

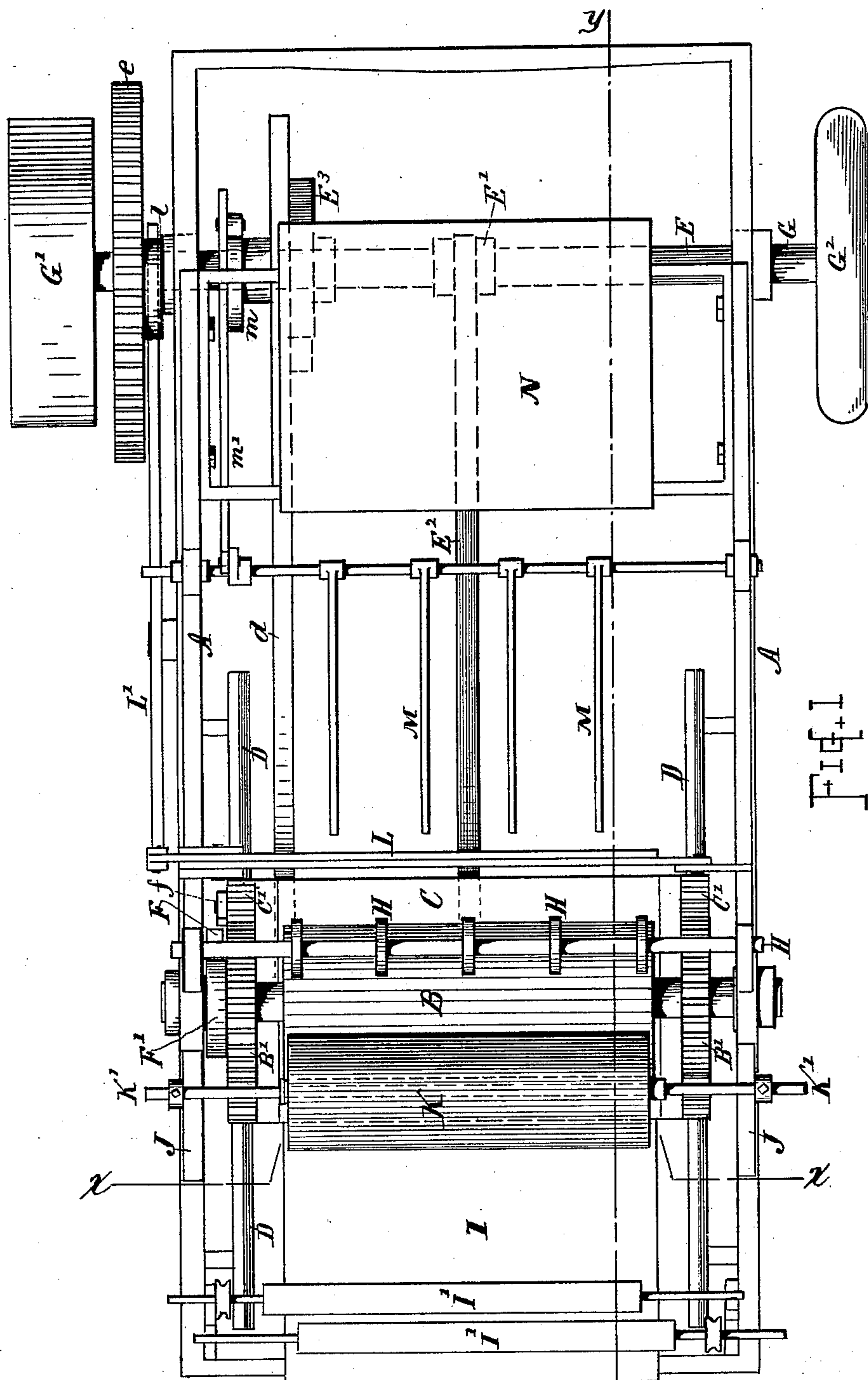
(No Model.)

