a "tooth" upon which the transfer cylinder lays its design.

In Fig. 2 is shown only a part of the mechanism with this modification. This, of course, can be arranged with the cylinders 1, 2, 3 and 4 in the same relation as shown in Fig. 1 or otherwise. In this case the conditions are the same as above described except that the color printing cylinder 5 is provided with a pair of semi-cylindrical plates the surface of which has the same design as is carried by the hard printing plates on the color form cylinders 6, 7 and 8, that is, in the aggregate. This design may be produced in the same way as the design on these plates, that is, by etching or by any of the other usual processes. This etching can be done after this cylinder has received an ink impression from the several shapes on the color form cylinders. This compound ink impression will be a "resist", while the surface not inked is etched away. This makes the same sharp relief impression on the paper as is now obtained by either the electro or stereotype plates.

It should be noted also that my color printing plates are each one page around, but that my composite printing plates are two pages around. As it is customary on a newspaper press to have two plates around a printing cylinder, this enables me to preserve a common practice in newspaper offices without the necessity of using more than a single plate for each color that is being printed. It will be observed also that I have arranged the color printing mechanism and the path of the web so that the colors shall be printed upon that side of the web which does not come in contact with the web guide rollers of the press.

Although I have illustrated and described only two forms of the invention I am aware of the fact that other modifications can be made therein by any person skilled in the art without departing from the scope of the invention as expressed in the claims. Therefore I do not wish to be limited in this respect but what I do claim is:—

1. In a multi-color printing press, the combination with a hard surfaced printing cylinder, a plurality of soft surfaced color printing cylinders directly in contact therewith and separate inking means for each color printing cylinder, of an impression cylinder located in direct contact with said printing cylinder.

2. In a color printing press, the combination with a color printing cylinder having a hard metallic surface located in contact with the web, an impression cylinder on the opposite side of the web, and a plurality of soft surfaced color form cylinders, each having an inking motion of its own, all in contact with said color printing cylinder to transfer

their impressions thereto for printing on the web.

3. In a color printing press, the combination with a color printing cylinder having a hard metallic surface located in contact with the web, an impression cylinder on the opposite side of the web, and a plurality of soft surfaced color form cylinders, each having an inking motion of its own, all in contact with said color printing cylinder to transfer their impressions thereto for printing on the web, said color form cylinders each containing its portion of the design in relief and the color printing cylinder having the composite design of all the color form cylinders thereon in relief.

4. In a color printing press, the combination with means for printing on the web comprising an impression and plate cylinder, of a color printing cylinder having metallic plates thereon located in contact with the web on said impression cylinder to print color on the same side of the web as said printing cylinder, and a plurality of soft surfaced color cylinders, each having an inking motion of its own, all in contact with said color printing cylinder to transfer their impressions thereto.

5. In a color printing press, the combination with two pairs of printing and impression cylinders, means for inking the printing cylinders, and means for guiding the web first between one pair of printing cylinders and then between the other to print the web in black on both sides, of a color printing cylinder having a metallic surface arranged in contact with the web while on the surface of the second impression cylinder, color form cylinders having soft surfaces, and individual inking devices for the several form cylinders, whereby the design will be transferred through the color printing cylinder directly to the web under the pressure of a metallic surface.

In testimony whereof I have hereunto affixed my signature.

HENRY A. WISE WOOD.