

No. 750,816.

PATENTED FEB. 2, 1904.

E. A. COX.  
STENCIL PRINTING MACHINE.

APPLICATION FILED SEPT. 25, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

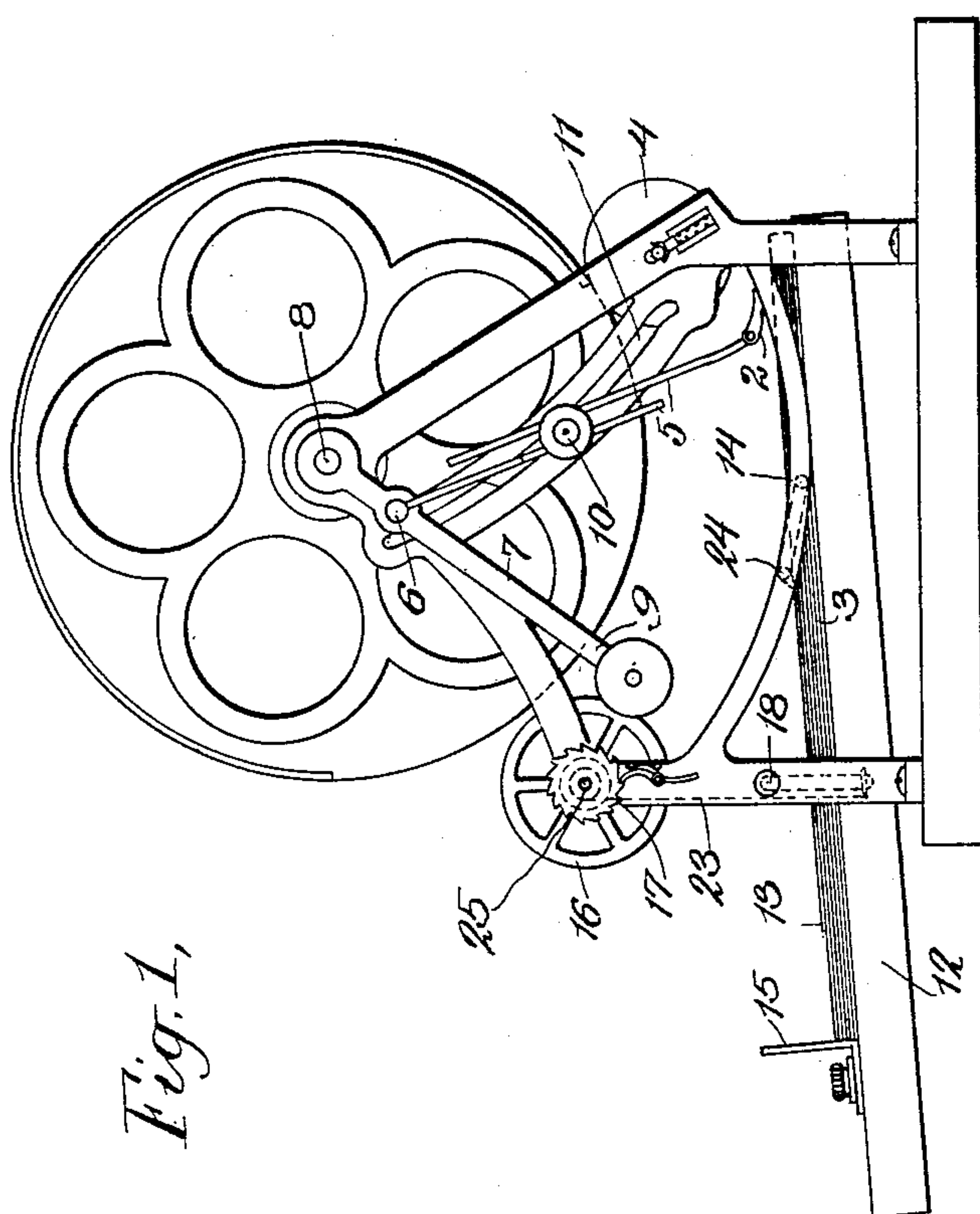


Fig. 1,

WITNESSES:

