Sept. 21, 1954

W. KOCH

MOISTENING DEVICE FOR THE PLATE CYLINDERS OF PRINTING PRESSES

2,689,523

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2 Sheets-Sheet 1

Fig. 1

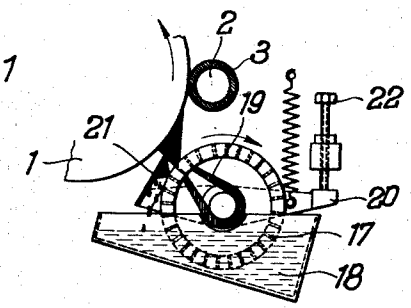
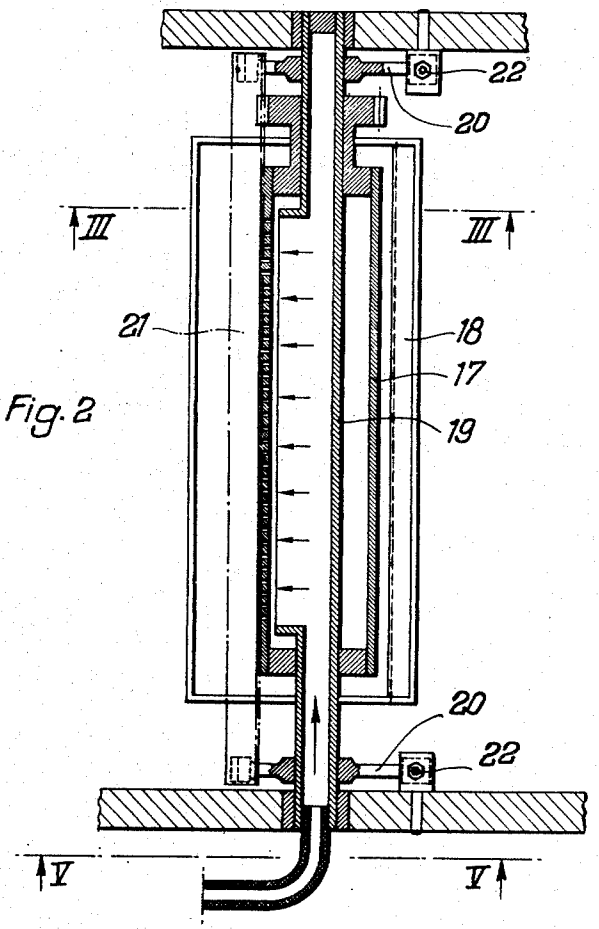


Fig. 2



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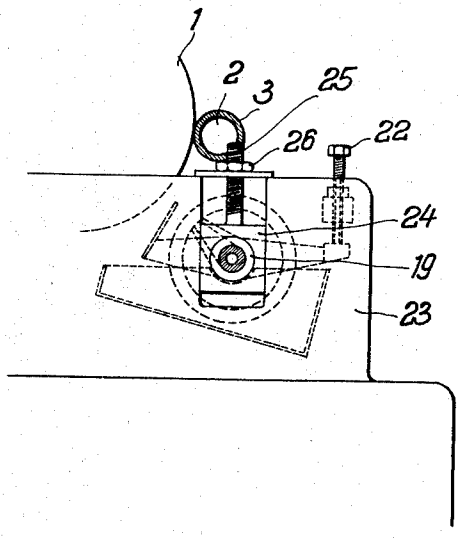
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Fig. 3



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UNITED STATES PATENT OFFICE

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MOISTENING DEVICE FOR THE PLATE CYLINDERS OF PRINTING PRESSES

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Claims priority, application Germany April 9, 1949

2 Claims. (Cl. 101—147)

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This invention relates to a device for applying liquid to surfaces and is intended more especially for use in lithographic printing machines, in which it more particularly refers to the means provided in such or similar machines for moistening the plate cylinders thereof. It is to be understood, however, that in some of its aspects the invention is not limited to machines or devices of the particular kind referred to but may be applied to any other machine or mechanism in which the process or the means constituting this invention may be found advantageous.

