

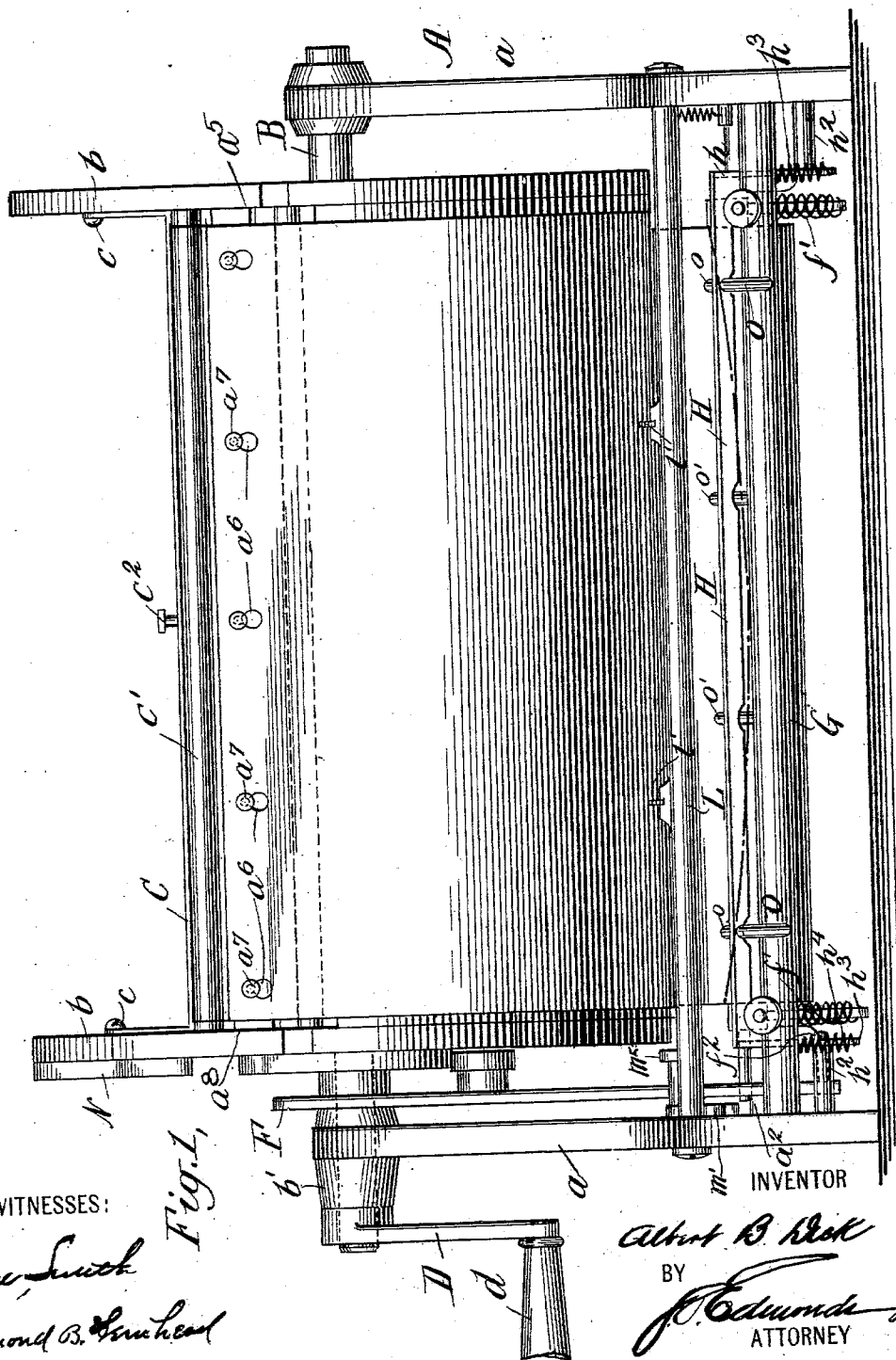
No. 746,930.

PATENTED DEC. 15, 1903.

A. B. DICK.
STENCIL PRINTING MACHINE.
APPLICATION FILED AUG. 24, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



WITNESSES:

