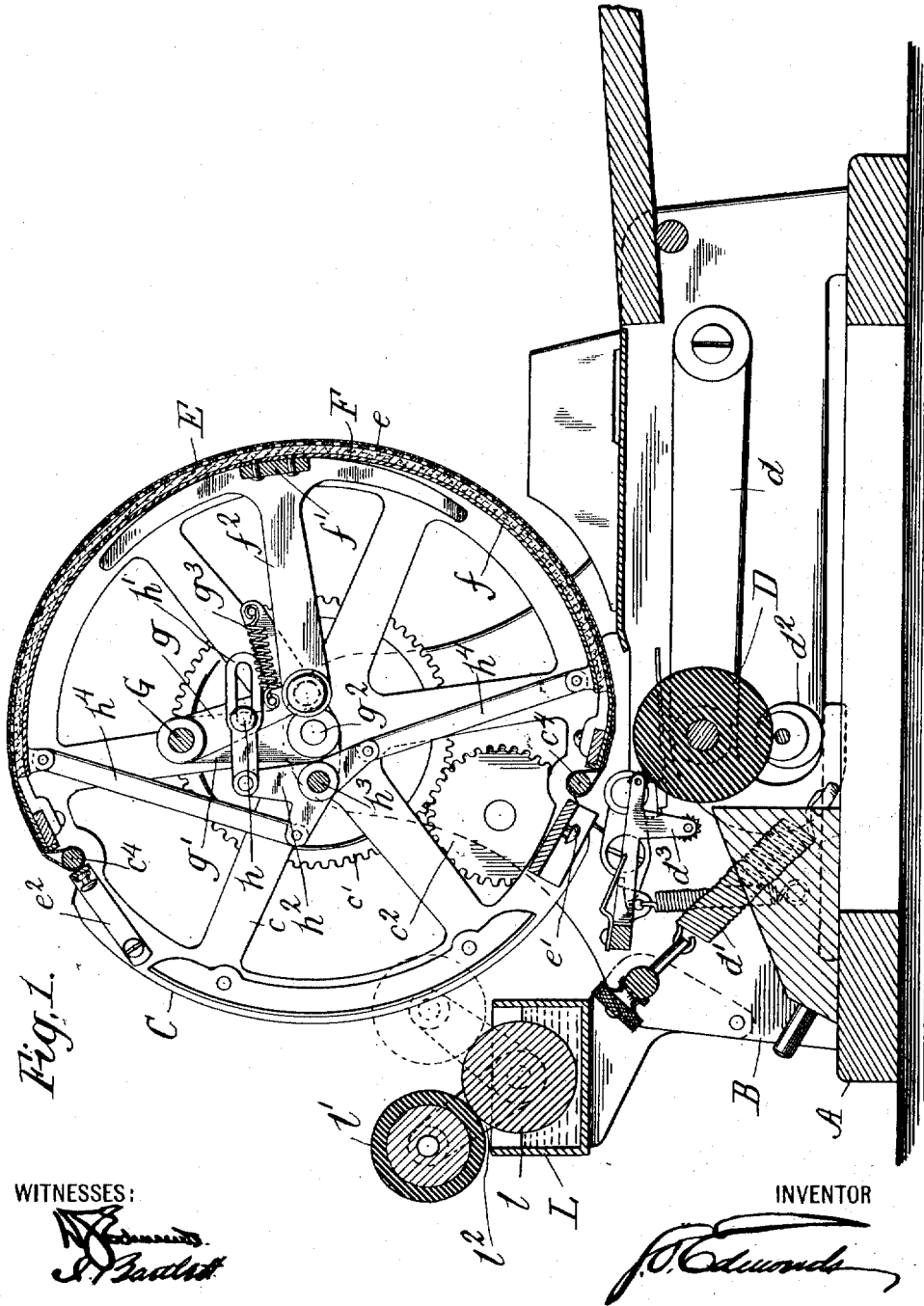


S. O. EDMONDS.
STENCIL DUPLICATING APPARATUS.
APPLICATION FILED MAY 9, 1908.

1,001,827.

Patented Aug. 29, 1911.

