

No. 654,157.

Patented July 24, 1900.

W. G. JOHNSTON.
PRINTING PRESS FOR PRINTING ENVELOPS.

(Application filed Sept. 16, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

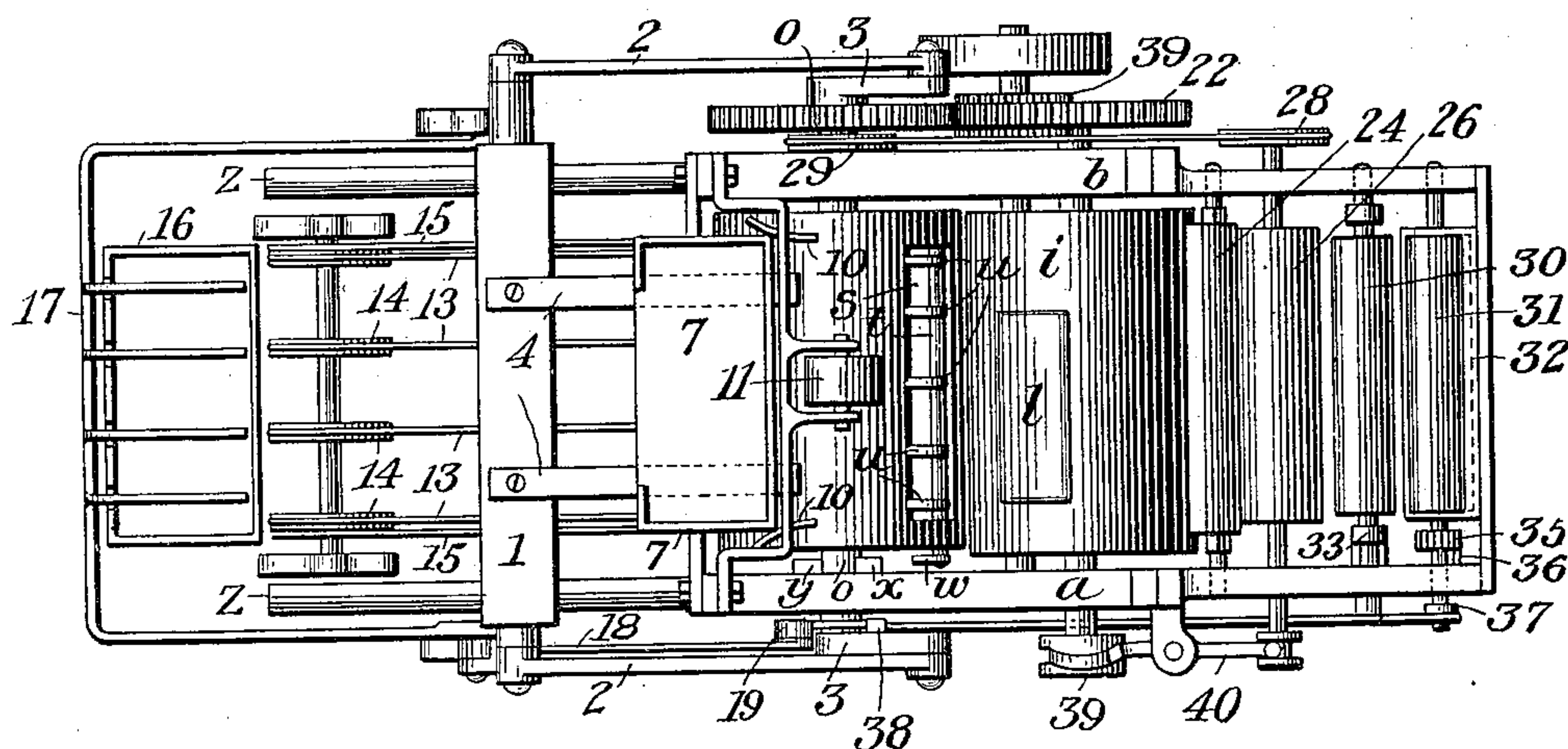


Fig. 4.

