No. 753,469. PATENTED MAR. 1, 1904.

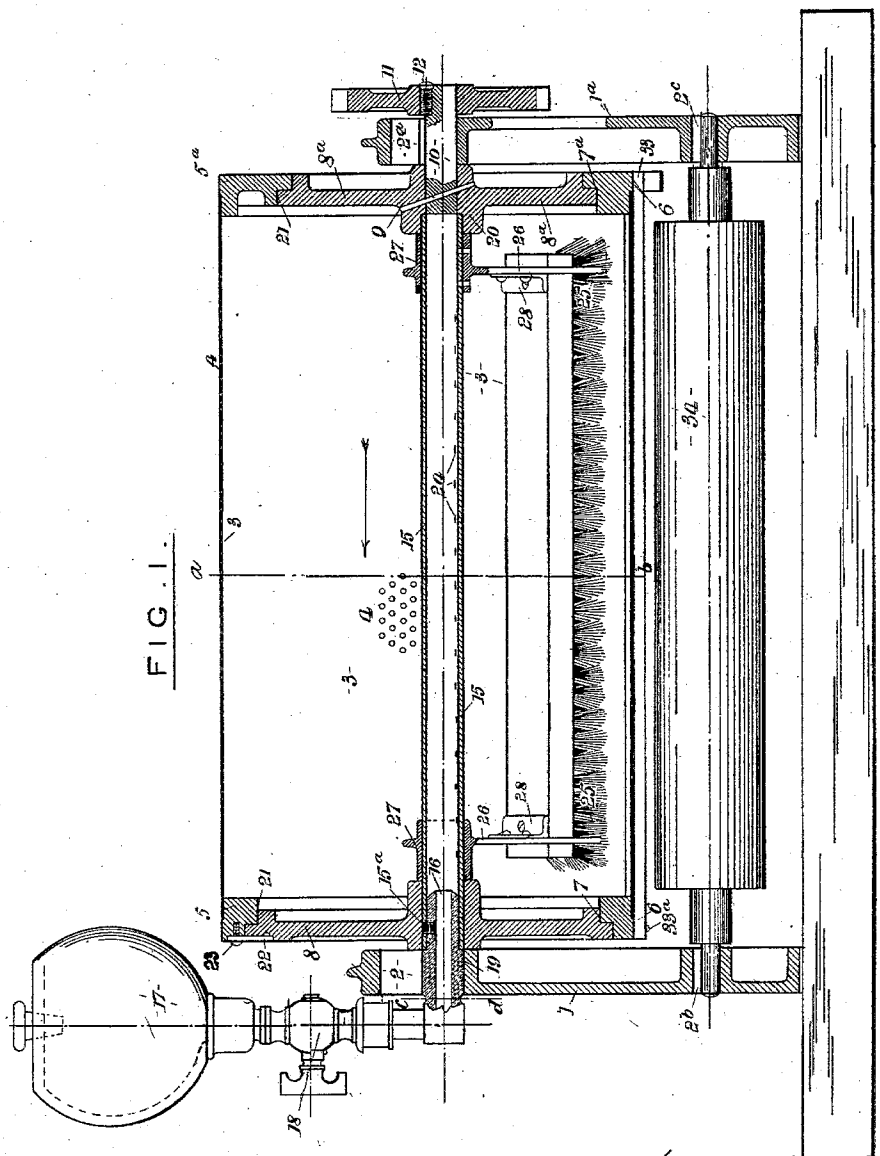
S. BROWN.

ROTARY STENCIL PRINTING APPARATUS.

APPLICATION FILED DEC. 31, 1902.

NO MODEL. 3 SHEETS—SHEET 1.

FIG. 1.



