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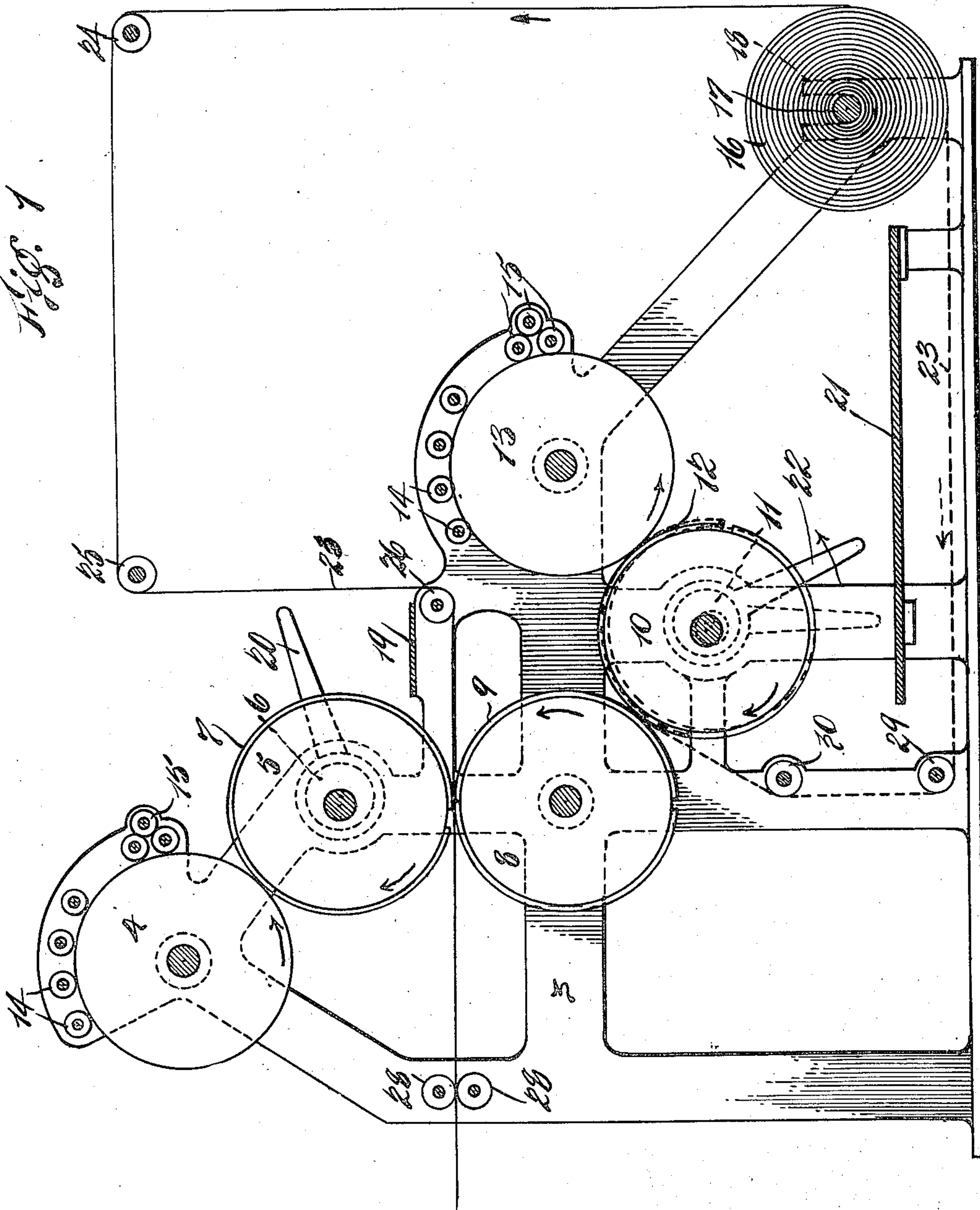
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C. G. PRITCHARD