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Fig. 1,

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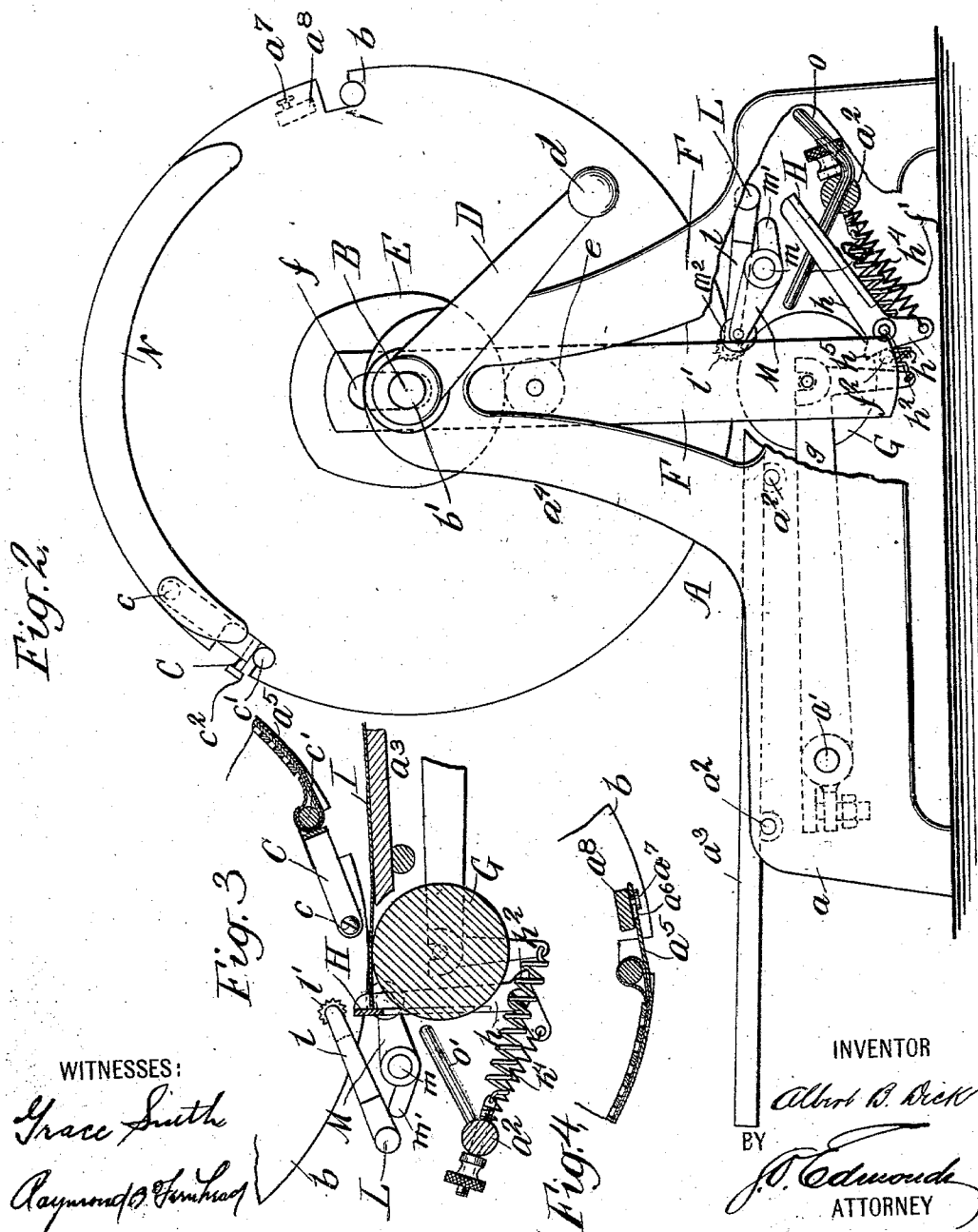
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NO MODEL.



UNITED STATES PATENT OFFICE.

ALBERT B. DICK, OF CHICAGO, ILLINOIS, ASSIGNOR TO A. B. DICK COMPANY,
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STENCIL-PRINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 746,930, dated December 15, 1903.

Application filed August 24, 1903. Serial No. 170,577. (No model.)

To all whom it may concern:

Be it known that I, ALBERT B. DICK, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Stencil-Printing Machines, of which the following is a specification.

The object of the present invention is to produce apparatus for stencil duplication which shall be very simple and durable in construction and operation and in which the likelihood of disarrangement of the various parts shall be minimized.

One of the primary objects of the invention is to desirably simplify the mechanism for determining the position of the paper upon which an impression is to be made prior to the actual engagement of the stencil therewith.

A further object is to provide a simple and effective construction for stripping the paper from the stencil after the impression has been made thereon.

