July 22, 1947. F. R. FORD 2,424,534

MOISTENING DEVICE FOR DUPLICATING MACHINES

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FIG. 1.

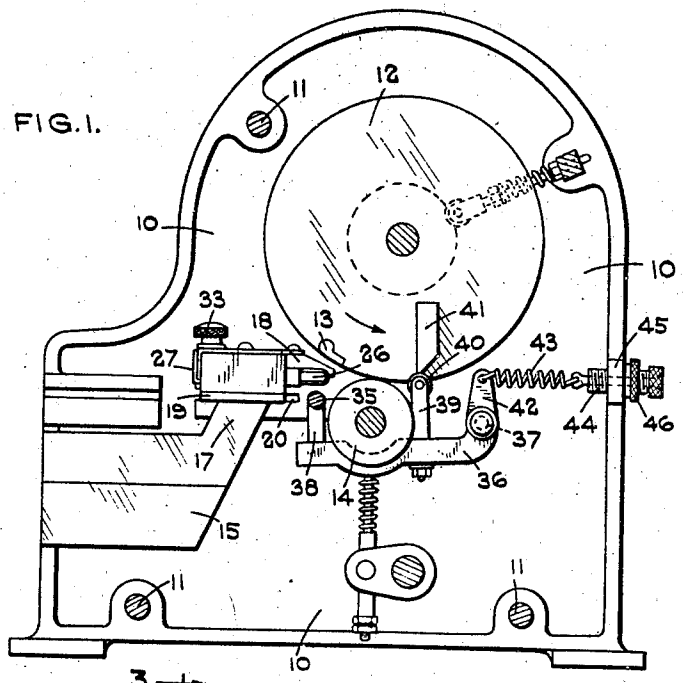
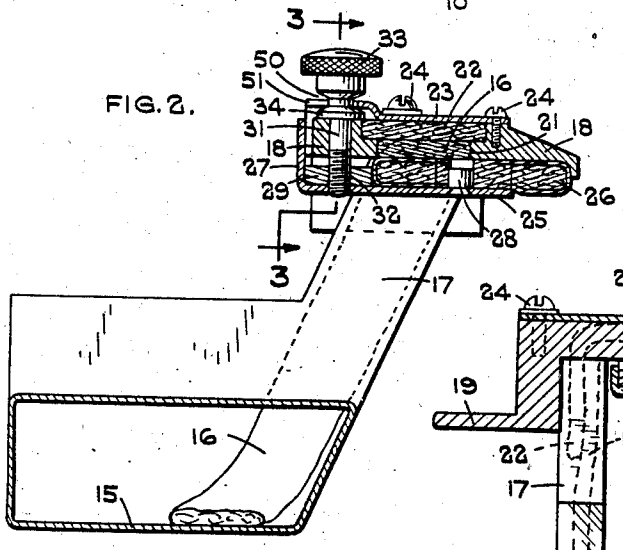


FIG. 2.



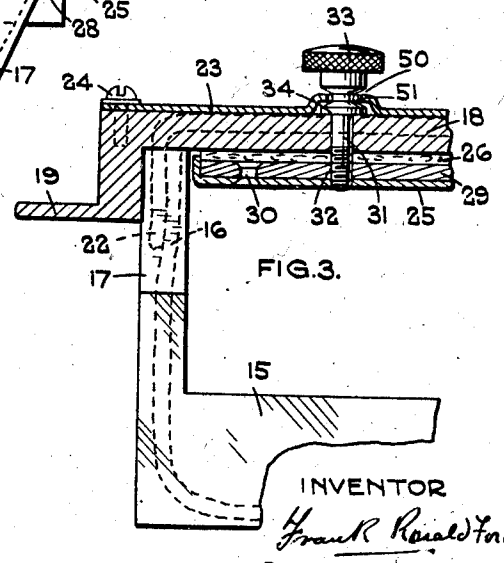


FIG. 3.

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MOISTENING DEVICE FOR DUPLICATING MACHINES

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5 Claims. (Cl. 91—38)

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This invention relates to duplicating machines, and refers more particularly to machines of the type in which a copy sheet and a master sheet bearing in reverse script the matter to be reproduced are passed in pressure contact between a cylinder which carries the master sheet and a pressure roller, the said copy sheet being acted upon by a moistening device before being brought into contact with the master sheet.

The present invention is applicable to such machines generally, whilst being particularly applicable to machines in which the pressure roller is mounted below the cylinder and in which copy sheets fed into the machine over a feed table are pressed up into contact with a moistening pad by a bar mounted on a pair of levers, this bar being moved away from the moistening pad once in each revolution of the cylinder through the agency of cams on the latter which act on the levers, or by similar means.

The object of the present invention is to provide an improved construction of moistening device.

