

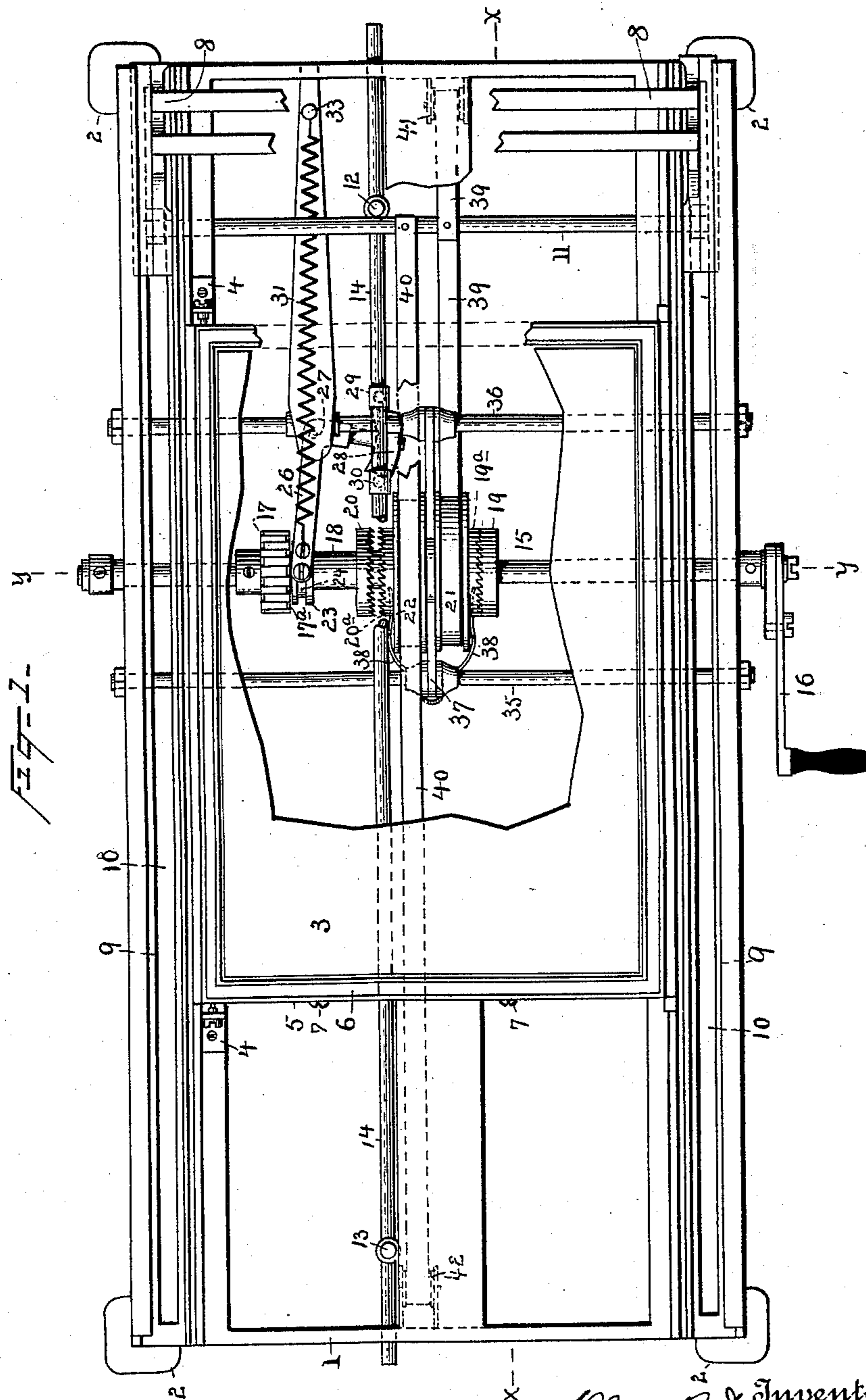
(No Model.)

2 Sheets—Sheet 1.

A. B. DICK.
STENCIL PRINTING MACHINE.

No. 578,726.

Patented Mar. 16, 1897.



