

No. 809,288.

PATENTED JAN. 9, 1906.

A. B. DICK.
DUPLICATING APPARATUS.
APPLICATION FILED FEB. 4, 1905.

Fig. 1.

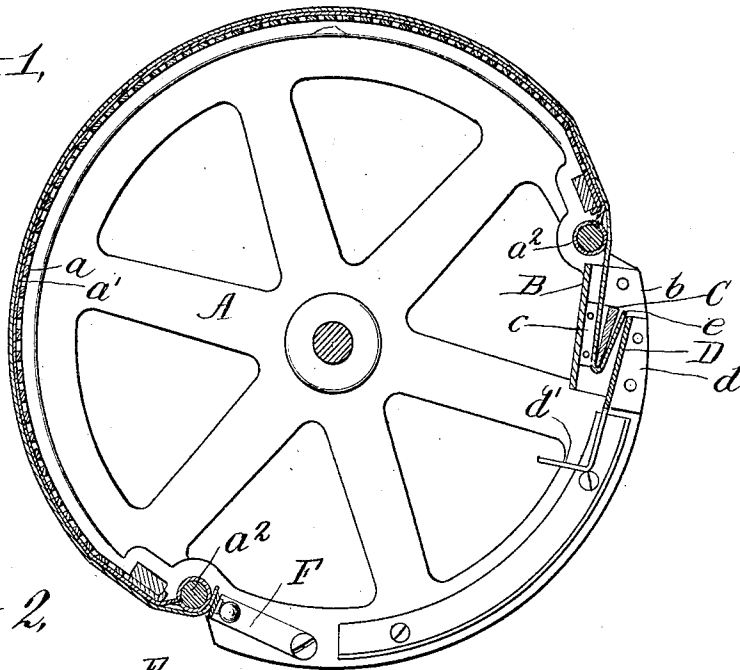


Fig. 2.

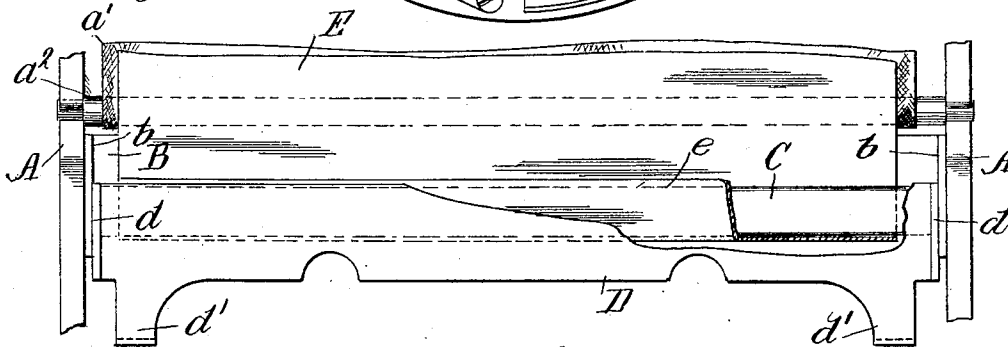


Fig. 3.

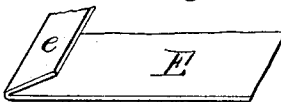


Fig. 4.

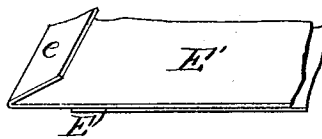


Fig. 5.

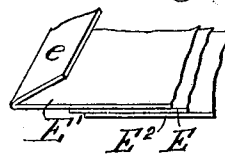
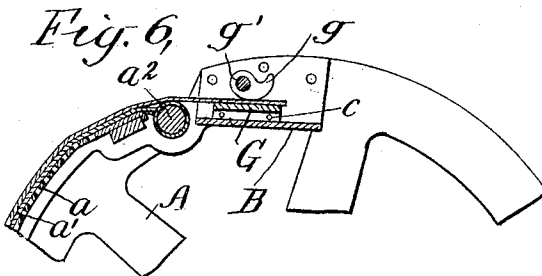


Fig. 6.



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ALBERT B. DICK, OF LAKE FOREST, ILLINOIS, ASSIGNOR TO A. B. DICK COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

DUPLICATING APPARATUS.

No. 809,288.

Specification of Letters Patent.

Patented Jan. 9, 1906.

Application filed February 4, 1905. Serial No. 244,139.

