Dec. 27, 1938. F. LAMATSCH 2,141,607

INKING MECHANISM FOR PRINTING MACHINES

Filed Dec. 23, 1936 2 Sheets-Sheet 1

Fig. 1.

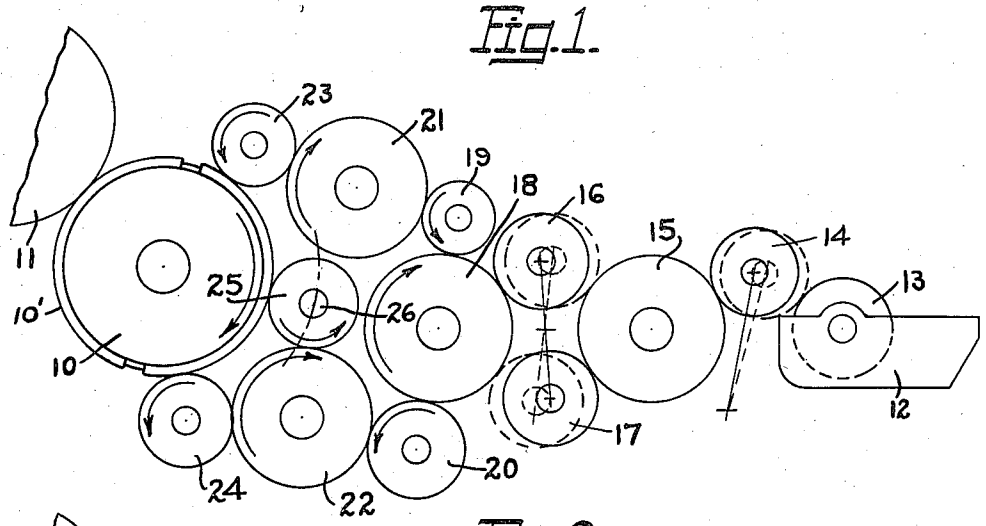


Fig. 2.

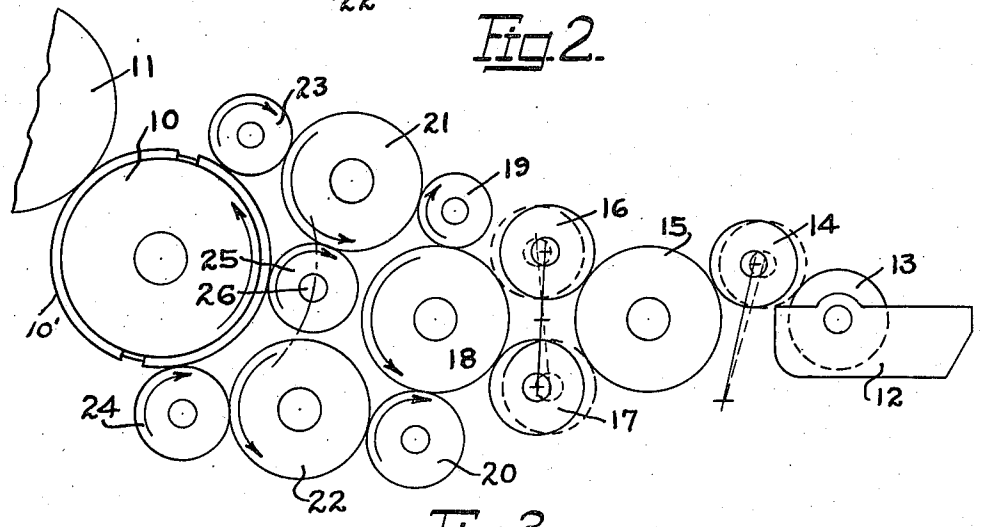
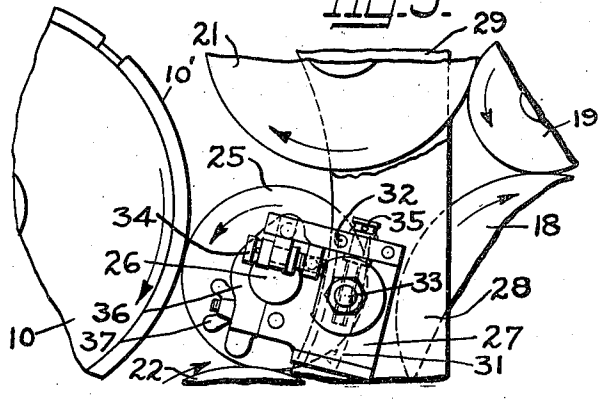