Witnesses
Norris A. Clark.
John R. Taylor

Albert B. Dick, Inventor
By his Attorneys, Dyers & Wallace

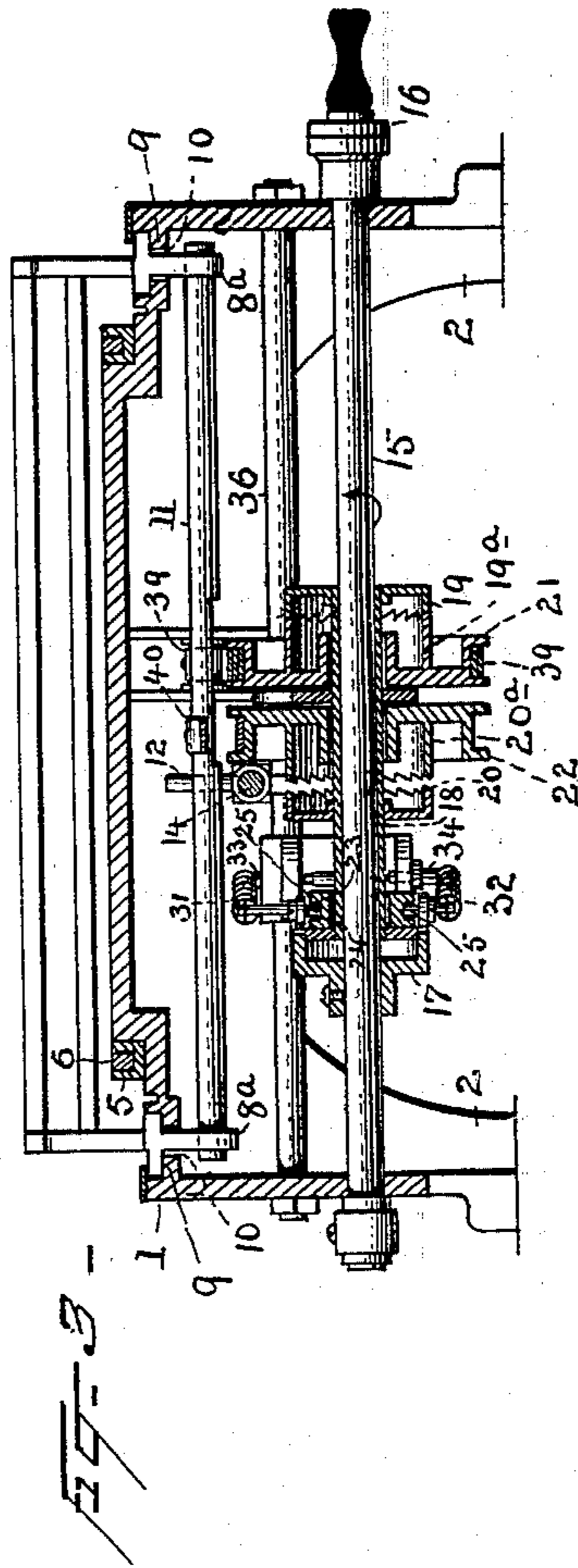
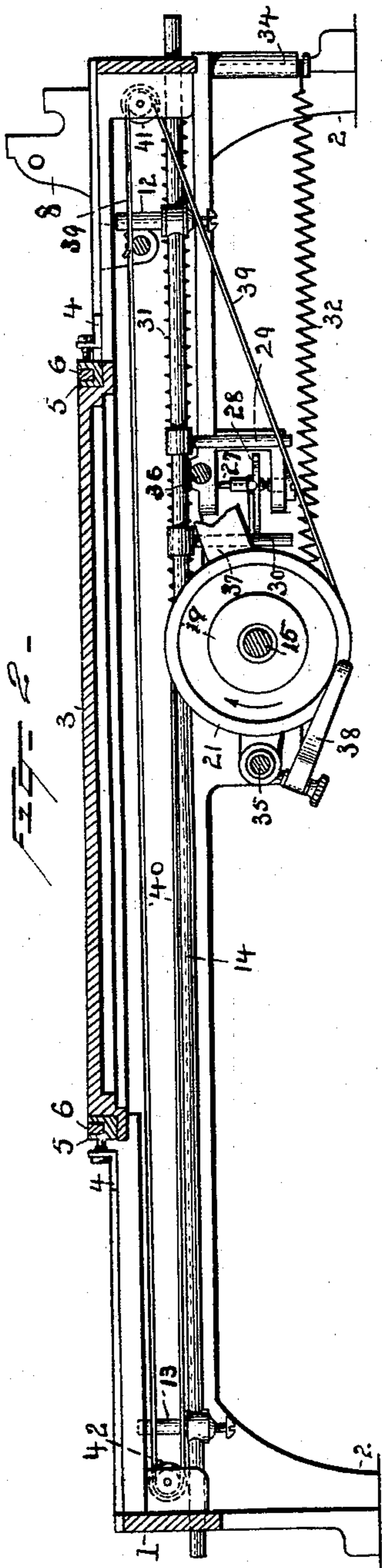
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UNITED STATES PATENT OFFICE.

