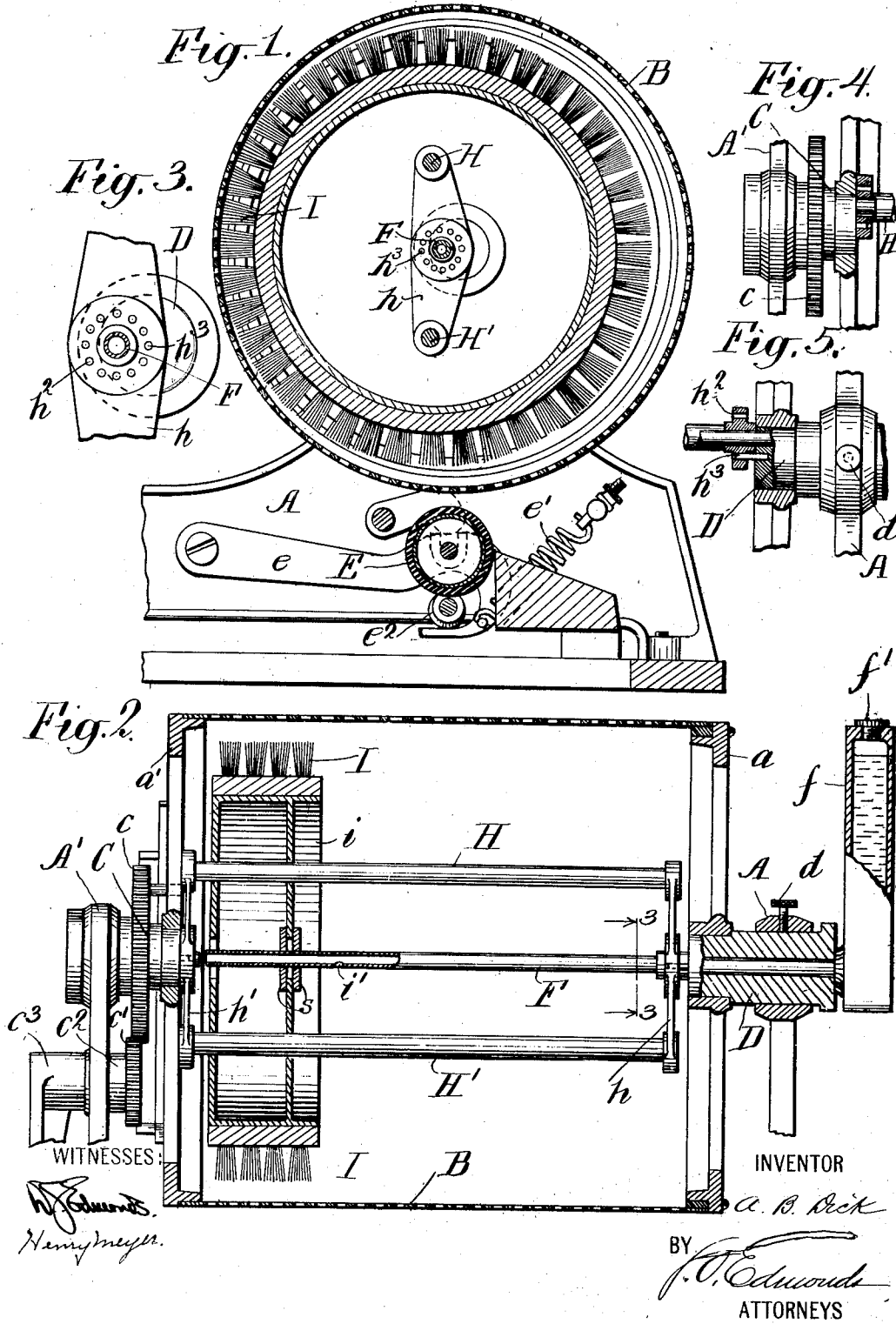


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STENCIL DUPLICATING APPARATUS.
APPLICATION FILED JUNE 6, 1909.

1,057,124.

Patented Mar. 25, 1913.



UNITED STATES PATENT OFFICE.

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STENCIL-DUPLICATING APPARATUS.

1,057,124.

Specification of Letters Patent.

Patented Mar. 25, 1913.