3 Sheets—Sheet 1.

F. B. DODGE.  
PRINTING MACHINE.

No. 245,796.

Patented Aug. 16, 1881.



Witnesses.

*S. R. Bator*  
*John Hawes*

y

Inventor

*Forbes B. Dodge*  
*By Chas. H. Burleigh Atty.*

(No Model.)

3 Sheets—Sheet 2.

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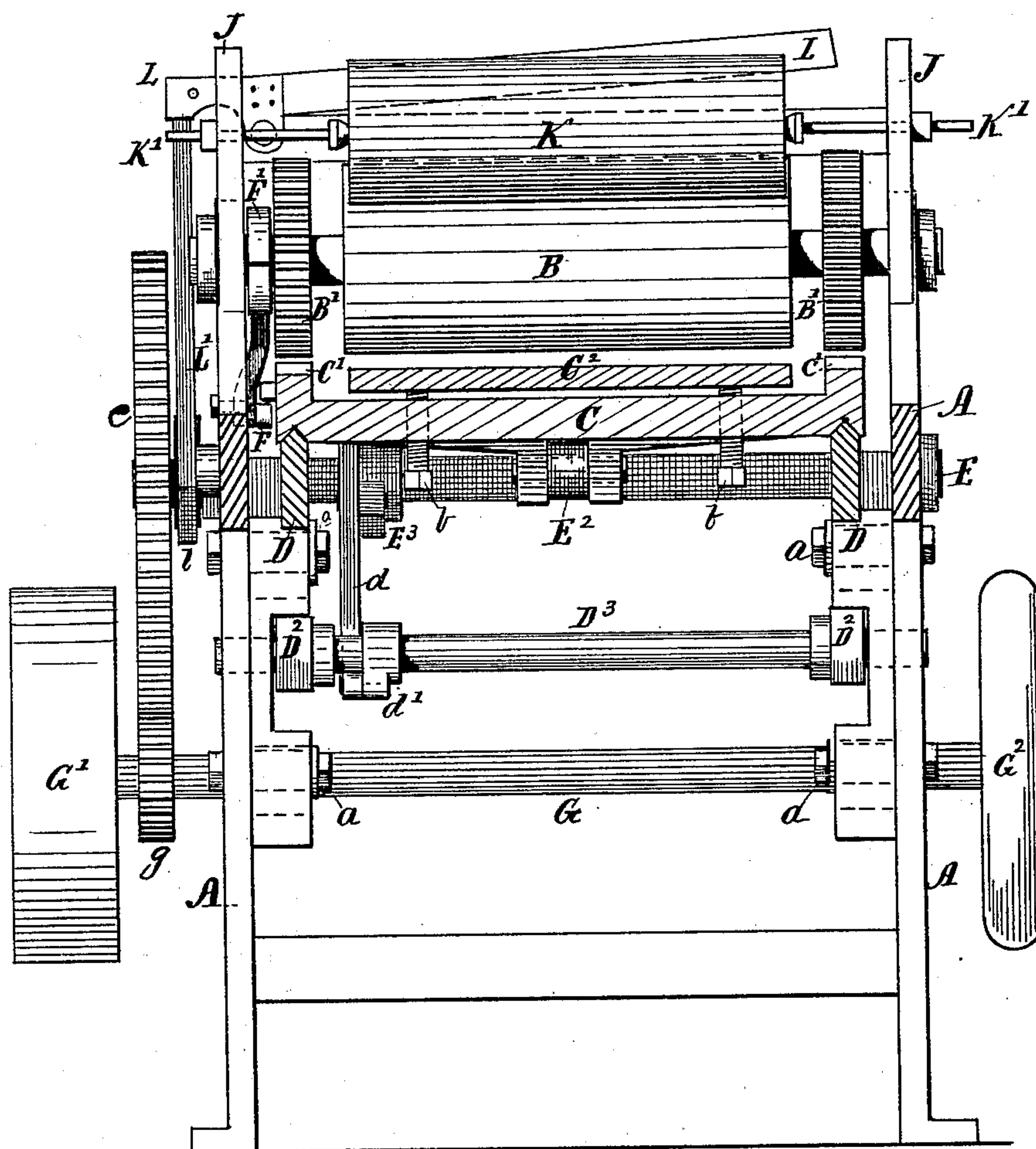


