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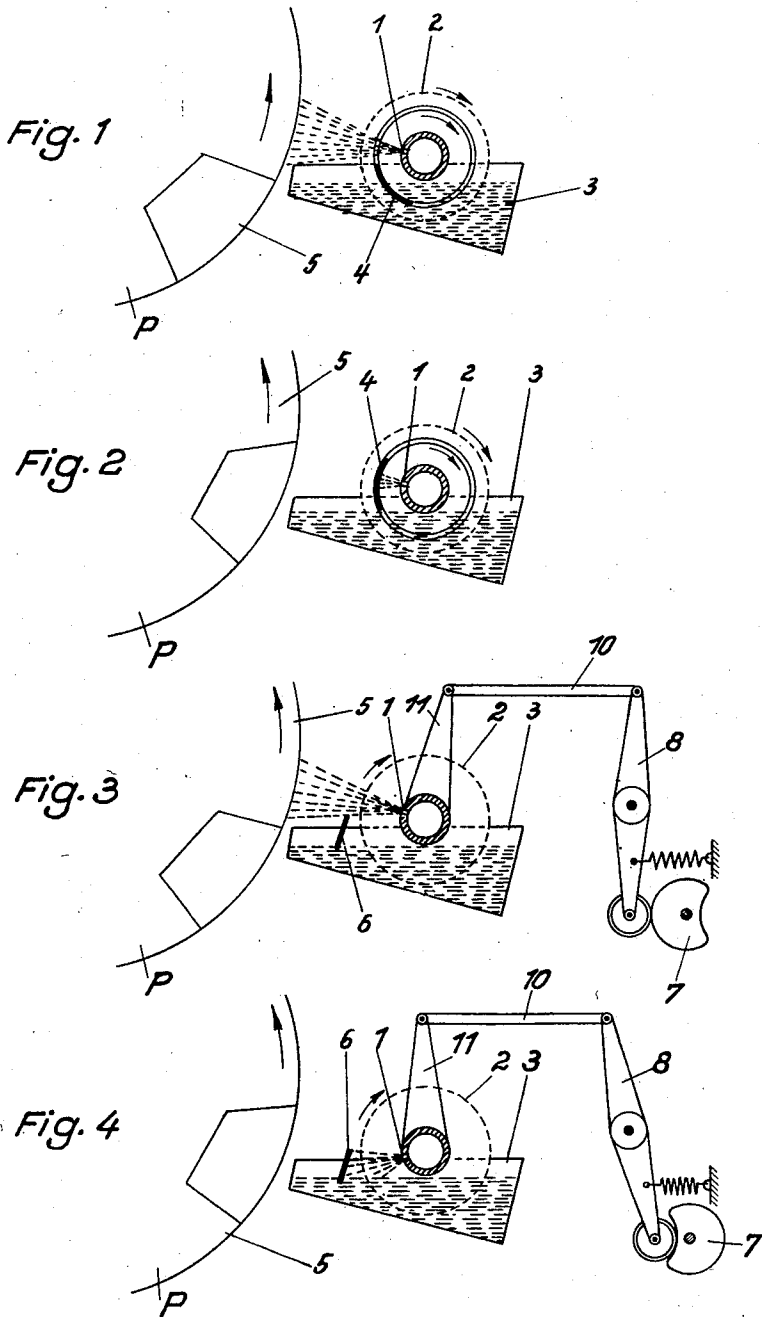
W. KOCH