According to one feature of the present invention, the moistening device includes a rigid plate carrying a feed wick and a readily detachable plate on which a moistening pad is mounted so that one marginal portion of the pad projects beyond the edge of the plate and is thus exposed, screw or equivalent means for drawing the two plates towards each other being provided at a position remote from the exposed portion of the pad and acting at right angles to the planes of the plates.

The screw or equivalent means aforesaid enable the moistening pad to be brought into resilient contact with the feed wick, light pressure between the pad and wick being established by bringing the two plates into contact with, or closely adjacent, one another.

The plate which carries the wick is of rigid construction, but the carrier plate for the moistening pad may be much thinner and may be slightly resilient.

According to a further feature of the present invention, the copy sheets are pressed into contact with a moistening pad by means of a bar or members carried by a pair of bell-crank levers which are pivoted to the frame of the machine, the main arm of each lever carrying an upwardly projecting bracket with a roller adapted for engagement by a cam on the cylinder and also carrying an upwardly projecting bracket to which one end of the damping bar or member is fixed and the second arm of each lever extending

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transversely of the main arm and being adjustably loaded by a light tension spring connected thereto and to an adjustable screw in the machine frame, means are preferably provided for locking this screw in any adjusted position.

In order that my invention may be clearly understood and more readily carried into practice, I have appended hereunto drawings illustrating the same, wherein:

Figure 1 is a sectional side elevation of a duplicating machine embodying the present invention.

Figure 2 is a part sectional side elevation, to an enlarged scale of the moistener shown in Figure 1, and

Figure 3 is a section on the line 3—3 of Figure 2.

In the construction illustrated in Figure 1, the machine comprises spaced side members 10 secured together by tie-rods 11 and having mounted between them a transversely disposed impression cylinder 12 which is provided with a clip 13 for engagement with the leading edge of a master sheet bearing in reversed or mirror script the matter to be reproduced.

Beneath the cylinder 12 and parallel thereto is a pressure roller 14 by means of which copy sheets from a feed table (not shown) are brought into pressure contact with a master sheet on the cylinder 12 whilst passing through the machine.

Before reaching the nip between the roller 14 and cylinder 12 the copy sheets pass beneath a moistener which forms the subject of the present invention.

The moistener, shown in detail in Figures 2 and 3 of the drawings, may be of the general kind described in my prior specification No. 550,664. A tank or container 15 being provided for the moistening liquid and a feed wick or wicks 16 conveying such liquid through upwardly directed tubular extensions 17 of the tank 15 to a longitudinal recess formed in a rigid plate 18 which is disposed transversely of the machine. The upper ends of the extensions 17 are secured to the plate 18. The latter being provided at its ends with flanges 19 which slide into channels 20 in the inner faces of the frame members 10 and serve to support the moistener as a whole.

The recess in the plate 18 may take the form of a slot 21 which accommodates the main feed wick or wicks 16 and an auxiliary wick 22, the upper surface of the latter being covered by a plate 23 secured by screws 24.

Beneath the rigid plate 18 is arranged a carrier plate 25 for a moistening pad 26. This carrier plate 25 is of L shape in transverse section,

the main portion of the plate being disposed horizontally and a marginal portion 27 thereof extending vertically in front of the rigid plate 18. The horizontal portion of the carrier plate 25 is provided with pegs 28 which position the moistening pad 26 thereon, and the rearward marginal portion of the latter projects beyond the edge of the plate 25. The rigid plate 18 is of greater width than the carrier plate 25 so that it covers the whole width of the pad 26 including the projecting portion of the latter.

The horizontal portion of the carrier plate 25 may have a recess which receives the pad 26 and whose depth is such that when the plates 18, 25 are brought into contact, or closely adjacent one another, a light pressure is established between the pad 26 and the feed wick or wicks 16 carried by the plate 18. Preferably, however, the carrier plate 25 is formed from sheet metal, which may be somewhat resilient, and a distance piece in the form of a rib 29 is riveted, as at 30, longitudinally of the plate 25, between the upturned portion 27 and the adjacent edge of the pad 26, this rib 29 being slightly less thick than the pad 26.

For drawing the plates 18, 25 together, screws 31 disposed adjacent the front of the moistener (i. e. at a position remote from the exposed portion of the pad 26) and acting at right angles to the plane of the plates 18, 25 are provided, such screws conveniently engaging tapped holes 32 in the rib 29 and/or the plate 25 and having milled heads 33 with shoulders 34 to engage the plate 18 through which they pass.

The screws 31 are each provided with a groove 50 above the flange 34 and the groove 50 is engaged by the sides of a slot 51 in the cover plate 23. By this arrangement when the screws are released from the rib 29 and carrier plate 25, they are retained in position on the machine, so that they cannot be lost.

