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COLOR PRINTING PRESS

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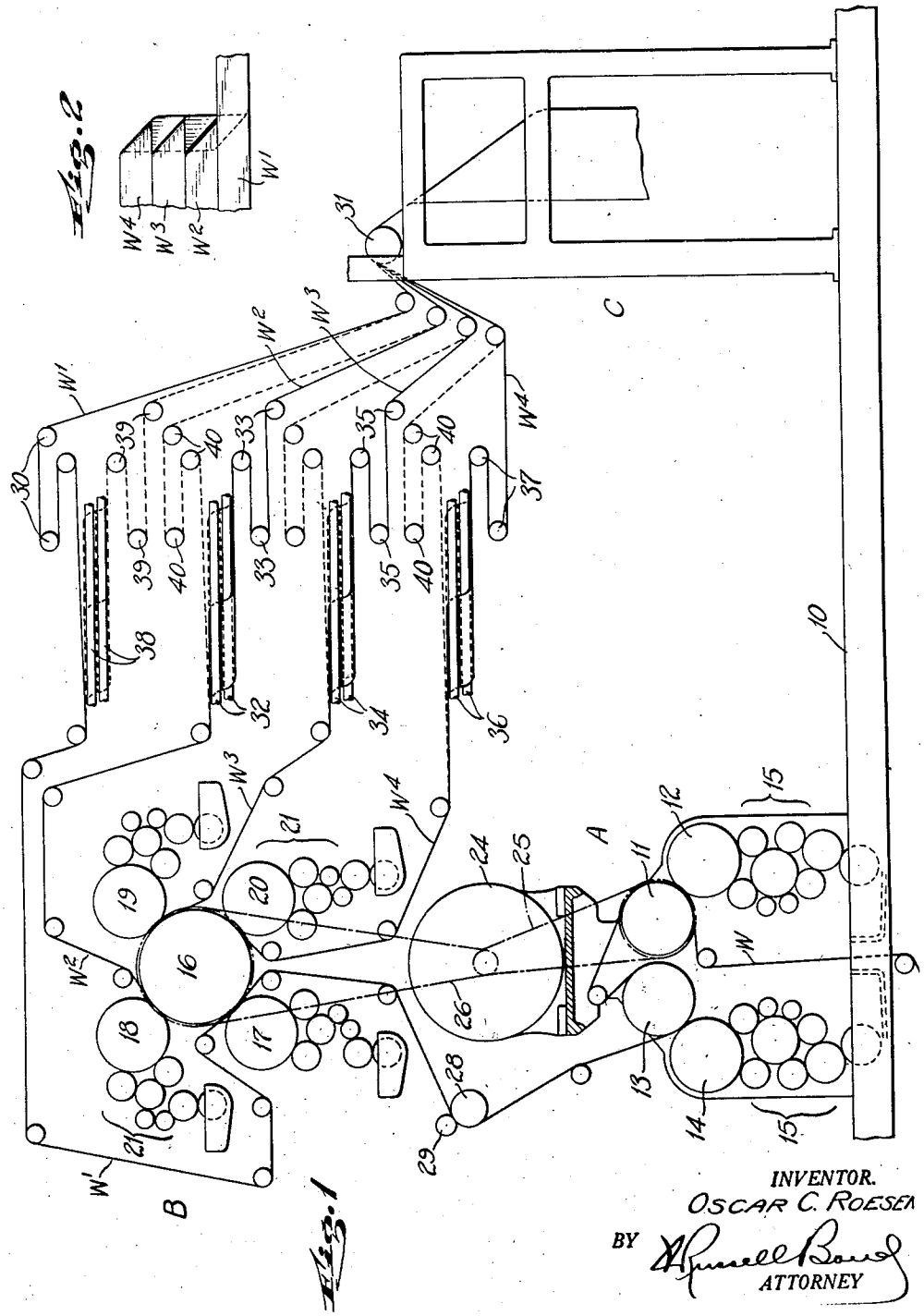


Fig. 2

Fig. 1

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COLOR PRINTING PRESS

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12 Claims. (Cl. 270—5)

The present invention relates to web presses and has for an object to provide a novel arrangement of printing mechanism for printing individual parts of a web in different colors.