2,791,174

DEVICE FOR APPLYING LIQUIDS TO CYLINDRICAL SURFACES

Filed May 6, 1952

2 Sheets-Sheet 1



Inventor:  
WERNER KOCH  
By *Fredrick E. Haas*  
ATTORNEY

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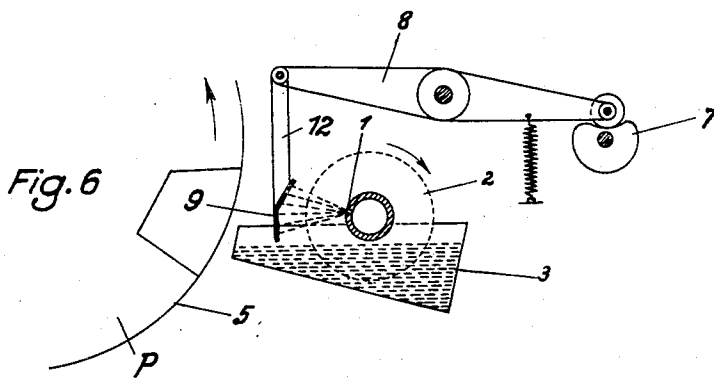
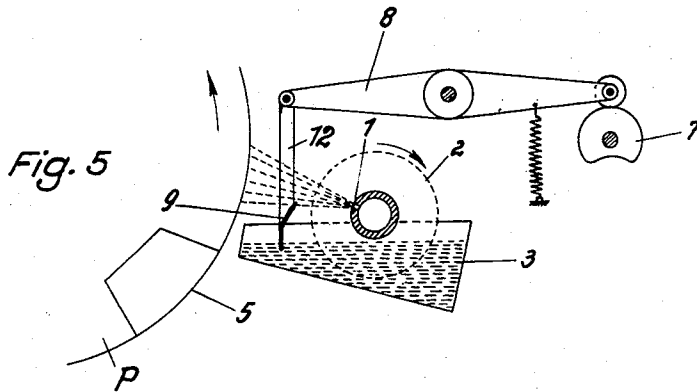
W. KOCH

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DEVICE FOR APPLYING LIQUIDS TO CYLINDRICAL SURFACES

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Inventor:  
WERNER KOCH  
By *Fredrick L. Hays*  
ATTORNEY

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## DEVICE FOR APPLYING LIQUIDS TO CYLINDRICAL SURFACES

Werner Koch, Offenbach (Main), Germany, assignor to Faber & Schleicher Aktiengesellschaft, Offenbach (Main), Germany, a body corporate of Germany

Application May 6, 1952, Serial No. 286,330

5 Claims. (Cl. 101-147)

In my application for Letters Patent Numbered 153,937 and dated April 4, 1950, now U. S. Patent No. 2,689,523, I have described a device for applying liquid to surfaces, more especially to the printing plates, or cylinders, of lithographic printing machines. In its essential features the invention described in the specification of my said application referred to adjustable means for controlling the amount of liquid applied in the moistening of the said plates or cylinders, of which several modifications were described and illustrated.

This present invention, now, is an improvement on the device described in my said previous application and it refers more particularly, but not exclusively, to that modification, in which a guard, or screen, is arranged in parallel relation to the axis of the printing cylinder and in which means are provided in cooperation with the said guard, or screen, for adjustably controlling the amount of liquid applied to the surface.

The main object of my present invention is the provision of a device of the aforesaid kind, in which the application of the liquid to a cylindrical surface is so controlled as to be automatically and periodically interrupted at such a place, or places, at which the application of the liquid is not desired. The guard, or screen, used in accordance with this invention may be stationary or movable as required by the kind or the arrangement of the nozzle, or for any other reasons.

Another object in the application of the invention to rotary printing machines is the provision of means for so timing the cooperation of the guard with an air nozzle used for ejecting liquid through a sieve, and the printing cylinder that, while the jet of air continues, the said guard will become effective always at the moment when the cylinder gap, which is the place where the ends of the printing plate are attached to the cylinder, passes through the spraying zone, whereby the application of liquid to the said gap is prevented.

With these and other objects in view one mode of carrying the invention into effect consists in the provision of a guard, or screen, which is adapted to revolve around a fixed nozzle, or tube, for the delivery of the compressed air, and in so timing the revolutions of the said guard, or screen, as to cover up the jet of liquid at that particular place or interval, at which the cylinder gap passes the said nozzle or tube. One or more of such revoluble guards may be provided; in the latter case the speed of revolution of the said guard may be correspondingly reduced, or its continuous rotations may be replaced by an intermittent step by step rotation.

The accompanying sheets of drawings diagrammatically illustrate three different ways of carrying out the invention, it being understood, that these illustrations are given by way of example only and that they may be varied to suit requirements, all within the scope and meaning of the claims appended at the end of this specification. In these drawings:

Fig. 1 shows the arrangement in which the guard revolves around a stationary nozzle,

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Fig. 2 is a view of the device shown in Fig. 1 with the guard in its warding-off position.

Fig. 3 illustrates the arrangement of a stationary guard with the nozzle revolving,

Fig. 4 is a view of the same arrangement in which the application of the liquid to the cylinder is interrupted by the said guard.

Fig. 5 illustrates the modified form of the invention in which the guard is movable in vertical direction, while in

Fig. 6 the same arrangement is shown with the guard in its screening-off position.