Application filed June 5, 1909. Serial No. 500,247.

To all whom it may concern:

Be it known that I, ALBERT B. DICK, a citizen of the United States, residing at Lake Forest, in the county of Lake and State of Illinois, have invented certain new and useful Improvements in Stencil-Duplicating Apparatus, of which the following is a specification.

This invention relates to stencil duplicating apparatus and has reference more particularly to inking mechanism for use with such apparatus.

The invention is directed particularly to the provision of a stencil duplicating machine having a drum provided with a foraminated stencil support extending about the entire cylindrical surface thereof, and an ink distributor within the cylinder movable axially of the cylinder to any position along the length of the cylinder so as to distribute the ink and to permit of applying the ink to any portion of the drum where more ink may be required.

The machine is provided with a drum of the character above indicated and within this is the ink distributor, this being arranged to slide back and forth upon suitable guides. Means are provided for supplying ink to this distributor from a source outside of the drum through a suitable tube leading from the ink reservoir to the distributor. The ink distributor may be of any suitable form but in the preferred embodiment of the invention a brush is used for this purpose and this is so mounted within the drum of the machine that in addition to its movement in the direction of the axis of the drum, it may be moved radially of the drum so that when desired the brush may be moved to inoperative position, and this also permits of adjusting the position of the brush such that when it has been worn away by use, it may be advanced in position to compensate for this wear.

I have illustrated the preferred embodiment of my invention in the accompanying drawings, in which—

Figure 1 is a central section of a portion of a stencil duplicating machine, Fig. 2 is a transverse section of a portion of the mechanism shown in Fig. 1, Fig. 3 is a detail view in section on line 3—3 of Fig. 2, and Figs. 4 and 5 are detail views herein-after referred to.

Referring to these drawings, the machine consists of a base upon which are erected side frames A, A', these being provided with bearings in which the stencil-carrying drum is mounted for rotation. This drum is a cylinder consisting of heads *a*, *a'* and a foraminated sheet B secured to these heads and curved so as to form a complete cylinder. In the head *a'* is an opening which receives the end of a stub-shaft C carried by the side frame A' and having loosely mounted thereon a gear *c* meshing with a pinion *c'* carried by a stub-shaft *c''* which is mounted for rotation in a bearing in side frame A' and carries an operating handle *c'''* by which the drum B may be rotated. The gear *c* is connected to the head *a'* by a pin as shown in Fig. 2. The other head *a* of the drum has an opening therein to receive the end of a stub-shaft D which passes through the opening in the side frame A and is detachably secured to that side frame by a set-screw *d* so that the head *a* turns upon the stub-shaft D and the latter may, when desired, be moved axially so as to withdraw its end more or less from the opening in the head *a*.

The pressure-roller E is mounted for rotation in bearings formed in arms *e* pivotally mounted upon the side frames of the machine and these arms have springs *e'* connected thereto and adapted to turn the arms about their pivots so as to carry the pressure-roller E into coaction with the drum B; cams *e''* are arranged upon a suitable shaft and adapted to act upon the arms *e* to move the pressure-roller E against the tension of springs *e'* away from the drum B.

In the stub-shaft D is an eccentric opening extending through the stub-shaft and a tube F passes through this opening and extends almost the entire distance through the drum B. To the outer end of this tube F is secured an ink receptacle *f* having a plug *f'* threaded into an opening therein so that the reservoir may be filled through the opening provided by the withdrawal of the plug *f'*. The reservoir *f* is rigidly secured to the tube F and communicates therewith. Within the drum B is a frame consisting of two rods H, H', having their ends secured to spider *h*, *h'*. The spider *h* is loose upon the tube F, the hub of this spider through which the tube F extends being in contact

on one side with the end of the stub-shaft D; this hub of the spider h has a plurality of openings h^2 formed therein and arranged in a circle about the opening through which tube F extends so as to be concentric with the axis about which the spider h turns. The circle of these openings is, however, eccentric with respect to the brush I and the frame on which the brush is mounted. In the end of the stub-shaft D is fixed a pin h^3 adapted to enter any one of the openings h^2 to position spider h and the frame of which it forms a part, so as to hold this frame against rotation. The spider h is loose upon a projection extending inwardly from the stub-shaft C and excentric to the axis of that stub-shaft but concentric with the tube F.

