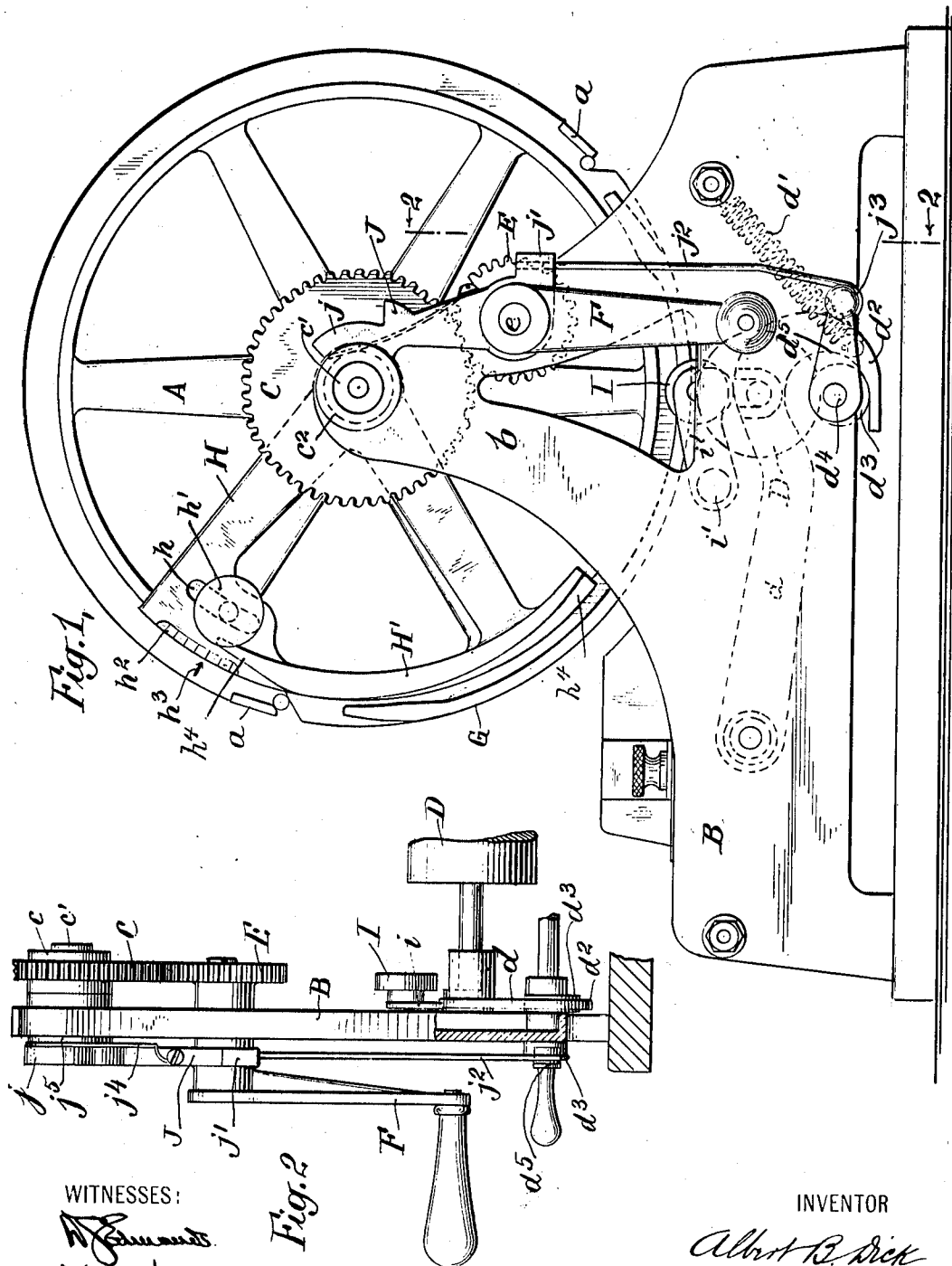


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STENCIL DUPLICATING APPARATUS.
APPLICATION FILED FEB. 19, 1909.

945,265.

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WITNESSES:

Henry Meyer

Fig. 2

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STENCIL-DUPLICATING APPARATUS.

945,265.

Specification of Letters Patent.

Patented Jan. 4, 1910.

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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, (Case D,) of which the following is a specification.