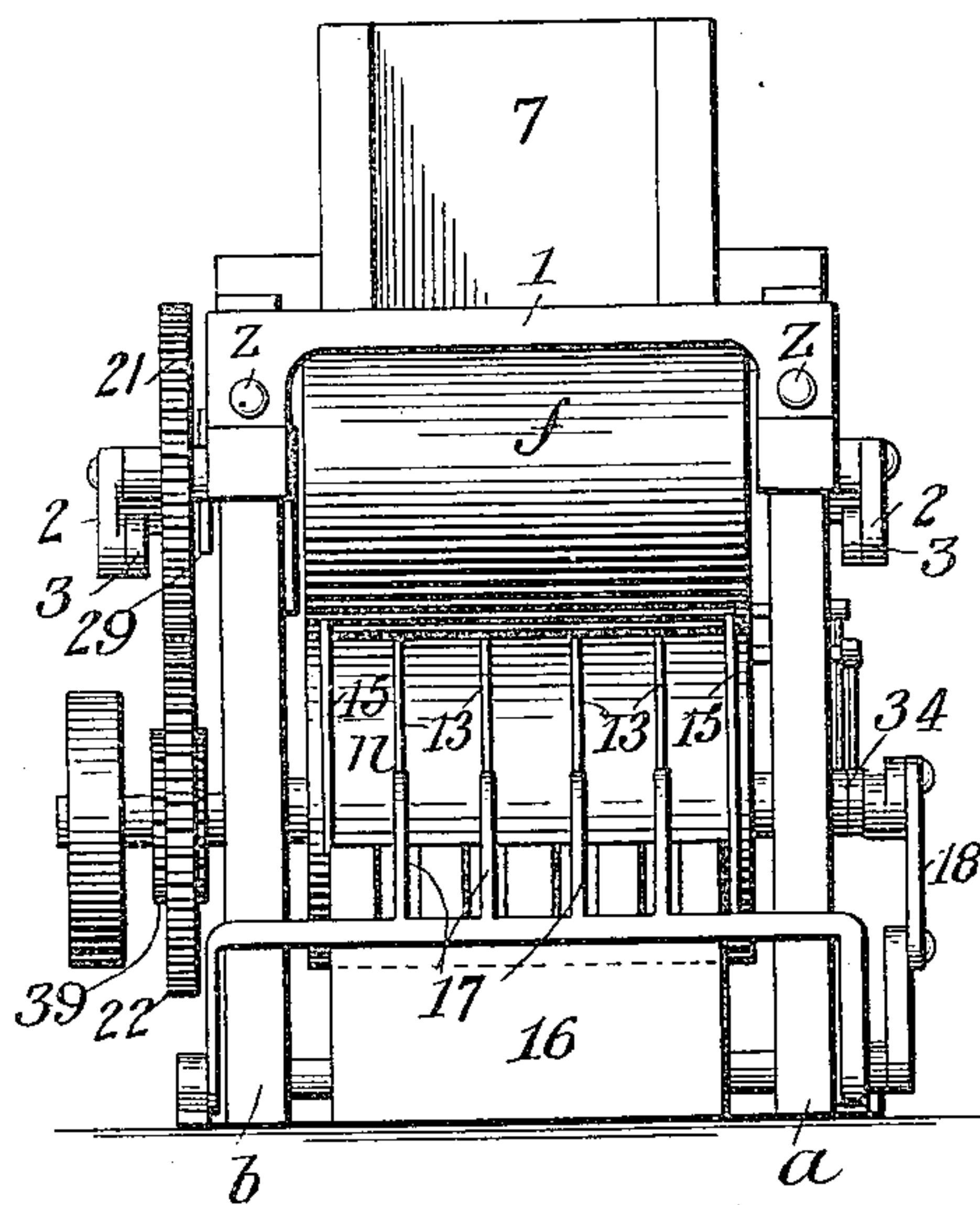
