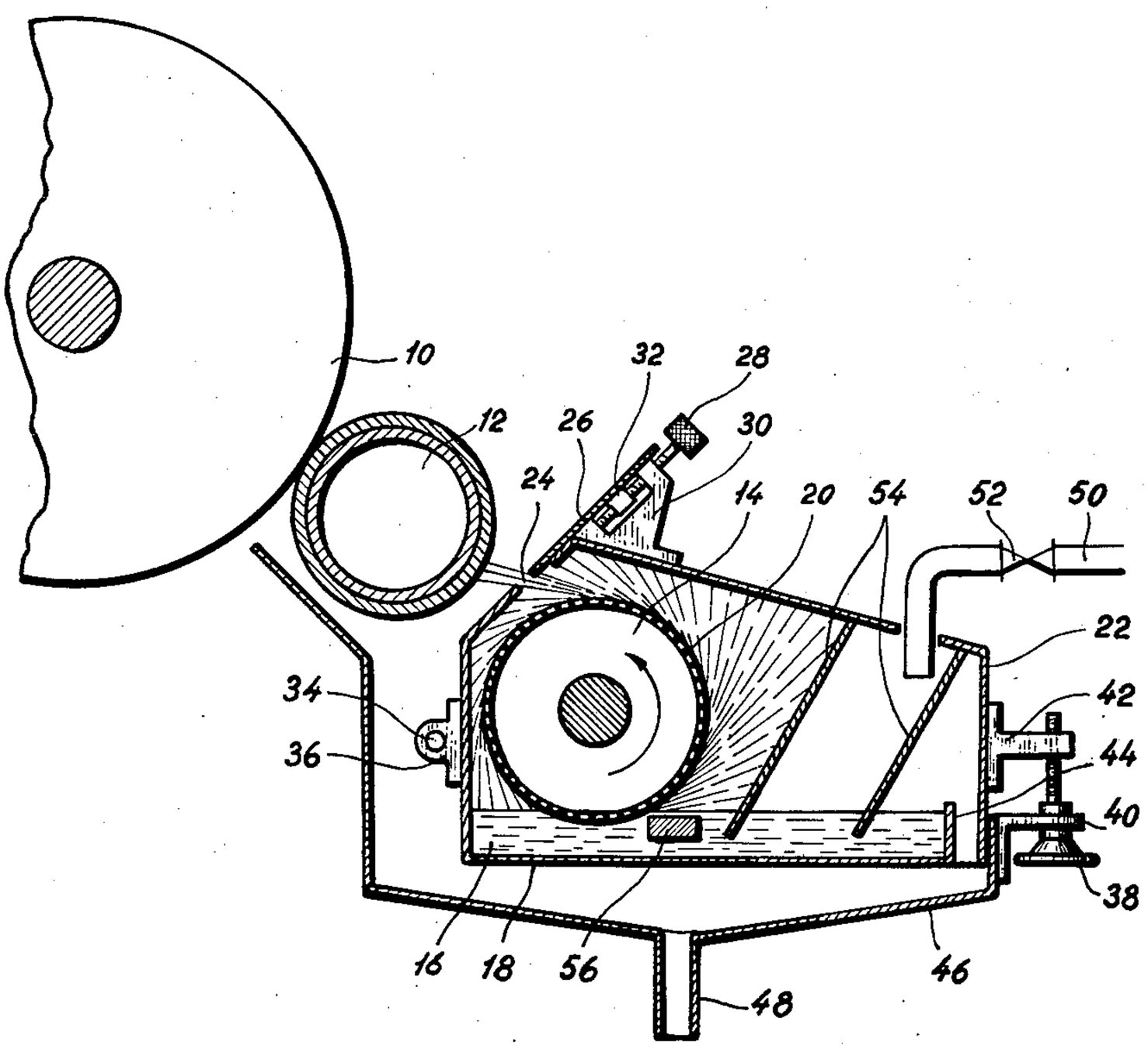
Aug. 8, 1961 M. MOSEGAARD 2,995,084

DAMPING DEVICE FOR OFFSET PRINTING MACHINES

Filed June 23, 1958



INVENTOR.
MARIUS MOSEGAARD
BY
Irvin S. Thompson
ATTY.