FIG. 2

Witnesses

*W. H. Burton*  
*John Howe*

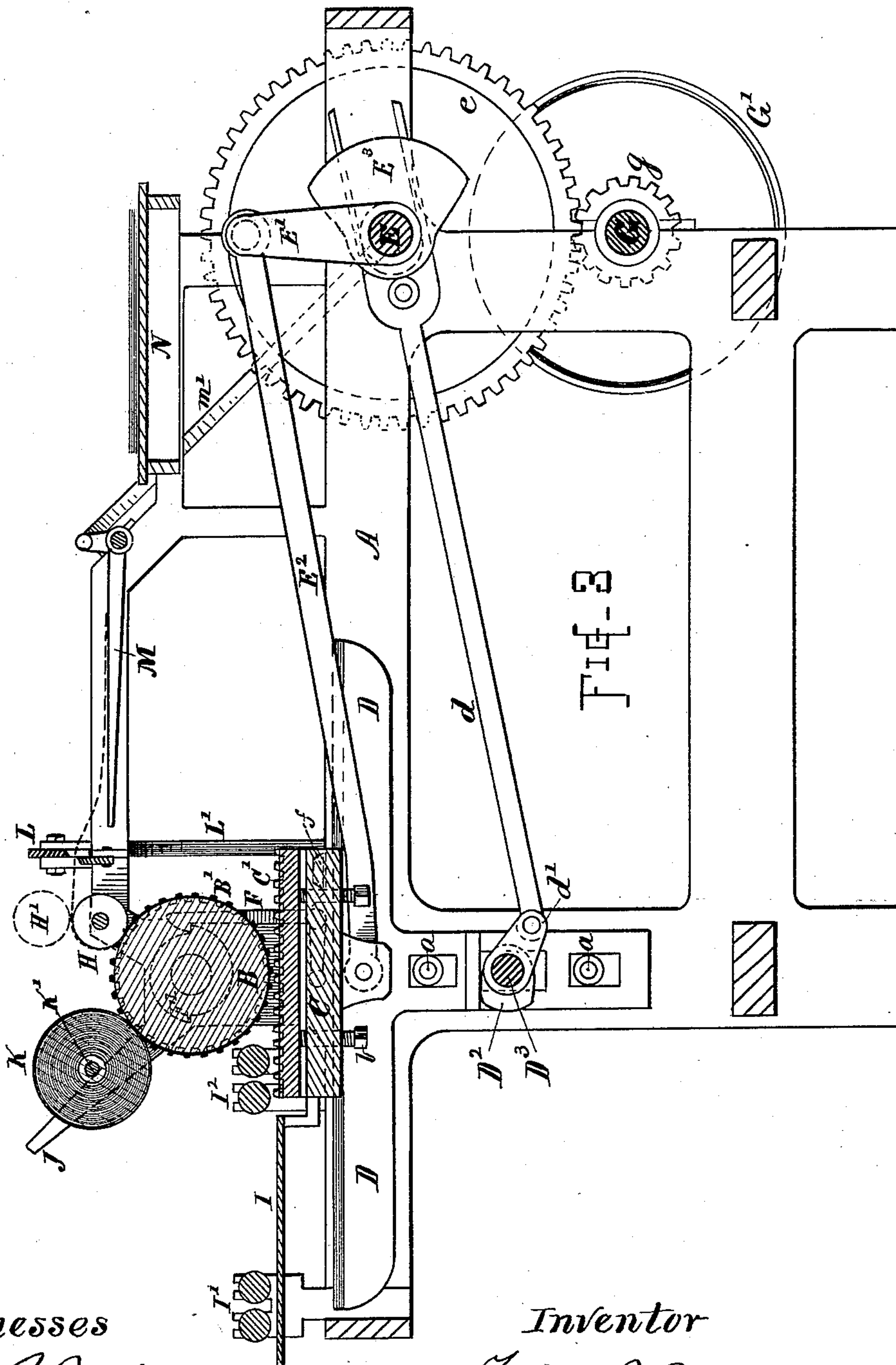
Inventor

*Forbes B. Dodge*  
*By Chas. H. Burlingame*  
*Att'y.*

3 Sheets—Sheet 3.

No. 245,796.

Patented Aug. 16, 1881.



*Witnesses*

Dr. Barton  
John Hawes

*Inventor*

Forbes B. Dodge  
By Chas. H. Burling  
Atty.



# UNITED STATES PATENT OFFICE.

FORBES B. DODGE, OF WORCESTER, MASSACHUSETTS.

## PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 245,796, dated August 16, 1881.

Application filed June 6, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, FORBES B. DODGE, of Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Self Feeding and Delivering Printing-Machines; and I declare the following to be a description of my said invention sufficiently full, clear, and exact to enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My present invention relates to certain improvements in self feeding and delivering printing-machines, with a view to the production of a simple and convenient machine for printing show-bills, circulars, &c.; and it consists in the peculiar arrangement and organization of the mechanism and in the manner of supporting and feeding the paper, as illustrated in the drawings and hereinafter described.

Figure 1 represents a plan view of my improved printing-machine. Fig. 2 represents a sectional elevation view at line *x x* on Fig. 1; and Fig. 3 represents a sectional elevation view at line *y y* on Fig. 1.

In the construction, A denotes the frame, which may be of any suitable form for properly supporting the operating parts.

B indicates the cylinder, mounted in the upper part of the frame A, and provided with gears B' at either end.

C indicates the type-bed, provided with racks C', which mesh with the gears B' of the cylinder B; and the type-bed is mounted to have horizontally-reciprocative movement on vertically-reciprocating guideways D, for carrying the type-form C<sup>2</sup> in contact with the paper on the impression-cylinder B.