Fig. 3.



INVENTOR
Frederick Lamatsch
by Albert J. Horton
ATTORNEY

Dec. 27, 1938. F. LAMATSCH 2,141,607

INKING MECHANISM FOR PRINTING MACHINES

Filed Dec. 23, 1936 2 Sheets-Sheet 2

Fig. 4.

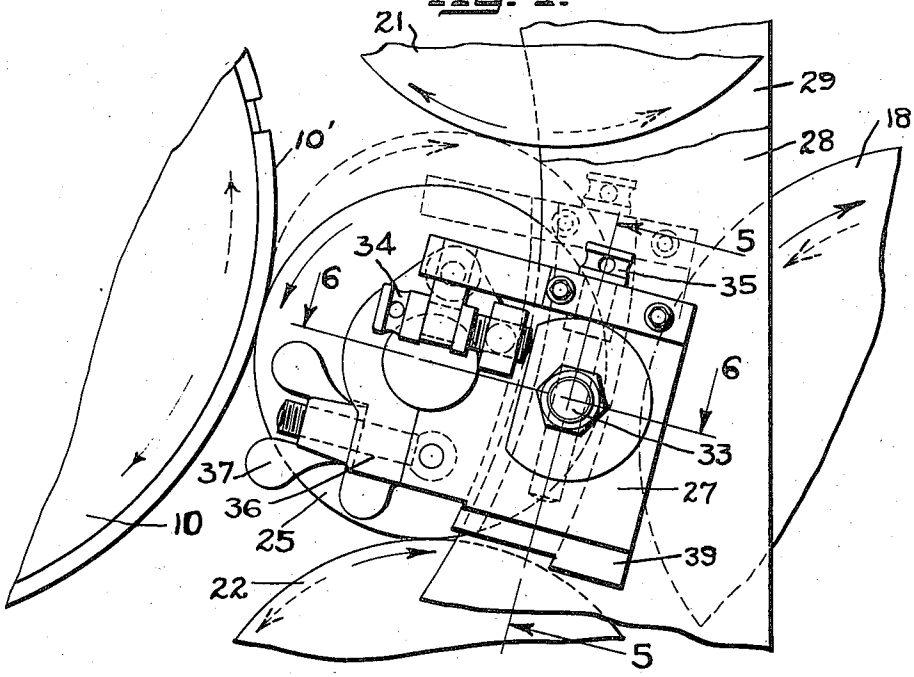


Fig. 5.

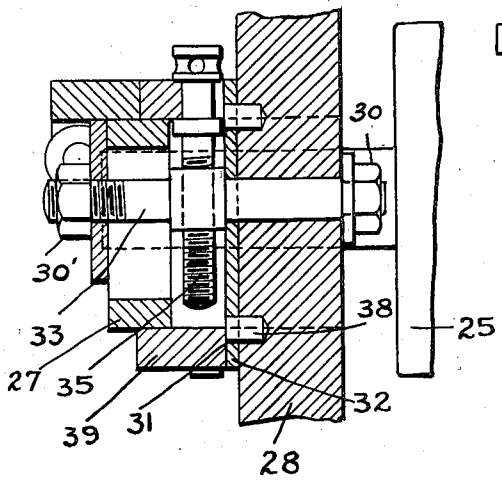
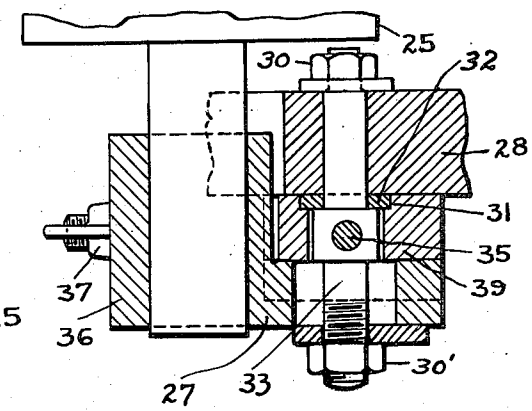