*J. M. Intosh*  
*L. Rock*

INVENTOR

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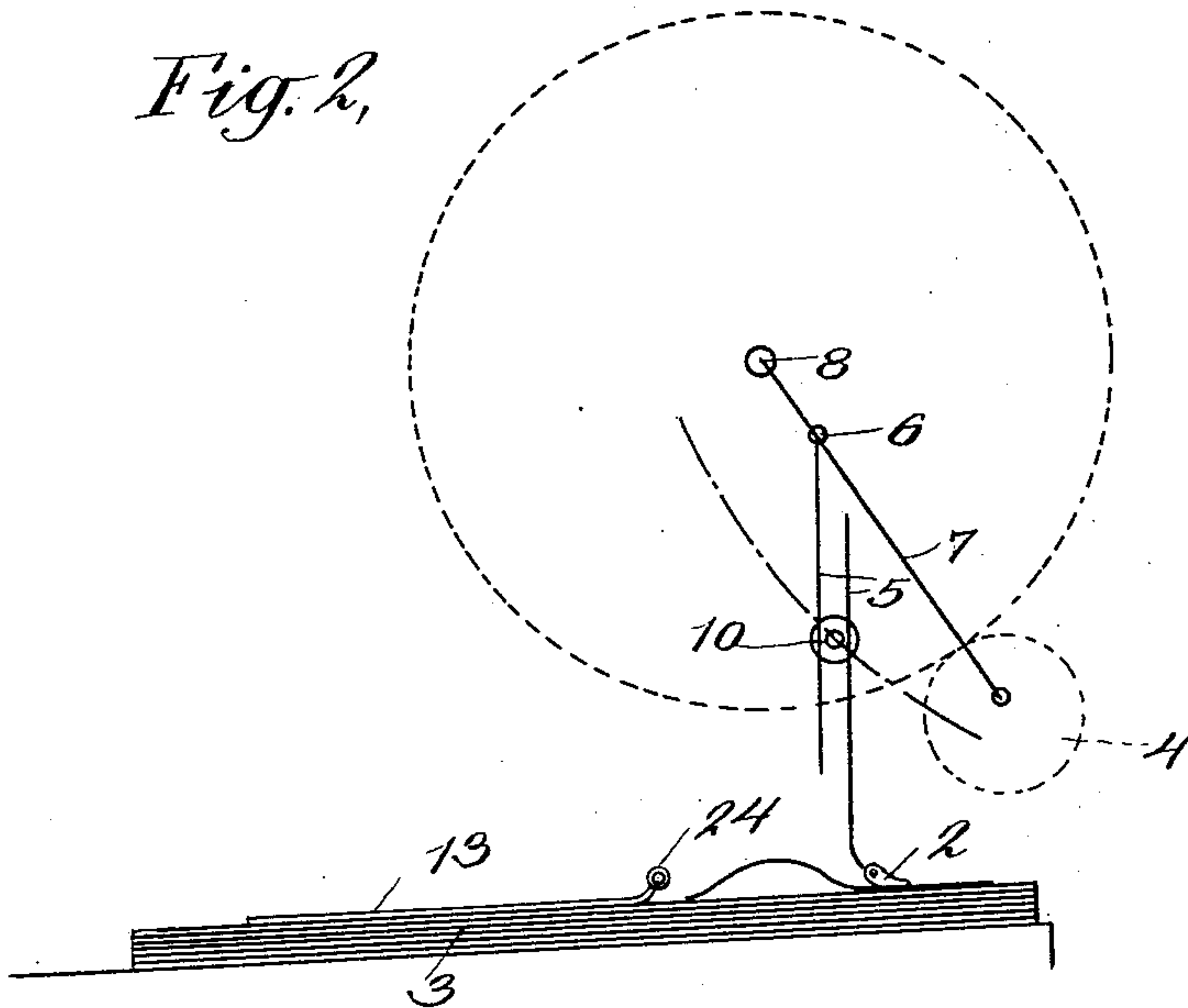
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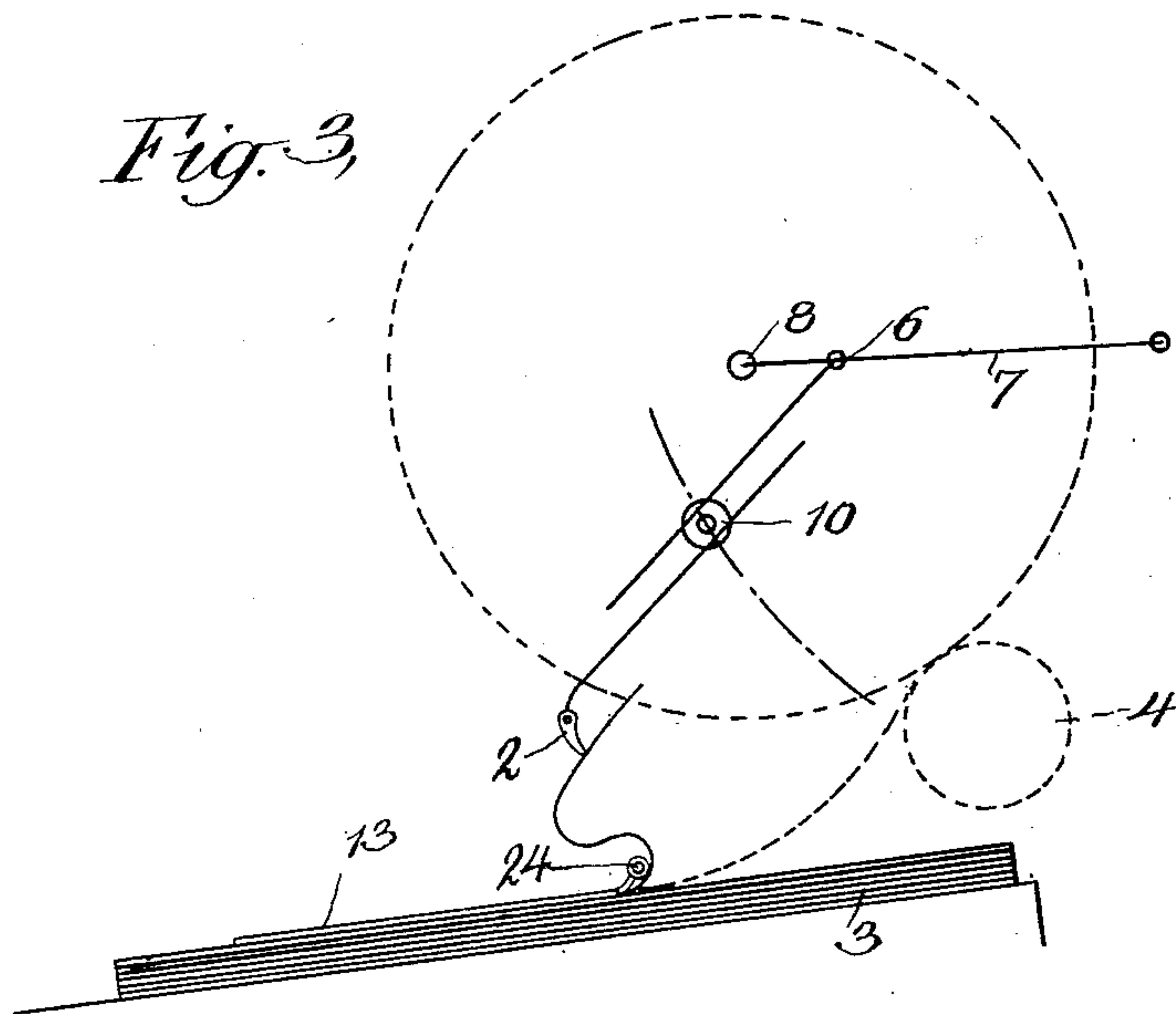
2 SHEETS—SHEET 2.