PRINTING PRESS

Filed Sept. 22, 1919

2 Sheets-Sheet 1



INVENTOR
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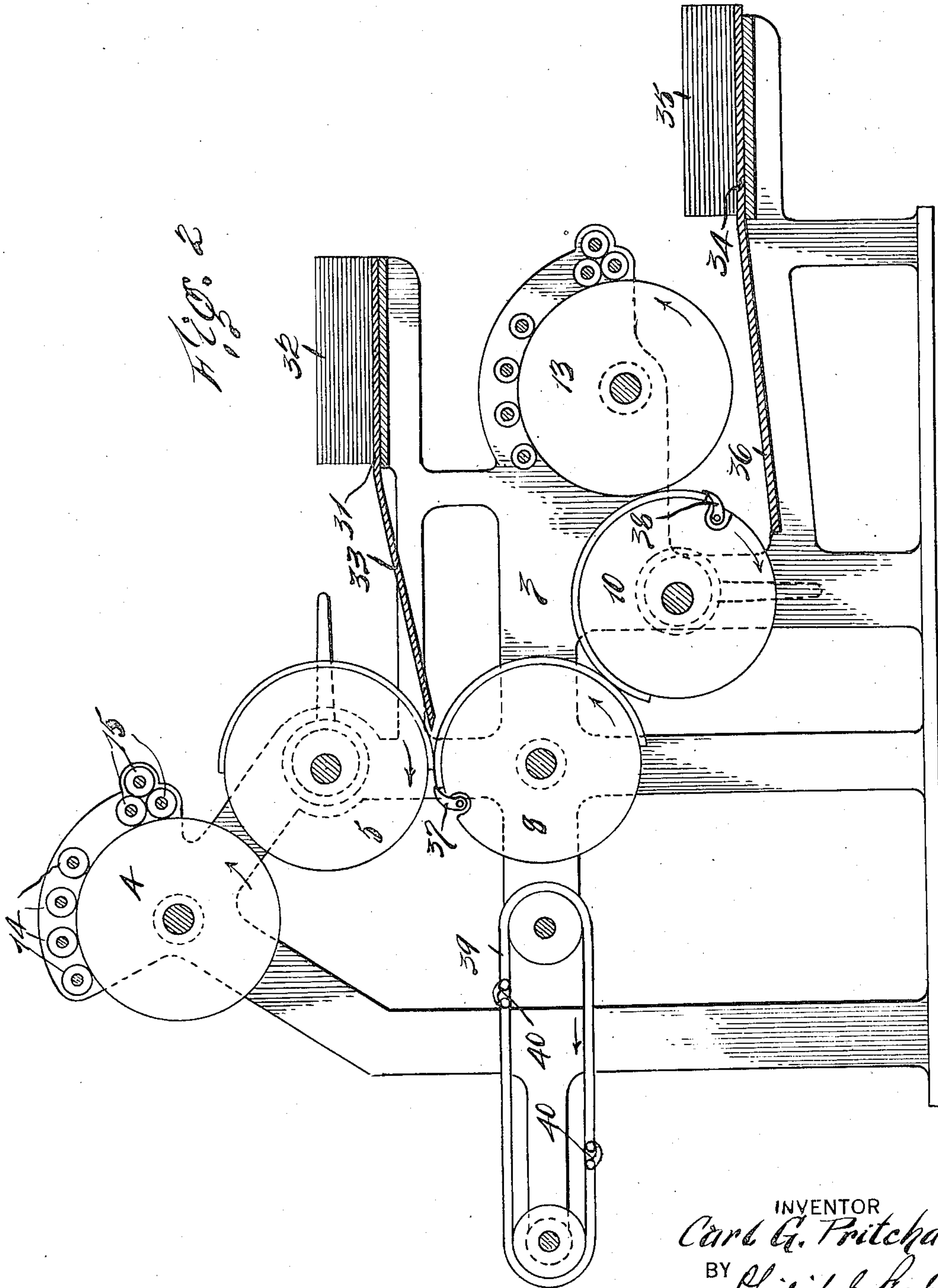
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE.

