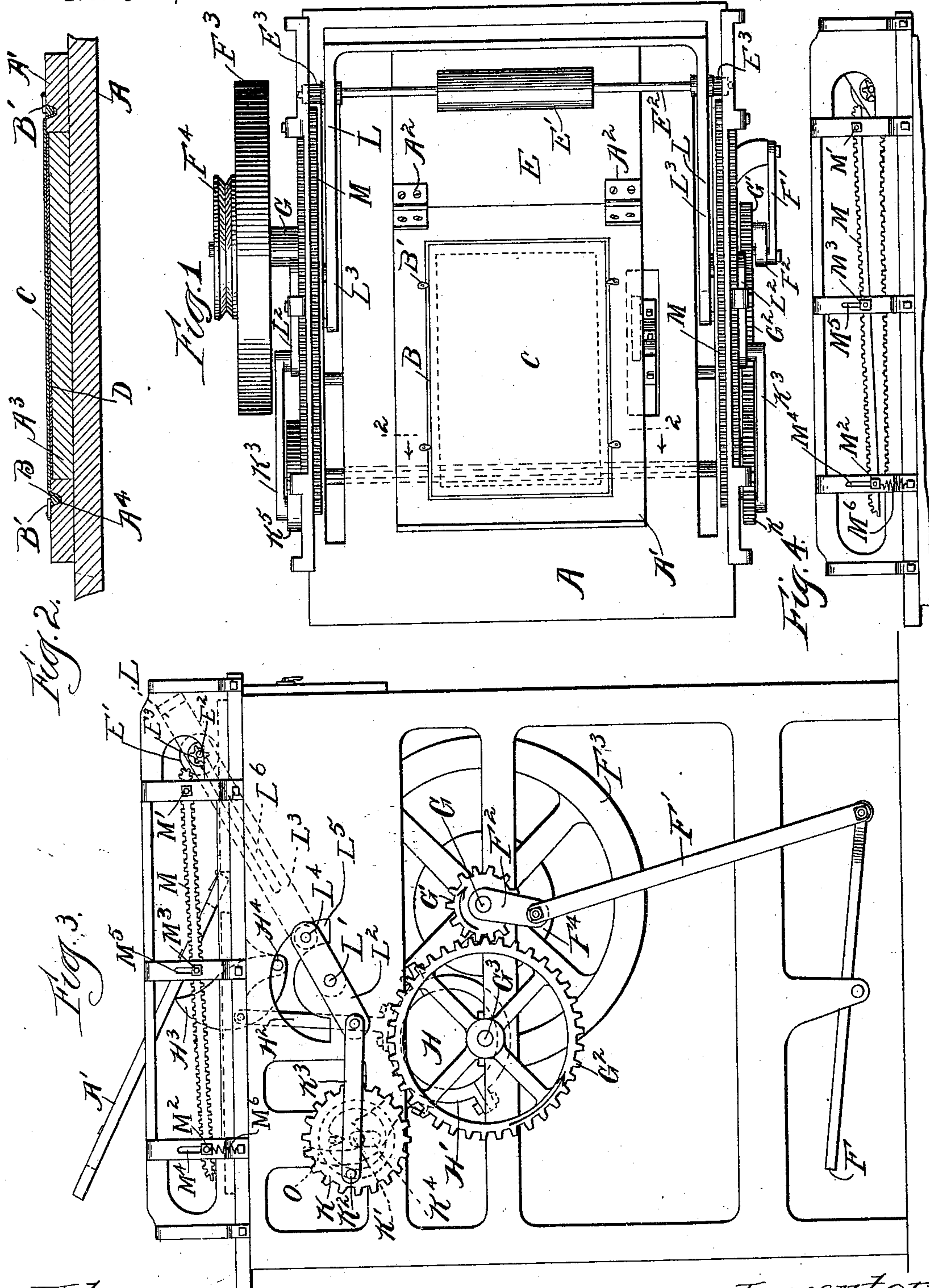


2 Sheets—Sheet 1.

N. P. ANDERSON.  
DUPLICATING MACHINE.

No. 544,648.

Patented Aug. 20, 1895.



Witnesses:  
Wm. J. Hanning  
Jm. N. Rheem:

Inventor:  
Nettie Park Anderson  
By Barton & Brown  
Attorneys.

2 Sheets—Sheet 2.

No. 544,648.

