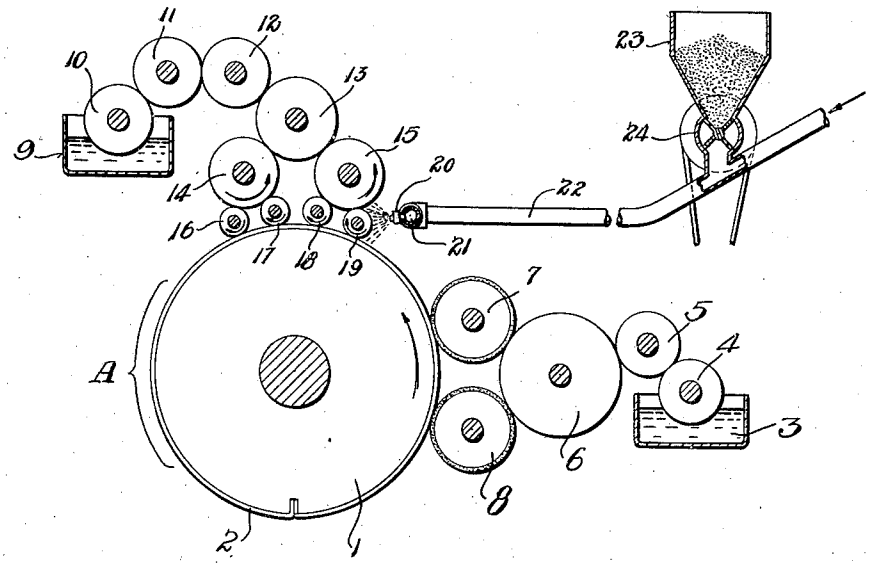
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LITHOGRAPHIC PRESS AND METHOD OF PROTECTING INK FROM WATER

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LITHOGRAPHIC PRESS AND METHOD OF PROTECTING INK FROM WATER

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This invention relates to improvements in lithographing presses and the like and methods of preventing the emulsification of water with the ink on the inking supply rolls of such presses.

A lithographing press is one example of a press in which the segments of the printing plate from which printing is desired are kept oily through the use of a suitable oily ink, and all other peripherally exposed portions of the plate on the roll are kept damp with water. It is common practice to distribute water from a water fountain over the face of the press roll at one point in its rotation while applying ink from an ink fountain to the face of the press roll at another point. In the desired operation of the press, only those portions of the press roll plate which are not oily will accept the moisture, while only the portions of the plate which have rejected the moisture will accept ink.

In practice, however, it is very difficult to achieve a balance so as to preclude the water from becoming mixed with the ink. Special water distributing rolls have been devised and used at great expense to achieve better distribution of the water by reciprocating the rolls endwise. Various other expedients have been tried unsuccessfully in an effort to preclude the water from being picked up by the ink distributing rolls and becoming emulsified with the ink thereon, to the detriment of the ink and of the desired operation.

The present invention employs a roll which is between the water distributing rolls and at least some of the ink distributing rolls and which operates in contact with the periphery of the plate on the press roll. According to this invention, such a roll acts as a collector to pick up from the plate any excess of moisture thereon. The excess water picked up is eliminated by a blast of air.

It is a further feature of the invention that I preferably use as a collecting roll the first of the ink transfer rolls which is encountered by the portions of the plate to which moisture has been freshly applied. I have found, however, that I can direct my drying blast of air into the system at almost any point to effectuate the purposes of this invention and to prevent any excess of water from creeping from the plate on to the inking supply rolls.

It might at first be supposed by those skilled in the art that any blast of air on any of the inking rolls would unduly dry the ink, but in practical experience with the invention, it is found that even where one of the inking rolls is used as a water collecting and drying roll, the ink is not adversely affected, even on the particular roll employed and, of course, this is but one of the several rolls ordinarily used for inking the cylinder.

The objects of the invention will be more fully apparent to those skilled in the art upon analysis of the following disclosure of the invention.

The drawing diagrammatically illustrates in transverse section a portion of a conventional lithographing press sufficient to exemplify the invention.

The press cylinder 1 carries a plate 2 on its periphery, a portion or portions of which, exemplified by the area A, are devised to print. From other portions, no printing is desired. As explained above, area A is kept inked and, to keep the ink from being accepted by the other portions of the plate 2, such other portions are kept moist.