CARL G. PRITCHARD, OF WARREN, OHIO, ASSIGNOR TO THE HARRIS AUTOMATIC PRESS COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

PRINTING PRESS.

Application filed September 22, 1919. Serial No. 325,335.

To all whom it may concern:

Be it known that I, CARL G. PRITCHARD, a citizen of the United States, and a resident of Warren, in the county of Trumbull and State of Ohio, have invented certain new and useful Improvements in Printing Presses, of which the following is a specification, reference being made to the accompanying drawings, forming a part thereof.

My invention relates to printing-presses of the rotary type and more particularly to rotary machines which print by an offset impression, and the primary object of my invention is, among other things, to provide a printing-press of this general character of a simple and efficient construction which press, through such offset printing, may be operated either to perfect the web of paper by printing one color on each side simultaneously, or by changing the path of the web to the press two colors may be printed on a single surface of such web. My invention is also adapted in like manner to print on both sides of separate sheets of paper, or two colors upon one side of the separate sheets, also depending upon the point to which such separate sheets are fed to the press. To accomplish such advantageous results I have arranged a series of five cylinders so combined and operated in connection with the feeding of either the web of paper or separate sheets to the press that a simple and efficient combination perfecting press and two color press is provided in the same machine, adapted for use with either a paper web or separate sheets as may be desired.

These and other objects of my invention will be hereinafter more clearly set forth, and the invention consists in the novel arrangements, improvements and combinations of parts herein shown and described and particularly embodied in the claims.

The accompanying drawings referred to herein illustrate separate embodiments of the invention, the same serving in connection with the description herein to explain the principles of the invention.

Of the drawings, Figure 1 is a side elevation of my improved press built for printing upon a web of paper and showing as much as is necessary to illustrate my invention; and

Figure 2 is a similar side elevation view showing a modified form of my invention

adapted for printing separate sheets which may be fed to the press in different paths according to the nature of the printing desired.

Similar numerals refer to similar parts through the two figures.

Referring to the construction shown in Figure 1, the frame-work 3 supports the bearings for the upper form-cylinder 4, the upper transfer-cylinder 5 mounted in the eccentric bearings 6 and having the usual transfer surface or rubber blanket 7 suitably attached thereto, the impression cylinder 8 having the rubber blanket 9 attached thereto, the lower transfer-cylinder 10 also mounted in eccentric bearings 11 and having the rubber blanket 12 attached thereto, and the lower form-cylinder 13, the five said cylinders being relatively arranged with respect to each other as shown in the figure and all geared together to rotate in unison in the directions shown by the arrows. Suitable inking rollers 14 and water rollers 15 are provided for the two form-cylinders 4 and 13 as shown, but such devices constitute known forms and need not be further described. The roll or web of paper 16 is suitably mounted upon the framework 3 as upon the shaft 17 held in the support 18, it only being necessary that such roll 16 so rotatably mounted may unroll the web of paper in either direction. The platform 19 is arranged to provide a stand for the operator to throw off the transfer-cylinder 5 by means of the handle 20, while the platform 21 affords a similar stand to operate the handle 22 which actuates the eccentric bearings 11 to throw off the transfer-cylinder 10, such platform 21 also enabling the operator to have suitable access to the inking and water rollers on the lower form-cylinder 13.

When the press is used to perfect the web by printing one color on each side simultaneously, such web 23 passes upwardly from the roll 16 as shown by the arrow around the guide rollers 24, 25 and 26, and is fed between the upper transfer-cylinder 5 and the impression-cylinder 8 as shown, the cylinder 5 through its blanket 7 printing the design received from the plate on the form-cylinder 4 upon the upper surface of the web 23, while the under surface of the web receives its design from the blanket 9 which is inked by the blanket 12 on the cylinder 10, the

blanket 12 receiving its design from the proper plate on the lower form-cylinder 13, the impression-cylinder 8 receiving thereby a re-transfer from the lower transfer-cylinder 10. When so used the design on the plate for the form-cylinder 13 is laid on in reverse to take care of the double transfer in printing upon the under surface of the web. The perfected web then passes through the delivery rolls 28.