United States Patent Office

2,995,084

Patented Aug. 8, 1961

2,995,084

DAMPING DEVICE FOR OFFSET PRINTING MACHINES

Marius Mosegaard, Copenhagen, Denmark, assignor to Aller Press A/S, Copenhagen, Denmark, a Danish joint-stock company

Filed June 23, 1958, Ser. No. 743,556
Claims priority, application Denmark July 4, 1957
5 Claims. (Cl. 101—147)

This invention relates to a damping device for use in offset printing machines, and especially rotary printing machines, comprising a damping roller which transfers the damping liquid directly or indirectly to the plate cylinder.

It has been suggested in such damping devices to use a liquid supply roller, at the circumference of which are flexible pieces or scraps of e.g. rubber, which dip into liquid and carry along a film of it and transfer the liquid to the damping roller by the dragging of the pieces over that roller.

One object of the invention is to provide a device which gives a more regular supply of liquid to the damping roller in the course of operation throughout the length of the plate cylinder. Another object of the invention is to provide a device by means of which the amount of liquid applied to the damping roller can be controlled. Still another object is to provide a device which can be operated with minimum amounts of wetting liquid and without undesired squirting. Other objects and advantages of the damping device of the invention will appear from the following description.

According to the invention there is provided for the transfer of the liquid to the damping roller a cylindrical body which is partly submerged in a bath of the liquid and is arranged to be rotated at such a speed that it serves as a throwing roller and throws the liquid against the damping roller.

The throwing roller may be located in a box, having a longitudinal slot facing the damping roller. With this arrangement the quantity of liquid actually transferred to the damping roller is restricted to a suitable proportion of the total amount of liquid thrown by the roller, and this portion can be directed to a suitable zone on the damping roller, while the remainder of the liquid thrown by the throwing roller is retained by the box and returned to the bath.

The distribution of liquid along the axial length of the damping roller can be regulated by providing along the length of the slot a number of shutters which are individually adjustable.

Reference will now be made to the drawing which shows schematically a sectional view of one embodiment of a damping device according to the invention.

Referring to the drawing, 10 indicates the plate cylinder of a rotary offset lithographic printing machine to the plate on which cylinder a certain quantity of liquid, usually water, is transferred by a damping roller 12 which in known manner has a suitable coating touching the surface of the printing plate which is clamped round the plate cylinder as is usual in the case of offset printing.

For the transfer of the liquid to the roller 12 a throwing roller 14 is provided; this roller dips into a bath 16 of the wetting liquid contained in a vessel 18. In order to ensure adhesion of the liquid to the surface of the roller 14, a coating 20 of a perforated plate may be applied to the surface of the roller. The roller 14 is driven from the driving mechanism of the printing machine so as to rotate in a counterclockwise direction as seen in the drawing, this drive being effected preferably through a variable gear device, at such a speed that the liquid adhering to the roller is thrown out by centrifugal force, as is indicated in the drawing.

The vessel 18 constitutes part of the bottom of a box 22, which is shaped as shown and has at the side facing the damping roller 12 a narrow longitudinal slot 24, through which some part of the thrown liquid passes direct to the surface of the damping roller which in its rotation carries that liquid to the plate on the cylinder 10.

The width of the slot 24 can be adjusted by defining one of its edges by a shutter 26 which can be moved by one or more adjusting screws 28 which are held against axial movement in brackets 30 and have their screw threads engaging corresponding threaded holes in lugs 32 at the rear side of the damper 26.

It is preferable to provide a number of shutters spaced along the length of the slot 24, these shutters being closely adjacent to one another and being individually adjustable by means of appertaining adjusting screws.