To perform the moistening function, water is supplied from a fountain 3 from which it is lifted by roll 4 and transferred to roll 5. This roll, in turn, delivers the water to a distributing roll 6 from which the water passes to the moistening rolls 7 and 8, these being usually covered with cloth and operating in contact with the surface of the plate 2 on the cylinder 1. The cylinder rotates counterclockwise in the device as illustrated.

Through a similar arrangement, ink derived from fountain 9 is lifted therefrom by a series of rolls 10, 11 and 12 and thereby transferred to distributing rolls 13, 14 and 15 which, in turn, deliver the ink to the inking rolls 16, 17, 18 and 19. It will be understood that the specific arrangement of the moistening and inking rolls, and the numbers of such rolls, will differ in different presses.

In accordance with the preferred practice of the present invention, the roll 19 is also used to collect any excess of water from the surface of the plate 2 on the cylinder 1. All that is necessary to remove the water is to provide one or more nozzles 20 supplied through pipe 21 and supply main 22 with a drying gas, here conveniently referred to as air. Since it is common to maintain high humidity in the press room, the use of air, preferably heated, is desirable to dry the collecting roll. The water tends to collect in droplets on the oily surface of roll 19, whence it may be either evaporated or dislodged by the blast. Since the cylinder roll operates in a counterclockwise direction as indicated by the arrow, it will be apparent that the water delivered to the plate by

the moistening rolls 7 and 8 will encounter roll 19 before it encounters the other inking rolls 16, 17 and 18. Roll 19 will turn clockwise but any water lifted by it from the cylinder roll cannot reach the rest of the inking mechanism without being transferred to the periphery of roll 15 which turns counterclockwise and is likewise exposed to the drying gas. Thus the water is dried from the inking mechanism before it has an opportunity to become emulsified with the ink and neither the water nor the drying gas reaches the majority of the inking rolls.

It will be apparent in the light of the foregoing disclosure that there are many different mechanical ways of removing excess water from the press cylinder plate before it has an opportunity to become emulsified with the ink. The drawing illustrates an apparatus which I have successfully used for the purpose. My experience indicates that no amount of care in limiting the amount of moistening water applied to the plate can prevent emulsification, but that it is very simple, through the present invention, to remove the excess water and thereby to prevent emulsification. Using the present invention, a lithographing press or the like may be operated indefinitely to make perfect impressions with none of the difficulties heretofore experienced and attributable to the mixing of water with the ink.

The presence of water in the ink retards the drying of the ink, as before the ink itself can be dried it is necessary to evaporate the water. One of the advantages of the present invention, therefore, is to accelerate the drying of the ink.

The blast of air introduced into the press may also be used to carry anti-oxidant or other entrained powders to any desired roll in the inking system or elsewhere in the press. Any convenient means may be used for this purpose, the hopper 23 and rotary charging valve 24 being merely illustrative.

I claim:

1. A method of preventing an excess of water on a printing cylinder plate from reaching the inking rolls, which method consists in removing substantially all excess water from the surface of the plate on the press cylinder after such plate has been moistened and before a major portion of the ink is applied thereto.

2. The method of preventing the commingling of the water with the ink in the operation of a printing press cylinder in which the periphery of the plate is first moistened and later inked in the course of its revolution, such method consisting in lifting substantially all excess moisture from the plate en route between the point at which the plate is moistened and the point at which the major portion of the ink is applied thereto, and blasting off at least a major portion of the moisture lifted from the plate.

3. In a printing press, the combination with a printing cylinder provided peripherally with a printing plate, means for rotating said cylinder, means for moistening the surface of the plate in the course of cylinder rotation, a set of inking rolls coacting with the plate in the course of cylinder rotation at a point beyond the point at which the plate is moistened by the moistening means, and means for directing a blast of drying gas against one of said inking rolls, substantially all the air being directed against the first inking roll to contact the plate on the printing cylinder after such plate is moistened.

4. The combination in a printing press with a cylinder roll and plate thereon, of a water roll coacting with the cylinder roll, a set of inking rolls coacting with the cylinder roll, and including as the first inking roll in the path of cylinder roll rotation from the water roll, a water collecting roll in peripheral contact with the plate, and means for directing a blast of drying gas against such roll, such blast being of sufficient volume and drying effect to remove substantially all excess moisture from the water collecting roll before such moisture reaches the said inking rolls.

5. A method of powdering the inking roll of a printing press which method consists in coating such roll with ink, entraining anti-oxidant powder in an air stream, and pneumatically conveying and projecting such powder with the air stream against such roll after the roll has been coated with ink whereby such powder is adhered to the roll by the ink thereon.

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