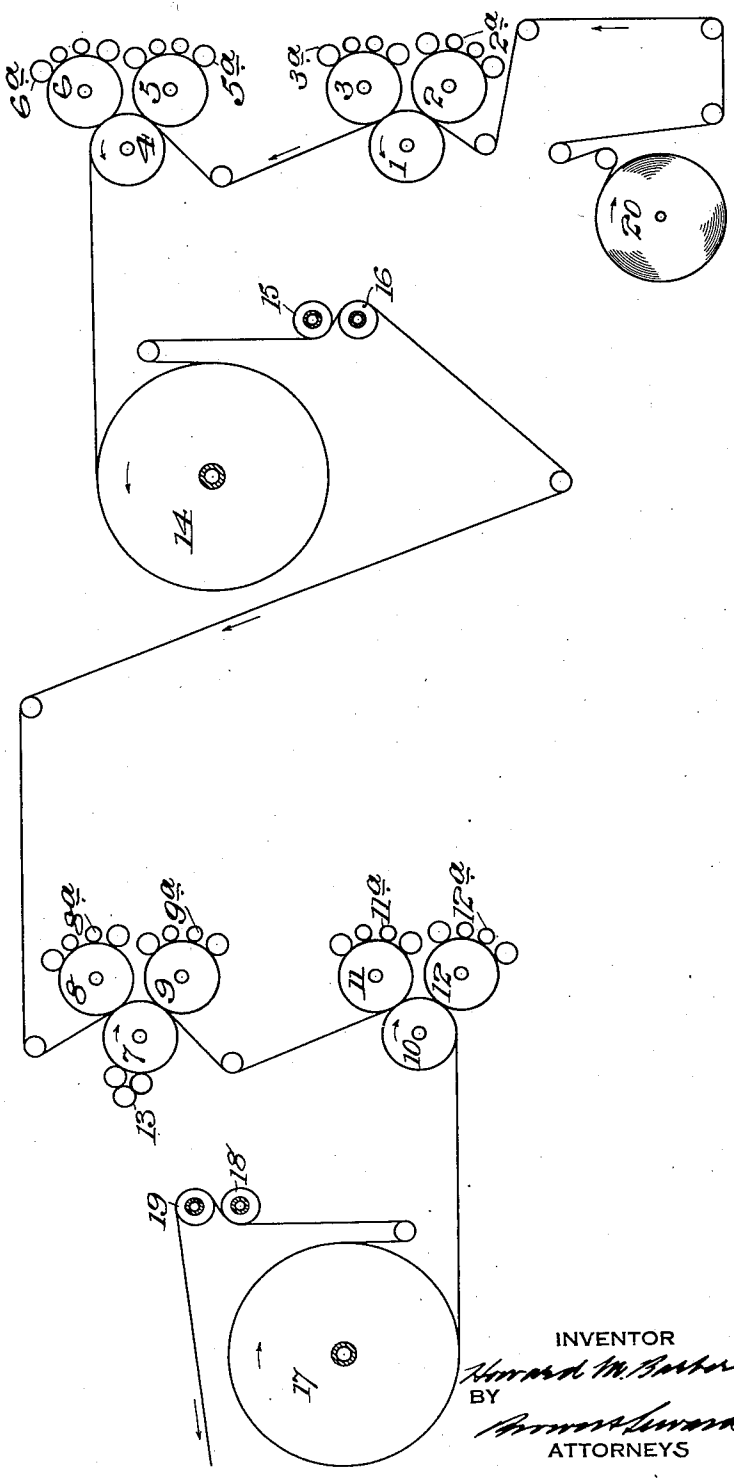
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WEB PERFECTING ROTARY PRESS

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WEB PERFECTING ROTARY PRESS

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In high speed web perfecting rotary presses where quick drying inks and web drying units are employed, it is very desirable that the several units be so located with respect to each other as to produce the best results while occupying a minimum amount of space.

The object of my invention is to so locate the printing and drying units and the web supply roll that the web can be fed and printed and the inks dried with a minimum travel of the web.

My invention comprises, generally, a plurality of multicolor printing units, and first and second drying units, each printing unit consisting of an impression cylinder and a plurality of form cylinders (in the present instance two form cylinders) arranged in each printing unit around the side of the impression cylinder opposite a drying unit, and inking mechanisms for the form cylinders; said printing and drying units being all located in line with one another, an oil offset mechanism for the third impression cylinder, and a web supply roll. Means are provided for passing the web from the supply roll to and through the first printing unit, then to and through the second printing unit, then to and through the first drying unit, then to and through the third printing unit, then to and through the fourth printing unit, then to and through the second drying unit, and finally directing the web in the desired direction, as, for instance, to a delivery point at the end of the press.

A practical embodiment of my invention is represented in the accompanying drawing, in which the figure represents a diagrammatic side elevation of my invention where a single web is perfected.

The first printing unit is herein represented as a two color unit, the impression cylinder being denoted by 1 and its two form cylinders by 2, 3, which form cylinders are arranged around the side of the impression cylinder opposite a drying unit. The inking mechanisms for the two form cylinders are denoted by 2*a*, 3*a*, which inking mechanisms apply the inks to their respective form cylinders in the usual manner.