When the press is used to print two colors on one side only of the web, such web 23 is unrolled from the roll 16 in a clockwise direction and passes to the left beneath the platform 21 as shown in dotted lines, and then upwardly over the guide rollers 29 and 30 where it receives its first color from the transfer-cylinder 10 and thereafter its second color from the transfer-cylinder 5, the cylinders 5 and 10 forming successive printing couples with the impression-cylinder 8. The web then passes through the delivery rolls 28 as hereinbefore described.

In the construction illustrated in Figure 2 my improvement is shown in a combination perfecting and two color press adapted for the feeding of separate sheets instead of webs. In this modified construction the relative arrangement of the two form-cylinders 4 and 13, the two transfer-cylinders 5 and 10 and the impression-cylinder 8 is substantially the same as in the Figure 1 construction, and a description of these members need not be repeated; the form-cylinders 4 and 13 also have the same ink and water rollers 14 and 15 respectively, and the transfer-cylinders are each mounted in eccentric bearings operated by suitable handles to throw off the impression; also the cylinders 5, 8 and 10 each carry rubber blankets or transfer surfaces so that when used as a perfector the impression-cylinder 8 receives a re-transfer from the lower transfer-cylinder 10 and deposits same upon the under surface of the sheet. Mounted upon the framework 3 is the upper feed-table 31 supporting the pile of sheets 32 thereon and provided with the feed-board 33 extending in a downwardly inclined direction toward the bite of the cylinders 5 and 8, as shown. Similarly mounted upon the framework 3 is the lower feed-table 34 with its pile of sheets 35 thereon and having the feed-board 36 extending below the lower form-cylinder 13 into proximity with the under peripheral surface of the lower transfer-cylinder 10. The cylinders 8 and 10 are provided with suitable grippers 37 and 38 respectively as shown, and a chain delivery mechanism 39 provided with grippers 40 is suitably attached to the framework 3 as shown.

From the foregoing it is obvious that when it is desired to perfect the separate sheets, the latter are placed upon the upper

table 31 and fed between the cylinders 5 and 8, but when two colors are desired upon one side of the sheets the latter are fed from the lower feed-table 34 to the grippers 38 on the cylinder 10 and then the sheets are transferred to the grippers 37 on the impression-cylinder 8, from which after such successive printing, the sheets are carried and deposited by the chain delivery mechanism 39.

From the foregoing it is obvious that a combination perfecting and two color press has been provided which embodies the objects of the invention and advantages herein set forth, together with other objects and advantages. My invention, in its broader aspects, is not limited to the particular constructions and arrangement of cylinders shown, as many changes may be made without departing from the main principles of the invention and without sacrificing its chief advantages.

I claim as my invention:—

1. In a combination perfecting and two color printing-press, the combination of two form-cylinders, two coacting transfer-cylinders, each form cylinder imparting its design to its respective transfer-cylinder, an impression cylinder provided with a transfer surface in printing relation with both said transfer-cylinders whereby one of said transfer-cylinders may re-transfer its design to said impression-cylinder, means for feeding an impression-receiving material between the other of said transfer-cylinders and the impression-cylinder to perfect such material passing there-between, and separate means for feeding an impression-receiving material between the first transfer-cylinder and the impression-cylinder to receive on the same side the respective designs of each transfer-cylinder.

2. In a combination perfecting and two color printing-press, the combination of two form-cylinders, two coacting transfer-cylinders, each form cylinder imparting its design to its respective transfer-cylinder, an impression cylinder provided with a transfer surface in printing relation with both said transfer-cylinders whereby one of said transfer-cylinders may re-transfer its design to said impression-cylinder, means for feeding an impression-receiving material between the other of said transfer-cylinders and the impression-cylinder to perfect such material passing there-between, separate means for feeding an impression-receiving material between the first transfer-cylinder and the impression-cylinder to receive on the same side the respective designs of each transfer-cylinder, and a single delivery mechanism for receiving such material from the impression-cylinder.