The box 22 and the vessel 18 attached thereto can be swung on fixed pivots 34 journalled in bearing brackets 36 attached to the front of the box. Adjustment about the pivots is effected by an adjusting screw 38 which is mounted for rotation but not axial movement in a fixed bracket 40, the screwed part engaging corresponding threaded hole in a bracket 42 which is attached to the rear side of the box 22. The rear of the vessel 18 has an overflow edge 44, which is placed at some distance from the rear wall of the box, and which can be raised or lowered by the adjustment effected by the screw 38 so that the level of the liquid bath 16 can be regulated in relation to the throwing roller 14. Thus a means is provided to determine the quantity of liquid which is picked up and thrown by the roller 14 and consequently adjustment of the quantity of liquid supplied to the roller 12 is provided in addition to that provided by the shutter or shutters 26.

Below the box 22 is disposed a fixed tray 46 having an outlet 48, partly for the liquid which flows over the edge 44 and partly for such liquid as may otherwise be spilled from the apparatus. Wetting liquid is supplied to the box 22 through a pipe 50 having a valve 52, so that a surplus of liquid will always be present. The pipe 50 discharges the liquid between two inclined plates 54, which also prevent any foam formed by the rotation of the throwing roller 14 in the box 22 from reaching the overflow edge 44.

In the bath 16 in the vessel 18 there is placed a wooden lath 56 between the throwing roller 14 and the foremost plate 54 and slightly below the surface of the liquid; this lath serves to keep the surface of the liquid calm and thus to prevent irregularities in the quantity of liquid picked up and thrown by the roller 14 from the bath 16.

It is to be understood that the invention is not limited to the embodiment shown in the drawing, as obvious modifications will be apparent to one skilled in the art and the invention is therefore to be limited only by the scope of the appended claims.

Having thus fully described my invention I claim as new and desire to secure by Letters Patent:

1. A damping device for offset printing machines comprising a rotary mounted printing cylinder, a rotary mounted damping roller which transfers the wetting liquid to a printing plate on the printing cylinder, a chamber having front and rear walls and a longitudinal slot in the front wall facing the damping roller and an inlet at the top to admit the wetting liquid and an outlet in the bottom for discharging surplus liquid, a vessel containing the wetting liquid which is situated at the bottom of said chamber and having its rear side spaced from the rear wall of the chamber to provide access to said outlet in the bottom of the chamber, said rear side of the vessel form-

ing an overflow edge to define the amount of wetting liquid in the bath, a roller dipping into the liquid in the vessel, and means for rotating said roller at such speed that it throws the liquid from the bath tangentially out through the longitudinal slot in the chamber and directly against the damping roller, said chamber being further provided with two inclined plates extending from the roof of the chamber at each side of the inlet for wetting liquid and terminating beneath the surface of the bath of wetting liquid whereby any foam formed by the rotation of the roller is prevented from reaching the rear overflow edge of the vessel.