3 SHEETS—SHEET 1.

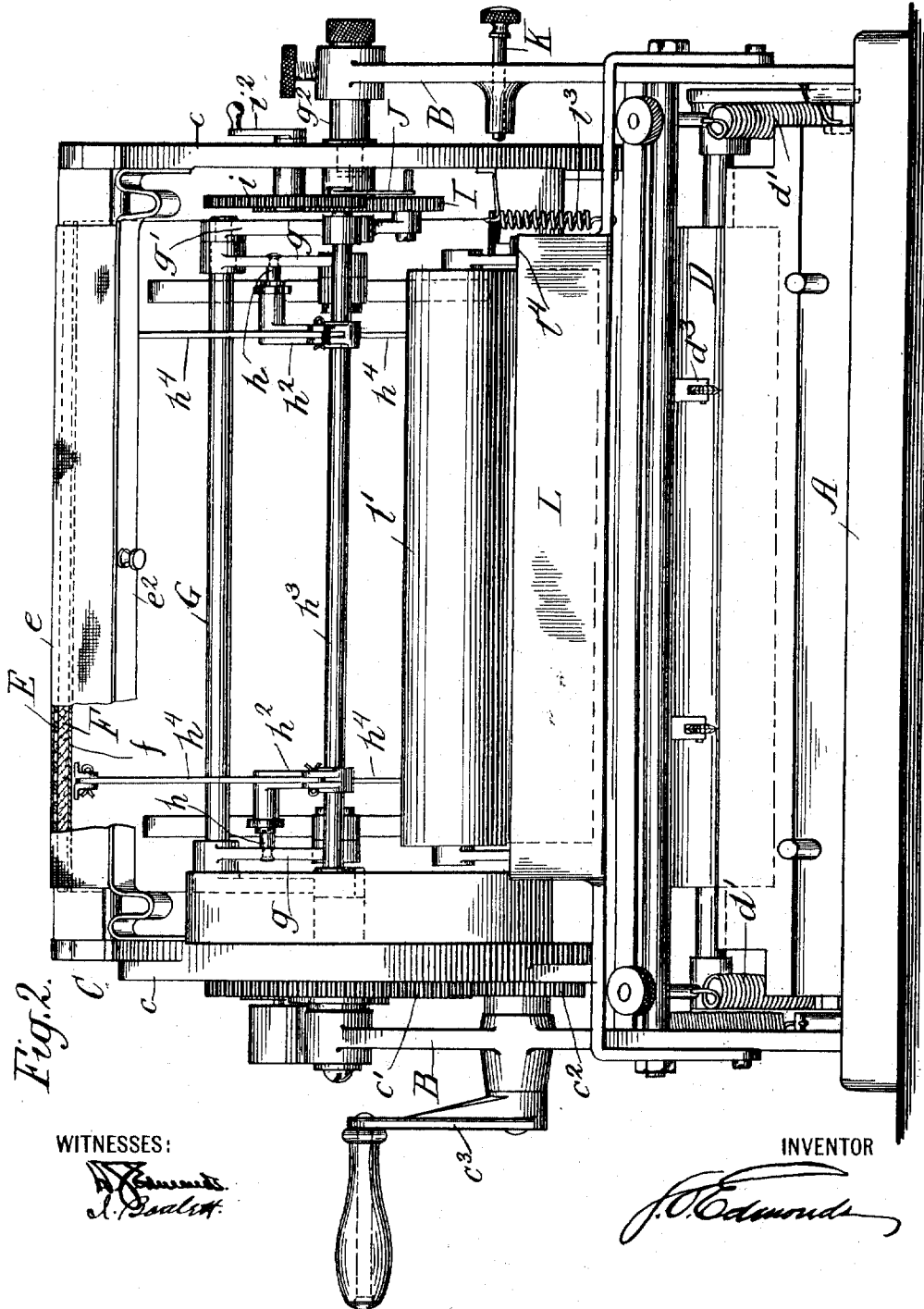


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3 SHEETS—SHEET 3.

Fig. 4.

