INNING APPARATUS FOR PRINTING MACHINES

Fig. 1.

Fig. 2.

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This invention relates to inking apparatus for printing machines and has for its object to provide improved means for accomplishing the application of inking material to an inking system for use in printing apparatus.

Inking apparatus for printing machines are already known in which the inking material is transferred by means of the ductor rolls from the fountain roller to the distributing cylinder. These ductor rolls are arranged in plurality form upon the periphery of a star of the so-called ductor star which rotates and of which the rollers are brought into engagement in turn with the fountain roller, or the ink receiving cylinder. When only a single ink ductor roll is employed it has been proposed heretofore to run this roller upon a cylinder in order to attain a better distribution of the ink. In this case however a sufficient distribution of the ink particularly in the case of viscous fluid inks cannot be attained.

The present invention obviates this disadvantage in that a ductor star with a number of ductor rolls mounted at its periphery in separated form rotates slowly about a distributing cylinder which itself rotates at a relatively high degree of speed about its own axis, and in fact preferably in a direction opposed to the directional movement of the star. In this way there is obtained a substantial friction and distribution of the ink so that a highly advantageous and complete inking procedure is attained.

Preferably the rollers of the ductor star are arranged in such a manner that they move along the periphery of the fountain roller in order to obtain an efficient transfer of ink. In this way there may take place consequently an uninterrupted delivery of ink to the inking apparatus.

In the accompanying drawings two embodiments of the invention are illustrated diagrammatically by way of example, in which Fig. 1 is a side view of the inking apparatus partly in section, and Fig. 2 is a side view, partly in section, of a modified form.

In Figure 1 of the embodiment illustrated the numeral 1 designates the fountain roller which takes up the ink from the ink container 2. For the transfer of the ink from the fountain roller 1 to the ink cylinder 3 a number of ductor rolls 6 are provided which are slidably mounted in a star 5. For this purpose the bearing block in which the shafts 55 of the rolls 6 are mounted is provided with one or more guide rods 3 which are introduced into the star 5 and spring 36 are arranged to urge the rolls inwardly that is to say towards the axis of the star. The rolls 60 in this manner come into contact with a distributing cylinder which rotates relatively rapidly adjacent the distributing cylinder 4 and is provided with a fixed disc 7, which is provided with two raised portions 7a and 7b which serve for the purpose that they first leave the inking cylinder 8 when the following ductor roll already lies thereagainst. Rollers or the like 9 connected to the shafts of the rolls 6 run upon the fixed 70 crank disc 7.

The cam portion 7a of the disc 7 is so located that it brings the rolls controlled by it into engagement with the fountain roller while the cam portion 7b is so fashioned that the rolls coming into engagement there-with are maintained against the inking cylinder 8.

The manner of operation of the device is accordingly as follows:

The ductor star 5 together with the rolls 6 slowly rotates for example in the direction of the arrow 10. Every time that one of the rolls 6 comes by the fountain roller 1 it is pressed thereagainst by means of the cam portion 7a; in this way taking up a coating of ink. After leaving the cam portion 7a the roll is located upon or in contact with the rapidly rotating distributing cylinder 4 which preferably rotates opposite to the direction of the latter that is to say in the direction of the arrow 11 although naturally it could rotate also in the same direction as the star 5. There results by reason of the rapid rotation of the cylinder 4 an intimate distribution of the ink upon the roll 6 and the cylinder 4 until the roll 6 arrives at the inking cylinder 8 where it transfers the ink upon the same.

The cam portion 7b is so arranged that at all times at least one roll 6 is in engagement with it so that the ink transfer operation takes place continuously. Also the shape of the cam portion is so chosen that the roller coming into engagement with the inking cylinder 8 moves along the cylinder 8 for a substantial period.

The embodiment illustrated in Figure 2 is based on the same principle as that accord-
ing to Figure 1. In this example the fountain roller is designated by 1, the inking cylinder by 8. In this case only four ductor rolls are provided, which are secured upon levers 13 rotatable about the shafts 13 on a slowly rotating disc 14 distributing cylinder 4. The levers 12 are formed as bell crank levers and carry at their free ends rollers 15 which run upon an eccentric disc 11 and are so controlled by it that they arrive at the correct time into engagement with the fountain roller 1 or the inking cylinder 8 and preferably remain for a sufficient time in engagement with the inking cylinder 8.

Of course further embodiments of the invention may be adopted without departing from the spirit of the invention.

I claim:

1. In an inking apparatus for printing machines in combination a fountain roller; an ink receiving cylinder; ductor rolls between said fountain roller and ink receiving cylinder for transmitting the ink; a carrier carrying said ductor rolls; a distributing cylinder around which said ductor rolls are rotated by means of said carrier, the rotational speed of said distributing cylinder being high with relation to the rotational speed of the ductor rolls carrier; and means for controlling said ductor rolls so that they are brought alternately into engagement with the fountain roller, the distributing cylinder and the ink receiving cylinder.

2. In an inking apparatus for printing machines in combination a fountain roller; an ink receiving cylinder; ductor rolls between said fountain roller and ink receiving cylinder for transmitting the ink; a carrier carrying said ductor rolls; a distributing cylinder around which said ductor rolls are rotated by means of said carrier in a direction opposite to the direction in which said distributing cylinder rotates; and means for controlling said ductor rolls so that they are brought alternately into engagement with the fountain roller, the distributing cylinder and the ink receiving cylinder.

