

No. 654,268.

Patented July 24, 1900.

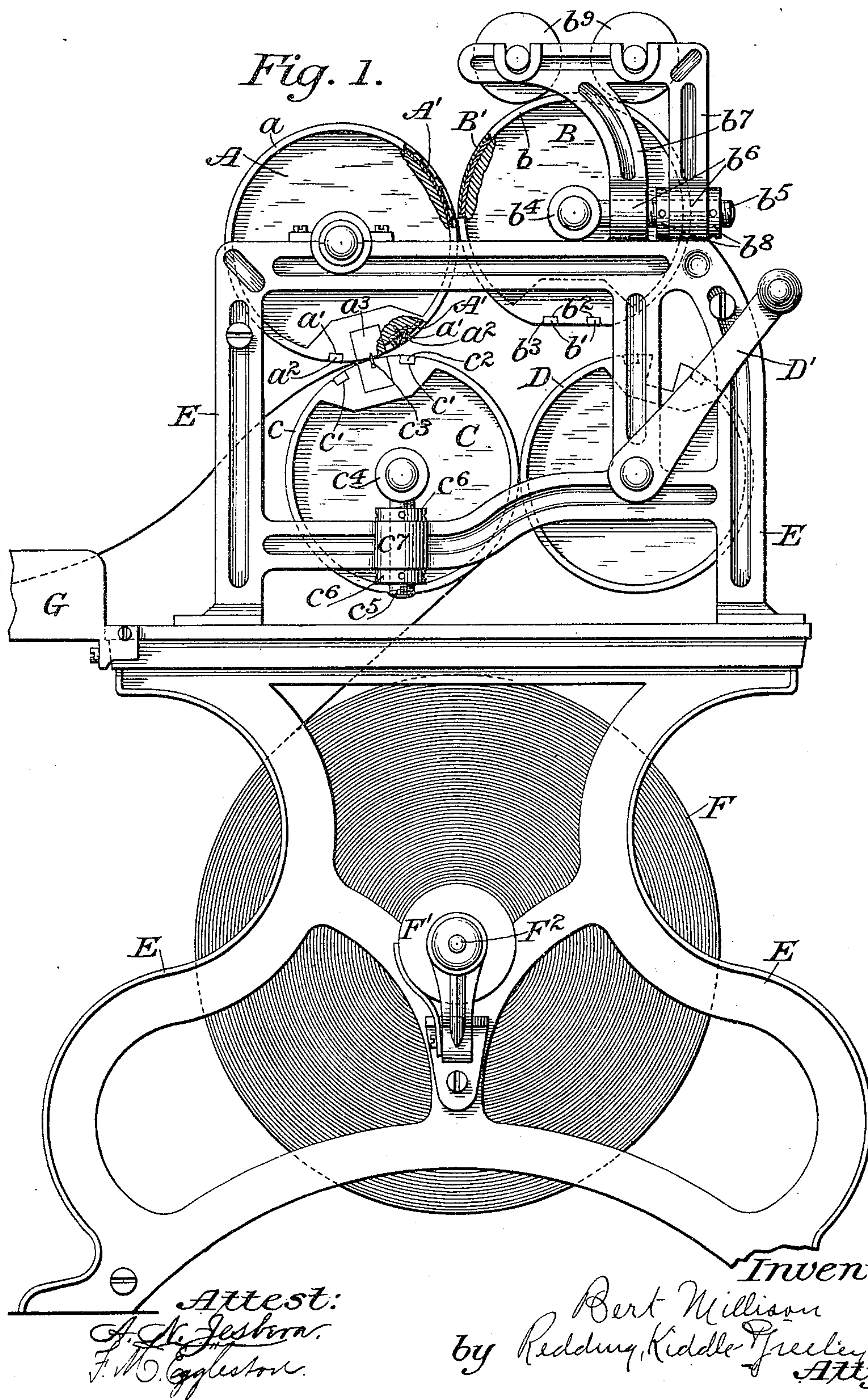
B. MILLISON.

APPARATUS FOR PRINTING FROM EMBOSSED SHEETS.