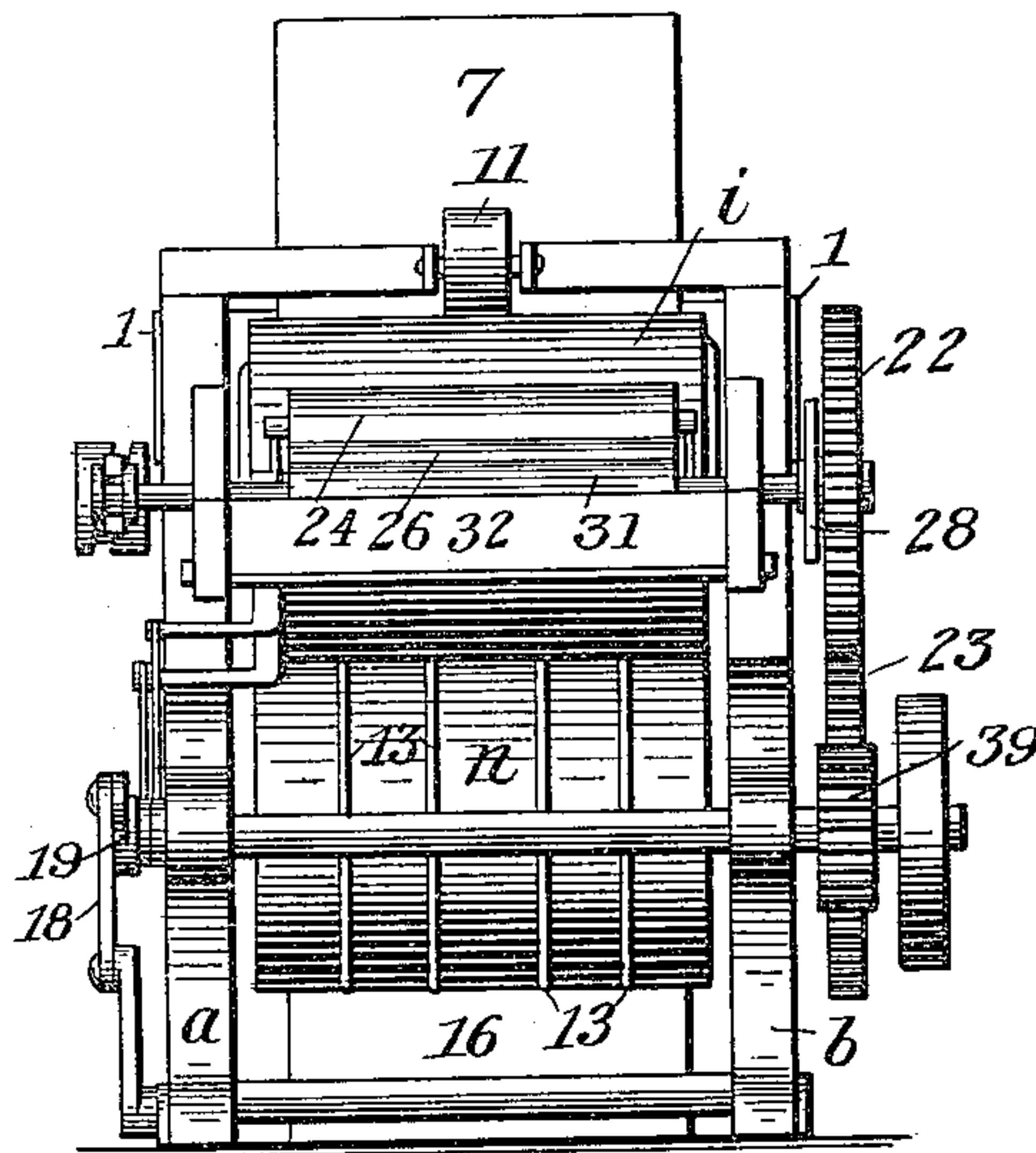


