

Aug. 15, 1939.

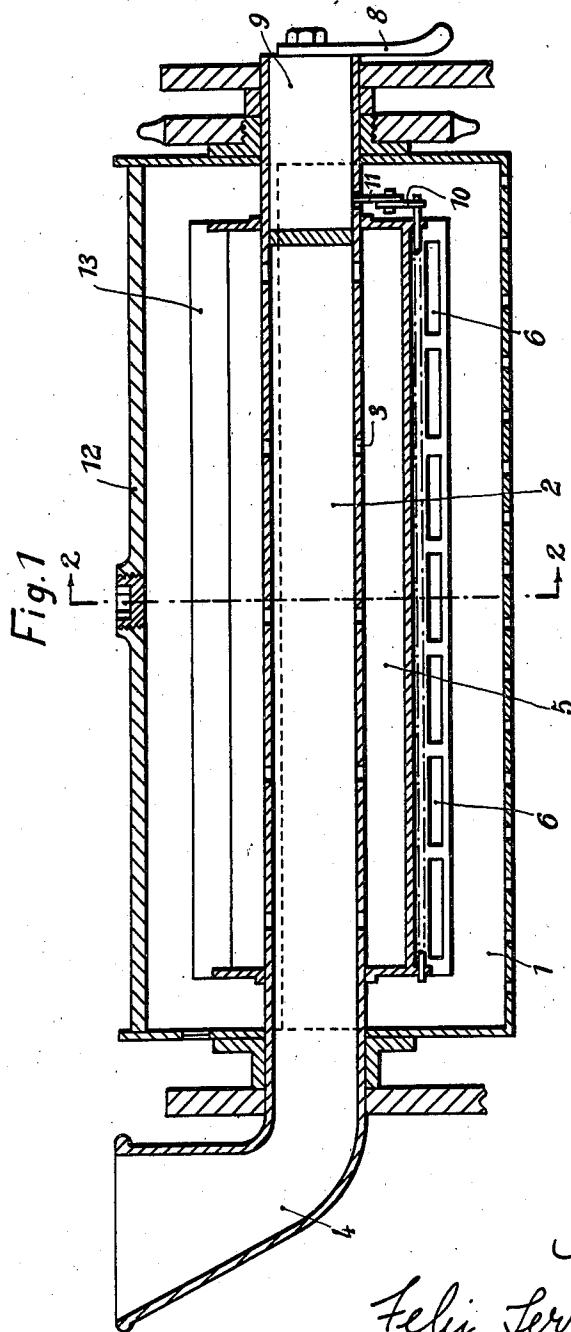
F. TERRIER ET AL

2,169,933

DUPLICATING MACHINE

Filed Oct. 18, 1937

3 Sheets-Sheet 1



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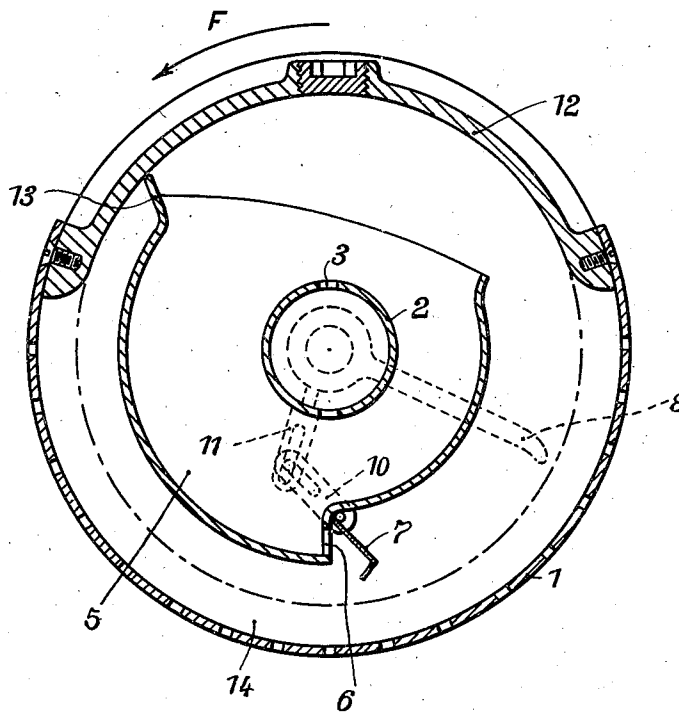
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DUPLICATING MACHINE