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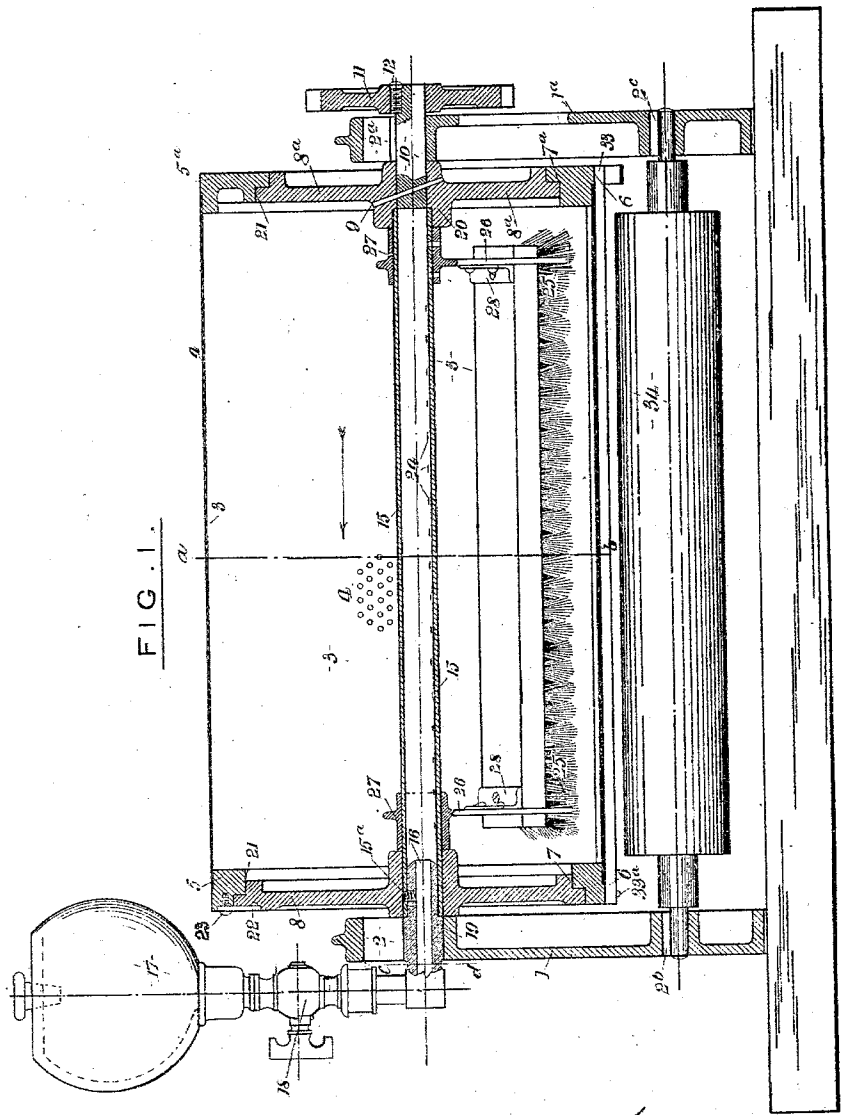