ALBERT B. DICK, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE A. B. DICK COMPANY, OF SAME PLACE.

STENCIL-PRINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 578,726, dated March 16, 1897.

Application filed September 10, 1895. Serial No. 562,050. (No model.)

To all whom it may concern:

Be it known that I, ALBERT B. DICK, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Stencil-Printing Machines, of which the following is a specification.

My invention relates to that class of stencil-printing machines in which the printing is effected by means of a roller which is caused to pass over the stencil by mechanical means instead of by the hand-roller at present more commonly used in stencil-printing.

My object is to provide a means whereby the carriage on which is mounted the printing-roller shall be caused to pass back and forth over the stencil by power communicated through a crank which is turned constantly in one direction, the reversals of the direction of motion of the carriage being accomplished automatically. Hitherto trouble has been experienced with machines of the class to which my invention relates by reason of the fact that it has been necessary to change the direction of the motion imparted to the crank or other communicating device when it has been desired to reverse the direction of travel of the carriage. By overcoming this difficulty I am enabled to facilitate and quicken the operation of printing.

My various features of improvement will be hereinafter specifically pointed out and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a top view of my improved stencil-printing machine, with certain parts broken away in order that the mechanism beneath may be more clearly shown. Fig. 2 is a longitudinal elevation on the line $x x$, Fig. 1. Fig. 3 is a cross-section on the line $y y$, Fig. 1. Figs. 4 and 5 show a modification of a part of the apparatus.

1 is the frame of the machine, having legs 2 and a platen 3. The platen consists of a rectangular plate having a smooth flat top and vertical edges and may be cast integral with frame 1. To angle-irons 4 4, attached to the frame of the machine, is hinged a stencil-frame, which may be raised and lowered from the side opposite to that at which it is

hinged and which when in position for printing is adapted to bring a stencil-sheet stretched thereon into close proximity with the surface of the platen. It comprises, preferably, a metallic part 5, adapted to fit closely about the platen, and the part 6, which is simply a metallic rectangular frame adapted to fit into a groove in the part 5. A suitable stencil-sheet having been placed upon the stencil-frame, its edges are forced into the groove in the part 5 by the part 6, and it is secured in position by tightening the screws 7. When the stencil-sheet is in position, it and the top of the stencil-frame are practically on a level. It is evident that any other suitable platen and stencil-frame than those above described may be employed without departing from the spirit of my invention.

8 is the traveling carriage, upon the upper portion of which are mounted the printing-roller and inking devices, which it has not been deemed necessary to illustrate for the purposes of the present application. The carriage slides along the guideways 9 9 at the sides of the frame, and through slots 10 10 in said guideways project arms 8^a of the carriage, to which is attached a rod 11. The said rod is drawn to and fro underneath the platen in a manner to be hereinafter explained, and the carriage 8 is consequently moved back and forth. This rod is so located that at certain points of its travel it shall come into contact with pins 12 and 13 on a sliding rod 14, which extends the entire length of the machine and is supported in the ends of the frame.

Underneath the platen extends the shaft 15, carrying at one end the crank 16 and having its bearings in the sides of the frame of the machine. Rigidly secured to this shaft is the crown-wheel 17. The counterpart 17^a to this crown-wheel is formed integral with a sleeve 18, fitting over the shaft 15. The clutch-boxes 19 and 20 are rigidly secured to the said sleeve and hence revolve therewith. The counterparts 19^a and 20^a to said clutch-boxes are rigidly attached to the drums 21 and 22, respectively, and both the said counterparts and the said drums are loosely mounted on the said sleeve and are independent of the motion thereof except when

such motion is communicated to the drum 21 by the clutch 19 19^a and to the drum 22 by the clutch 20 20^a.