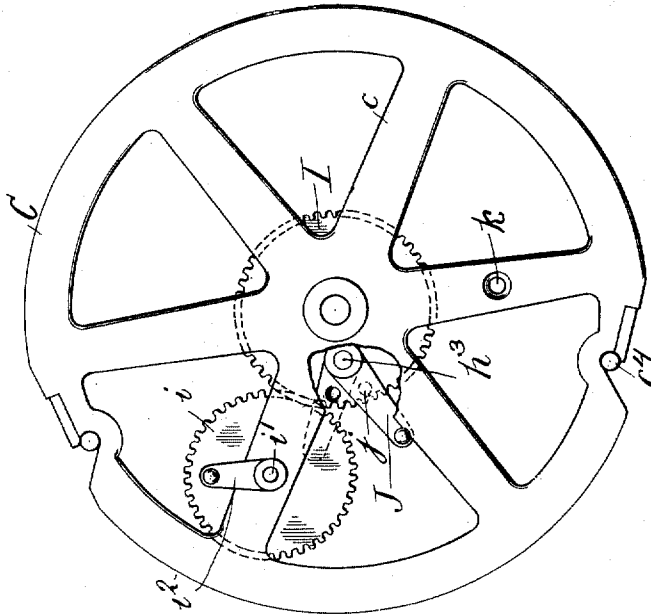
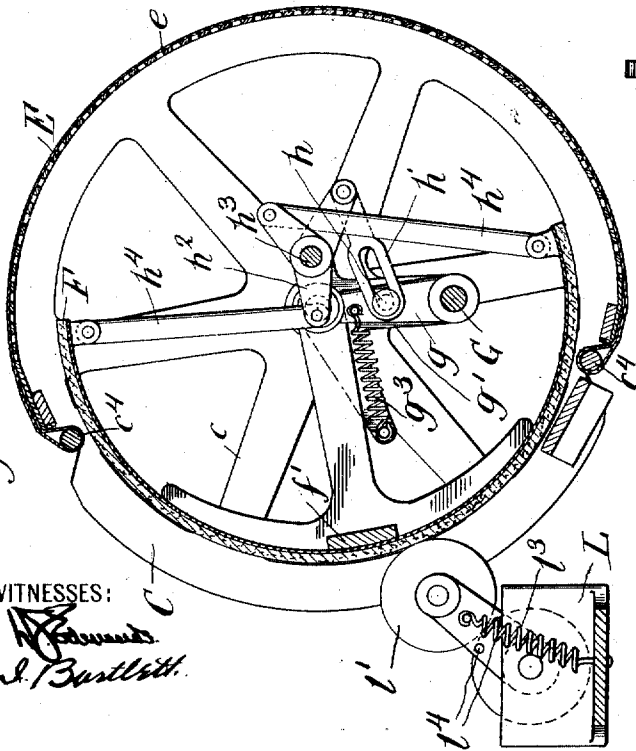


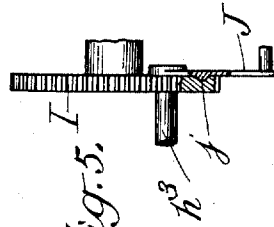
Fig. 3.



WITNESSES:

S. J. Bartlett.

Fig. 5.



INVENTOR

S. O. Edmonds

UNITED STATES PATENT OFFICE.

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STENCIL-DUPLICATING APPARATUS.

1,001,827.

Specification of Letters Patent.

Patented Aug. 29, 1911.

Application filed May 9, 1908. Serial No. 431,938.

To all whom it may concern:

Be it known that I, SAMUEL O. EDMONDS, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Stencil-Duplicating Apparatus, (Case B,) of which the following is a specification.

This invention relates to stencil-duplicating apparatus employing a drum upon the cylindrical surface of which a stencil-sheet is secured and a pressure-roller co-acting with the drum to imprint upon a sheet passed between it and the drum.

The invention is directed to the provision of means for supplying the ink for printing whereby the operation of replenishing the supply of ink can be more readily performed and the ink more evenly distributed.

In the preferred embodiment of the invention the ink for printing is supplied through the interstices in the stencil from an inking device directly underlying the same and the ink for this purpose is supplied from an ink receptacle exterior to the drum of the machine. The stencil-sheet extends around only a portion of the cylindrical surface of the drum and the drum is open on the side opposite the stencil; the inking device above referred to is so arranged that it can be turned from a position underlying the stencil to a position at the open side of the drum to permit of supplying ink thereto from the receptacle exterior to the drum.

The preferred embodiment of my invention is illustrated in the accompanying drawings in which—

Figure 1 is a longitudinal section of a stencil-duplicating machine, Fig. 2 is an end view of the same, Fig. 3 is a transverse section of the drum showing a position of the parts different from that illustrated in Fig. 1, Fig. 4 is an end view of the drum broken away in part and Fig. 5 is a detail view hereinafter referred to.