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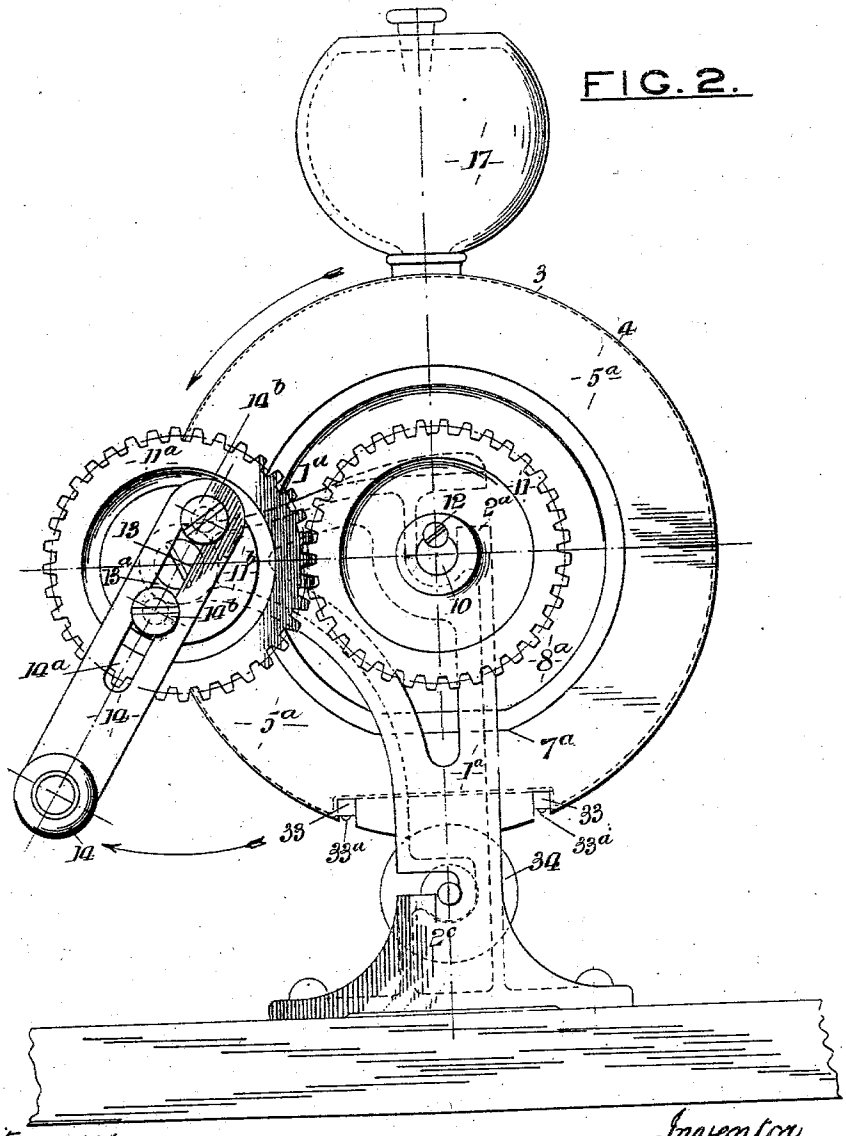
NO MODEL. 3 SHEETS—SHEET 2.

FIG. 2.



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NO MODEL. 3 SHEETS—SHEET 3.

FIG. 3.

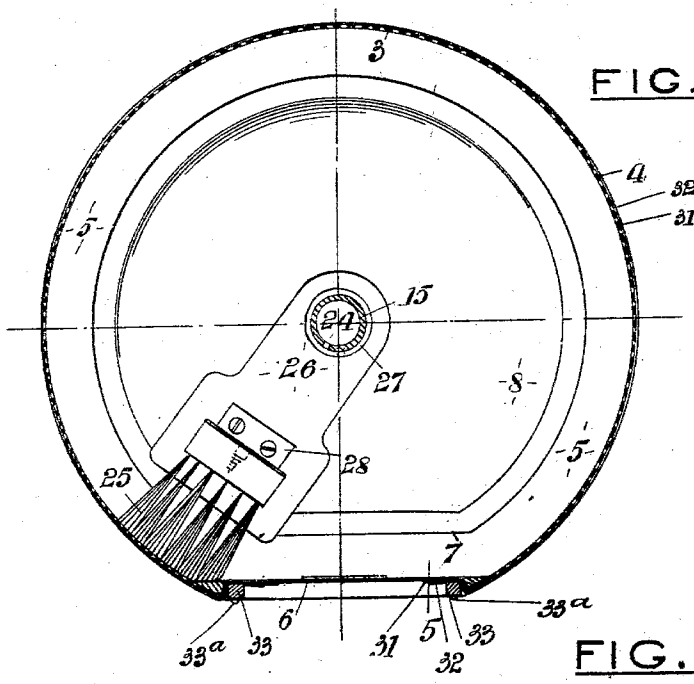


FIG. 6.

FIG. 5.

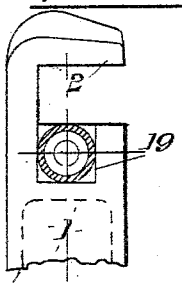
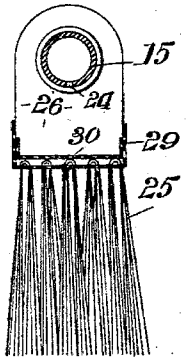
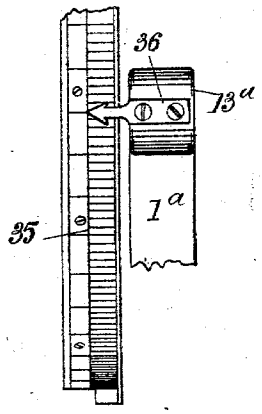


FIG. 4.