3 Sheets-Sheet 2

Fig.2



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3 Sheets-Sheet 3

Fig. 3

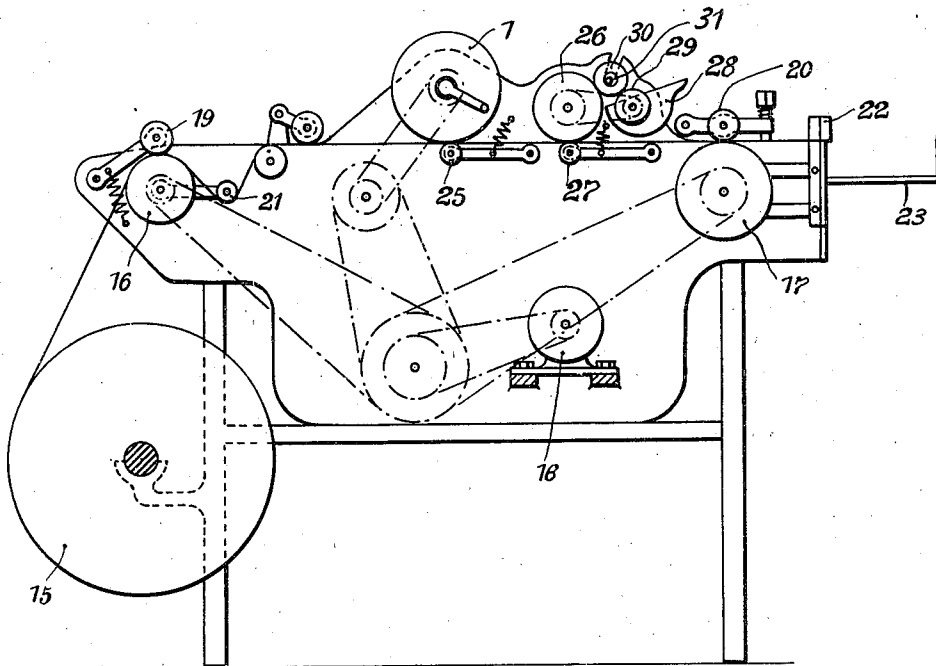
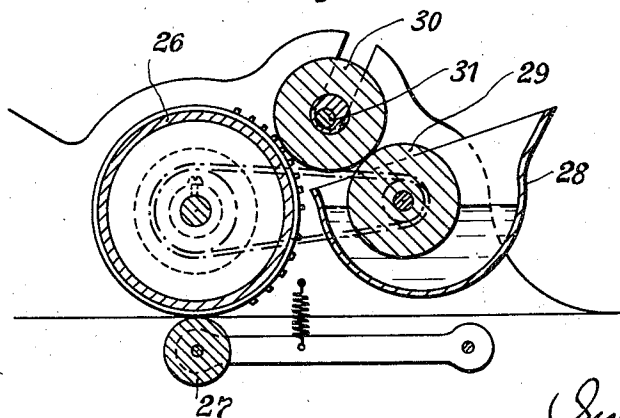


Fig. 4



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UNITED STATES PATENT OFFICE

2,169,933

DUPLICATING MACHINE

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Application October 18, 1937, Serial No. 169,725
In France March 22, 1937

2 Claims. (Cl. 101—116)

This invention has for its object to provide certain improvements in the duplicating machines, and particularly in the inking device of such machines so-called "with inner inking" and using paper rolls.

Another object of the invention is to add to the known duplicating machines a block holder together with an ink-trough, thus allowing the printing of both the text (stencil) and heading in only one operation.

The inner inking device is characterised by the fact that the half-thick ink, which is plentifully supplied in the block holding cylinder, is recovered and automatically distributed during the first revolution of the stencil holding cylinder.

This recovery leaves an ink coat remaining on the inner periphery of the cylinder.

The addition of the block holding cylinder together with an ink-trough brings out the following advantages:

1. A quicker completion of the work, since a single operation is required instead of two as in the present machines, and the possibility of using simultaneously inks of different colours.

2. The printing of both the text and heading at a time makes impossible any disadjustment, and the centering is quite right.

In the drawings:

Fig. 1 shows the inner inking device in longitudinal section.

Fig. 2 is an enlarged transversal section on the line 2—2 of Fig. 1.

Fig. 3 shows in elevation a duplicating machine equipped according to the invention.