Referring to these drawings, the machine consists of a base A on which are mounted side-frames B in which the drum C is mounted for rotation, the drum being provided with trunnions at its ends entering bearings in the side-frames B. The drum consists of heads c connected together by bars c^1 and having a foraminated sheet E secured thereto and extending around a sub-

stantial portion of the cylindrical surface thereof. Secured to one of the heads c is a gear c^1 meshing with a gear c^2 carried by a stub-shaft mounted for rotation in a bearing formed in one of the side-frames B and provided with an operating handle c^3 .

The stencil-sheet is adapted to overlie the foraminated stencil-carrier E and is secured at one end to the drum by buttons e^1 and at the other end by means of a bail e^2 pivotally mounted on the heads of the drum C. An ink-pad e of absorbent textile material is arranged between the foraminated stencil-carrier E and the stencil-sheet, this pad being secured to the drum in any suitable manner as by means of loops formed in the end thereof and receiving bars extending between the heads of the drum.

Directly below the drum is a pressure-roller D mounted for rotation in arms d pivotally mounted upon the side-frames B and acted upon by the springs d^1 to carry the roller D to the upward and operative position in which it will coact with the drum to imprint upon a sheet. Roller D may be drawn down to an inoperative position by cams d^2 coacting with the ends of the arms d and mounted upon a shaft which may be provided with an operating handle. A combined paper stop and stripper, of well known construction, is shown at d^3 for arresting a sheet in proper position for printing and for preventing a sheet from sticking to the surface of the drum after it has been imprinted upon.

Ink is supplied to the pad e through the openings in the stencil-carrier E by a pad F of absorbent material which is secured in any suitable manner to the face of a thin metallic plate. Secured to the plate f is a cross-bar f^1 the ends of which are secured to sector-shaped members f^2 each having an arm extending inward radially of the drum. The curve of the outer face of each of the sector-shaped arms f^2 is formed on a radius somewhat less than the radius of the drum C. The pad F and the plate f correspond in size to the portion of the stencil-carrier which the stencil-sheet overlies and the plate f is made of spring metal so that when the plate is unrestrained it turns to a position in which it presses the pad F outwardly into contact with the interior surface of the carrier E. The inner end of the radial arm of each of the sector-shaped pieces f^2 is piv-

otally connected to the end of a lever g the other end of which is secured to a rock-shaft G ; the ends of this shaft are mounted in bearings formed in members g' which are adapted to turn loosely on studs g^2 extending inwardly of the drum at the center of the heads thereof. On each of the members g' is an arm to which is affixed one end of a spring g^3 the other end of this spring being affixed to the lever g so that these springs tend to turn the levers g in a direction to carry the sector-shaped members f^2 outwardly against the inner face of the stencil-carrier. On each of the levers g is a stud h extending through a slot in a link h' the other end of which is pivotally connected to one arm of a three-armed member h^2 . The other arms of each of the members h^2 are connected with the plate f at opposite edges of the latter, by link h^4 . The members h^2 are secured upon a rock-shaft h^3 the ends of which are received in bearings formed in the members g' . The member g' at the right side of the machine, as seen in Fig. 2, is affixed to a gear I and this gear meshes with a gear i secured upon a stub-shaft i' mounted for rotation in a bearing formed in one of the heads c of the drum. The outer end of stub-shaft i' is provided with an operating-handle i^2 on the outer side of the drum head. The shaft h^3 on which the two members h^2 are secured is extended at one end through an opening in the gear I and has an operating lever J secured upon the outer end thereof. This lever is made of spring metal and on the inner face thereof is provided with a projection or stud j which is adapted to enter one or the other of two depressions (Fig. 4) to hold the lever in the position to which it is moved against the tension of springs g^3 .

A locking device is provided for holding the drum C against rotation when it is desired to supply ink to the pad F . This may be of any suitable construction. In the drawings I have shown a pin K adapted to slide in an opening provided in one of the side-frames B , the end of this pin being adapted to enter an opening k in the adjacent drum head.

Mounted upon the side-frames B is an ink receptacle L in which a roller l is mounted for rotation in such position that a substantial portion of the roller is immersed in the ink. A second roller l' is mounted with its surface in contact with the surface of the roller l this roller being carried by arms l^2 which are loose upon the shaft of the roller l . A spring l^3 may be provided as shown in Fig. 3 for holding the roller l' in the inoperative position in which it is shown in Fig. 1 or in the operative position in which it is shown in Fig. 3 and in which it is adapted to make contact with the ink-pad F . Pins l^4 may be arranged upon the arms l^2 to limit

the extent of turning movement of the roller l' .

