

Jan. 8, 1929.

1,698,544

T. W. HICKS

PRINTING MACHINE

Filed Sept. 17, 1926

2 Sheets-Sheet 1

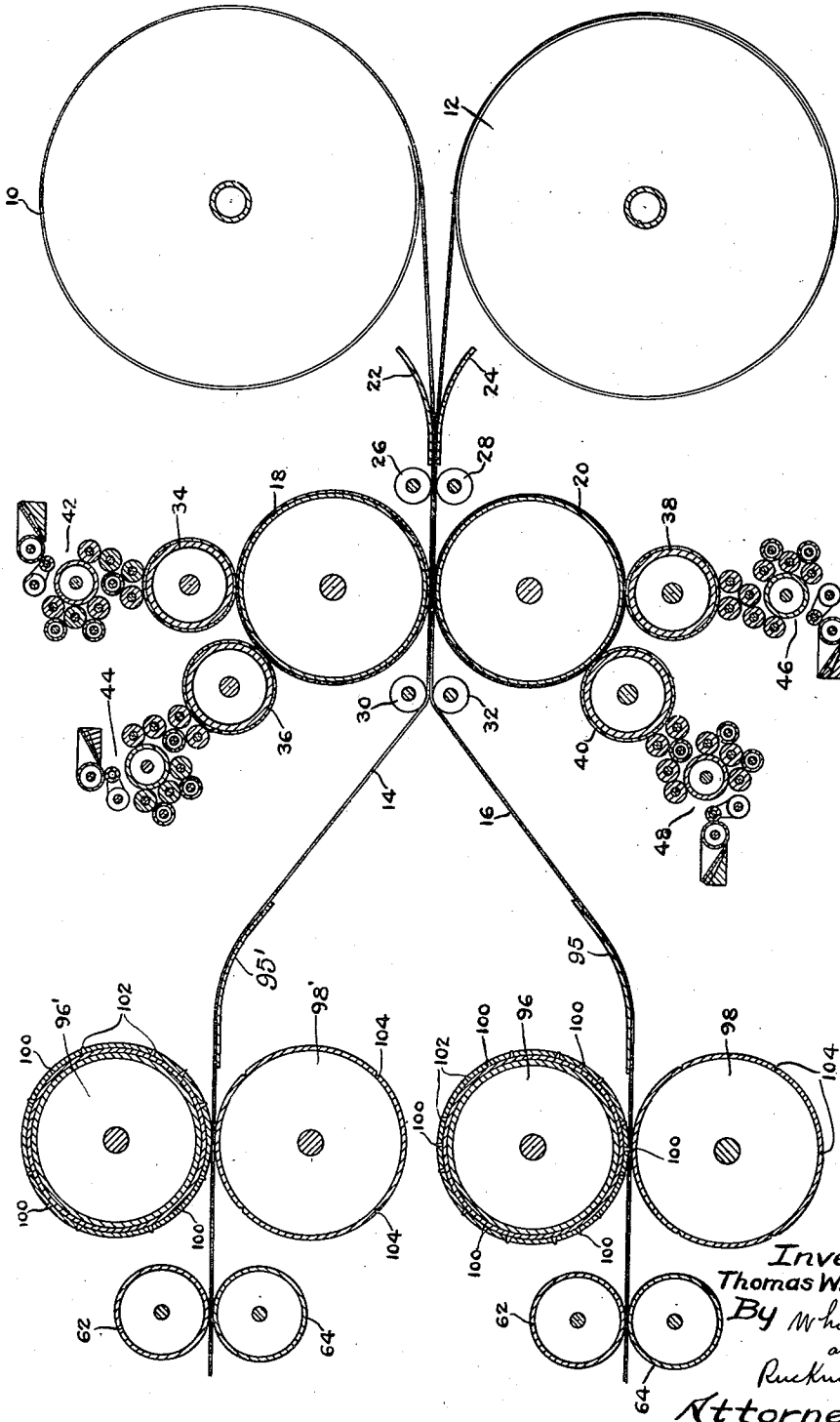


Fig-1

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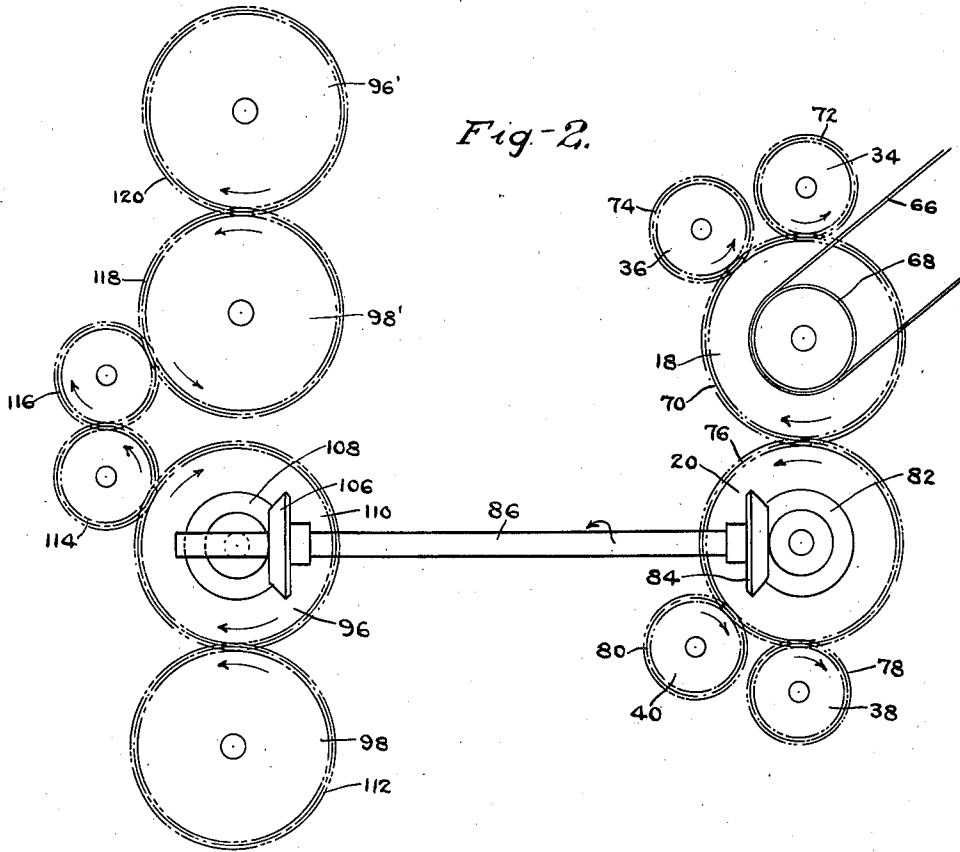
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UNITED STATES PATENT OFFICE.

THOMAS W. HICKS, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR TO ROTARY CARTON MACHINE COMPANY, OF MINNEAPOLIS, MINNESOTA, A CORPORATION.

PRINTING MACHINE.

Application filed September 17, 1926. Serial No. 136,131.

My invention relates to printing machines and an object in general is to improve upon the construction disclosed in an application for color printing and cutting presses filed April 13, 1925, by Frank W. Adsit and Julius F. Emme, under Serial Number 22,698. An object in particular is to provide a machine in which two sheets of paper or similar material are fed simultaneously, the one on top of the other or lying in contact with each other between juxtaposed blanket cylinders so that the outer surface of one sheet is printed by one cylinder and the outer surface of the other sheet is printed by the other cylinder at the same time, whereby the capacity of the machine is greatly increased. A further object of the invention is to provide means for separately cutting the printed sheets when the matter printed on one is different from that printed on the other.

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 in one of the forms in which it may be embodied,—

Fig. 1 is a view in longitudinal section showing my device arranged for simultaneously printing on two sheets of paper lying in contact with each other, and for then separating the two sheets and cutting and creasing them separately in different planes. Fig. 2 is an elevational view showing the arrangement of gearing used in connection with Fig. 1.

