W. CHIPPERFIELD.

INKING DEVICE FOR DUPLICATING MACHINES.

APPLICATION FILED AUG. 14, 1920.

1,387,764.

Patented Aug. 16, 1921.

2 SHEETS—SHEET 1.

Fig. 1.

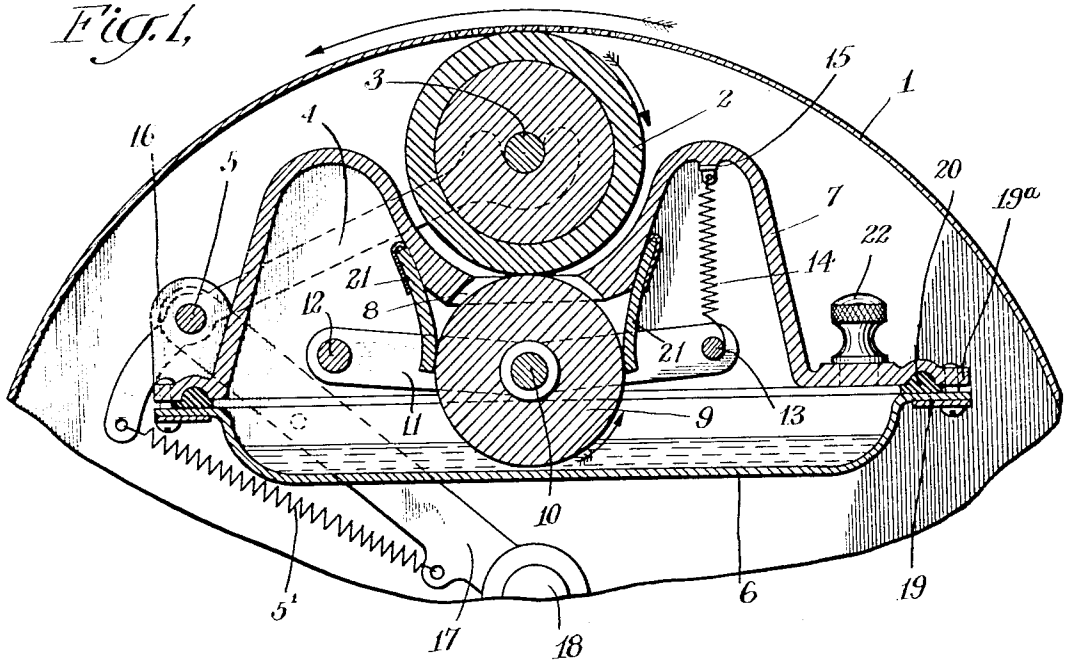
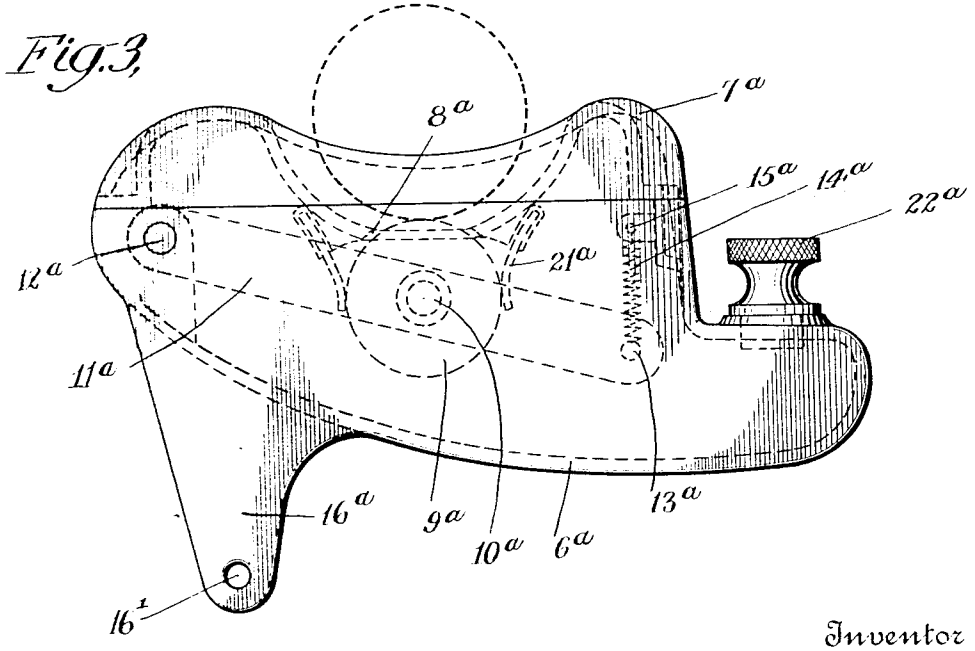


Fig. 3.