Fig. 6.



INVENTOR.

Frederick Lamatsch

by Albert J. Horton

ATTORNEY

Patented Dec. 27, 1938 2,141,607

UNITED STATES PATENT OFFICE

2,141,607

INKING MECHANISM FOR PRINTING MACHINES

Frederick Lamatsch, Grantwood, N. J., assignor to R. Hoe & Co., Inc., New York, N. Y., a corporation of New York

Application December 23, 1936, Serial No. 117,259

15 Claims. (Cl. 101—350)

This invention relates to inking mechanisms for printing machines and more particularly to improvements in inking mechanisms for use on multi-color high speed rotary printing machines wherein the printing cylinders are reversible and the path of ink transfer is altered when the machine is reversed. This invention is particularly useful with printing machines of the type shown in the patent to Pancoast 1,501,617 issued July 15, 1934 wherein various combinations of single and multi-colored products may be produced, and which requires that sometimes certain of the printing couples be run as shown in the patent to Pancoast 1,138,782 in reverse direction in respect to the others to obtain the desired products.

In printing machines of the above type wherein a plurality of ink distributing rollers are arranged in a train to evenly supply and distribute ink from an ink reservoir to the form cylinder of a pair of cooperating printing cylinders, it has been found desirable to alter the path of the ink transfer whenever the direction of the printing cylinders is reversed, in order to more evenly and efficiently distribute ink upon the form. For this purpose, the arrangement disclosed herein, provides a convenient manner of accomplishing this result. In accordance with this invention, the train of inking rollers and cylinders includes a form roller adapted to be peripherally adjusted about the form cylinder into contact with either of a pair of ink cylinders disposed about and adjacent the form cylinder.

One object of this invention is to provide in an inking mechanism for a printing machine means to alter the path of ink transfer from an inking cylinder to the form cylinder when the direction of rotation of the form cylinder is reversed.

Another object is to provide a form roller disposed between a pair of inking cylinders and a form cylinder of a printing machine, and which is adapted to be adjusted peripherally about the form cylinder to simultaneously contact either of the inking cylinders and the form cylinder, to alter the path of ink transfer therebetween in accordance with the direction of rotation of the form cylinder.

It is also an object of the invention to provide an inking mechanism of generally improved construction, whereby the device will be simple, durable and inexpensive in construction, as well as convenient, practical, serviceable and efficient in its use.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts, and in the details of construction hereinafter described and claimed.

The preferred embodiment of the invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a diagrammatic illustration of an inking mechanism of a printing machine embodying the features of this invention;

Figure 2 is a diagrammatic illustration of the same with a form roller in another position whereby the path of ink is altered to compensate for a reversal in the direction of rotation of the form cylinder of the printing couples;

Figure 3 is an end view of a portion of the inking mechanism of a printing machine showing the preferred arrangement by which a form roller may be adapted to be adjusted peripherally about a form cylinder to accomplish the results desired;

Figure 4 is a view similar to Figure 3 but on an enlarged scale and indicating by dotted lines the form roller in its adjusted position;

Figure 5 is a section on line 5—5 of Figure 4; and

Figure 6 is a section on line 6—6 of Figure 4.