NO MODEL.

*Fig. 2,*



*Fig. 3,*



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# UNITED STATES PATENT OFFICE.

EDWIN AUSTIN COX, OF LONDON, ENGLAND, ASSIGNOR TO A. B. DICK COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

## STENCIL-PRINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 750,816, dated February 2, 1904.

Application filed September 25, 1902. Serial No. 124,754. (No model.)

*To all whom it may concern:*

Be it known that I, EDWIN AUSTIN COX, a subject of the King of Great Britain and Ireland, residing at London, England, have invented certain new and useful Improvements in Stencil-Printing Machines, (for which I have made application for Letters Patent in Great Britain, No. 19,442, dated September 4, 1902,) of which the following is a specification.

This invention relates to the paper-feeding arrangements of rotary printing or like apparatus and is especially applicable to rotary stencil-duplicators. In machines of this kind it has hitherto been usual to place the paper upon a feeding-board adjacent to the machine and then to feed in the paper by hand, one sheet at a time.

The object of the present invention is to effect the feeding of the paper automatically.

The invention consists in providing the rotary printing or like machine with a frictional device, such as a pressure-bar, and in operating such device from the moving parts of the machine in such manner that it will intermittently move into contact with the pile of paper and cause the top sheet to travel into the machine.

The invention also consists in details of construction hereinafter described for rendering the feeding action effective and accurate.

In the accompanying drawings, Figure 1 is a side elevation of part of a stencil-duplicating machine with the invention applied. Figs. 2 and 3 are diagrams illustrating the different movements of the automatic feeding device.

In carrying out the invention in a preferred form a pressure-bar 2 is caused to press down onto the paper pile 3 and move rearwardly in such a manner as to cause the top sheet to buckle or bend upwardly, whereupon further motion is imparted to the bar to enable it to release the forward end of the buckled sheet, which immediately straightens and falls onto the usual feeding-roller 4 or other feeding device of the machine, whereupon the movement of the latter causes the sheet to be passed between the same and the drum upon the sur-

face whereof a stencil or other printing device may be secured. The bar 2 is normally situated adjacent to the feeding-roller or other device of the machine and is carried by adjustable rods 5 from pivot-joints 6 on cranks 7, secured on the main or other shaft 8 of the machine. The handle 9, by which the machine is operated, may, if suitable, act as one crank. It is essential that the cranks revolve in synchronism with the platen-cylinder.