E indicates the cam-shaft for operating the various parts of the mechanism. Said shaft is provided with a crank, E', for imparting movement to the bed C by means of the pitman-rod E<sup>2</sup>, the end of which is pivoted to suitable ears on the under side of said bed-piece. The guideways D are supported on suitable guides or studs, *a*, fixed to the main frame A, and said ways D are uniformly moved upward by the action of cams D<sup>2</sup> on the rocking shaft D<sup>3</sup>, which receives properly-timed oscillative movement from the cam E<sup>3</sup> and rod *d*, which

connects by a crank-arm, *d'*, with said shaft D<sup>3</sup>. Shaft E is operated from the driving-shaft G by means of the pinion *g* and gear *e*. Shaft G is provided with a belt-pulley, G', and balance-wheel G<sup>2</sup>.

F indicates a stop-lever, properly fulcrumed on a fixed pivot on the side frame, A, for engaging with lugs or notches on a ratched disk, F', fixed on the cylinder-axle, and which serves for arresting the movement of said cylinder B during the backward movement of the bed C. Said lever F is unlocked or thrown off from the notch for releasing the cylinder by means of a suitable lug or trip-piece, *f*, on the bed-piece C, while it is caused to engage said lug by its own weight or by a spring, if desired.

H indicates a delivering-roll or series of disks resting on the cylinder and turning with it for carrying forward the printed sheet. A top roll, H', may be used in connection with roll H when desired.

I indicates the ink-plate, I<sup>2</sup> the ink-rollers, and I' the distributing-rolls for spreading the ink upon the types. Said parts may be supported in the positions indicated, and provided with suitable vibrating mechanism, as desired.