It is one of the objects of this invention to improve the method and the means for carrying out such moistening of surfaces, particularly moving surfaces, as have hitherto been in use and to enable a better taking up and a more uniform or efficient spreading of the liquid upon the said surface.

The invention further provides ways and means to afford such improvements in a novel, variable manner and to suit various types of surfaces and devices, and with these and other objects in view it consists in a new and useful arrangement of parts and in the manner of their application or use as will be hereinafter described and pointed out in the claims.

In lithographic printing machines it is customary to moisten the printing plate cylinders by the use of a moistening device, in which a metallic cylinder is adapted to evenly or intermittently rotate in a water receptacle. The water contained in the receptacle is caused to be carried up by the rotation of this cylinder and transferred to a fabric-covered oscillating roller, which contacts the cylinder at certain predetermined intervals, and transmitted to a system of distributing rollers which eventually apply the moisture thus received onto the printing plate.

Regulation of the quantity of liquid to be applied in these known devices may be carried out in various ways, as for instance by altering the space through which the circumference of the cylinder passes during the time of one printing operation, or, in the case of an evenly rotating cylinder, by varying the time of contact between the take-up roller and the said cylinder.

With these known devices difficulties arise particularly in connection with high-speed printing presses partly owing to the fact that the alterations in the diameter of the take-up roller, which in practice cannot be avoided, renders a shockless starting of the oscillatory movement of the said roller impossible, and partly because of the necessity of suddenly bringing the rotary speed of

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the take-up roller from the speed of movement of the plate to the just prevailing speed of rotation of the cylinder, and vice versa.

In order to avoid these disadvantages it has been proposed to apply the required moisture both to the plate and the distributing rollers by means of suitable nozzles adapted to eject water under great pressure. It has further been proposed to spray the moistening liquid by means of compressed air in cooperation with mechanical means such as rotary brushes or high-speed toothed gearing.

However, neither of these known moistening devices has been able to satisfy the practical requirements, partly on the score of unreliability and partly because of their failure to permit of adequate regulation.

The process which forms one part of my invention has for its main object to remove these disadvantages and for this reason consists in the continuous formation of numerous small pads or dabs of liquid, to convey same to their places of application and to precipitate them at a given moment against the surface or surfaces to be moistened.

It has been found practical to produce the said pads of liquid by passing a revoluble liquid carrier of suitable formation through the liquid contained in a receptacle and blasting them at the given moment by a draft of air off or through the carrier against the platen. Instead of immersing the carrier in or passing it through the liquid, the said pads may be caused to form by the liquid being sprayed upon the carrier.

The device for carrying out my invention, which serves to form the said pads of liquid and to apply them to the surface to be moistened, preferably and mainly consists of a radially perforated hollow cylinder adapted to rotate in a bath of liquid, and in the interior of which an elongated nozzle for the ejection of the compressed air is arranged. The distance of the cylinder from the surface to be moistened is preferably adjustable. It is further suitable to provide between the cylinder, or the air nozzle respectively, and the surface to be moistened a shield or fender, which is preferably also adjustable in position as by means of a lever and set-screw arrangement, and by means of which part of the air blast may be warded off so as not to become effective.

A device suitable for carrying the invention into effect will now be described with reference to the accompanying drawings in which the new

moistening device is illustrated by way of example.

In these drawings,

Fig. 1 is a cross section through a device in accordance with the invention.

Fig. 2 is a top view, partly in section, thereof.

Fig. 3 shows a detail.