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 a certain new and useful Improvement in Duplicating Apparatus, (Case B,) of which the following is a specification.

One of the principal objects of the present invention is to improve and simplify mechanism for the duplication of autographic and type-written matter with respect to the provision for attachment of the stencil-sheet in position upon a movable drum. In attaining this end I have devised means whereby instead of more or less expensive prearrangement with regard to the sheet itself and more or less complex coacting mechanism upon the drum the advancing edge of the stencil-sheet may be placed in position and there securely held by a mere rearward movement thereof, this movement effecting a firm union between such sheet and the coacting mechanism upon the drum of the apparatus.

The invention may be embodied in different forms, two of which will be hereinafter described. With relation to both thereof it is true that the operation of attaching the stencil-sheet to the drum involves merely the forward movement into the securing means and a slight return movement of such sheet, this being due to automatic coaction between the advancing edge of the sheet and the securing means.

A preferred form of the invention is illustrated in Figures 1 and 2, the former being a central vertical section of a stencil duplicating-drum equipped with my invention and the latter being an enlarged plan view of a portion of the drum so illustrated. Figs. 3, 4, and 5 are detail perspectives illustrating various forms of stencil-sheets, and Fig. 6 is a sectional view illustrating a modification hereinafter to be referred to.

Referring first to Figs. 1 and 2, here are represented two drumheads A, provided with the foraminated stencil-carrier *a*, outside which is an ink-pad *a'*, secured in position by headed rods *a''*, coacting with notches in the drumheads A. B designates a shelf-plate, here shown as provided with angular upturned ends *b*, by means whereof said plate is secured to the inner surfaces of the heads A. C designates a locking-plate overlying the

shelf-plate B and separated by a short distance therefrom, said plate being provided with angular downturned ends *c*, here shown as secured by riveting or otherwise to the angular ends *b* of the shelf-plate B. D designates a stop-plate, here shown as provided with angular upturned ends *d*, secured by riveting or otherwise to the internal faces of the drum-heads A. If desired, instead of mounting said plate D rigidly, as here shown, the same may be hinged, so as to lie close to the plate C after the stencil-sheet has been placed in position. This may be accomplished by omitting the rivet at each end of the plate nearest to the forward edge of the stencil-carrier or in any other suitable manner. Said stop-plate is provided with angular extensions *d'*, forming stops for the stencil-sheet—*i. e.*, the stencil-sheet, presently described, is limited in its forward movement by said stops, after contact with which it is drawn rearwardly to secure it in position in coaction with the locking-plate C.

The exact form or character of the stencil-sheet is to some extent unimportant. It may comprise merely the waxed sheet E heretofore commonly employed, Fig. 3, or, if desired, such a sheet may be combined with a backing-sheet E' or with such a backing-sheet E' on one side and a top sheet or "type-protecting tissue" E" on the other side. I prefer (without, however, limiting myself thereto) to employ the backing-sheet, for the reason that this may be made of material possessing greater strength than the delicate fiber sheet forming the base of the stencil. In whatever form the stencil-sheet be employed, however, (*i. e.*, whether alone or combined with other sheets,) it is only necessary in order to adapt the same for coaction with the mechanism above described to provide the forward end thereof with a rearwardly-extending part, and this may readily be accomplished by folding such forward end backward upon the body of the sheet. No further preparation for attachment to the duplicator-drum is essential.

As will be clearly seen from Figs. 1 and 2, it is only necessary to pass the end of the sheet forwardly between the shelf-plate B and locking-plate C and then to draw such sheet rearwardly into the position in which it is illustrated in said figures. The angular stops *d'* form convenient means for determining the degree of forward movement and may, if

desired, bear even closer relation to the locking-plate C than that illustrated. Upon passing the forward edge of the sheet between the parts B and C the rearwardly-extending portion of such sheet (in the present instance the fold *e* thereof) automatically opens outward, so that when the sheet is again partially withdrawn this fold passes between the locking-plate C and the stop-plate D. When the sheet has been withdrawn so that the forward portion thereof shall occupy the position illustrated in Figs. 1 and 2, the body of the sheet may be smoothly pressed around the periphery of the drum, and if the pad upon such drum be saturated with ink this may be relied upon to secure the sheet in position, or, if desired, additional provision may be made for this—as, for instance, in the form of a clamping-bail F, Fig. 1.