Another object of the invention is to provide a multiple impression printing unit with means for slitting a web into a number of parts before introducing them into the unit, and means for leading out these parts individually from the unit at different points, so that they will differ from one another in the number of impressions they receive.

Another object of the invention is to provide a single impression perfecting unit in combination with a multiple impression unit, so that a web may be printed in one color, say black, on each face thereof before it is slit into strips and passed into the multiple impression unit where each strip will receive one or more further color impressions depending upon the point at which it is led out of the color unit.

Other objects and advantages of my invention will appear in the following description of a preferred embodiment and thereafter the novelty and scope of the invention will be pointed out in the claims.

In the accompanying drawing:

Figure 1 is a diagrammatic side elevation of an embodiment of my invention showing a web passing successively through a single impression unit and a multiple impression unit to a folder, the web being slit into strips before entering the multiple impression unit; and

Fig. 2 is a fragmental plan view showing how the web strips are brought into superposed position.

The printing press shown in the drawing comprises a bed plate 10 on which is mounted a perfecting press unit A. This unit comprises two printing couples, the first consisting of an impression cylinder 11 and a plate cylinder 12, while the second couple consists of an impression cylinder 13 and plate cylinder 14. Each plate cylinder is provided with its individual inking system 15.

Mounted above the unit A is a multiple impression unit B which comprises an impression cylinder 16 and a set of plate cylinders 17, 18, 19 and 20 cooperating therewith. Each of these plate cylinders is provided with its own inking system 21. Between the two units A and B, a motor 24 is mounted which drives the impression cylinder 11 through a chain belt 25 and the impression cylinder 16 through a chain belt 26. Obviously, the impression cylinders 11 and 16 must turn in opposite directions, and consequently a suitable reversing clutch, not shown, is provided between the motor and one of the impression cylinders.

A web W is led through the unit A in the usual manner, passing first through the couple 11—12 and then through the couple 13—14. The web then passes around a drag roll 28 and, by means of slitter rolls 29, is slit into four strips, W^1, W^2, W^3 and W^4. These strips are led side by side between the plate cylinder 17 and impression cylinder 16, but after passing the plate cylinder 17 the web W^1 is led out of the unit B over suitable guide rolls while the remaining three strips pass on under the plate cylinder 18. Then the web W^2 is led out and the two remaining strips pass under the plate cylinder 19. Thereafter the web W^3 is led out of the unit, and finally the web W^4 passes between the impression cylinder 16 and plate cylinder 20 before emerging from the unit B.

As a result of the arrangement just described, the web W will receive single-color impressions on each face thereof from the unit A. These single-color impressions may be alike, or not, as desired but ordinarily they will be black. The web strip W^1 will then be printed on one side in black and on the other side in black and another color. The web W^2 will be printed in black on one side and on the other side in black and two colors, etc.

After passing out of the unit B, the web strips are all assembled in superposed relation before being passed to a folder C. The web W^1 is carried over a set of compensating rolls 30 and then is led to the drag roll 31 of the folder. The web W^2 is carried around turning bars 32 to bring it in line with the web W^1 before leading it to the drag roll 31. It is also passed about compensating rolls 33, so as to bring it into register with the web strip W^1. Similarly, web strip W^3 is passed over turning bars 34 and compensating rolls 35 and the web W^4 over turning bars 36 and compensating rolls 37. Thus all the strips are assembled in superposed relation on the drag roll 31.

A set of turning bars 38 is provided for the web W^1 and the turning bars 32, 34 and 36 may be shifted to turn the respective web strips W^2, W^3 and W^4 in either direction, so that the assembled group of strips which is shown in Fig. 2, as alined with the web W^1, may instead be alined with any other of the strips. Compensating rolls 39 are provided for the strip W^1 when it is turned, as indicated by broken lines in Fig. 1. Similarly, compensating rolls 40, 41 and 42 are provided for the strips W^2, W^3 and W^4 when they pass, without being turned, to the drag roll 31.

The set up shown in Fig. 1, wherein a web strip is withdrawn beyond each plate cylinder of the unit B, merely illustrates a possible arrangement. Obviously, arrangements giving other combinations of color impressions can be employed as desired. Any one of the web strips may pass under any number of the plate cylinders 17 to 20 as may be desired.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is, as follows:

1. In a web press, a multi-color printing unit comprising a plurality of plate cylinders, means for leading a plurality of web strips side by side through the unit, and means between each pair of cylinders for leading out any one of the strips from the unit.