The present invention is designed as an improvement upon certain stencil-duplicating apparatus of the rotary type which has been heretofore disclosed. In apparatus of this character, wherein are employed a rotary drum, upon the periphery whereof the stencil-sheet is secured, and an underlying pressure-roller between which and the periphery of said drum the impression-sheets are passed, it is of importance to provide means for predetermining the point upon such impression-sheets at which the printing from the stencil will be commenced. Particularly is this true where the machine is used for the purpose of filling in blanks upon impression-sheets upon which have previously been printed letters, forms, etc.

In the present invention, by simple and readily-operable means, the exact point upon the impression-sheet at which a line or character upon the stencil-sheet will be printed can be readily predetermined and provided for.

Another object of the invention is to provide a brake or lock for the stencil-carrying drum, so that the same may either be held in immovable position or be made movable with difficulty, when, for example, the stencil is being adjusted. This feature of the invention is particularly desirable in rotary duplicating apparatus, wherein, either by reason of the crank or other mechanism or the covering of but a portion of the drum with the stencil-carrier, such drum does not balance so that it will without special provision remain at the point at which it is left after the printing operation. This feature of the invention takes the form, in a preferred embodiment, of a brake cooperating with a part moving with the drum, as, for instance, one of the stub-shafts upon which the drum is mounted, to either rigidly secure the same against movement or to retard its movement so that the drum may be moved only by design. This brake is connected with the "throw-off mechanism" so

as to be thrown to braking or locking position when such mechanism is operated to throw the pressure-roller of the machine out of operative relation to the drum. It is during such inoperative relation of the pressure-roller and the drum that it is desirable to hold the latter against free movement, either when inking the interior of such drum, or when attaching the stencil, or when adjusting the various parts to predetermine the point at which impressions will be made upon the impression-sheets, as hereinabove referred to.

In the drawings, in which I have illustrated in detail only sufficient of a standard form of stencil-duplicating machine to enable my invention to be properly described, Figure 1 is a side elevation and Fig. 2 a section on the line 2-2, certain parts being omitted for clearness.

Referring to these drawings, it will be seen that the drum, comprising the usual heads A connected by tie-bars *a*, *a*, and the usual foraminated stencil-carrier (not shown), is mounted for rotation in the upwardly-extending arms *b* forming part of the side frame-members B. To one of the heads A is (detachably) secured the pinion C mounted upon a collar *c* carried by a stub-shaft *c'* journaled in a suitable bearing in the upwardly-extending arm *b* of one of the frame-members B. Outside such frame-member, said stub-shaft is provided with an enlarged head or collar *c*².

The shaft of the pressure-roller D is journaled at its ends in hinged arms *d*, to which are connected coil-springs *d'* tending to move such roller toward the periphery of the drum. These hinged arms have downwardly and backwardly curved ends *d*², and with these coact eccentrics *d*³ mounted upon a shaft *d*⁴ operated by means of the hand-piece *d*⁵, these parts being commonly termed the "throw-off mechanism," inasmuch as when the hand-piece *d*⁵ is in the position in which it is illustrated in Fig. 1, the pressure-roller is locked out of the position in which it may coact with the periphery of the stencil-carrying drum. When, on the other hand, the hand-piece *d*⁵ is thrown to its other position, the hinged arms *d* are released and permitted to respond to the upward pressure of the coil-springs *d'*. Co-acting with the pinion C is a similar,

although smaller, pinion E, mounted upon stub-shaft *e* journaled in the upwardly-extending portion *b* of the frame-member B. Keyed or otherwise secured to said stub-shaft, outside said frame-member, is the crank-arm F, whereby the drum is rotated.

Duplicating apparatus of the character here described is commonly provided with paper-stops against which the impression-sheets are fed before being imprinted upon through the stencil-sheet. Such stops forming no part of the present invention are not here illustrated. It may be remarked, however, that in apparatus now on the market such stops are thrown to operative and inoperative positions by means such as the cam G carried by one of the heads A of the drum. Commonly an impression-sheet is placed in the machine while the open portion of the drum is passing the pressure-roller, projected beyond such pressure-roller and brought to rest against the paper-stops. Then as the movement of the drum progresses and the stencil-covered portion of the periphery thereof reaches the point where pressure is exerted by the pressure-roller, the sheet is fed forward by the coaction of said roller and said drum and simultaneously imprinted upon. In this type of apparatus, the moment at which the (mechanical) feeding of the sheet will commence is determined by the moment at which the pressure-roller and the stencil-covered periphery of the drum are brought into coöperative relation. To predetermine this moment, and therefore to provide for variation in the point upon an impression-sheet at which a character or other matter appears upon the stencil-sheet, I provide, in a preferred form of the invention, a sector H loosely mounted upon the stub-shaft *c'* and adjustable with relation to the drum-head A by suitable means such as the slot *h* and set-screw *h'*. Said sector is provided with a suitable scale *h²* which may coact with a fixed point upon the head A, as, for instance, the mark *h³*.