The inking mechanism illustrated in the drawings is provided for the purpose of supplying ink to a form 10' carried by a form cylinder 10 of a cooperating pair of printing cylinders 10 and 11, cylinder 11 being the impression cylinder. It will be understood that the printing machine is generally provided with more than one pair of such printing cylinders and that the same are driven in the usual manner. It will also be understood that in accordance with the teachings of the above mentioned patent to Pancoast that the direction of rotation of certain of the printing couples may be reversed whereby the associated inking rollers will be reversed. As herein shown ink is supplied to the form 10' on the cylinder 10 from an ink reservoir or fountain 12 by means of a plurality of ink transfer rollers and inking cylinders. In the arrangement illustrated, an ink fountain roller 13 rotates in the reservoir 12 to provide a supply of ink above the level of the ink in the reservoir in which the roller 13 is partially immersed. An ink ductor roller 14 adapted to be oscillated into and out of contact with the roller 13 transfers ink from the roller 13 to a continuously revolving distributing roller 15.

Ink received on the roller 15 is transferred

preferably by simultaneously oscillating rollers 16 and 17 into contact with a continuously revolving distributing cylinder 18 upon which ride rollers 19 and 20. The rollers 19 and 20 distribute ink about and over the surface of the cylinder 18 and transfer it to inking cylinders 21 and 22 respectively, upon each of which it is distributed over the surface thereof by the respective roller in contact therewith. Each of the cylinders 21 and 22 have an ink form roller 23 and 24 respectively, in constant contact therewith and with the form 10' on the cylinder 10. In order to provide that a smooth and even distribution of ink is obtained upon the cylinder 18, the rollers 16 and 17 are mounted for oscillating movement between the roller 15 and the cylinder 18 whereby the cylinder 18 may be rotated in synchronism with the form cylinder 10, and the roller 15 may be rotated at a speed substantially slower than that of the cylinder 18. Such an arrangement is particularly advantageous in the high speed printing machines now in general use and insures even and smooth distribution and transfer of ink from an ink reservoir to an ink distributing cylinder.

The axes of the inking cylinders 21 and 22 are spaced apart sufficiently to permit the mounting therebetween of an ink transfer form roller 25. The roller 25 is mounted for adjustment peripherally about the form cylinder 10, while in continuous contact with the same, and into contact with either of the inking cylinders 21 or 22 as desired, for a purpose to be hereinafter described. The ink transfer form rollers 23, 24 and 25 as arranged in accordance with this invention, evenly distribute ink upon the form cylinder 10, whereby clear and sharply defined printed impressions are made upon a paper web or other material, in web, or sheet, form passed between the cylinders 10 and 11.

Referring to Figures 3–6 inclusive, the roller 25 has its shaft 26 journaled in brackets 27, one being adjustably secured to each of side frames 28 and 29 of the inking mechanism of the printing machine. Preferably, the connection between the respective frame 28 and 29 and the bracket 27 thereon includes a groove 31 in one and a tongue 32 on the other, both the groove 31 and the tongue 32 beign arcuate in shape, the curvature thereof being concentric to the periphery of the form cylinder 10 by having the same center. Herein the tongue 32 is shown secured to the frame member 28, 29 by pins 38 and the groove 31 is formed in a base 39 upon which the bracket 27 is slidably and adjustably mounted. A stud 33 secured in the respective frame passes through both the bracket 27 and the base 39 and is provided with nuts 30 and 30' to clamp the parts in their adjusted positions on the frames. An adjusting screw 34 is provided for transversely adjusting the bracket 27 on the base 39 to properly contact the roller 25 with the form on the cylinder 10, to obtain the desired pressure thereof. An adjusting screw 35 is provided for adjusting the bracket 27 through the base 39 peripherally in respect to the cylinder 10 by being threaded into the bolt 33 and adapted upon being turned, to slide the base 39 upon the tongue 32 into the dotted position, as shown in Figure 4, whereby the roller 25 will assume the position, as shown in Figure 2. A hinged bearing cover 36 may be provided whereby the roller 25 may be readily removed by manipulation of a thumb nut 37.