The cranks impart the required vertical movement to the bar 2; but in order to also impart the desired horizontal movement thereto the connecting-rods are provided with pins 10, adapted to travel in suitable curved cam-slots 11 in the machine-framework or in plates secured thereto. The curvature of the slots is so arranged that as the cranks revolve they not only cause the connecting-rods 5 to reciprocate vertically, but they cause them to oscillate about the pivot-pins 10, and thereby impart the desired movement to the bar—viz., first, a downward movement from the position shown in Fig. 1 onto the pile of paper; secondly, a rearward movement by which the top sheet is buckled, as indicated in Fig. 2; thirdly, a combined slight upward and rearward movement to enable the buckled part of the sheet to rise, as indicated in full lines in Fig. 3, until the bar 2 has moved sufficiently high to free the paper, which in straightening, as shown by dotted lines in Fig. 3, falls onto the feeding-roller 4 or other feeding device by which it is fed into the machine, and, fourthly, a forward movement out of contact with the paper into the initial position (shown in Fig. 1) ready for the next sheet.

To hold the paper pile in place on the feeding-board 12, a plate 13 is pivoted, as at 14, to the machine-frame and adapted to lie on the paper. The plate is carried by a bar 24, about which the paper is buckled, as shown in Fig. 3. A back stop or gage 15 is also provided on the board 12 to hold the paper in position. The bar 24 is placed in such a position as to determine the amount of the sheet which is to buckle, forming a rest against or about which the sheet can bend as the feeding-



bar 2 tends to press it backwardly, the back stop or gage 15 preventing the pile from sliding.

It will thus be seen that as each sheet is buckled and fed the pile is simultaneously pressed home against the back gage, and thereby accurately registered, so that each fed sheet will print in the machine at the same point.

The feeding-board 12 is pivoted at 18 and preferably adapted to press the paper pile up against the pressure-bar 2 or the plate 13 by its own weight; but it may be tensioned in any other suitable manner, adjustable springs or a string 23, passed under the board and tensioned on a shaft 25, rotated by a hand-wheel 16, or any other device being employed to regulate the pressure. The shaft 25 may be retained by a pawl and ratchet 17. The board may be pressed upwardly by adjustable springs, if desired.

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

1. In a printing-machine, the combination with printing mechanism, of means for operating the same, a presser-bar actuated by said means to engage the top sheet of a paper pile, buckle the same transversely of the machine and release it, and a roller coacting with said printing mechanism and between which and said mechanism said sheet is fed after being released by said bar, substantially as set forth.

2. In a printing-machine, the combination with a drum and a roller, of means for operating the same, and a presser-bar independent of said drum and actuated by said means and coacting with the forward edge of the top sheet of a paper pile to buckle the same and release it in proximity to said drum and roller, substantially as set forth.

3. In paper-feeding apparatus for printing or like machines, the combination with a drum and a roller and means for operating the same, of a paper-support adapted to hold the sheets of a pile in a single and approximately horizontal plane, the ends of such sheets being in

alinement, a presser-bar, and means for operating the same, said bar coacting with the top sheet of said pile to buckle the same and release it with its forward edge in proximity to said drum and roller, substantially as set forth.

4. In a rotary printing or like machine, a feeding device, a presser-bar for separating the paper, a supporting-board provided with a clamping-plate for the paper and means for moving the bar first rearwardly in contact with the paper to buckle up the top sheet and then forwardly out of contact with the paper to allow the buckled sheet to straighten and pass to said feeding device substantially as hereinbefore set forth.

5. In a rotary duplicator or like machine, a feeding device, a presser-bar for separating the paper, a pivoted feeding-board provided with a clamping-plate and back stop or gage and means for moving the bar first rearwardly in contact with the paper to buckle up the top sheet and then forwardly out of contact with the paper to allow the buckled sheet to straighten and pass to said feeding device, such means comprising adjustable connecting-rods carrying said bar and connected to cranks on a driving-shaft, and pivot-pins on said connecting-rods adapted to travel in cam-slots, substantially as hereinbefore set forth.

6. In a rotary duplicator or like apparatus, a feeding device, a presser-bar for separating the paper, a pivoted feeding-board provided with a clamping-plate and adjustable back stop or gage, an adjustable tensioning device for regulating the upward pressure of the board, and means for moving the bar first rearwardly in contact with the paper to buckle up the top sheet and then forwardly out of contact with the paper to allow the buckled sheet to straighten and pass to said feeding device, substantially as hereinbefore set forth.

In witness whereof I have hereunto set my hand in presence of two witnesses.

EDWIN AUSTIN COX.

Witnesses:

ALBERT E. BARKER,  
G. F. WARREN.