The ink distributor consists of a brush I mounted upon a metallic frame i in which are openings through which the rods H, H' and the tube F extend. This ink distributor is adapted to slide upon rods H, H', it being actuated in such movement by the tube F, and to permit this the ink distributor is secured to the tube F in such manner as will cause the distributor to move axially with tube F while permitting the distributor to move transversely of the tube the small amount required to move the distributor to operative and inoperative positions. To effect this the two transverse walls of the frame i have openings therein through which the tube F extends and which are substantially larger than tube F; also tube F has two washers s secured thereto and lying one on either side of one of the transverse walls of the frame i , as shown in Fig. 2.

The operation of the machine to print from a stencil secured upon the cylindrical surface of the drum B will be readily understood. The operative position of the ink distributor is shown in Fig. 1 from which it will be seen that the distributor is in contact with the interior surface of the foraminated cylindrical wall of the drum, upon one side of the drum. As the drum rotates the ink distributor remains stationary, it being held by the pin h^3 coacting with the spider h of the frame upon which the distributor is mounted, and this pin being a part of the stub-shaft D which is held against rotation by the set-screw d . If it is desired to move the brush in the direction of the axle of the drum B so as to distribute the ink over the interior surface of the foraminated stencil support, or to apply ink to any particular portion of the support, the ink reservoir f may be used as a handle to move the rod F and ink distributor I in the direction of the axis of the drum back and forth to the desired point. When the fountain is turned manually to and held in the operative position in which it is

shown in Fig. 2, the ink passes from the reservoir f through the tube F to the end thereof where it drops upon the stencil support and is taken up by the distributor I. If desired, however, one or more openings may be provided in the tube F at various points along the length of that tube, as indicated at i' or openings may be provided in tube F within the support for the brush I, and this support may be so constructed as to permit the ink to pass through it to the brush. After the ink has been properly supplied and distributed, the distributor may be left in the position in which it is shown in Fig. 1, while the machine is being operated, or if desired, it may be moved to an inoperative position more nearly concentric with the drum B. This may be done by loosening the set-screw d and moving the stub-shaft D axially in its bearing in the side-frame A, a distance sufficient to withdraw the pin h^3 from its opening h^2 in the spider h , whereupon the frame which carries the ink distributor may be rotated about tube F and the projection on stub-shaft C to carry it to such a position that it is concentric with the drum and the stub-shaft D may then be moved back to its initial position and the pin h^3 thereon will hold the frame for the ink distributor in this position. Whether the ink distributor I be allowed to remain in operative position during the operation of the machine or moved to inoperative position, the supply of ink to the ink distributor may be discontinued by merely turning the reservoir f serving as a handle for operating the shaft F, to a position in which it extends downwardly in which position it will be held by the friction of tube F in its bearing in stub-shaft D. Furthermore it will be seen that if the brush I wears away, such wear may be readily compensated for by changing the position of the frame carrying the distributor more or less with respect to the stub-shaft D, this merely requiring that the pin h^3 be inserted in a different opening h^2 in the spider h of the frame carrying the distributor.

In stating that the invention is particularly applicable to stencil-duplicating machines having a foraminated sheet extending over the entire cylindrical surface of the drum, I mean to differentiate from machines of the type in which the drum is open on one side, giving free access to the interior. The foraminated sheet may, if desired, extend substantially the entire distance around the drum but be omitted over a short space where the securing means for securing the ends of the stencil-sheet to the drum are provided. Any suitable form of securing devices for this purpose may be employed.

Having described my invention, what I

claim as new therein and desire to secure by Letters Patent of the United States is:

1. In stencil-duplicating apparatus, the combination of a rotatable drum having a foraminated stencil-support extending about the entire cylindrical surface thereof, an ink-distributor within the drum, means for causing relative rotation of the drum and said distributor, means for feeding ink to said distributor from outside the drum, and means for moving the distributor in the direction of the axis of the drum, substantially as set forth.

2. In stencil-duplicating apparatus, the combination of a rotatable drum having a foraminated stencil-support extending about the entire cylindrical surface thereof, an ink-distributor within the drum, means for causing relative rotation of the drum and said distributor, means for moving the distributor to operative and inoperative positions, means for feeding ink to said distributor from outside the drum, and means for moving the distributor axially of the drum, substantially as set forth.