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2 SHEETS—SHEET 2.

Fig. 2,

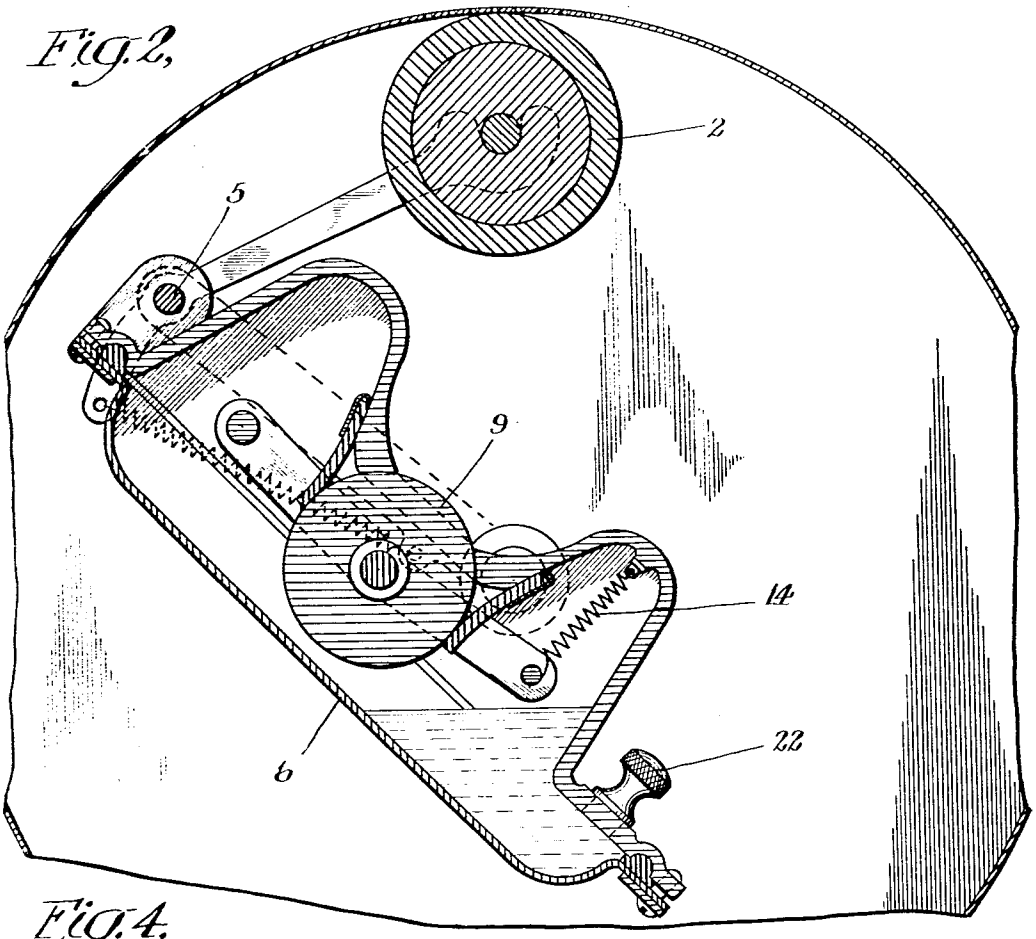
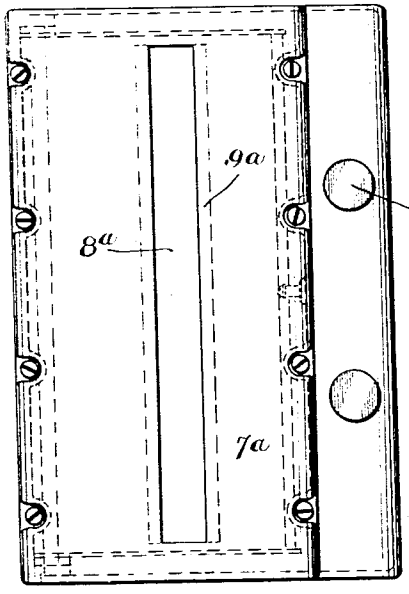


Fig. 4,



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UNITED STATES PATENT OFFICE.

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INKING DEVICE FOR DUPLICATING-MACHINES.

1,387,764. Specification of Letters Patent. Patented Aug. 16, 1921.

Application filed August 14, 1920. Serial No. 403,446.