(Application filed Nov. 8, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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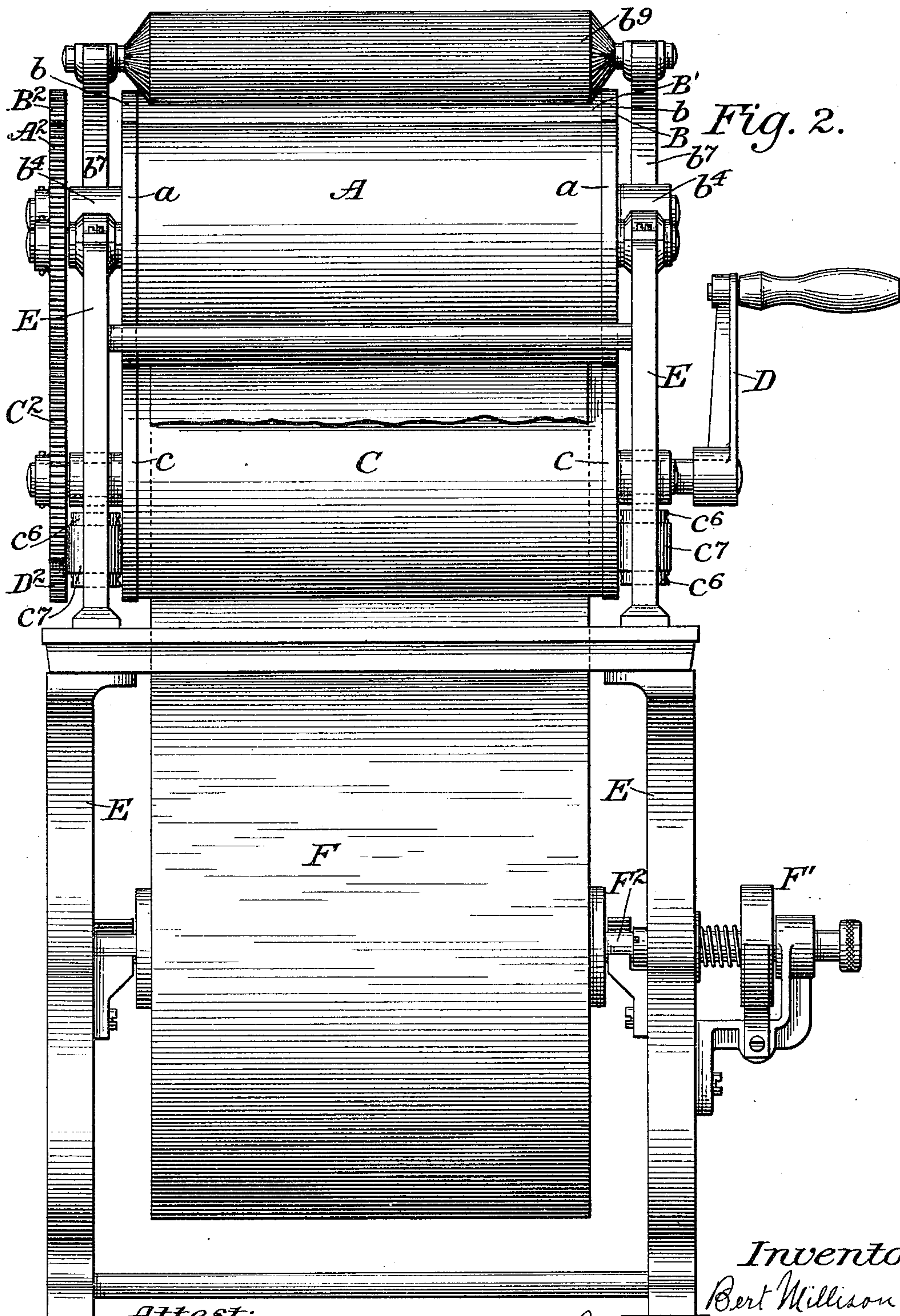
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# APPARATUS FOR PRINTING FROM EMBOSSED SHEETS.

(Application filed Nov. 8, 1898.)

(No Model.)

**2 Sheets—Sheet 2.**



Attest:  
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# UNITED STATES PATENT OFFICE.

BERT MILLISON, OF NEW YORK, N. Y., ASSIGNOR TO THE ASSOCIATED PRESS,  
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## APPARATUS FOR PRINTING FROM EMBOSSED SHEETS.

SPECIFICATION forming part of Letters Patent No. 654,268, dated July 24, 1900.

Application filed November 8, 1898. Serial No. 695,828. (No model.)

*To all whom it may concern:*

Be it known that I, BERT MILLISON, a citizen of the United States, residing in the borough of Brooklyn, city of New York, State of New York, have invented certain new and useful Improvements in Apparatus for Printing from Embossed Sheets, of which the following is a specification, reference being had to the accompanying drawings, forming a part hereof.

In another application filed concurrently herewith and serially numbered 695,829 there is set forth an improvement in the art of printing which involves the production of an embossed printing-sheet of paper or other like material from which the desired copies are made by first inking the raised portions of the printing-sheet and then bringing such raised and inked portions in contact with the paper to be printed upon. The printing-sheet so formed must obviously be treated differently, particularly as regards pressure thereon, from ordinary type or stereotype-plates, especially if many copies are to be obtained from the original printing-sheet.

It is the object of the present invention to produce a machine for printing from such sheets which shall give satisfactory results as regards legibility of the printed copy, shall make it possible to print many copies from a single printing-sheet without destroying the clearness thereof, and shall make it possible also to secure such copies with great rapidity. Such a machine is represented in an approved and practical form in the accompanying drawings, to which reference will be made in order that the nature of the invention may be clearly understood.

In the drawings, Figure 1 is a view in side elevation of a machine which embodies the invention, the receiving-tray being broken off to save space. Fig. 2 is a front end elevation of the same, the receiving-tray being wholly removed.