In carrying out the invention I employ the usual frame provided with upwardly-extending brackets in which is mounted the drum upon the surface of which the stencil is located. Also mounted in such frame and coacting with this drum is an impression-roller of usual construction, between which and said drum the impression-paper is adapted to be passed. The frame also includes the usual feed-board. Adjacent to the coacting portions of the drum and impression-roller I employ a paper-stripper pivotally mounted in the frame and provided with paper-stripping arms automatically moved into and out of operative position. This movement is effected, preferably, by a rocking lever, one end whereof coacts with a cam carried by the drum. Each time, therefore, that said cam and said rocking lever are brought into operative relation the paper-stripper will be moved out of operative position. A paper-stop is employed which when in operative position will interpose an obstacle to the free passage of the paper through the machine. In other words, the paper is passed sufficiently far to engage the paper-stop; but when the revolution of the drum has reached a point where the stencil is about to be

brought into coaction with the impression-paper a cam-movement (also operated by the movement of the drum) is employed to remove the paper-stop from operative position and to throw the same to inoperative position, thereby permitting the paper to pass from the machine after the impression has been made thereon from the stencil-sheet.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is an end elevation of a stencil-duplicating machine embodying my invention. Fig. 2 is a side elevation thereof, certain parts being broken away for clearness. Fig. 3 is a detail view, partly in section, the latter showing the paper-stop in operative position and the stripper in inoperative position, whereas the contrary with respect to each is shown in Fig. 2; and Fig. 4 is a detail view illustrating a preferred method of attaching one end of the stencil-sheet to the drum of the machine.

Referring to the drawings, in which similar letters denote corresponding parts, A designates the frame, comprising two side members *a*, connected by cross-rods *a'*. This frame carries the feed-board *a'*. Each of the side members *a* is provided with an upwardly-extending bracket *a'*, in which is journaled on the axis B the stencil-printing drum, comprising the heads *b*, connected, preferably, by a diaphragm, of perforated material, upon which the stencil-sheet *a'* is secured. Commonly a pad or screen is employed between the perforated diaphragm and the stencil-sheet for the purpose of holding or distributing the ink applied to the interior of the drum. This, however, forming no part of the present invention is not illustrated in detail herein. The stencil-sheet *a'* may be secured upon the perforated diaphragm in any suitable manner—as, for instance, by means of slots *a'*, formed in the end of such sheet and coacting with studs *a'*, carried by a bar *a'*, extending from one of the heads *b* to the other. The end of the stencil-sheet is drawn smoothly over the perforated surface or the pad or screen upon such surface and in the present instance secured by means of a clamp, here shown as comprising a bail C, the ends whereof, turned at an angle to the main por-

tion, are pivoted at *c* upon the interior surfaces of the heads *b*. A bar *c'* is secured to and extends between said heads *b*, and between this bar and the bail *C* the stencil-sheet is clamped. As will be seen, the tendency of the bail is not only to securely lock the stencil-sheet against displacement, but also to draw the same smoothly around the surface of the drum. If desired, said bail may be provided with a finger-piece *c*² for ease of operation. The drum may, if desired, be operated by the crank *D* and handle *d* or by such other mechanism as may be preferred.

Secured upon the outer surface of one of the heads *b* is a cam *E*, coacting with a stud or sheave *e*, carried by a vertically-movable bar *F*, the upper portion whereof is provided with a slot *f*, through which projects the pivot *b'*, upon which the drum is mounted. A spring *f'* tends to force the bar *F* upwardly, thereby keeping the stud or sheave *e* in constant engagement with the periphery of the cam *E*.

G designates the pressure-roller, between which and the stencil on the drum the impression-paper is adapted to be passed. This roller is here shown as journaled in the ends of arms *g*, mounted upon the cross-rod *a'*. If desired, a cam and finger-piece may be employed for throwing the impression-roller into and out of operative relation to the drum *B*. Such a device, however, being well known and forming no part of the present invention is not herein illustrated.

H designates the paper-stop, extending across the machine substantially the width of the drum *B*. This stop, in the form of a bar, is mounted upon arms *h* *h'*, pivoted upon studs or pins *h*², carried in the side members *a a* of the frame. Secured to or formed integral with the arm *h* is an angular extension *h*³, to the free end whereof is secured a coil-spring *h*⁴, connected with the cross-rod *a*², extending between the side members *a a* of the frame. The arm *h* is also provided with an ear *h*⁵, coacting with a pin *f*², carried by the lower end of the vertically-movable bar *F*. As will be seen, the tendency of the spring *h*⁴ is to throw the paper-stop to operative position, in which it is illustrated in Fig. 3, the arm *h* and angular extension *h*³ forming, in effect, a bell-crank lever, to the end of which said spring is secured. Due to the coaction of the ear *h*⁵ and pin *f*², however, this position is possible only when the vertically-movable lever *F* is in its lowermost position, to which it is in the rotation of the drum *B* moved by the cam *E*. When, therefore, the sheave *e* passes beyond the eccentric portion of said cam, said bar under the influence of the spring *f'* is permitted to move upwardly, whereupon the pin *f*² thereon moves the paper-stop to the position in which it is shown in Fig. 2 against the stress of the coil-spring *h*⁴. It will also be seen that the paper-stop is in operative position (in which it is shown

in Fig. 3) only when the stencil carried by the drum *B* is out of operative relation to the pressure-roller *G*. It is at this time that the impression-paper *I* is fed forward, as illustrated in the figure referred to. As that portion of the drum bearing the stencil-paper reaches operative position the upward movement of the bar *F* throws the paper-stop to inoperative position, as above stated.