In all these figures the nozzle 1 has been shown for the sake of convenience to be in the shape of a spraying tube having orifices therein, through which the compressed air is blown as described in the specification of my aforementioned patent application. The reference 2 indicates the porous, liquid retaining or absorbing carrier, which revolves with its lower part submerged in the liquid receptacle 3 and through which the stream of liquid is ejected by the jet of air issuing from the nozzle 1.

In Fig. 1 the guard 4 is shown to be revoluble together with or in timed relation to the liquid carrier 2. Its rotations are timed so that, while it normally does not obstruct the jet of air from the orifice, or orifices, in the nozzle, it will do so at the moment when the gap 5 of the plate or printing cylinder P (of which merely a portion of its outline is shown) passes through the spraying zone during its rotation. This position is shown in Fig. 2, in which the guard 4 occupies a position between the orifice of the stationary air nozzle 1 and the gap 5 of the cylinder P, so that no liquid can be sprayed through the liquid carrier 2, until the rear edge of the guard 4 has passed the orifice, at which moment, however, the gap 5 will also have left the spraying zone. The arrows in all the figures indicate the direction of movement of the parts, it being understood, that movement may take place in different directions if required.

Figs. 3 and 4 show the nozzle 1 being periodically rocked by a cam 7 and a linkage system including a preferably spring-controlled cam lever 8, a rod 10 and a rocking lever 11 attached to the air nozzle. The arrangement is such that the constantly delivering nozzle 1 is rocked so as to divert the jet of liquid against the stationary guard 6 at the moment when the gap 5 arrives at the spraying zone; the nozzle remaining in its diverted position until the gap has again left the said zone.

The device illustrated in Figs. 5 and 6 differs from the arrangements just described by the guard 9 being bodily movable in a vertical direction, the said movement being derived, similar to the device shown in Figs. 3 and 4, from the cam 7 through the cam lever 8, to which the said shield 9 is attached by means of an arm 12. The nozzle 1, in this case, remains stationary.

What I claim and desire to secure by Letters Patent of the United States is:

1. A cyclically actuated spray guard device for a moistening device for use with a rotary plate cylinder of a printing press and including an air nozzle, a liquid receptacle and a liquid retaining hollow cylinder of porous material mounted for rotation in said receptacle and encompassing the said nozzle, said spray guard device comprising a guard member disposed intermediate of said nozzle and said porous cylinder, and rotary drive means supporting said guard member for rotation about the air nozzle in a peripheral orbit interrupting the jet of air from the nozzle in predetermined relative angular positions of the plate cylinder and the guard member for each revolution of the latter.

2. A moistening device for use with a rotary plate cylinder of a printing press, said device comprising a

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liquid receptacle, a rotary liquid retaining hollow cylinder of porous material mounted to extend with its lower part into said liquid receptacle, an air nozzle for blowing a jet of air through the wall of said porous cylinder thereby causing a spray of liquid to be directed against said plate cylinder, said porous cylinder being disposed parallel to the axis of the plate cylinder, a guard member, and rotary drive means supporting said guard member for rotation coaxially with the axis of the porous cylinder in a peripheral orbit interrupting the jet of air from said nozzle for a predetermined part of the orbit of the guard member.

3. A moistening device for use with a rotary plate cylinder of a printing press, said device comprising a liquid receptacle, a rotary liquid retaining hollow cylinder of porous material extending with its lower part into said liquid receptacle, said cylinder being disposed parallel to the axis of the plate cylinder, an air nozzle within said porous cylinder for blowing a jet of air through the wall thereof thereby causing a spray of liquid to be directed upon said plate cylinder, a guard member, and rotary drive means supporting said guard member for rotation in a circular orbit coaxial with the axis of the porous cylinder, said guard member being disposed intermediate the peripheral wall of said porous cylinder and

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said nozzle to intercept the jet of air of the nozzle in predetermined relative angular positions of the plate cylinder and the air nozzle for each revolution of the guard member.

4. A moistening device according to claim 3, wherein the said plate cylinder includes a gap for fastening a plate to the cylinder, and wherein the said guard member is disposed adjacent the porous cylinder wall in a position intercepting the jet of air from the said nozzle and thereby interrupting the spray issuing from said porous cylinder and directed upon the plate cylinder when the said gap faces the nozzle.

5. A moistening device according to claim 1, in which the rotatable liquid retaining hollow cylinder and the rotatable guard member are rotated in different directions.

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