To all whom it may concern:

Be it known that I, WALTER CHIPPERFIELD, a subject of the King of Great Britain, residing at Kinkora, Great Nelmes, Hornchurch, Essex, England, have invented certain new and useful Improvements in Inking Devices for Duplicating-Machines, of which the following is a specification.

My invention relates to improvements in the construction of inking devices for use with rotary duplicating machines. Means for inking the cylinder, upon which is attached the stencil sheet, have hitherto been constructed in which an open metal tray resting upon a platform was employed, the tray containing an inking roller and suitable scrapers placed on either side of the roller to remove superfluous ink. In such constructions the platform is spring controlled, so that the inking roller may cause the ink to be distributed over the surface of the cylinder, and then removed into an inoperative position until it is again required to apply ink to the cylinder. With such an inking device, if the tray receives too much ink, the jerk occasioned by bringing the tray and ink roller therein up to operative position sometimes causes the ink to splash out of the tray, and spilling of the ink is also likely to be caused when the machine is moved from one position to another. With an open tray there is likewise the disadvantage that dirt is likely to collect therein.

In accordance with my present invention, the ink tray or container and parts operable therewith are so constructed that the ink cannot be upset or spilled regardless of whether the container is in the operative or inoperative position. I obtain this result preferably by constructing the ink container in two parts which are secured together, one of these parts consisting of a cover member having a slot therein. The inking roller is carried within the container and so mounted that a portion of its circumference extends through the slot and makes contact with the periphery of an ink distributing roller when the container is brought into its operative position. When the ink container is moved into its inoperative position, in which the inking roller moves out of engagement with the ink distributing roller, spring means are enabled to press the inking roller firmly into engagement with suitably shaped edges of the slot in the cover member, so as to seal the container and prevent escape of ink therefrom as well as preventing the entrance of dirt or dust into the container.

In order that a clearer understanding of my invention may be had, attention is hereby directed to the accompanying drawings forming part of this application and illustrating certain embodiments of my invention. In the drawings Figure 1 represents a partial vertical section through the drum of a rotary duplicating machine with one form of my improved inking device mounted therein in operative position; Fig. 2 is a similar view with the inking device in inoperative position; Fig. 3 represents a side elevation of a modified form of inking device; and Fig. 4 represents a top plan view of the form of inking device shown in Fig. 3.

Referring to the drawings, the reference character 1 represents a portion of the perforated surface of the printing cylinder of a rotary duplicating machine, to which is usually applied a pad whereon a stencil is stretched and secured. The ink distributing roller 2 is mounted on a spindle 3 which may be carried in bearings formed in the arms 4. These arms are shown as pivoted on a shaft 5, and spring means are employed for maintaining the roller 2 in contact with the surface of cylinder 1.

The inking device is shown as constructed in two parts, the lower part 6 being preferably dish shaped while the upper part or cover 7 preferably has the form of something like the letter M. The cover has a slot 8 which should be of a length substantially equal to that of the inking roller 9. The latter is carried on a spindle 10 supported by arms 11 secured on spindle 12 mounted in the cover 7. A pin 13 extends through the free ends of arms 11, spring 14 being secured at one end to pin 13 and at the other end to a stud 15 attached to cover 7.

Cover 7 is provided with lugs 16 through which an opening extends, so that the container may be pivotally connected thereby to shaft 5. The latter may be supported by arms 17 secured on the fixed printing cylinder shaft 18. Springs 5′ may be secured to the tails of arms 4 and to arms 17 to hold the distributing roller 2 in contact with the surface of cylinder 1, or springs may be otherwise mounted to hold roller 2 in contact with cylinder 1.

Portions 6 and 7 of the container have

flanges 19, 19ª, and between these flanges may be inserted a packing of rubber or other suitable substance 20. Suitable scrapers 21 are secured to the cover 7, and suitable openings are provided in flange 19ª to receive plugs or stoppers 22, these openings serving as filling openings for the container.

Figs. 3 and 4 show a modified form of container. In this example it will be observed that the lower portion 6ª has a lug 16ª formed thereon and extending below the same, through which extends an opening 16′ through which a shaft similar to the shaft 5 illustrated in Figs. 1 and 2 may be extended for pivoting the container. The upper portion or cover 7ª is provided with the slot 8ª, the cover being secured to the lower portion of the container, preferably by screws, as in the form of device previously described.

The portion 6ª of the container carries a spindle 12ª on which are pivoted arms 11ª carrying the inking roller 9ª on spindle 10ª. Stud 15ª is secured to a lug on the interior surface of member 6ª, and has secured thereto one end of spring 14ª, the other end of the spring being secured to pin 13ª which is carried by the free ends of arms 11ª. Suitable ink filling means are provided by the openings which are normally closed by plugs 22ª on a flange of member 6ª of the container. The cover member 7ª has secured thereto the scrapers 21ª, the ends of which contact with the periphery of the inking roller 9ª on each side of the latter to remove superfluous ink therefrom.