The second printing unit, which prints on the same side of the web as the first printing unit, is herein represented as a two color unit, the impression cylinder being denoted by 4 and its form cylinders by 5, 6, which form cylinders are arranged around the side of their impression cylinder opposite a drying unit. The inking mechanisms for the two form cylinders are denoted by 5*a*, 6*a*, which inking mechanisms apply the inks to their respective form cylinders in the usual manner.

Said first and second printing units are located in line with each other in substantially the same transverse vertical plane.

The third printing unit is herein represented as a two color unit, the impression cylinder being denoted by 7 and its form cylinders by 8, 9, which form cylinders are arranged around the side of the impression cylinder opposite a drying unit. The inking mechanisms for the two form cylinders are denoted by 8*a*, 9*a*, which inking mechanisms apply the inks to their respective form cylinders in the usual manner.

The fourth printing unit, which prints on the same side of the web as the third printing unit, is herein represented as a two color unit, the impression cylinder being denoted by 10 and its form cylinders by 11, 12, which form cylinders are arranged around the side of their impression cylinder opposite a drying unit. The inking mechanisms for the two form cylinders are denoted by 11*a*, 12*a*, which inking mechanisms apply the inks to their respective form cylinders in the usual manner.

Said third and fourth printing units are located in line with each other and in substantially the same transverse vertical plane.

An oil offset mechanism 13 of a well known or approved form may be used for the purpose of keeping the packing clean on the third impression cylinder 7 and eliminating not only smut that might be caused when the web is not absolutely dry, but will also remove from the packing any dried particles of ink that may be picked off by the make-ready when receiving the impression from the third printing unit.

The first drying unit is herein represented as comprising a large heating cylinder 14 and two small cooling cylinders 15, 16.

The second drying unit is herein represented as comprising a large heating cylinder 17 and two small cooling cylinders 18, 19.

These two drying units are located in line with each other and with the several printing units and are also located in different horizontal planes from each other. The first drying unit is located between the two sets of printing units and the second drying unit is located beyond the second set of printing units.

The web supply roll is denoted by 20 and it is located at the opposite end of the press from the point of delivery.

The web is led through the press as follows:

The unprinted web passes from the supply roll

20 to and through the first printing unit where the web is printed in two colors upon one side thereof. The web is then led to and through the second printing unit where the web is printed in two colors on the same side thereof. The web is then led to and around the heating cylinder 14 and the cooling cylinders 15, 16 of the first drying unit. From thence the web is led to and through the third printing unit where the web is printed in two colors on the other side thereof. The web is then led to and through the fourth printing unit where the web is printed in two colors on the same side thereof. The web is then led to and around the heating cylinder 17 and the cooling cylinders 18, 19 of the second drying unit. The web, having been printed in four colors on each side thereof, may then be directed from the second drying unit in the desired direction.

The means for driving the several units is not shown or described herein, but any well known or approved means may be employed. It is understood that the first and second groups of printing units may be driven separately either for the purpose of "making ready" or for permitting a single or two separate non-perfected multicolor products to be produced.

It is to be understood that guide rolls are provided for passing the web in prescribed paths from the web supply roll 20 to the delivery point.

It will also be understood that any suitable heating medium, such as steam, may be supplied to the heating cylinders 14 and 17 and that any suitable cooling medium, such as water, may be supplied to the cooling cylinders 15, 16 and 18, 19.

It will also be understood that any well known or approved quick drying inks may be used in the printing units.

From the above description it will be seen that I have provided an arrangement of the several units of the press whereby the inks on the freshly printed sides of the web may be thoroughly dried with a minimum travel of the web, the form cylinders of the four printing units at the same time being so positioned that ready access thereto may be obtained.

It is evident that various changes may be made in the form, construction and arrangement of the several parts without departing from the spirit and scope of my invention, and hence I do not intend to limit myself to the embodiment herein shown and described.

What I claim is:

1. In a web perfecting rotary press, four multicolor printing units, first and second drying units, each printing unit comprising an impression cylinder and a plurality of form cylinders arranged around the side of the impression cylinder opposite a drying unit, a web supply roll, and means for leading the web through said units, the first drying unit being located between the two sets of printing units and the second drying unit being located beyond the second set of printing units.

2. In a web perfecting rotary press, four multicolor printing units, first and second drying units, each printing unit comprising an impression cylinder and two form cylinders arranged around the side of the impression cylinder opposite a drying unit, a web supply roll, and means for leading the web through said units, the first drying unit being located between the two sets of printing units and the second drying unit being located beyond the second set of printing units.

3. In a web perfecting rotary press, four multicolor printing units, first and second drying units, each printing unit comprising an impression cylinder and a plurality of form cylinders arranged around the side of the impression cylinder opposite a drying unit, a web supply roll, and means for leading the web through said units, said units being located, the first and second printing units in substantially the same transverse vertical plane, the third and fourth printing units in substantially the same transverse vertical plane, the first drying unit between the two sets of printing units and the second drying unit beyond the second set of printing units.

4. In a web perfecting rotary press, four multicolor printing units, first and second drying units, each printing unit comprising an impression cylinder and two form cylinders arranged around the side of the impression cylinder opposite a drying unit, a web supply roll, and means for leading the web through said units, said units being located, the first and second printing units in substantially the same transverse vertical plane, the third and fourth printing units in substantially the same transverse vertical plane, the first drying unit between the two sets of printing units and the second drying unit beyond the second set of printing units.

HOWARD M. BARBER.