2. For offset printing machines in which a damping roller transfers wetting liquid to a printing plate on a printing cylinder, a damping device comprising a substantially closed chamber having front and rear walls, a longitudinal slot in the front wall facing the damping roller, an inlet at the top to admit the wetting liquid and an outlet at the rear part of the bottom for discharging surplus liquid, a vessel to provide a bath for the wetting liquid which is situated at the bottom of said chamber and having its rear side spaced from the rear wall of the chamber to provide access to said outlet in the bottom of the chamber, said rear side of the vessel forming an overflow edge to define the amount of liquid in the bath, a roller dipping into the liquid in the vessel, means for rotating this roller at such speed that it throws liquid from the bath tangentially out through the longitudinal slot in the chamber and directly against the damping roller which then transfers the liquid to the plate on the printing cylinder, and a tray placed beneath said chamber containing said outlet and adapted to collect any liquid spilled therefrom, said chamber being further provided with a number of shutters along the length of said longitudinal slot to control the amount of liquid thrown tangentially through the slot, said shutters being individually adjustable by means of adjusting screws mounted in fixed brackets on the chamber and having their screw threads engaging corresponding threaded holes in lugs fixed to the rear side of each of the shutters, at least one bracket on the front of the chamber enclosing a fixed horizontal pivot, and a bracket provided with a threaded hole on the rear side of the chamber, which threaded hole receives an adjusting screw mounted in a fixed bracket on said tray so that the chamber and the vessel attached thereto can be tilted about said fixed horizontal pivot, whereby the height of said overflow edge of the vessel and thus the level of the bath can be regulated, two inclined plates extending from the roof of the chamber at each side of the inlet for wetting liquid and terminating beneath the surface of the bath of wetting liquid to prevent any foam formed by the rotation of the roller from reaching the rear overflow edge of the vessel, and a lath placed slightly below the surface of the liquid in the bath between the roller and the foremost of said inclined plates so as to keep the surface of the liquid calm and thus to prevent irregularities in the quantity of liquid picked up by the roller from the bath.

3. A damping device for offset printing machines comprising a rotary mounted printing cylinder, a rotary mounted damping roller which transfers wetting liquid to a printing plate on the printing cylinder by contact therewith, a circular cylinder body mounted for rotation and parallel to the damping roller and being partially submerged in a bath of the wetting liquid, said cylinder body being coated circumferentially by a sheet having a plurality of perforations, a vessel containing said bath of wetting liquid, a chamber enclosing said cylinder body and said vessel and having a longitudinal slot facing the damping roller, and means for rotating said cylinder body at such speed that it throws liquid from the bath adhering to the circumferential surface thereof out through said longitudinal slot in the chamber directly against the surface of the damping roller which then transfers the liquid to the plate on the printing cylinder.

4. A damping device for offset printing machines comprising a rotary mounted printing cylinder, a rotary mounted damping roller which transfers wetting liquid to a printing plate on the printing cylinder by contact therewith, an elongated chamber having front and rear walls and a longitudinal slot in the front wall facing the damping roller, a vessel containing the wetting liquid situated near the bottom of said chamber and having its rear side spaced from the rear wall of the chamber to provide an outlet for the wetting liquid in the bottom thereof and forming an overflow edge to control the level of wetting liquid in the bath, a roller having a cylindrical surface dipping into the liquid in the vessel, said chamber on its front portion having at least one bracket enclosing a fixed horizontal pivot and on its rear side having a bracket with a threaded hole which receives an adjusting screw having a portion mounted in a fixed bracket, so that by means of this adjusting screw the rear part of the chamber and the vessel attached thereto can be raised or lowered to regulate the level of liquid in relation to the roller surface dipping into the liquid, and means for rotating the roller at such speed that it throws the liquid from the bath tangentially out through the longitudinal slot in the chamber and directly against the surface of the damping roller.

5. A damping device for offset printing machines comprising a rotary mounted printing cylinder, a rotary mounted damping roller which transfers wetting liquid to a printing plate on the printing cylinder by contact therewith, a circular cylinder body mounted for rotation and parallel to the damping roller and being partially submerged in a bath of the wetting liquid, said cylinder body having a discontinuous surface to enhance the amount of liquid picked up thereby, a vessel containing said bath of wetting liquid, a chamber enclosing said cylinder body and said vessel and having a longitudinal slot facing the damping roller, and means for rotating said cylinder body at such speed that it throws liquid from the bath adhering to the circumferential surface thereof out through said longitudinal slot in the chamber directly against the surface of the damping roller which then transfers the liquid to the plate on the printing cylinder.

References Cited in the file of this patent

UNITED STATES PATENTS

385,054	Schlesinger	Nov. 12, 1923
2,178,583	Grembecki	Nov. 7, 1939
2,753,795	Bruns	July 10, 1956
2,853,004	Sanker	Sept. 23, 1958
2,868,118	Dahlgren	Jan. 13, 1959