The machine is operated in the usual manner to imprint upon sheets passed between the drum and pressure-roller. Ink is supplied by the pad e through the interstices of the stencil to the impression sheet, and the pad e receives its supply of ink through the openings in the carrier E from the pad F underlying the carrier. When it becomes necessary to replenish the supply of ink of the pad F the drum C is turned by means of its operating handles to the position in which the open side thereof is toward the ink receptacle L . In this position the drum C is locked against rotation by means of the pin K . The parts are then in the position shown in Fig. 1. The operator then turns the handle J from the position in which it is shown in dotted lines in Fig. 4 to the position in which it is shown in full lines, thus rocking the shaft h^3 and the members h^2 secured thereto. As the members h^2 turn thus they act through links h^4 to draw the lateral edges of the plate f and the pad F secured thereto together so that the pad and plate assume a curvature formed on a shorter radius, the inner face of the plate f then engaging the outer faces of the sector-shaped arms f^2 throughout the length of the latter as is illustrated in Fig. 3. During these movements of the parts each of the links h' moves relatively to its stud h until the stud lies in the end of the slot in link h' opposite to that in which it is shown in Fig. 1 and further rocking movement of the shaft h^3 and members h^2 causes links h' to act on studs h in a direction to turn the levers g on their pivots so as to move the sector-shaped arms f^2 and plate f and pad F secured thereto inwardly of the drum so that plate f and pad F are disposed concentric with the drum but spaced apart from the carrier E . These movements are made against the tension of the springs g^3 and the parts are held in the positions above described against the tension of the springs g^3 by the coaction of the stud j on the operating lever J with one of the openings in the gear I . The operator then turns the handle i^2 thus causing the gear i to rotate gear I and this gear carries with it the members g' and all the parts secured thereto including the members h^2 , the sector-shaped members f^2 and the pad F . This rotation of the pad is continued until it is carried around to the open side of the drum and roller l' is then turned about the shaft of roller l to the operative position in which it is shown in Fig. 3 and in which it is in contact with the pad F . The operator then turns the handle i^2 in opposite directions to cause the pad F to move back and forth so that the roller l' runs back and forth over the entire outer surface of the pad F and in doing so the roller supplies

ink to the pad from the receptacle L and roller Z. When a sufficient supply of ink has been transferred to the pad F, roller Z is moved to the inoperative position in which it is shown in Fig. 1. The pad F is then rotated by means of handle z^2 back to the position in which it underlies the carrier E, and handle J is turned back to its original position so as to permit springs g^2 to move sector-shaped members f^2 to their original positions and to turn the members h^2 in a direction to move the edges of the plate f and pad F outwardly into contact with the overlying carrier E. The lock of the drum is then released and the operation of duplicating may be continued in the usual manner.

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 drum having means for securing a stencil-sheet thereto extending about a portion of the cylindrical surface thereof said drum being open on one side, an inking device within the drum, an inking-member outside the drum, and means for supporting said inking-member permitting movement thereof through said open side of the drum to supply ink to said inking device, substantially as set forth.

2. In stencil-duplicating apparatus, the combination of a drum having means for securing a stencil-sheet thereto extending about a portion of the cylindrical surface thereof, said drum being open on one side, an inking device within the drum, an inking-member outside the drum, means for supporting said inking-member permitting movement thereof through said open side of the drum and into contact with said inking-device, and means for moving said member and device while in contact, substantially as set forth.

3. In stencil-duplicating apparatus, the combination of a drum having means for supporting a stencil-sheet thereon extending about the cylindrical surface thereof, a securing device for the stencil-sheet, an inking device mounted within the drum and adapted to rotate with the drum, and means for moving said inking device relative to the drum and the stencil-sheet thereon, substantially as set forth.

4. In stencil-duplicating apparatus, the combination of a drum having means for supporting a stencil-sheet thereon extending about the cylindrical surface thereof, a securing device for the stencil-sheet, means for rotating the drum, an inking device mounted within the drum and rotatable with the drum, means for causing relative rotational movement of the drum and inking device, and a pressure-roller coacting with the drum, substantially as set forth.

5. In stencil-duplicating apparatus, the combination of a drum having means for securing a stencil-sheet thereon extending about a portion of the cylindrical surface thereof, said drum being open on one side thereof, an inking device mounted within the drum, means for rotating the drum and inking device together while they are in contact, and means for moving the inking device relatively to the drum to carry it toward and away from said open side of the drum, substantially as set forth.