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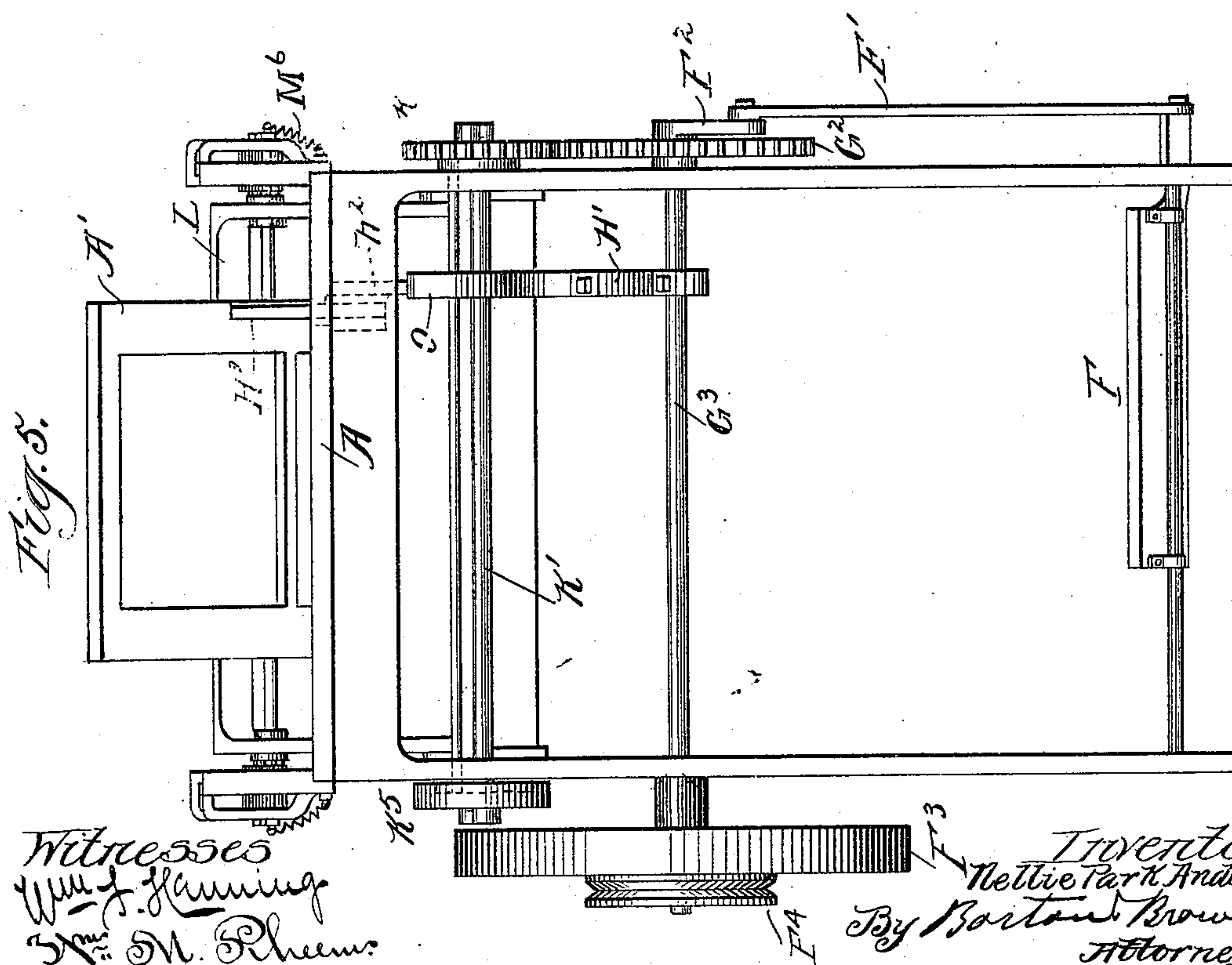



Fig. 5.

Witnesses  
Wm. J. Hanning  
Jas. M. Rhein.

 *Trevettor:*  
*Nellie Park Anderson*  
*By Bartlett Brown*  
*Attorneys*



# UNITED STATES PATENT OFFICE.

NELLIE PARK ANDERSON, OF CHICAGO, ILLINOIS.

## DUPLICATING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 544,648, dated August 20, 1895.

Application filed April 6, 1895. Serial No. 544,724. (No model.)

*To all whom it may concern:*

Be it known that I, NELLIE PARK ANDERSON, 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 Duplicating-Machines, (Case No. 1,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to a machine for duplicating copies of type-written or other matter, and my object is to provide means for automatically moving the frame carrying the stencil and the ink-roller, whereby it is only necessary for the operator to place the sheets upon which the copies are to be made in the machine and to remove the same therefrom.

In the art of duplicating type-written or other matter it is the custom to provide a wax sheet, upon which the matter is written by means of a type-writer or by a stylus-pen, thus producing raised letters upon the wax sheet. The wax sheet thus forms the stencil, which is laid upon the sheet of paper upon which the copying is to be made with the raised letters in contact with the sheet. An ink-roller is then moved over the back of the stencil, thus saturating the same with ink, the ink coming in contact with the sheet of paper where the raised letters rest in contact therewith, thus producing the copy upon the sheet of paper. The sheet of paper is then removed and a new sheet is placed in position, after which the operation is repeated.