In the example illustrated in these drawings a hollow cylinder 17, which is adjustable preferably by a block 24, which can be raised and lowered within a vertical slot in the frame 23 of the machine by means of a screw 25 and nut 26, toward and away from the surface to be moistened, is employed. This cylinder, the axis of which runs parallel to that of the plate cylinder 1, is provided with radially disposed perforations and adapted to rotate at regulatable speed in a liquid bath 18. Within the cylinder 17 is a nozzle 19 extending preferably over the entire length of the cylinder and through which compressed air is blown through the perforations in the cylinder against the surface to be moistened. When dipping into the liquid contained in the receptacle 18 the radial perforations of the cylinder are filled with little pads of liquid which, by the rotation of the cylinder, are conveyed to opposite the orifice or spout of the nozzle 19. The blast of air issued from the said nozzle now causes the small pads of liquid to be blown out of the perforations and to be thrown against the plate cylinder, to be distributed by the application roller 2 which, for the purpose, is provided with a felt sleeve 3.

The quantity of liquid applied can be regulated either by altering the speed of movement of the cylinder or by altering the air pressure or the velocity of the air respectively. Instead of causing a uniform flow of air through the system, the air may be blown intermittently through the perforated cylinder in which way it will be possible to regulate the degree of moisture applied with the speed of the cylinder remaining constant. Instead of blowing the pads of liquid directly against the cylinder 1, they may be directed against the roller 2, 3 and transmitted from this roller onto the plate cylinder 1.

In a preferred form, however, the regulation of the quantity of liquid to be applied to the plate cylinder is effected by partially shielding off the air blast, or both air and liquid respectively. For this purpose a shield or fender 21 is pivotally mounted in arms 20. By the turning of set screws 22 the upper edge of the shield 21 is moved more or less into the stream ejected from the nozzle and the perforations and, thereby, shield off part of the liquid emanating from the moistening means.

Having now described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a moistening device for moistening the plate cylinders in printing machines, a plate cylinder, a liquid receptacle, a hollow cylinder revoluble in said receptacle adjacent said plate cylinder about an axis parallel to the axis of said plate cylinder and with its lower part submerged in the liquid, radial perforations in the wall of the said cylinder of a kind to take up from the receptacle dabs of liquid and to carry them around during the revolution of the said cylinder, a take-up roll for spreading the liquid over said plate cylinder, a compressed-air nozzle within the cylinder adjacent its inner wall and delivering directly through the said perforations to thereby blow the said dabs of liquid against the plate cylinder, an adjustable shield for screening off parts of the ejected liquid, a spring-controlled two arm lever pivoted to the axle of said cylinder carrying said shield upon one of its arms and a bearing surface for cooperation with an adjusting member on the other, and means for adjusting said cylinder together with its nozzle and screening device in relation to the said plate cylinder independently of the said liquid receptacle.

2. In a moistening device for moistening the plate cylinders in printing machines, a plate cylinder, a liquid receptacle, a hollow cylinder revoluble in said receptacle adjacent said plate cylinder about an axis parallel to the axis of said plate cylinder and with its lower part submerged in the liquid, radial perforations in the wall of the said cylinder of a kind to take up from the receptacle dabs of liquid and to carry them around during the revolution of the cylinder, a compressed-air duct concentrically arranged in the said cylinder and stationary in relation thereto, an elongated air nozzle forming part of said air duct and positioned adjacent the inner wall of the revoluble perforated cylinder to directly blow said dabs of liquid through the said perforations against the plate cylinder, a take-up roll in rolling contact with said plate cylinder for spreading the ejected liquid over the plate cylinder, a spring-controlled lever pivotally arranged on the compressed-air duct outside of the cylinder a shield supported on said spring-controlled lever, a screw and nut arrangement in cooperation with said lever for pivotally adjusting said shield in relation to the nozzle, and means for moving the spraying device in a direction toward and away from the plate cylinder independently of the liquid receptacle.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
841,142	Gramlich	Jan. 15, 1907
1,834,169	Moe et al.	Dec. 1, 1931
2,101,202	Stevens	Dec. 7, 1937
2,108,984	Grembecki	Feb. 22, 1938
2,162,248	Delaplane	June 13, 1939
2,389,730	Iler	Nov. 27, 1945
2,408,449	Russell	Oct. 1, 1946
2,622,520	Hauser et al.	Dec. 23, 1952