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No. 753,469. Patented March 1, 1904.

UNITED STATES PATENT OFFICE.

SUMMERS BROWN, OF LONDON, ENGLAND.

ROTARY STENCIL-PRINTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 753,469, dated March 1, 1904.

Application filed December 31, 1902. Serial No. 137,376. (No model.)

To all whom it may concern:

Be it known that I, SUMMERS BROWN, manufacturer, a subject of the King of Great Britain, residing in Fore Street avenue, in the city of London, in the county of Middlesex, England, have invented certain new and useful Improvements in Rotary Stencil-Printing Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in stencil printing or duplicating, the object I have in view being to simplify the construction of the machine and to avoid the well-known difficulty in supplying the ink evenly and in sufficient quantity to the pad.

To enable my invention to be clearly understood, I will now describe the same more particularly by means of the accompanying drawings, in which—

Figure 1 is a front elevation, part being in section. Fig. 2 is an end view showing driving mechanism. Fig. 3 is a section taken on line *a b*, Fig. 1, in the direction of the arrow. Fig. 4 is a cross-section of inking-tube trough and brush. Fig. 5 is a cross-section of plug on line C D, Fig. 1. Fig. 6 is an elevation of scale and pointer.

I provide a pair of metal standards 1 1^a. In the upper part of these I form two open-sided bearings 2 2^a to enable the cylinder or drum 3 to be quickly lifted out and replaced. The body or face of the cylinder 3 is formed from perforated sheet metal, such as iron or other like suitable material 4, which will not be corroded or chemically acted upon by the ink employed. This perforated metal cylinder is secured by soldering, riveting, or in any like suitable manner to two metallic circular rings 5 5^a. One of these rings, 5, is oblate or flattened at a particular point 6 upon its outer circumference, and both the rings 5 5^a are flattened, as at 7 7^a, at a point in their inner circumference. Removably fitted at either end of the rings are two metallic disks 8 8^a. These may also be perforated, if desired; but I prefer to make them plain, as shown. Disk 8^a is secured by means of a pin or key 9 to spindle 10, which revolves in the bearing 2^a, and is fitted at its outer end with a spur-wheel 11, keyed or secured to it by a set-screw 12. A stud 13 is screwed into a projection 13^a upon standard 1^a, and on this is loosely mounted a corresponding spur-wheel 11^a, fitted with handle 14, for driving the machine, said handle being adjustably mounted on the raised boss 11^b of the spur-wheel 11^a by means of the slot 14^a and set-screws 14^b, passing through the same and into said wheel. The disk 8 is loosely mounted upon a hollow shaft 15, into which is fitted and secured by a screw 15^a a tubular plug or socket 16, upon which is mounted, preferably by screwing, a glass or like transparent ink-reservoir 17, provided with a cock 18, and to keep this reservoir in the vertical position I make the part of the plug fitted to the bearing 2 of rectangular section, as at 19. (See Fig. 5.) The opposite end of shaft 15 is stepped into the boss 20 of disk 8^a. Disk 8 is stepped into a recess 21, formed in ring 5, and is secured in position by a button 22, fastened by a set-screw 23. The shaft 15 has a series of perforations 24 in its length, some of which may be filled with bristles, hair, or the like, so as to form a distributing-brush for the ink flowing through the perforations. I prefer, however, to suspend the distributing-brush 25 from a pair of metallic arms 26, swung from sleeves 27, secured by screws to the shaft 15, said brush being attached to arms 26 by angle-brackets 28. (See Figs. 1 and 3.)

In Fig. 4 I have shown a modification in which a perforated metal trough 29 is placed immediately below the perforated tube and through which the bristles 25 are threaded. Above these I find it advantageous to mount a perforated metallic false bottom 30. The perforated metal covering 4, forming the cylinder drum or carrier, terminates at the flattened portion 6 of the end rings, (see Fig. 3,) and the gap thus left is filled in with a piece of metal plate, to which the perforated metal is soldered or otherwise secured, or I sometimes carry round the perforated metal and fill up the holes in it with solder over the flat-

tened part of the cylinder corresponding in position to said plate.