J J indicate arms for supporting the roll of paper K, which is placed on a centering-shaft, K', and rests upon the surface of the cylinder B, as illustrated, the arms J being arranged in inclined position for supporting the shaft K' in such manner that as the size of the roll decreases it will settle downward and remain in contact with the cylinder, the surfaces of the cylinder and paper roll moving uniformly in contact with each other, thus giving the required forward feed, regardless of the size of roll K.

L indicates shears for severing the printed sheets. Said shears are operated from the shaft E by properly-arranged cam *l* and connections L'.

M indicates the fly for delivering the printed sheets on the table N. Said fly is operated by cam *m* and rod *m'* from shaft E, or otherwise, as desired.

In the operation of my machine, the paper is passed from the roll K' around the under side of the cylinder B and over the roll H to the shears and fly. The action of the shaft E and connecting parts carries the bed C back



and forth under the cylinder and raises and depresses its supporting-guides D, the movements being so timed that at the forward movement of the bed C the racks C' engage with the gears B' and cause the cylinder B to move with the bed, feeding forward the paper and making the impression of the type on its surface. Then, at the backward movement the bed is depressed, disengaging the gears and racks, while the movement of the cylinder is arrested by the lever or stop F until the parts are again thrown into mesh as the next forward movement of the bed commences. The cylinder is operated, and the paper thus carried forward, by an intermittent action and an impression made at each forward movement until the roll of paper is exhausted. The shears L and fly M for severing and delivering the printed sheets are timed to operate in unison with the cylinder, the entire operation being effected in the machine in a very rapid manner.

Screws *b* may be arranged in the bed C for adjusting the type-forms to the surface of the cylinder, so as to give uniform impression.

For printing sheets of different lengths the gears or racks are changed, so that the intermeshing thereof will give greater or less throw or movement to the cylinder, and the locking devices F F' are arranged to stop the movement of the cylinder at the required position.

What I claim as of my invention, and desire to secure by Letters Patent, is—

1. The combination, substantially as hereinbefore described, of a reciprocating type-bed having horizontal and vertical action, an impression-cylinder intermittently operated with the forward movement of said bed, supports for retaining a roll of paper in position while resting by gravity upon the upper surface of said cylinder, an intermittently-operating roll

or series of disks for retaining the paper sheet in contact with the cylinder-surface, and a stop device for checking the movement of the cylinder and rolls, for the purpose set forth.

2. The combination of the reciprocating bed C, provided with racks C', the cylinder B, having gears B', the vertically-reciprocating guides D, the rock-shaft D<sup>3</sup>, with cams D<sup>2</sup>, the cam-shaft E, having crank E' and cam E<sup>3</sup>, and the connecting-rods E<sup>2</sup> *d*, substantially as and for the purposes set forth.

3. The combination of the cylinder B, the type-supporting bed C, having horizontal and vertical movement, as described, the arms J, for supporting the paper roll K against said cylinder, the discharge-roll H, and shears L, constructed and arranged for operation as hereinbefore set forth.

4. The combination, with the cylinder B, having gears B', reciprocating bed C, having racks C', intermittently meshing with said gears, and the vertically-moving guideways D, of the ratchet-disk F', locking-lever F, and tripping-lug *f*, as and for the purpose hereinbefore set forth.

5. The combination of the horizontally-sliding bed C, vertically-moving guides D, cylinder B, gears B' C', locking devices F F' *f*, paper-support J, inking devices I I' I<sup>2</sup>, delivery-roll H, shears L, fly M, and operating-shaft E, with crank, cams, and connections, as shown, said mechanism being constructed and organized for action in the manner and for the purpose hereinbefore specified.

Witness my hand this 26th day of May, A. D, 1881.

FORBES B. DODGE.

Witnesses:

R. A. MORGAN,

CHAS. H. BURLEIGH.