In Fig. 6 I have illustrated a clamping mechanism comprising the cross-bar G, extending between and connecting the drum-heads, and overlying this is a cam-bar *g*, (which, however, may take the form of several separated cams, each being a section of such a cam-bar,) pivoted at *g'*. In this modification, as in the construction shown in Figs. 1 and 2, it is only necessary to pass the sheet forwardly between the bar G and cam-bar *g* and then to draw the same rearwardly in order to secure the forward edge in the position in which it is illustrated. Moreover, greater rearward pressure upon the stencil-sheet will cause the cam-bar to bind thereon even more firmly. In the device shown in Fig. 6, as in that shown in Figs. 1 and 2, the stencil-sheet may take any desired form—*i. e.*, either the waxed sheet alone or the waxed sheet in combination with another or other sheets.

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 with a drum and a stencil-sheet, of coacting parts one supported on said drum and the other supported on said sheet and one of which is movable relatively to its support, said parts being arranged to secure said sheet in position on said drum by a forward and reverse movement of the sheet relatively to the drum, substantially as set forth.

2. In duplicating apparatus, the combination with a drum and a part secured to said drum and adapted to move therewith, said part having a substantially flat and uniform surface, of a stencil-sheet the forward end whereof is movable relatively to the body portion of the sheet and is brought into coaction with said part by a forward movement past said part and then a rearward movement relatively thereto, substantially as set forth.

3. In duplicating apparatus, the combination with a movable drum, of a part secured thereto, and a stencil-sheet having at one end a portion extending back adjacent to the body

portion thereof and movable relatively to such body portion, said sheet being brought into automatic securing relation to said drum by relative movement thereof carrying said end of the sheet past said part on the drum and succeeding movement in the opposite direction, substantially as set forth.

4. In duplicating apparatus, the combination with a drum, of a part secured thereto and moving therewith, and a stencil-sheet having a folded elastic end coacting with said part, substantially as set forth.

5. In duplicating apparatus, the combination with a drum, of two parts secured thereto and moving therewith, a stencil-sheet and means carried thereby for securing said sheet in position upon passing the forward end thereof between said parts, substantially as set forth.

6. In duplicating apparatus, the combination with a drum, of a part secured thereto and moving therewith, a stop, a stencil-sheet and means carried thereby for securing said sheet in position upon movement of the same toward and from said stop and in coöperative relation to said part, substantially as set forth.

7. In duplicating apparatus, the combination with a drum, of two parts secured thereto and moving therewith, a stencil-sheet and means carried thereby for securing said sheet in position upon said drum upon the movement of said sheet past one of said parts and its return movement, leaving a portion of said sheet between said part and the other part, substantially as set forth.

8. In duplicating apparatus, the combination with a drum, of three parts carried thereby and movable therewith, a stencil-sheet, and means for securing the same in position upon said drum by passing the end thereof forward between two of said parts and then rearward, leaving a portion of said sheet between one of said parts and the third part, substantially as set forth.

9. In duplicating apparatus, the combination with a drum, of a part moving therewith, and a stencil-sheet having a part elastically connected thereto but extending outwardly and backwardly from the end thereof and adapted to coact with said part upon said drum upon forward and rearward movement of said sheet relatively thereto, substantially as set forth.

10. In duplicating apparatus, the combination with a drum, of a part moving therewith, a stencil-sheet having a part elastically connected thereto but extending outwardly and backwardly from the end thereof and entirely free from the sheet except at said end, said part of the stencil-sheet coacting with said part moving with the drum to secure the sheet upon the drum, substantially as set forth.

11. In duplicating apparatus, the combination with a drum having a shelf-plate and a locking-plate, of a stencil-sheet having a fold-

ed forward end adapted to pass between said plates and to coact automatically with said locking-plate, by reason of its elasticity, substantially as set forth.

5 12. In duplicating apparatus, the combination with a shelf-plate, a locking-plate and a stop-plate, of a stencil-sheet having a folded forward end adapted to be passed between said shelf-plate and locking-plate and to automatically coact with said locking-plate, by

reason of its elasticity, upon reverse movement of said sheet, the fold thereof passing between said locking-plate and said stop-plate, substantially as set forth.

This specification signed and witnessed this 15 30th day of January, 1905.

ALBERT B. DICK.

Witnesses:

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R. R. HARRINGTON.