The pad 31, which may consist of calico or equivalent absorbent material, is wound round the outside of the perforated cylinder. The stencil-sheet 32 is then placed upon it and secured, together with the pad, in the proper position by means of metal laths 33, which are put into slots formed, as shown, on ring 5ª, being pivoted at the other side on pins 33ª, secured to end ring 5. Beneath the cylinder formed and mounted up as described is removably hung in open-sided bearings 2^b 2^c a resilient pressure-roller 34 of the usual type, its periphery being in firm but elastic contact with that of the stencil-sheet 32, wrapped round the cylinder, as described. By flattening the cylinder I show the operator where to start each sheet, thereby obviating the need for an additional indicating device. The said flattening also provides a recess in which the stencil-sheet fits, thereby aiding the laths and rings to hold it in place. I may arrange in front of the machine a removable feed-board of ordinary type, with a fence so adjusted as that the paper can be fed in between the pressure-roller and the drum. To this board I attach a removable fence, so that the alinement of the stencil-copy may be preserved.

In Fig. 6 I have shown a convenient arrangement for starting the sheet in the correct position. I grade, preferably, the right-hand ring, as shown at 35, for a sufficient distance and affix a pointer 36 to the extension by screws, as shown. By means of this the operator can insure the correct entrance of the sheet.

The operation of my invention is as follows: The handle, which for the purpose of packing is removable, being turned, motion is imparted through the gear-wheels to the disk flattened at one point, as described, and mounted in the cylinder-rings, which thus drive the cylinder, drum, or carrier by engaging with said rings. The cock attached to the ink-reservoir is next opened, allowing the ink to flow through the rectangular socket 16 and the perforations in the hollow shaft, and thus be distributed by the brush to the inside walls of the cylinder. When sufficient ink has passed through, the supply is stopped by turning off the cock, or it may be regulated thereby, so as to automatically maintain the supply. To enable the ink to be thoroughly distributed before use, the pressure-roller may be removed from its bearings and the drum freely revolved by turning the handle. The roller is now replaced and paper fed in between it and the stencil surrounding the drum, thus producing one copy per revolution. The paper is next fed in between the pressure-roller and the drum carrying the stencil. The drum being turned by the handle its periphery comes into contact with the roller gripping the paper, thus making one copy per revolution.

An important feature of my invention is that there is no need for the employment of roller tension-springs or the like, the weight of the cylinder being made sufficient to establish the contact-pressure necessary for making good copies, and the supply of ink is perfectly regulated in proportion to the copies required. By lifting out the drum and then turning back button 22 the hollow spindle and disk 8 are readily withdrawn therefrom and the perforations and bristles cleaned, the ink changed for another color, or duplicate parts substituted.

I claim—

1. In a stencil-printing machine, a rotary perforated cylinder flattened in one part of its circumference, in combination with a pressure-roller, means for supplying ink, a pad surrounding the said cylinder, a stencil-sheet in contact with said pad and means for holding said sheet and pad in position against the flattened part of the cylinder.

2. In a stencil-printing machine a cylinder flattened in one part of its periphery, in combination with a stencil-sheet, means for holding said sheet against the flattened part of the cylinder, and a pressure-roller arranged to coöperate therewith substantially as set forth.

3. In a stencil-printing machine, a cylinder provided with a metal plate constituting a flattened part of its periphery, in combination with a stencil-sheet, means for holding it against this plate and a pressure-roller coöperating with said stencil-sheet substantially as set forth.

4. In a stencil-printing machine, a cylinder flattened in a part of its periphery and having recessed rings at its ends, in combination with a pad surrounding it, a stencil-sheet in contact with said pad opposite the said flattened part, a pressure-roller coöperating with said stencil-sheet and metal laths fitting into the recesses of the said rings and holding the said sheet in position substantially as set forth.

5. In a stencil-printing machine, a rotary perforated cylinder, flattened in one part of its circumference, in combination with a pressure-roller means for supplying ink, a pad surrounding the said cylinder and a stencil-sheet in contact with the said pad and fitting into the recess left by the said flattening flush with the surface of the cylinder, the said construction affording an indication where to start each paper sheet substantially as set forth.

In testimony whereof I have affixed my signature in presence of two witnesses.

SUMMERS BROWN.

Witnesses:

FRANCIS HERON ROGERS,

F. F. MCARDLE.