6. In stencil-duplicating apparatus, the combination of a drum having means for securing a stencil-sheet thereon extending about a portion of the cylindrical surface thereof, said drum being open on one side thereof, an inking device mounted within the drum, means for rotating the drum and inking device together while they are in contact, means for moving the inking device relatively to the drum to carry it toward and away from said open side of the drum, and an inking-member mounted outside said drum but adjacent thereto and adapted to transfer ink to said inking device, substantially as set forth.

7. In stencil-duplicating apparatus, the combination of a drum having means for securing a stencil-sheet thereon extending about a portion of the cylindrical surface thereof, said drum being open on one side thereof, an inking device mounted within the drum, means for rotating the drum and inking device together while they are in contact, means for moving the inking device relatively to the drum to carry it toward and away from said open side of the drum, an inking-member mounted outside the drum but adjacent thereto and adapted to contact with said inking device, and means for moving said member and device while in contact to transfer ink from the member to said device, substantially as set forth.

8. In stencil-duplicating apparatus, the combination of a drum having means for supporting a stencil-sheet thereon extending about the cylindrical surface thereof, and an inking device mounted within the drum curved about the axis thereof engaging said supporting means over a substantial area thereof, means for moving said device from its normal operative position and means for applying ink to said device, substantially as set forth.

9. In stencil-duplicating apparatus, the combination of a drum having means for supporting a stencil-sheet thereon extending about the cylindrical surface thereof, an inking device mounted within the drum curved about the axis thereof, and means for holding said device in contact with said supporting means over a substantial area thereof, said device being adapted to be moved inwardly of the drum and away

from said supporting means to permit of supplying ink to the drum, substantially as set forth.

10. In stencil-duplicating apparatus, the combination of a drum having means for supporting a stencil-sheet thereon extending about the cylindrical surface thereof, an inking-device mounted within the drum, means for rotating the drum, and means for rotating said device independently of said drum, substantially as set forth.

11. In stencil-duplicating apparatus, the combination of a rotatable drum having means for supporting a stencil-sheet thereon extending about the cylindrical surface thereof, an inking-device mounted within the drum, means for moving said device toward and away from the drum independently of the rotation of the drum, and means for causing relative rotation of the drum and said device, substantially as set forth.

12. In stencil-duplicating apparatus, the combination of a drum having means for supporting a stencil-sheet thereon extending about the cylindrical surface thereof, an inking-device mounted within the drum and engaging said device over a substantial area thereof, means for rotating the drum, and means for rotating said device independently of the drum, substantially as set forth.

13. In stencil-duplicating apparatus, the combination of a drum having means for supporting a stencil-sheet thereon extending about the cylindrical surface thereof, an inking-device mounted within the drum, means for rotating said device independently of said drum, and means for supplying ink to said inking-device, substantially as set forth.

14. In stencil-duplicating apparatus, the combination of a drum having means for supporting a stencil-sheet thereon extending about the cylindrical surface thereof, an inking-device mounted within the drum and engaging said supporting means over a substantial area thereof, means for rotating the drum, means for rotating said device independently of the drum, and means for supplying ink to said inking device, substantially as set forth.

15. In stencil-duplicating apparatus the combination of a drum having means for supporting a stencil-sheet thereon extending about the cylindrical surface thereof, an inking device mounted within the drum, curved about the axis thereof, and engaging said supporting means over a substantial area thereof, and means for moving the inking-device inwardly of the drum, substantially as set forth.

16. In stencil-duplicating apparatus, the combination of a drum having means for supporting a stencil-sheet thereon extending about the cylindrical surface thereof, an ink-

ing-device mounted within the drum and curved about the axis thereof, means for moving the inking device inwardly of the drum, and means operated from outside the drum for causing relative rotation of the drum and inking device, substantially as set forth.

17. In stencil-duplicating apparatus, the combination of a drum having means for supporting a stencil-sheet thereon extending about the cylindrical surface thereof, an inking device mounted within the drum, curved about the axis thereof, and engaging said supporting means over a substantial area thereof, means for moving the inking-device inwardly of the drum and means for supplying ink to said inking device, substantially as set forth.