As indicated in Figure 1 by the arrows indicating the direction of rotation of the various rollers and cylinders, when the form cylinder 10 is rotating clockwise, ink, applied to the distributing cylinder 18, is transferred first to the roller 20 and later to the roller 19 due to the direction of rotation of the cylinder 18. A larger quantity of ink is therefore received by the roller 20 than is received by the roller 19. The ink received by the roller 20 is transferred to the inking cylinder 22 and is sufficient to supply the form rollers 24 and 25 with ink to be transferred to the form on the cylinder 10. Due to the direction of the path of ink transfer, ink supplied by the rollers 24 and 25 will be received by the form on the cylinder 10 slightly in advance of the ink being transferred thereto by the form roller 23, which receives ink from the inking cylinder 21, which in turn, receives it from the roller 19. By this arrangement, a different amount of ink is received by and is applied to the form by each of the form rollers 23, 24 and 25, whereby the ink applied to the form by one roller will not be removed by the next succeeding form roller, but an additional quantity of ink will be transferred to the form by each roller in its turn and evenly spread over its peripheral surface. For instance, the roller 23 will receive and apply a smaller amount of ink to the comparatively dry form, roller 25 will receive a somewhat greater amount of ink than roller 23 and apply it to the form in addition to that applied by the roller 23 and roller 24 will receive and apply a still greater amount.

In instances, where it is desirable to reverse the direction of rotation of the printing cylinders 10 and 11, as for instance, in accordance with the requirements of the above referred to patent specifications, whereby the direction of rotation of the inking rollers and cylinders forming one unit are also reversed, as all, it is understood, are driven from the same source, an equivalent path of ink transfer is desired, and this is obtained by adjusting the roller 25 into the position shown in Figure 2 and in dotted lines in Figure 4. In this arrangement, ink is received first by the roller 19 from the cylinder 18 and then by the roller 20, and ink is first received by the form on the cylinder 10 from the roller 23 and then in turn from the rollers 25 and 24, thereby resulting in the same efficient distribution of ink over the form 10' as above shown by the use of the arrangement shown in Figure 1.

From the above, it will be understood that the invention discloses an arrangement of inking rollers whereby an improved inking mechanism is provided, including a plurality of inking cylinders in combination with a printing cylinder, or member, and an ink transfer roller adapted to be moved from contact with one of the inking cylinders into contact with another while being maintained in contact with the printing member, whenever the direction of rotation of the inking cylinders, and the direction of rotation of the printing cylinders, are reversed.

It will be understood that the invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof, and it is therefore desired that the present embodiment be considered in all respects as illustrative and not restrictive, and it will be further understood that each and every novel feature and combination present in or possessed by the mechanism herein disclosed forms a part of the invention included in this application.

What I claim is:

1. In an inking mechanism for a rotary printing machine, a printing member rotatable in

either direction, a plurality of inking cylinders, a plurality of form rollers each in contact with said printing member and with one of the plurality of inking cylinders, and another form roller in contact with said printing member and mounted for movement into contact with any one of the inking cylinders.

2. In an inking mechanism for a rotary printing machine, a printing member rotatable in either direction, a plurality of inking cylinders, a plurality of form rollers each in contact with said printing member and with one of said inking cylinders, another form roller in contact with the surface of said printing member, and means to move said last roller about and parallel with the surface of said printing member to dispose said roller into contact with any one of said inking cylinders.

3. In an inking mechanism for a rotary printing machine, a printing member rotatable in either direction, a plurality of inking cylinders, a plurality of form rollers each in contact with said printing member and with one of said inking cylinders, another form roller in contact with the surface of said printing member, a support for said last mentioned roller, and means to adjust said support in the direction said printing member rotates to cause said last mentioned roller to be moved into contact with one of said inking cylinders and out of contact with another.