Carried by the sector H is a cam H' the end portions whereof are inclined toward the center of the drum as shown at *h⁴*, the cam surface being adapted during the rotation of the drum to coact with a sheave I carried by an arm *i* secured to a rock-shaft *i'* journaled at its ends in the side-members B of the frame. The ends of the arms *i* overlie the hinged roller-carrying arms *d* at about the point at which the shaft of said pressure-roller is journaled in said arms *d*. When, therefore, the arms *i* are, through the coaction of the sheave I and cam H', depressed, the pressure-roller is correspondingly depressed and held out of contact with the stencil-covered periphery of the drum. As, however, said cam passes out of engagement with said sheave, the pressure-roller is released and, an impression-sheet

having previously been placed in the machine, the same is clamped between said pressure-roller and the stencil-covered periphery of the drum, the coöperative movement of these two instrumentalities serving to feed such sheet (the paper-stops above referred to having meanwhile been thrown to inoperative position) through the machine while at the same time the impression from a stencil-sheet is imprinted thereon. By providing for the adjustment of the sector, the moment at which the (mechanical) feeding of the paper is to begin may be predetermined so as to definitely locate upon the impression-sheet any character or other matter with which the stencil-sheet has been provided.

Referring now to the brake mechanism, this, in the present embodiment of the invention, takes the form of a brake-member J pivotally mounted upon the stub-shaft *e* and having at its other end the shoe *j* coacting with the head or collar *c²* secured to the stub-shaft *c'* which carries the drum. Said brake-member is provided with an angular extension *j'* to which is secured a spring *j²* provided at its lower end with a curved portion *j³* corresponding with the curvature of the handle of the hand-piece *d³*. When said hand-piece is turned to the position in which it is shown in Fig. 1, it is arrested by contact of the handle thereof with said curved portion *j³* of the spring *j²*, and in moving to this position the handle coacts with the spring *j²* so that the brake-member J is rocked upon its pivot *e* and the shoe *j* brought into contact with the head or collar *c²*. This contact may be such as to actually lock the drum, or, if desired, such as merely to retard the movement thereof. When the hand-piece *d³* is thrown to its opposite position, at which position the pressure-roller is free to rise under the influence of the springs *d'*, the brake-member J is released, whereupon it is thrown to inoperative position, out of contact with the head or collar *c²*. This is conveniently done by means of the spring *j⁴* secured to the brake-member J at one end and at its other end making contact with a part *j⁵* of the bearing in the frame-member B, in which the stub-shaft *c'* is mounted.

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

1. In duplicating apparatus, the combination of side-frames, a drum pivotally mounted thereon, an underlying pressure-roller movable to operative and inoperative positions, a sector pivoted on one of the pivots of said drum, means for securing said sector to said drum in various positions about its pivotal axis, said sector having a cam surface on the outer edge thereof

inclined at both ends thereof toward the center of the drum, cooperating mechanism between said sector and said roller for moving the latter, a gear secured to the drum independently of said sector, and means co-acting with said gear for rotating the drum, substantially as set forth.

2. In duplicating apparatus, the combination of a rotary drum, a pressure-roller, means for moving the pressure-roller toward and away from the drum to operative and inoperative positions, throw-off mechanism for said pressure-roller, and a brake cooperating with said drum and with said throw-off mechanism, substantially as set forth.

3. In duplicating apparatus, the combination of a rotary drum, a pressure-roller, means for moving the pressure-roller toward and away from the drum to operative and inoperative positions, throw-off mechanism for said pressure-roller, and a brake cooperating with said drum and moved to operative or inoperative relation with re-

spect thereto by means of said throw-off mechanism, substantially as set forth.

4. In duplicating apparatus, the combination with a drum and an underlying pressure-roller, of throw-off mechanism for said pressure-roller, a brake for said drum, and an elastic connection between said brake and said mechanism, substantially as set forth.

5. In duplicating apparatus, the combination with a drum and an underlying pressure-roller, of throw-off mechanism for said pressure-roller, a pivotally-mounted brake for said drum, and a connection between said brake and a moving part of said throw-off mechanism for throwing said brake to operative and inoperative positions, substantially as set forth.

This specification signed and witnessed this 9th day of February, 1909.

ALBERT B. DICK.

Witnesses:

S. O. EDMONDS,
D. J. EDMONDS.