18. In stencil-duplicating apparatus, the combination of a drum having means for supporting a stencil-sheet thereon extending about the cylindrical surface thereof, an inking-device mounted within the drum and curved about the axis thereof, means for moving the inking device inwardly of the drum, means for causing relative rotation of the drum and inking device, an inking member mounted outside said drum, means for bringing said member and said device into contact, and means for moving the member and device while in contact to transfer ink to the device, substantially as set forth.

19. In stencil-duplicating apparatus, the combination of a drum having means for supporting a stencil-sheet thereon extending about the cylindrical surface thereof, an inking device within the drum, curved about the axis thereof and engaging said supporting means over a substantial area thereof, and means for holding said device in position, said device being adapted to be moved inwardly of the drum and away from said supporting means to permit of supplying ink to the drum, substantially as set forth.

20. In stencil-duplicating apparatus the combination of a drum having means for supporting a stencil-sheet thereon extending about the cylindrical surface thereof, an inking-device within the drum and engaging said supporting means over a substantial area thereof, a spring-metal plate for holding said device in position, and means for securing said plate in position upon the drum, substantially as set forth.

21. In stencil-duplicating apparatus, the combination of a drum, a perforated sheet thereon, an ink-pad overlying said sheet, an ink-pad within the drum curved about the axis thereof, means for holding said last-named pad in contact with the interior surface of said sheet, and means for moving said last-named pad out of contact with said sheet, substantially as set forth.

22. In stencil-duplicating apparatus, the combination of a drum, a perforated sheet

thereon, an ink-pad overlying said sheet, an ink-pad within the drum curved about the axis thereof, means for holding said last-named pad in contact with the interior surface of said sheet and means for supplying ink to the outer side of said pad within the drum, substantially as set forth.

23. In stencil-duplicating apparatus, the combination of a drum, a perforated sheet thereon, an ink-pad overlying said sheet, an ink-pad within the drum, means for holding said last-named pad in contact with the interior surface of said sheet, means for moving the last-named pad relatively to the drum, an inking-member, and means for bringing said inking-member and said last-named pad into contact to transfer ink to the pad, substantially as set forth.

24. In stencil-duplicating apparatus, the combination of a drum, means for supporting a stencil-sheet thereon extending about the surface thereof, an inking-device within the drum, means for supporting said device in contact with said supporting means and curved about the axis of the drum, means for moving said device to a position in which it is disposed in a curve of shorter radius, and means for causing relative rotation of the drum and said device, substantially as set forth.

25. In stencil-duplicating apparatus, the combination of a drum having means for supporting a stencil-sheet thereon extending about the cylindrical surface thereof, an inking device mounted within the drum and engaging said means over a substantial area thereof, means for rotating the drum and said inking means together while in engagement, means for moving the inking device inwardly of the drum, and means for causing relative rotation of the drum and inking device, substantially as set forth.

26. In stencil-duplicating apparatus, the combination of a drum having means for supporting a stencil-sheet thereon extending about the cylindrical surface thereof, an inking device mounted within the drum and engaging said means over a substantial area thereof, means for rotating the drum and said inking means together while in en-

gagement, means for moving the inking device inwardly of the drum and means operative from outside the drum for causing relative rotation of the drum and inking device, substantially as set forth.

27. In stencil-duplicating apparatus, the combination of a drum having means for securing a stencil-sheet thereon, extending about a portion of the cylindrical surface thereof, said drum being open on one side thereof, an inking device mounted within the drum, means for rotating the drum and inking device together, and means for rotating said inking device relatively to the drum to carry it toward or away from said open side of the drum, substantially as set forth.

28. In stencil-duplicating apparatus, the combination of a drum having means for securing a stencil-sheet thereon, extending about a portion of the cylindrical surface thereof, said drum being open on one side thereof, an inking device mounted within the drum, means for locking the drum against movement, means for moving the inking device toward and away from the drum, and means for supplying ink to the inking device, substantially as set forth.

29. In stencil duplicating apparatus, the combination of a rotatable drum having a portion of its cylindrical portion closed and another portion open, an inking member mounted within the drum and rotatable therewith, means for rotating the drum and inking member, means for moving said member toward and away from the open side of the drum, an inking member mounted outside the drum and means for bringing said members into contact to supply ink to the member within the drum by projecting one of them through said open portion of the drum, substantially as set forth.

This specification signed and witnessed this 7th day of May, 1908.

SAMUEL OWEN EDMONDS.

Witnesses:

D. G. EDMONDS,
I. McINTOSH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."