A duplicating press or machine of the general type of the invention herein is described in Letters Patent No. 238,956, dated March 15, 1881, a stencil-frame being provided adapted to be raised and lowered, an ink and presser roller being provided adapted to be passed over the back of the stencil-sheet to ink the same and to press the same against the sheet to be printed, the roller being moved back in contact with the stencil-sheet. I have found that when the roller is thus moved in both directions over the stencil-sheet the printed sheet is blurred, and the object of the present invention is to provide a machine in which the roller is moved out of contact with the stencil-sheet while moving in one direction.

A further object of the invention is to provide means for raising and lowering the stencil-frame, so that the stencil-sheet will be gently lowered into contact with the sheet to be printed.

I will describe my invention by reference to the accompanying drawings, in which—

Figure 1 is a plan view of the machine embodying my invention. Fig. 2 is a sectional view on line 2 2, Fig. 1. Fig. 3 is a side elevation of the machine. Fig. 4 is a view of a modification of my invention. Fig. 5 is a front elevation of the machine. Fig. 6 is a longitudinal section of the machine, a portion of the frame being broken away. Fig. 7 is a detail view illustrating the device for throwing the roller-operating mechanism out of gear. Fig. 8 is a detail view of a portion of the brake mechanism.

Like letters refer to like parts in the several figures.

Upon the table A of the machine is provided a frame A', provided with hinges A<sup>2</sup>, whereby the frame may be rocked about one end. The frame is adapted when horizontal to surround a projecting plate A<sup>3</sup>, provided upon the table A of the machine. Upon the frame A' is provided a rectangular groove A<sup>4</sup>, within which a rectangular iron frame B is adapted to fit, the face of the frame B lying flush with the face of frame A' when in position. Clamps B' are provided upon the frame A' adapted to hold the frame B in position.

The stencil C carrying the raised letters is placed upon the frame with the raised letters extending downward and is clamped at the edges between the frame B and the walls of the groove A<sup>4</sup>, and the sheet of paper D upon which the copy is to be made is placed upon the face of plate A<sup>3</sup>, being thus in contact with the raised letters of the stencil.

Opposite the hinged end of the frame A' is provided an ink-plate E, upon which the ink is adapted to be spread. An ink-roller E' is adapted to be rolled over the surface of the ink-plate and over the top of the stencil C. The stencil is thus saturated with ink and is pressed against the sheet of paper D by the passage of the ink-roller, thus producing the imprint upon the paper corresponding to the raised letters provided on the stencil. The roller E' is then raised and carried back to



its former position upon the ink-plate, and the frame A' is rotated about its hinged end, the sheet D being removed and a new sheet placed in position, after which the operation is repeated.

Upon the frame of the machine is provided a pedal F, connected by means of rod F' with a crank F<sup>2</sup>, mounted upon a shaft G. The shaft G carries upon its opposite end a fly-wheel F<sup>3</sup> and a pulley F<sup>4</sup>, whereby power may be applied by means of a belt. Upon the shaft G is mounted a pinion G', adapted to mesh with the gear-wheel G<sup>2</sup>, mounted upon the shaft G<sup>3</sup>. Upon the shaft G<sup>3</sup> is mounted an eccentric H, the strap H' of which is connected by means of the connecting-rod H<sup>2</sup> with the cam H<sup>3</sup>, pivoted at H<sup>4</sup> to the frame of the machine. The cam H<sup>3</sup> is adapted when rotated to engage frame A' and raise the same to the position illustrated in Fig. 3, thus permitting the removal of the printed sheet and the placing of a new sheet in position. As the eccentric continues its movement the cam is rotated to permit the frame to descend. The gear-wheel K is adapted to mesh with the gear-wheel G<sup>2</sup> and is mounted upon shaft K', supported in the frame of the machine. Upon the gear-wheel K is provided a crank-pin K<sup>2</sup>, connected by means of a rod K<sup>3</sup> with the lever L, pivoted at L'. The lever L is made in two parts—a short lever L<sup>2</sup> pivoted upon the outside of the frame and a long lever L<sup>3</sup> pivoted to the inside of the frame of the machine—the two parts being joined together by a bolt or pin L<sup>4</sup>, which is adapted to work in a slot L<sup>5</sup> provided in the frame of the machine. In the end of the lever L is provided a longitudinal slot L<sup>6</sup>, adapted to engage the shaft E<sup>2</sup> of the ink-roller E'. A similar lever is provided upon each side of the machine, the levers being connected by a cross-piece. As the gear-wheel K is rotated the lever L is rotated upon its pivot, thus carrying the ink-roller forward and causing it to move over the stencil C, the ink-roller being journaled loosely upon its shaft. Upon the shaft of the ink-roller is provided a pinion E<sup>3</sup>, adapted as the roller is moved forward to engage the teeth upon a rack or guide bar M. The guide-bar M is pivoted at M' and carries pins M<sup>2</sup> M<sup>3</sup>, adapted to move in the slots M<sup>4</sup> M<sup>5</sup>. To one of the pins M<sup>2</sup> is attached a spring M<sup>6</sup>, adapted to draw the free end of the guide-bar downward. As the roller thus moves forward it is pressed down upon the stencil with the desired force through the agency of the guide-bar M and the spring M<sup>6</sup>. When the roller has passed the free end of the guide-bar M, the spring M<sup>6</sup> draws down the free end of the guide-bar, so that as the roller moves back it travels over the top of the guide-bar M, being thus raised above the surface of the stencil. The ink-roller is thus prevented from moving over the surface of the stencil on its return stroke.