3. In an inking apparatus for printing machines in combination a fountain roller; an ink receiving cylinder; ductor rolls between said fountain roller and ink receiving cylinder for transmitting the ink; a carrier carrying said ductor rolls; a distributing cylinder around which said ductor rolls are rotated by means of said carrier, in a direction opposite to the direction in which said distributing cylinder rotates, the rotational speed of said distributing cylinder being high with relation to the rotational speed of the ductor rolls carrier; and means for controlling said ductor rolls so that they are brought alternately into engagement with the fountain roller, the distributing cylinder and the ink receiving cylinder.

4. In an inking apparatus for printing machines in combination a fountain roller; an ink receiving cylinder; ductor rolls between said fountain roller and colour receiving cylinder for transmitting the ink; a carrier carrying said ductor rolls; a distributing cylinder around which said ductor rolls are rotated by means of said carrier, the rotational speed of said distributing cylinder being rapid with relation to the rotational speed of the ductor rolls carrier; and means for controlling said ductor rolls so that they are brought alternately into engagement with the fountain roller, the distributing cylinder and the ink receiving cylinder, said means being so formed and arranged that the ductor rolls are moved along a relatively long path upon the inking cylinder.

5. In an inking apparatus for printing machines in combination a fountain roller; an ink receiving cylinder; ductor rolls between said fountain roller and ink receiving cylinder for transmitting the ink; a carrier carrying said ductor rolls; a distributing cylinder around which said ductor rolls are rotated by means of said carrier, the rotational speed of said distributing cylinder being rapid with relation to the rotational speed of the ductor rolls carrier; and means for controlling said ductor rolls so that they are brought alternately into engagement with the fountain roller, the distributing cylinder and the ink receiving cylinder, said means being so formed and arranged that the ductor rolls are moved along a relatively long path upon the inking cylinder and the fountain roller.

6. In an inking apparatus for printing machines in combination a fountain roller; an ink receiving cylinder; ductor rolls between said fountain roller and ink receiving cylinder for transmitting the ink; a carrier carrying said ductor rolls; a distributing cylinder around which said ductor rolls are rotated by means of said carrier, the rotational speed of said distributing cylinder being rapid with relation to the rotational speed of the ductor rolls carrier; and means for controlling said ductor rolls so that they are brought alternately into engagement with the fountain roller, the distributing cylinder and the ink receiving cylinder, said means being so formed and arranged, that at a time at least one ductor roll is in engagement with the inking cylinder in order to ensure an uninterrupted delivery of inking material.

7. In an inking apparatus for printing machines in combination a fountain roller; an ink receiving cylinder; ductor rolls between said fountain roller and ink receiving cylinder for transmitting the ink; a carrier carrying said ductor rolls; a distributing cylinder around which said ductor rolls are rotated by means of said carrier, the rotational speed of said distributing cylinder being rapid with relation to the rotational speed of the ductor rolls carrier; and a cam device for...
controlling said ductor rolls so that they are brought alternately into engagement with the fountain roller, the distributing cylinder and the ink receiving cylinder.

8. In an inking apparatus for printing machines in combination a fountain roller; an ink receiving cylinder; ductor rolls between said fountain roller and ink receiving cylinder for transmitting the ink; a carrier carrying said ductor rolls; a distributing cylinder around which said ductor rolls are rotated by means of said carrier, the rotational speed of said distributing cylinder being rapid with relation to the rotational speed of the ductor rolls carrier; and a cam device for controlling said ductor rolls so that they are brought alternately into engagement with the fountain roller, the distributing cylinder and the ink receiving cylinder, said cam device being so formed and arranged, that the ductor rolls are moved along a relatively long path upon the inking cylinder.

9. In an inking apparatus for printing machines in combination a fountain roller; an ink receiving cylinder; ductor rolls between said fountain roller and ink receiving cylinder for transmitting the ink; a carrier carrying said ductor rolls; a distributing cylinder around which said ductor rolls are rotated by means of said carrier, the rotational speed of said distributing cylinder being rapid with relation to the rotational speed of the ductor rolls carrier; and a cam device for controlling said ductor rolls so that they are brought alternately into engagement with the fountain roller, the distributing cylinder and the ink receiving cylinder, said cam device being so formed and arranged, that the ductor rolls are moved along a relatively long path upon the inking cylinder and at each time at least one ductor roll is in engagement with the inking cylinder in order to ensure an uninterrupted delivery of inking material.

10. In an inking apparatus for printing machines in combination a fountain roller; an ink receiving cylinder; ductor rolls between said fountain roller and ink receiving cylinder for transmitting the ink; a carrier carrying said ductor rolls; a distributing cylinder around which said ductor rolls are rotated by means of said carrier, the rotational speed of said distributing cylinder being rapid with relation to the rotational speed of the ductor rolls carrier; and a cam device for controlling said ductor rolls so that they are brought alternately into engagement with the fountain roller, the distributing cylinder and the ink receiving cylinder, said cam device being so formed and arranged, that the ductor rolls are moved along a relatively long path upon the inking cylinder and at each time at least one ductor roll is in engagement with the inking cylinder in order to ensure an uninterrupted delivery of inking material.

11. An inking apparatus for printing machines comprising a fountain roller; a distributing cylinder; an ink receiving cylinder; a plurality of ductor rolls contacting and associated with the distributing cylinder; and a cam device associated with the distributing cylinder for actuating the ductor rolls in order to remove ink from the fountain roller onto the distributing cylinder and from the distributing cylinder to the ink receiving cylinder.

In testimony whereof I affix my signature.

ALFRED SCHLESINGER.