As represented in the drawings, the machine comprises a printing roll or platen A, an inking-roll B, a carrier-roll C, and a feed-roll D, all mounted in suitable bearings supported by a standard or framework E.

The roll A is of uniform diameter for the greater portion of its length, but at its ends

are narrow portions or bands  $a$ , formed on or applied to the body of the roll, of slightly-greater diameter than the main portion of the roll. The object of these bands or portions of increased diameter is to receive the pressure of the coöperating rolls and to form between them a shallow recess to receive the embossed printing-sheet A', the depth of the recess being such that the raised portions of the sheet shall not project beyond the bands or rims  $a$ . The roll A is also slotted longitudinally at  $a'$  to receive clamping-bars  $a^2$ , the ends of the printing-sheet A' being passed under said clamping-bars, so that the sheet is securely held to the roll during printing, and yet is easily replaced by another sheet when necessary. A block  $a^3$  is secured to the roll between the slots  $a'$  to coöperate with the cutter hereinafter referred to. The inking-roll B is mounted in proximity to the printing-roll A and may also be provided with bands or rims  $b$ , which form between them a shallow recess in which is placed the inking-sheet B', the ends of the latter being secured by clamping-bars  $b'$  in longitudinal slots  $b^2$ . This roll may also be slightly cut away longitudinally, as at  $b^3$ , to avoid transferring ink to the clamping-bars of the printing-roll or to the ends of the printing-sheet. The bearings  $b^4$  of the inking-roll are adjustable in order that the relation of the inking-roll to the printing-roll may be varied, if necessary, the bearings being carried by threaded studs  $b^5$ , which pass through eyes  $b^6$  in brackets  $b^7$  and receive on each side of said brackets adjusting-nuts  $b^8$ . The brackets  $b^7$  support the usual ink-distributing rolls  $b^9$ . The carrier C may also be provided with bearing rim or bands  $c$ , and may also be slotted at  $c'$  and provided with clamping-bars  $c^2$  to secure a blanket to the roll, if necessary. A cutter-blade  $c^3$  is secured to the roll between the clamping-bars and, in coöperation with the roll A, severs the paper at each rotation. The bearings  $c^4$  may be adjustably supported by threaded studs  $c^5$ , with adjusting-nuts  $c^6$  on opposite sides of the guide-eyes  $c^7$  in the frame.

The feed-roll D is mounted in such proximity to the carrier-roll C that the paper is gripped between them and is fed forward at the same speed as the surface speed of the



carrier C. A crank D or any other suitable means for imparting motion to the feed-roll D may be secured to its shaft, and all of the rolls A, B, C, and D are geared together, so that they shall rotate at the same speed, gears  $A^2$ ,  $B^2$ ,  $C^2$ , and  $D^2$ , respectively, being secured to the several rolls or to their extended shafts, as represented in Fig. 2.

The paper to be printed upon is preferably delivered from a roll F, mounted in suitable bearings in the frame of the machine, an ordinary brake (represented at F') being applied to the shaft  $F^2$  of the roll to prevent the roll from overrunning.

The mode of operation of the machine will be readily understood from the foregoing description of its construction. The end of the paper from the roll F being carried between the feed-roll and the carrier-roll and between the carrier-roll and the printing-roll and motion being imparted to the feed-roll, the several rolls rotate together, carry forward the paper, bring the paper into contact with the raised and inked characters of the printing-sheet on the roll A, and produce a complete impression of all of such characters at each rotation, ink the raised characters of the printing-sheet at each rotation, cut the paper after each impression from the continuous strip, and deliver the printed sheets into the receiving-tray G. Owing to the provision of the contact rims or bands no pressure is exerted upon the raised characters of the printing-sheet, with the result that practically an unlimited number of copies can be printed from a single printing-sheet without destroying its clearness. A single sheet of paper secured upon the inking-roll gives to the ink-

ing-surface all the elasticity necessary to effect a thorough inking of the raised portions of the printing-sheet and might be dispensed with altogether without serious disadvantage.

It will be evident that the bearing or contact rims or bands may be wholly formed upon or applied to one of the rolls and that the arrangement of the several parts of the machine may be varied without affecting the general result, wherefore the invention is not to be restricted to the precise construction and arrangement shown and described herein.

I claim as my invention—

An apparatus for printing from embossed sheets, comprising a frame, a printing-roll having means for securing the ends of the printing-sheet in place, and provided therebetween with a cutter-block  $a^3$ , an inking-roll, threaded studs mounted adjustably in the frame, and forming bearings for the inking-roll, a carrier-roll under the printing-roll having adjustable threaded studs forming its bearings, and provided with a cutting-blade to register with the block  $a^3$ , and with a flattened portion opposed to the block  $a^3$ , annular bearing-surfaces between the said three rolls to protect the printing-sheets from injury, and a feed-roll under the inking-roll, and coacting with the roll C to feed the web of paper through the machine; substantially as described.

This specification signed and witnessed this 31st day of October, A. D. 1898.

BERT MILLISON.

In presence of—

A. N. JESBERA,  
W. B. GREELEY.