The moistening device forming the subject of the present invention also includes means adapted to press the copy sheets against the underside of the exposed portion of the moistening pad 26, such means comprising a presser bar 35 or other member (for example, a roller) which are carried by a pair of levers 36 pivoted at 37 to the side frames 10 of the machine.

These levers 36 are formed as bell-cranks, the main arm of each lever carrying two upwardly projecting brackets 38, 39. The brackets 38 are disposed adjacent the free ends of the lever arms and carry the ends of the presser member 35, whilst the brackets 39 are disposed nearer the pivots 37 and carry rollers 40 which co-operate with cams 41 on the ends of the cylinder 12.

The second arm 42 of each lever is shorter than the main arm and extends substantially at right angles thereto, the free ends of these arms 42 being connected by light tension springs 43 to an adjustable screw 44 mounted in a brakcet 45 on the adjacent side frame 10 of the machine. A lock nut 46 on the screw 44 enables the latter to be locked in any adjusted position.

In this way provision is made for adjustably loading the two levers 36 carrying the damping members 35 which presses the copy sheets against the moistening pad 26, and the loading means applied to the two levers are individually adjustable.

Once during each revolution of the cylinder 12 in the direction of the arrow shown, the cams 41 engage the rollers 40 so as to move the presser member 35 away from the pad 26 and thus permit the leading edge of a fresh copy sheet to enter the nip between the cylinder 12 and pressure roller 14.

What I claim then is:

1. A copy sheet moistening device comprising a reservoir for liquid, an elongated rigid plate, an elongated wick carried by said plate and extending with at least one end thereof into said reservoir, an absorbent pad adapted to receive liquid from said wick, a readily detachable carrier plate having a pad supporting portion disposed substantially parallel to said wick carrying plate, said pad being seated on said pad-supporting portion of the carrier plate with one marginal portion of the pad projecting beyond the edge of said carrier plate, and means for drawing said plates towards each other, to bring said pad into resilient pressure contact with said wick, said means being situated at a position remote from said marginal portion of said pad and acting at right angles to the plane of said plates.

2. A copy sheet moistening device comprising a reservoir for liquid, an elongated rigid plate, an elongated wick carried by said plate and extending with at least one end thereof into said reservoir, an absorbent pad adapted to receive liquid from said wick, a readily detachable carrier plate having a pad supporting portion disposed substantially parallel to said wick carrying plate, said pad being seated on said pad-supporting portion of the carrier plate with one marginal portion of the pad projecting beyond the edge of said carrier plate, screw-threaded means connecting said carrier plate to said rigid plate in a readily detachable manner and operable to bring said pad into resilient pressure contact with said wick, said means being situated at a position remote from said marginal portion of said pad and acting at right angles to the plane of said plates.

3. A copy sheet moistening device comprising a reservoir for liquid, an elongated rigid plate, an elongated wick carried in a downwardly open recess of said plate and extending with at least one end thereof into said reservoir, an absorbent pad adapted to receive liquid from said wick, a carrier plate having a pad supporting portion disposed below and substantially parallel to said rigid plate and readily detachable therefrom, said pad being seated on said pad-supporting portion of the carrier plate with one marginal portion of the pad projecting beyond the edge of said carrier plate, and means connecting said carrier plate to said rigid plate and operable to bring said pad into resilient pressure contact with said wick, said means being situated at a position remote from said marginal portion of said pad and acting at right angles to the plane of said plates.

4. A copy sheet moistening device comprising a reservoir for liquid, an elongated rigid plate, an elongated wick carried in a downwardly open recess of said plate and extending with at least one end thereof into said reservoir, an absorbent pad adapted to receive liquid from said wick, a carrier plate having a pad supporting portion disposed below and substantially parallel to said rigid plate and readily detachable therefrom, said pad being seated on said pad-supporting portion of the carrier plate and having its upper surface wholly covered by said rigid plate with a marginal portion of its under surface being exposed by said carrier plate, and means connecting said carrier plate to said rigid plate and

operable to bring said pad into resilient pressure contact with said wick, said means being situated at a position remote from said marginal portion of said pad and acting at right angles to the plane of said plates.

5. A copy sheet moistening device comprising a reservoir for liquid, an elongated rigid plate, an elongated wick carried in a downwardly open recess of said plate and extending with at least one end thereof into said reservoir, an absorbent pad adapted to receive liquid from said wick, a carrier plate having a pad supporting portion disposed below and substantially parallel to said rigid plate and readily detachable therefrom, said pad being seated on said pad-supporting portion of the carrier plate with one marginal portion of the pad projecting beyond the edge of said carrier plate, the upper surface of said carrier plate bearing a longitudinal rib of somewhat less height than the thickness of said pad, and screws carried by said rigid plate and engaging tapped holes in said rib, said screws being situated at a position remote from said marginal portion of said pad and operable to draw said plates together in a direction at right angles to the planes thereof so as to bring said pad into resilient pressure contact with said wick.

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