About the sleeve 18 is a collar 23, having a groove 24 therein, into which groove project the pins 25 25 upon the end of the longer arm of a bell-crank lever 26. This lever is pivoted at 27 to the frame, and its shorter arm is provided with the widened portion 28, adapted to come into contact with the pins 29 and 30 on the rod 14. To the longer arm of said lever are attached the springs 31 and 32, the other ends of said springs being attached to the pins 33 and 34 on the frame.

35 and 36 are stay-rods, to which is attached the metal plate 37, which serves to separate the drums 21 and 22. To the rod 35 is also attached the U-shaped spring 38, which keeps the drums in position against the plate 37. To the rod 11 are attached a band 39, which, after passing around the pulley 41 at one end of the frame, is fastened to the drum 21, and a second band 40, which passes around the pulley 42 at the other end of the frame and is secured to the drum 22.

By the aid of the foregoing description of parts the manner of operation of my stencil-printing machine may now be made clear.

We will suppose that an impression-sheet has been placed upon the platen, that the stencil-frame and stencil are in the printing position, that the carriage is to the left of the platen, and that the clutches, collar, and bell-crank lever are in the position shown in the drawings. The crank 16 is now turned constantly in the direction indicated by the arrows, Figs. 2 and 3, and motion is communicated, through the shaft 15 and the crown-gearing 17 17^a, to the sleeve 18 and the clutch-boxes 19 and 20. As the clutch-box 19 is locked with its counterpart 19^a the drum 21 revolves, winding about it the band 39. The carriage is thus drawn toward the right hand until the rod 11 comes into contact with the pin 12 on the rod 14. The parts are now all in the position indicated in the drawings. The further movement of the carriage and rod 11 moves rod 14 a short distance toward the right by the rod 11 striking pin 12, which brings pin 30 into contact with the part 28 of the bell-crank lever 26 and moves the same, thereby shifting the collar 23 over against the clutch-box 20, locking the said clutch-box with the counterpart 20^a and at the same time releasing the clutch-box 19 from the counterpart 19^a. The rotation of crank 16 in the same direction causes band 40 to be now

wound about the drum 22 and the carriage is drawn toward the left hand, or in the opposite direction to that in which it was before traveling. The drum 21 being now free to turn upon the sleeve 18, the band 39 may unwind sufficiently to permit this motion. When the rod 11 reaches the pin 13, the direction of motion of the carriage is again reversed in a manner similar to that in which the reversal was before effected, the rod 14 being moved this time toward the left, which movement, acting through the pin 29 and the bell-crank lever 26, shifts the collar 23 over against the part 17^a of the crown-gearing, and moving the sleeve 18 places the parts in the position first described. It is to be understood that each time the carriage passes clear of the stencil-frame the said stencil-frame and the stencil thereon are raised, and that the printed sheet beneath is removed and a fresh sheet placed upon the platen, the stencil-frame and stencil being then returned to the printing position. The function of the springs 31 and 32 is to hold the bell-crank lever 26 steadily in one position until it is acted upon by a movement communicated through the pin 29 or 30 to the part 28 of said lever.

I claim—

1. In a stencil-printing machine, the combination of a traveling carriage for carrying a printing-roller, a shaft adapted to revolve constantly in one direction, two drums loosely mounted on said shaft, belts connecting said drums with said carriage for imparting a forward-and-backward movement to the carriage, a clutch mechanism for alternately engaging said drums with the shaft, and pins projecting in the path of the carriage and adapted to be moved thereby, said pins being connected with and controlling the clutch mechanism, substantially as set forth.

2. The combination of a shaft, a sleeve thereon and geared thereto, clutch-boxes rigidly attached to said sleeve, counterparts to said clutch-boxes loosely mounted on said sleeve, means for preventing a lateral movement of the counterparts, a collar on said sleeve, a lever adapted to shift said collar, and springs connected to said lever to hold said collar steadily in one position until moved by said lever, substantially as set forth.

This specification signed and witnessed this 6th day of September, 1895.

ALBERT B. DICK.

Witnesses:

W. A. WATERBURY,
J. C. SAGE.