3. In a combination perfecting and two color printing-press, the combination of two

form-cylinders, two coacting transfer-cylinders, each form cylinder imparting its design to its respective transfer-cylinder, an impression-cylinder provided with a transfer surface in printing relation with both said transfer-cylinders, means for feeding an impression-receiving material first between one of said transfer-cylinders and the impression-cylinder and then between the other of said transfer-cylinders and the impression-cylinder to print both designs upon one side of such material, and separate means for feeding an impression-receiving material between the impression-cylinder and the other transfer-cylinder.

4. In a combination perfecting and two color printing-press, the combination of two form-cylinders, two coacting transfer-cylinders, each form cylinder imparting its design to its respective transfer-cylinder, an impression cylinder provided with a transfer surface in printing relation with both said transfer-cylinders, means for feeding an impression-receiving material first between one of said transfer-cylinders and the impression-cylinder and then between the other of said transfer-cylinders and the impression-cylinder to print both designs upon one side of such material, separate means for feeding an impression-receiving material between the impression-cylinder and the other transfer-cylinder, and a single delivery mechanism for receiving said material at a common point.

5. In a combination perfecting and two-color off-set printing press, two form-cylinders, two coacting transfer-cylinders, an impression-cylinder having a transfer surface arranged in printing relation with both transfer-cylinders, means for throwing off each transfer-cylinder from both its form-cylinder and impression-cylinder, means for feeding an impression-receiving material between the first transfer-cylinder and the impression-cylinder, and separate means for feeding such material between the impression cylinder and the other transfer-cylinder.

6. In a combination perfecting and two-color off-set printing press, two form-cylinders, two coacting transfer-cylinders, an impression-cylinder having a transfer surface arranged in printing relation with both transfer-cylinders, means for throwing off each transfer-cylinder from both its form-cylinder and impression-cylinder, means for feeding an impression receiving material between the first transfer-cylinder and the impression-cylinder, separate means for feeding such material between the impression cylinder and the other transfer-cylinder, and a single delivery mechanism for receiving

ing such material from said impression-cylinder.

7. In a combination perfecting and two-color offset printing press, two form-cylinders, two coacting transfer-cylinders, an impression-cylinder having a transfer surface arranged in printing relation with both transfer-cylinders, means for feeding an impression-receiving material between the impression-cylinder and both transfer-cylinders to receive both impressions on one side of said material, separate means for feeding such material between the impression-cylinder and one transfer-cylinder only to receive a design on each side thereof, and a single delivery mechanism for receiving said printed or perfected material at a common point.

8. In combination perfecting and two-color offset printing press, a plurality of form-cylinders, a plurality of coacting transfer-cylinders, an impression-cylinder having a transfer surface arranged in printing relation with said transfer-cylinders, means for feeding an impression-receiving material between the impression-cylinder and the transfer-cylinders to receive a plurality of designs upon one surface of the material, separate means for feeding such material to the impression-cylinder at a different point in its rotation to receive one or more designs on each side of such material, and a single delivery mechanism for receiving such material from the impression-cylinder.

9. In a combination perfecting and two-color offset printing press, two form-cylinders, two coacting transfer-cylinders, an impression-cylinder having a transfer surface arranged in printing relation with both transfer-cylinders, means for feeding an impression-receiving material between the impression-cylinder and both transfer-cylinders to receive both impressions on one side of said material, and separate means for feeding such material between the impression-cylinder, and one transfer-cylinder only to receive a design on each side thereof.

10. In a combination perfecting and two-color offset printing press, a plurality of form-cylinders, a plurality of coacting transfer-cylinders, an impression-cylinder having a transfer surface arranged in printing relation with said transfer-cylinders, means for feeding an impression-receiving material between the impression-cylinder and the transfer-cylinders to receive a plurality of designs upon one surface of the material, and separate means for feeding such material to the impression-cylinder at a different point in its rotation to receive one or more designs on each side of such material.

CARL G. PRITCHARD