4. In an inking mechanism for a rotary printing machine, a printing member rotatable in either direction, a plurality of inking cylinders, a plurality of form rollers, each in contact with said printing member and with one of said inking cylinders, another form roller in contact with the surface of said printing member, and means to move said last mentioned roller in the direction of rotation of said printing member while in contact with the peripheral surface thereof and into contact with one of the inking cylinders and out of contact with another.

5. In an inking mechanism for a printing machine, a rotatable form cylinder carrying a form, a plurality of inking cylinders spaced apart around and from said form cylinder, a plurality of form rollers each in contact with one of said inking cylinders and with the form, a form roller disposed between said inking cylinders in contact with said form, and means to adjust said last mentioned form roller into contact with any one of the inking cylinders.

6. In an inking mechanism for a printing machine, a rotatable form cylinder carrying a form, a plurality of inking cylinders spaced apart around and from said form cylinder, a form roller disposed between said inking cylinders in contact with said form, and means to adjust said form roller into contact with any one of the inking cylinders.

7. In an inking mechanism for a printing machine, a form cylinder, a plurality of inking cylinders spaced apart around the form cylinder, a form roller disposed between said inking cylinders and in contact with said form cylinder, and means to adjust said roller peripherally about said form cylinder into contact with any one of said inking cylinders.

8. In an inking mechanism for a printing machine, a form cylinder carrying a form, an ink distributing cylinder, a pair of inking cylinders, an ink transfer roller between said distributing cylinder and each one of said inking cylinders, and means to change the path of ink transfer from said distributing cylinder to said form in accordance with the direction of rotation of said form cylinder, including a form roller in contact with said form and adjustable into contact with either inking cylinder.

9. In an inking mechanism for a printing machine, a form cylinder carrying a form, an ink reservoir having an ink supplying roller therein, an ink receiving roller, an oscillating ductor roller adapted to contact said ink supplying roller and said ink receiving roller, an ink distributing cylinder, a pair of simultaneously oscillating ink transfer rollers adapted to alternately contact said ink receiving roller and said distributing cylinder, and means to transfer ink from said distributing cylinder to said form including, a plurality of inking cylinders and a form roller in contact with said form and selectively movable into contact with said inking cylinders.

10. In an inking mechanism for a rotary printing machine, a form cylinder carrying a form, a pair of spaced apart inking cylinders spaced from said form cylinder, and a form roller, mounted for movement selectively into contact with either of said inking cylinders while in contact with said form.

11. In an inking mechanism for a printing machine, a form cylinder carrying a form, a pair of spaced apart inking cylinders spaced from said form cylinder, a form roller, and means including brackets for supporting said roller, said brackets being mounted for movement to carry said roller selectively into contact with either inking cylinder.

12. In an inking mechanism for a printing machine, a form cylinder carrying a form, a pair of spaced apart inking cylinders spaced from said form cylinder, and a form roller, a bracket for supporting each end of said roller, a frame member at each end of said roller, each of said brackets being mounted on a frame member for arcuate sliding movement to carry said roller selectively into contact with either inking cylinder.

13. In an inking mechanism for a printing machine, a form cylinder carrying a form, a pair of spaced apart inking cylinders spaced from said form cylinder, and a form roller, a bracket for supporting each end of said roller, a frame member at each end of said roller, means to slidingly mount each of said brackets to the frame member including an arcuate tongue on one and an arcuate groove in the other, whereby said brackets are guided in sliding movements in respect to the frame member to carry said roller from contact with one inking cylinder into contact with the other.

14. In an inking mechanism for a printing machine, a form cylinder carrying a form, a pair of inking cylinders, an ink transfer roller between said inking cylinders, and means movable in an arc concentric to the periphery of said form cylinder to carry said roller from contact with one of said inking cylinders into contact with the other.

15. In an inking mechanism, a rotatable printing member, two ink carrying cylinders spaced apart and adjacent the surface of said member, an ink transfer roller in contact with said member, and means to adjust said roller into contact with either of said cylinders while it is in contact with said member.

FREDERICK LAMATSCH.