Referring to the construction shown in the drawings, the numerals 10 and 12 designate two rolls of paper from which sheets 14 and 16 are drawn respectively so as to pass conjointly between juxtaposed blanket cylinders 18 and 20, these cylinders in the embodiment shown being respectively upper and lower cylinders. The two sheets pass between pairs of curved guides 22 and 24 and pairs of feed rollers 26 and 28, which bring the two sheets together on the front side of the blanket cylinders and the sheets also pass between pairs of guide rollers 30 and 32 on the rear side of the printing cylinders. The curved guides 22 and 24 and the feed rolls 26 and 28 bring the two sheets of paper together so that they lie in a plane in contact with each other when they pass between the cylinders 18 and 20 regardless of the amount of paper left on the rolls 10 and 12 and regardless of the positioning of these rolls. The guide rolls 30 and 32 prevent the printed paper from sticking to the blanket rollers and thus assist in maintaining the two sheets of paper in a plane while passing between the blanket cylinders. Plate or type cylinders cooperate with the printing cylinders in the usual manner. In the embodiment shown there are two plate cylinders 34 and 36 in engagement with the printing cylinder 18, and two plate cylinders 38 and 40 in engagement with the cylinder 20, but it will be understood that more than two may be used in connection with each printing cylinder. Inking mechanisms of any suitable character, indicated at 42, 44, 46 and 48, serve to ink the plate cylinders. It is obvious that ink of different colors may be supplied by the different inking mechanisms. It will be further understood that the upper plate cylinders may carry either different subject matter or the same subject matter as the lower plate cylinders, and that when the subject matter is different it is often necessary to cut and crease the two printed sheets in a different manner. When the upper and lower sheets are to be cut and creased differently from each other, it is necessary to separate them after they have been printed. The device is arranged to operate as shown in Fig. 1, in which lower and upper curved guides 95 and 95' serve as the separating means. The lower sheet passes between a cutting and creasing cylinder 96 and a cooperating cylinder 98, while the upper sheet passes between a cutting and creasing cylinder 96' and a cooperating cylinder 98'. The cutting and creasing cylinders are provided with cutting rules 100 and creasing rules 102, which are arranged in accordance with the character of the shape and size of the printed article being produced, there being a greater number of rules shown on the cylinder 96 than on the cylinder 96'. The cylinders 98 and 98' are provided with grooves 104 adapted to receive the cutting edges of the cutting rules. The paper passes between take-off rollers 62 and 64. It will be understood as a matter of course that the frame of the machine, which may be similar to that dis-

closed in the application Serial Number 22,698, previously referred to, is so constructed that cutting and creasing cylinders may be readily changed and secured in their proper position. In connection with the manner of operation described in connection with Fig. 1, it will be seen from Fig. 2 that secured to the rear of the shaft 86 is a bevel gear 106 meshing with a bevel gear 108 secured to the shaft of the cylinder 96 which carries a gear 110 meshing with a gear 112 carried by the cylinder 98. The gear 110 also meshes with a gear 114 which meshes with a gear 116 meshing with a gear 118 carried by the cylinder 98', the gear 118 being in mesh with a gear 120 carried by the cylinder 96'. The arrangement of gears in all cases is such as to secure the proper direction of rotation of the cylinders and maintains them in synchronism.

I claim:

1. In a printing machine, the combination of two juxtaposed printing cylinders, means for simultaneously feeding two sheets of paper in contact with each other in a plane between said juxtaposed cylinders, means for separating the printed sheets, and two devices for separately cutting the separated sheets.

2. In a printing machine, the combination of two juxtaposed printing cylinders, means for simultaneously feeding two sheets of paper in contact with each other in a plane between said juxtaposed cylinders, means for separating the printed sheets, and two devices for separately cutting and creasing the separated sheets.

In testimony whereof I hereunto affix my signature.

THOMAS W. HICKS.