Fig. 4 shows at a larger scale and in section the device for printing the heading of each paper sheet.

According to the invention, Figs. 1 and 2, 1 is the block holding cylinder revolving on a tube 2 provided with ports 3. The said tube has an end gullet 4 in which is poured the half-thick ink, for feeding the apparatus.

The ink is distributed by the ports 3 and falls down into a fixed trough 5 having at its lower part holes 6 obturated by a shutter 7 controlled by an outer lever 8 by means of an axle 9 and connecting rods 10, 11.

The block holding cylinder 1 has on a portion of its periphery an imperforate detachable part 12, the inner radius of which is less than of the cylinder 1.

The trough 5 is provided at its top with an extension or scraper 13, the end of which is made flush with the periphery of the part 12.

The fixed inking system or trough 5, being

filled with half-thick ink, the lever 8 is depressed, thus opening the shutter 7 and allowing the ink to fall down and flow within the cylinder 1. It is not possible to regulate the amount of ink flowing through the openings 3 to the exact amount required for the correct operation of the duplicating machine merely by operating the shutter 7, so an excess quantity is permitted to pass into the block-holding cylinder, and therefore it becomes necessary to recover the excess ink. This is done automatically by the action of the scraper 13 on the inner surface of part 12 as the cylinder is rotated in the direction of the arrow F in Fig. 2, the excess ink falling back into trough 5.

Fig. 2 shows (see dot and dash line) that the ink will remain only into a thick coat 14, in the shape of an uniform cushion over the whole free periphery of the cylinder 1.

The device allowing the printing of the letter headings simultaneously with the printing of the text (stencil) is represented in Figs. 3 and 4.

We shall now refer briefly to the construction of a duplicating machine for use of paper in rolls.

15 is the roll of paper to be continuously printed and driven by two driving cylinders 16 and 17 themselves driven by an electromotor 18. Above the cylinders 16 and 17 are arranged the pressers 19 and 20. 21 is a compensatory roller keeping up the tension of the paper. 22 is the knife, and 23 the classing receiver of the sheets. 1 is the block holding drum with its presser 25.

The paper in roll being put in the suitable position runs over the cylinder 16 and under the compensator 21, then between the stencil holding drum 12 and its presser 25, and at last between the cylinder 17 and its presser 20, to be stopped under the knife.

The motor being in rotation, the paper is driven by the cylinders 16 and 17 and their relative pressers, and then unwound in a continuous manner so as to be printed at the tangential point of the stencil holding drum with its presser 25. According to the advance, each printed sheet is cut off by the knife and falls down into the receiver 23.

In the said device, 26 is a block holding drum, preferably made of rubber and driven by the motor 18. Under this drum 26 is acting a pressure roller 27. An ink-trough 28 is arranged near the block holding drum 26. An inking cylinder 29 revolves in the said trough and is driven by means of a chain from the block holding drum 26 in order to run with the same rate of speed.

30 is the usual crushing roller loosely mounted on an eccentric 31 so as to become coated with ink against the cylinder 29 and to extend same on the types of the block holding cylinder 26.

5 It will be understood that the paper strip printed at its passage under the cylinder 12 runs then under the drum 26 printing the heading, and is at last cut off by the knife 22.

10 Having now described this invention and in which manner same is to be performed, what we claim is:

1. In a duplicating machine of the character described, a rotating block-holding cylinder having a segment portion of its peripheral wall perforated and the remainder imperforated, a stationary ink receiver in said cylinder, means to deliver ink from said receiver to the inner wall of said cylinder, and means to maintain during rotation a layer of ink of predetermined thickness over the inner surface of the perforated segment, said last named means comprising the construction of the inner wall of said imperforate segment of a radius as much less than that of

the perforated segment as the desired thickness of ink to be maintained and the provision of a scraper to engage said inner wall of the imperforate segment and return the ink scraped therefrom to the receiver.

2. In a duplicating machine of the character described, a rotating block-holding cylinder having a segment portion of its peripheral wall perforated and the remainder imperforated, a stationary ink receiver in said cylinder, and means to deliver ink from said receiver to the inner wall of said cylinder, said perforated segment having its inner wall surface concentric with that of said imperforate segment but of a radius of curvature greater than that of said imperforate segment by an amount equal to the desired thickness of the ink layer, said receiver having a fixed scraper to engage the inner surface of said imperforate segment as the cylinder is turned to scrape off excess ink and return it to said receiver.

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