Instead of providing teeth upon the under

side of guide-bar with which the pinion E<sup>3</sup> may engage, I may provide teeth upon the table beneath the pinion, as illustrated in Fig. 4. While it is desirable that the teeth be provided upon the upper side of the guide-bar these teeth may be omitted, but the operation is not so effective as when they are present. The essential function of the guide-bar M is to raise the ink-roller above the stencil on its return stroke. It is necessary that the ink-roller remain upon the ink-plate while the frame carrying the stencil is being raised and lowered, and for this purpose any means may be employed for disconnecting the mechanism that drives the roller from the continuously rotating parts. I have illustrated mechanism for this purpose whereby the gear-wheel K is adapted to be moved out of engagement with the gear-wheel G<sup>2</sup>. The shaft K', upon which the gear-wheel K is mounted, is journaled in slots K<sup>4</sup>, which permit a slight upward excursion of the shaft. Upon the shaft K', by the side of gear-wheel K, is provided a cam-wheel K<sup>5</sup>, carrying a concentric groove K<sup>6</sup>, provided with a notch K<sup>7</sup> at one point in the circumference. The end of rod N' is adapted to extend into the groove K<sup>6</sup>. Upon the strap H' of the eccentric H is mounted an arm O, adapted as the eccentric rotates to engage the shaft K', and thus elevating the same. The arm O engages the shaft at a time when the notch K<sup>7</sup> of the groove K<sup>6</sup> is opposite the rod N', so that the rod N' enters the notch K<sup>7</sup>, thus bringing the shaft K' to rest. The raising of the shaft K' thus disengages the gear-wheel K from the gear-wheel G<sup>2</sup>. As the eccentric continues its rotation, the arm O is lowered, thus bringing the gear-wheel K into engagement with the gear-wheel G<sup>2</sup> and advancing the ink-roller. The gear-wheel K is thus moved out of engagement with gear-wheel G<sup>2</sup>, maintaining the ink-roller at rest during the time the frame carrying the stencil is being raised and lowered.

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

1. In a stencil duplicating machine, the combination with a plate upon which the sheet to be printed is laid, of a frame carrying the stencil sheet, means for raising and lowering said frame, an ink and presser roller carrying a pinion, a lever pivoted at one end and having teeth upon its upper and lower edges to be engaged by said pinion and spring pressed at the opposite end, and means for passing said pinion beneath said lever on its forward stroke to press the roller against the stencil sheet and for causing said roller to ride upon the lever on its backward stroke to prevent the blurring of the printed sheet; substantially as described.

2. In a stencil duplicating machine, the combination with the ink and presser roller carrying a pinion, of the lever pivoted at one end and spring-pressed at the opposite end



and provided upon its upper edge with teeth for the engagement of said pinion on the return stroke; substantially as described.

3. In a stencil duplicating machine, the combination with the ink and presser roller carrying a pinion, of the lever pivoted at one end and spring pressed at the opposite end, provided on its edges with teeth for the engagement of said pinion; substantially as described.

4. In a stencil duplicating machine, the combination with the ink and presser roller, of the arms L, one at each end of the roller and carrying slots with which pins on the roller are adapted to engage, the driven gear wheel K carrying the crank pin K<sup>2</sup>, and the connecting rod K<sup>3</sup> connecting said crank pin

with the ends of said levers L, and means for periodically raising said gear wheel K out of engagement with the driving gear, substantially as described.

5. The combination with the ink roller of the pivoted lever L, the gear wheel K mounted upon shaft K' and connected with lever L by means of rod K<sup>3</sup>, an arm O adapted to be periodically raised to move gear wheel K out of engagement with the driving gear, substantially as described.

In witness whereof I hereunto subscribe my name this 1st day of April, A. D. 1895.

NELLIE PARK ANDERSON.

Witnesses:

JOHN W. SINCLAIR,  
W. CLYDE JONES.