2. In a web press, a multi-color printing unit comprising a plurality of plate cylinders, means for leading a web through the unit to receive impressions from said cylinders, means for slitting the web into a plurality of strips before entering the unit, and means between each pair of cylinders for leading any one of said strips out of the unit.

3. In a web press, a multi-color printing unit, means for leading a plurality of web strips through the unit to receive superposed impressions, means for leading any desired one of the strips out of the unit after each of said impressions, a folder, and means for assembling all of the strips and leading them to the folder.

4. In a web printing press, a printing couple adapted to impress one side of a web, a multi-color printing unit having a plurality of plate cylinders adapted to make multiple impressions on the other side of the web, means for slitting the web into a plurality of strips after it has passed through said couple, and means for leading each strip individually out of the unit after it has been impressed by any desired number of said cylinders.

5. In a web press, a pair of printing couples adapted to impress opposite sides of a web, a multi-color printing unit having a plurality of plate cylinders adapted to make multiple impressions on one side of the web, means for slitting the web into a plurality of strips after it has passed through said couples, and means for leading each strip out of the unit after it has been impressed by any desired number of said cylinders.

6. In a web printing press, a printing couple adapted to impress one side of a web, a multi-color printing unit having a plurality of plate cylinders adapted to make multiple impressions on the other side of the web, means for slitting the web into a plurality of strips after it has passed through said couple, means for leading each strip individually out of the unit after it has been impressed by any desired number of said cylinders, a folder, and means for assembling all the strips and leading them to the folder.

7. In a web printing press, a printing couple adapted to impress one side of a web, a multi-color printing unit having a plurality of plate cylinders adapted to make multiple impressions on the other side of the web, means for slitting the web into a plurality of strips after it has passed through said couple, means for leading each strip individually out of the unit after it has been impressed by any desired number of said cylinders, a folder, and means for assembling the strips in superposed alinement and leading them to the folder.

8. In a web press, a pair of printing couples adapted to impress opposite sides of a web, a multi-color printing unit having a plurality of plate cylinders adapted to make multiple impressions on one side of the web, means for slitting the web into a plurality of strips after it has passed through said couples, means for leading each strip out of the unit after it has been impressed by any desired number of said cylinders, a folder, and means for assembling all the strips and leading them to the folder.

9. In a web press, a pair of printing couples adapted to impress opposite sides of a web, a multi-color printing unit having a plurality of plate cylinders adapted to make multiple impressions on one side of the web, means for slitting the web into a plurality of strips before it enters said unit, means for leading each strip out of the unit after it has been impressed by any desired number of said cylinders, a folder, means for assembling the strips in superposed alinement, and means for leading the superposed strips to the folder.

10. In a web press, a pair of printing couples adapted to impress opposite sides of a web, a multi-color printing unit having a plurality of plate cylinders adapted to make multiple impressions on one side of the web, said couples and said plate cylinders being of a length capable of printing the full width of the web, means for slitting the web into a plurality of strips between said couples and said unit, and means between each pair of said plate cylinders for leading a strip of the web out of the unit whereby the number of superposed impressions made on any strip may be controlled at will.

11. In a web press, a pair of printing couples adapted to impress opposite sides of a web, a multi-color printing unit having a plurality of plate cylinders adapted to make multiple impressions on one side of the web, said couples and said plate cylinders being of a length capable of printing the full width of the web, means for slitting the web into a plurality of strips between said couples and said unit, means between each pair of said plate cylinders for leading a strip of the web out of the unit whereby the number of superposed impressions made on any strip may be controlled at will, a folder, and means for assembling all the strips and leading them to the folder.

12. In a web press, a multi-color unit comprising a single impression cylinder and a plurality of plate cylinders, means for leading a web into the unit to receive superposed impressions thereon, each of the plate cylinders being of a length capable of printing the full width of the web, means for slitting the web into as many strips as there are plate cylinders, and means for leading a strip of the web out of the unit beyond each plate cylinder whereby certain of the strips will receive more superposed impressions thereon than others.

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