3. In stencil-duplicating apparatus, the combination of a rotatable drum having a foraminated stencil-support extending about the entire cylindrical surface thereof, an ink-distributor within the drum, means for mounting said distributor in various positions eccentric to the drum and securing it in such positions, and means for causing relative rotation of the drum and distributor, substantially as set forth.

4. In stencil-duplicating apparatus, the combination of a rotatable drum having a foraminated stencil-support extending about the entire cylindrical surface thereof, an ink-distributor mounted eccentrically within the drum, means for varying the eccentricity of the distributor with respect to the drum, means for moving the distributor axially of the drum, and means for causing relative rotation of the drum and distributor, substantially as set forth.

5. In stencil-duplicating apparatus, the combination of a rotatable drum having a foraminated stencil-support extending about the entire cylindrical surface thereof, an ink-distributor mounted eccentrically within the drum, means for varying the eccentricity of the distributor with respect to the drum, means for feeding ink to the distributor from outside the drum, means for causing relative rotation of the drum and distributor, and means for moving the distributor axially of the drum, substantially as set forth.

6. In stencil-duplicating apparatus, the combination of a rotatable drum having a foraminated stencil-support extending about the entire cylindrical surface thereof, an ink-distributor mounted eccentrically within the drum, means for causing relative ro-

tation of the drum and distributor, and means for moving the distributor axially of the drum, substantially as set forth.

7. In stencil-duplicating apparatus, the combination of a rotatable drum, having a foraminated stencil-support extending about the entire cylindrical surface thereof, an ink-distributor mounted eccentrically within the drum, means for causing relative rotation of the drum and distributor, means for moving the distributor axially of the drum, and means for feeding ink to the distributor from outside the drum, substantially as set forth.

8. In stencil-duplicating apparatus, the combination of a rotatable drum, a stencil-support extending about the cylindrical surface thereof, an ink-distributor within the drum, a tube entering the drum at one end thereof, and an ink-reservoir secured to the tube outside the drum, said tube and the reservoir attached thereto being rotatable, substantially as set forth.

9. In stencil-duplicating apparatus, the combination of a rotatable drum, a stencil-support extending about the cylindrical surface thereof, an ink-distributor within the drum, movable axially of the drum, means for causing relative rotation of the drum and distributor, a tube entering the drum at one end thereof, and an ink-reservoir secured to the tube outside the drum, said tube and the reservoir attached thereto being rotatable, substantially as set forth.

10. In stencil-duplicating apparatus, the combination of a rotatable drum, a foraminated stencil-support extending about the entire cylindrical surface of the drum, a frame within the drum, an ink-distributor mounted upon said frame and adapted to slide thereon axially of the drum, means for moving the distributor upon said frame, means for supplying ink to the distributor from outside the drum, and means for causing relative rotation of the drum and distributor, substantially as set forth.

11. In stencil-duplicating apparatus, the combination of a rotatable drum, a foraminated stencil-support extending about the entire cylindrical surface of the drum, a frame within the drum, an ink-distributor mounted upon said frame and adapted to slide thereon axially of the drum, means for moving the distributor upon said frame, means for supplying ink to the distributor from outside the drum, means for adjusting the position of the distributor with respect to the drum, and means for causing relative rotation of the drum and distributor, substantially as set forth.

12. In stencil-duplicating apparatus, the combination of a rotatable drum, a foraminated stencil-support extending about the entire cylindrical surface of the drum, an ink-distributor within the drum, a tube en-

tering the drum at one end thereof and having the distributor secured thereto, and means for supplying ink to said tube, said tube, and distributor being movable axially of the drum, substantially as set forth.

13. In stencil-duplicating apparatus, the combination of a rotatable drum, a foraminated stencil-support extending about the entire cylindrical surface of the drum, an ink-distributor within the drum, a tube entering the drum at one end thereof and having the distributor secured thereto, means

for supplying ink to said tube, said tube and distributor being movable axially of the drum, and means for moving the distributor to operative and inoperative positions with respect to the drum, substantially as set forth.

This specification signed and witnessed this 3d day of June, 1909.

ALBERT B. DICK.

Witnesses:

S. O. EDMONDS,
I. MCINTOSH.