The arrangement is such that when the container in either form illustrated is brought into its operative position, it is in a more or less horizontal plane, as shown in Figs. 1 and 3, the container pivoting upon spindle 5 in the first form of device described and upon a suitably positioned spindle, similar to the spindle 5 in the second form of device described. When so positioned the inking roller 9 or 9ª is brought into contact with the ink distributing roller 2, which latter is in engagement with drum 1. This engagement depresses the inking roller somewhat, thereby tensioning the spring 14 or 14ª, the inking roller swinging clear of the edges of the slot 8 or 8ª, which edges are preferably formed with concave surfaces having the same curvature as the periphery of the inking roller. The inking roller is rotated by its engagement with the distributing roller 2 which in turn is rotated by engagement with cylinder 1. The rotation of the ink roller carries ink from the supply thereof carried by member 6 or 6ª to the distributing roller 2 from which the ink is distributed over the printed surface 1.

When sufficient ink has been supplied to the printing cylinder, the ink container is moved downwardly into its inoperative position shown in Fig. 2, in which it assumes an angle which may be one of approximately 45°. Any usual means may be provided for holding the ink container in its operative and inoperative positions, and accordingly I have not illustrated the same.

When the container and inking roller move downwardly, contact of the inking roller with the distributing roller is broken, and the spring 14 or 14ª pulls arms 11 or 11ª upwardly so as to cause the inking roller to rise to bring its periphery into engagement with the edges of the slot 8 or 8ª, whereby the opening in the container is sealed. When the container is in its inoperative position, the ink therein flows into the right hand end of the container, referring to Fig. 2, so that the inking roller is then out of engagement with the ink.

Any suitable means may be utilized for raising and lowering the container and for holding the same in either position for required periods. It should be understood that my invention is not limited to the details of construction described, but is as broad as is indicated by the accompanying claims.

What I claim is:—

1. In a rotary duplicating machine, the combination of an ink container having a slot therethrough, an ink roller within said container and adapted to extend partly through said slot, and spring means mounted to press said roller toward said slot, said roller being adapted to close said slot when pressed into contact with the edges thereof.

2. In a rotary duplicating machine, the combination of an ink container normally closed except for a slot extending through a surface thereof, an ink roller mounted for rotation in said container and adapted to extend partly through said slot, and spring means to press said roller toward said slot, said roller being adapted to close said slot when pressed into contact with the edges thereof, and said container being adapted to be pivotally mounted.

3. In a rotary duplicating machine, the combination of an ink container having bottom and cover portions secured together, said cover portion having a slot therethrough, arms pivoted within said container, an ink roller rotatably mounted between said arms, and adapted to extend partly through said slot, and spring means acting on said arms to press said roller toward said slot, said roller being adapted to close said slot when pressed into contact with the edges thereof.

4. In a rotary duplicating machine, the combination of a rotary drum, a stationary support therein, an ink distributing roller supported thereon to frictionally engage the inner surface of said drum, an ink container

mounted on said support for movement into and out of operative positions, said container having a slot therethrough, an inking roller in said container, adapted to extend partly through said slot, and spring means tending to press said roller toward said slot, said roller being adapted to close said slot when pressed into contact with the edges thereof, and said container being so positioned as to cause engagement between said distributing and inking rollers when said container is moved into operative position.

5. In a rotary duplicating machine, the combination of a rotary drum, a stationary support therein, an ink distributing roller supported thereon to frictionally engage the inner surface of said drum, an ink container pivotally mounted on said support, said container having a base and a cover having a slot therethrough, an inking roller in said container, adapted to extend partly through said slot, and spring means tending to press said roller toward said slot, said roller being adapted to close said slot when pressed into contact with the edges thereof, said container being movable into an operative position in which said distributing roller engages said inking roller to press the same inwardly of the container, to a slight extent, and to an inoperative position away from said distributing roller.

6. In a rotary duplicating machine, the combination of an ink container having bottom and cover portions secured together, said cover portion having an approximately M shape with a slot extending through the depressed central portion thereof, a pivoted arm in said container, an ink roller carried thereby, and adapted to extend partly through said slot, and spring means acting on said arm to press said roller toward said slot, said roller being adapted to close said slot when pressed into contact with the edges thereof, said container having means adjacent one edge whereby the same may be pivotally mounted.

This specification signed and witnessed this 28th day of July, 1920.

WALTER CHIPPERFIELD.