The paper-stripping mechanism comprises the rod or bar *L*, pivoted at its ends to the side members *a* of the frame *A*. Intermediate of its ends this rod or bar is provided with two stripping-arms *l*, here shown as two in number and which extend rearwardly toward the point of coaction of the drum *B* and impression-roller *G*. The ends of these arms are provided with star-wheels *l'*, caused to revolve by the impression-paper *I* passing in contact therewith, so as to preclude streaking or spreading of the ink on such impression-paper. *M* designates a rock-bar pivoted at *m* to one of the side members *a* of the frame, the forward end *m'* lying directly under the paper-stripping rod or bar *L*, but rearward of the pivotal point thereof. The other end of said rocking bar is provided with a sheave *m*², lying in the path of movement of a cam *N*, here shown as secured to one of the heads *b* of the drum adjacent to its periphery. The two positions of the paper-stripping device are clearly illustrated in Figs. 2 and 3. When the paper-stop is in operative position, as shown in the latter figure, the stripper is in inoperative position. As the movement of the drum progresses and the cam *E* permits the bar *F* to rise the paper-stop is thrown to inoperative position, as shown in Fig. 2, and the movement of the drum being continued the paper *I* is fed through the machine, the impression being printed thereon as the same is passed between the drum and the impression-roller. Without a paper-stripping device the impression-paper would adhere to the inked surface of the stencil, and therefore be carried around with the drum. The paper-stripping arms *l*, however, are so arranged as to preclude this result, the paper being passed below the star-wheels *l'*, and therefore stripped from the stencil. After this has been accomplished, there being no further use for the stripping device until another sheet is being passed through the machine, the arms *l* are raised to inoperative position, as shown in Fig. 3, by the coaction of the cam *N* on the drum *B* with the sheave *m*² on the rocking lever *M*.

In passing the impression-paper from the machine it is desirable to crease or curve the same in a plane corresponding with the longitude of the machine, whereby such sheets are permitted to fall substantially flat upon the table on which the machine is mounted or in the receiving-tray if such a tray be employed. To accomplish this, I employ paper-guards *O*, here shown as carried by the cross-rod *a*², extending between the side

members *a* of the frame, the rear end of each extending somewhat close to the point at which the impression-paper is stripped from the drum and the forward end of each, *o*, being upturned. It will be obvious that as the impression-paper is fed over these guards, the support therefor being only at or adjacent to the edges, the sheet will be curved intermediate of such edges and passed out of the machine in this condition, thereby preventing the rolling or folding of such sheets as they fall upon the table or tray. If desired, intermediate of the paper-guards *O*, I may employ additional guards *o'*, corresponding to the rearward ends of the guards *O*, but without the forward upturned ends *o*.

Having now described my invention, what I claim as new therein, and desire to secure by Letters Patent, is as follows:

1. In a stencil-printing machine, the combination with a frame, of a drum, a paper-stripping device in proximity thereto, a rocking lever for throwing said device into and out of operative position, and means carried by said drum for actuating said rocking lever, substantially as set forth.

2. In a stencil-printing machine, the combination with a frame, of a drum, a paper-stripping device pivotally mounted in said frame and provided with arms projecting toward the operative portion of said drum and carrying star-wheels at their extremities, a rocking lever for throwing said device into and out of operative relation, and a cam carried by said drum and coacting with said rocking lever, substantially as set forth.

3. In a stencil-printing machine, the com-

bination with a frame, of a drum, a paper-stop and a paper-stripping device, and mechanism intermediate of said stop and device and said drum for throwing said paper-stop and stripping device into and out of operative position, substantially as set forth.

4. In a stencil-printing machine, the combination with a frame, of a drum, a paper-stop and a paper-stripping device, and means carried by said drum and coacting with said paper-stop and said paper-stripping device to throw one into operative position and the other to inoperative position, substantially as set forth.

5. In a stencil-printing machine, the combination with a frame, of a drum, a cross bar or rod mounted in said frame parallel with said drum, and paper-guards carried by said cross bar or rod within said frame and adapted to receive the impression-paper passed through said machine and to curve the same between its edges during such passage, substantially as set forth.

6. In a stencil-printing machine, the combination with a frame, of a drum carried thereby, means for securing one end of a stencil-sheet on said drum, and a bail pivoted at its ends within said drum and coacting with the other end of such stencil-sheet to secure the same in position, substantially as set forth.

This specification signed and witnessed this 7th day of August, 1903.

ALBERT B. DICK.

Witnesses:

W. G. ARNOLD,
E. E. DICK.