Fig. 5.



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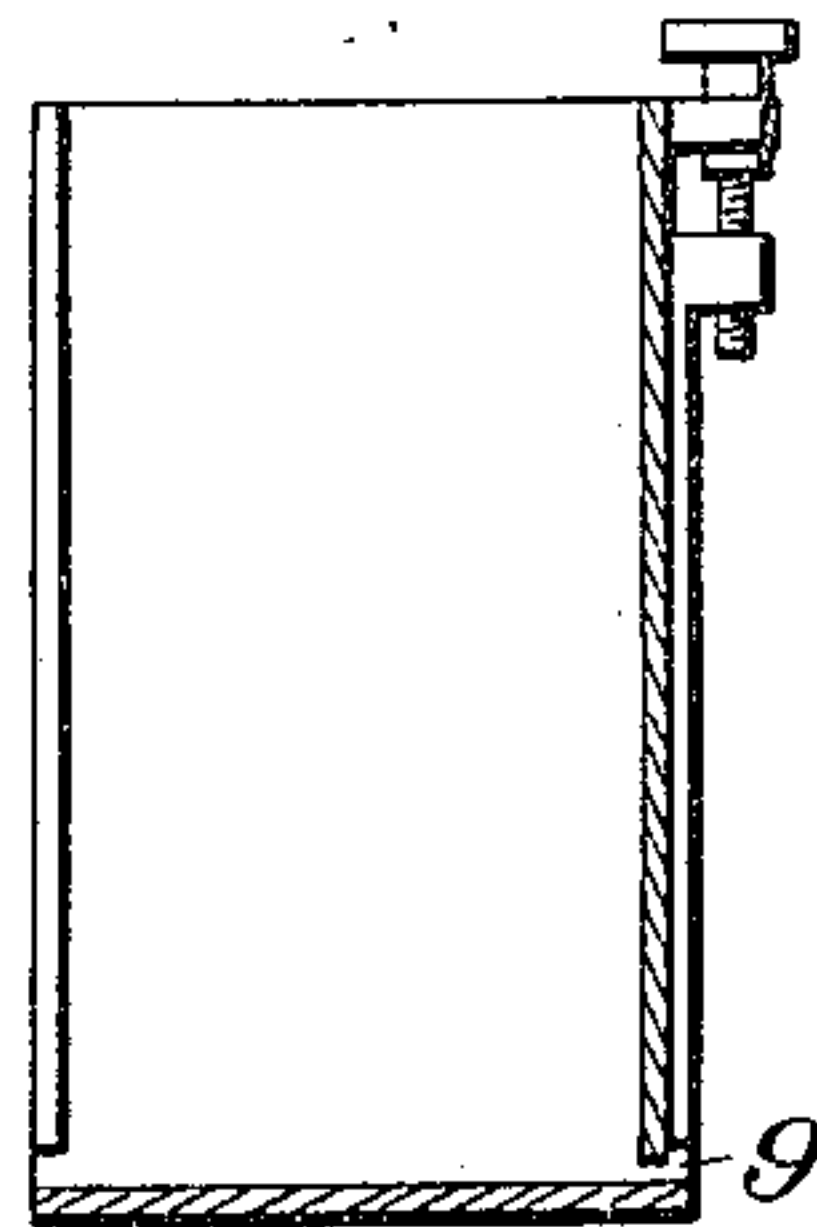
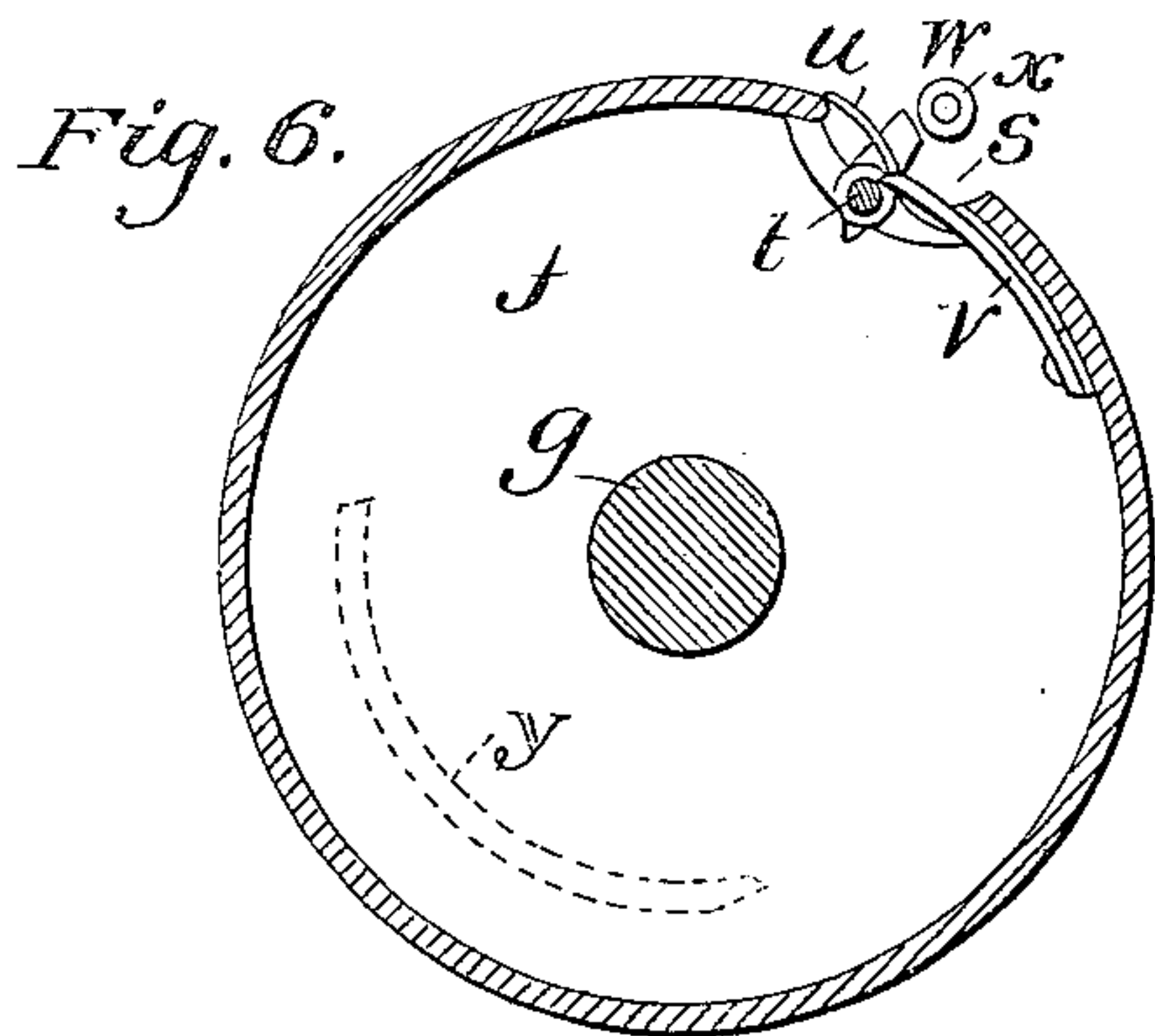
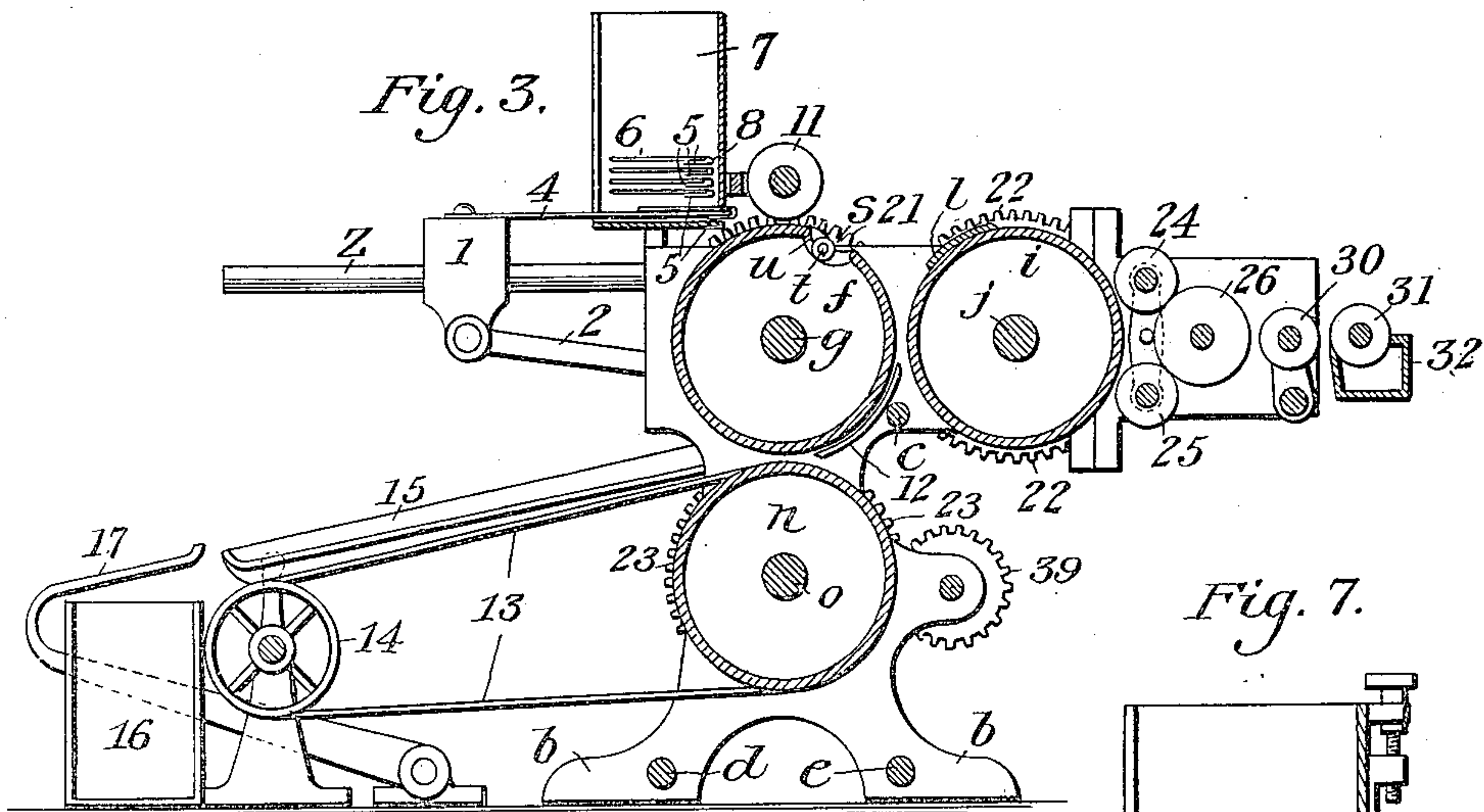
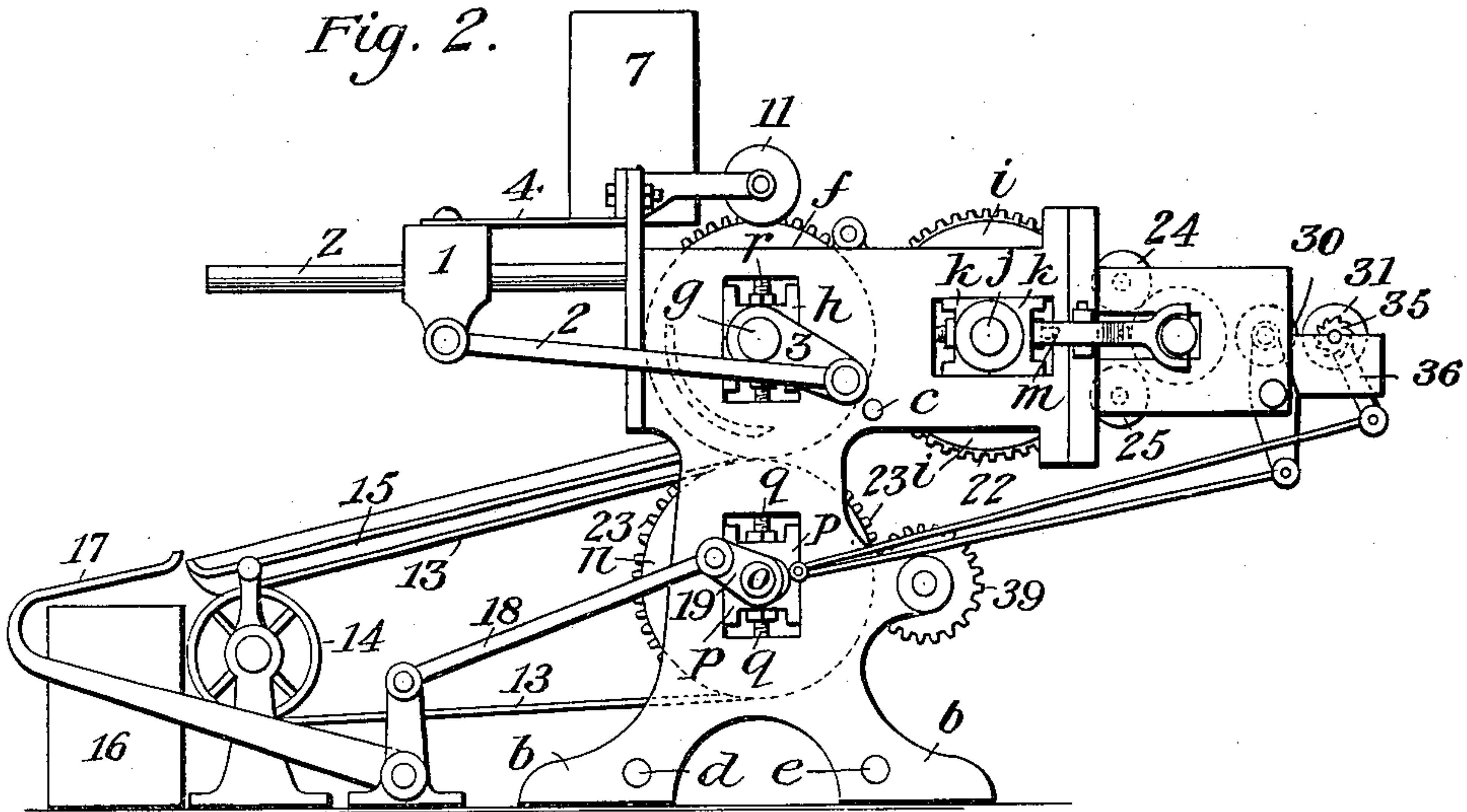
W. G. JOHNSTON.

PRINTING PRESS FOR PRINTING ENVELOPS.

(Application filed Sept. 16, 1899.)

(No Model.)

2 Sheets—Sheet 2.



Witnesses.
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Inventor.
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by *[Signature]*
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UNITED STATES PATENT OFFICE.

WILLIAM GRANT JOHNSTON, OF WOODBURY, NEW JERSEY, ASSIGNOR
TO ROBERT SCHENCK CLYMER AND THE PRACTICAL MACHINE AND
PRINTING COMPANY, OF SAME PLACE.

PRINTING-PRESS FOR PRINTING ENVELOPS.

SPECIFICATION forming part of Letters Patent No. 654,157, dated July 24, 1900.

Application filed September 16, 1899. Serial No. 730,787. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GRANT JOHNSTON, a citizen of the United States, residing at Woodbury, in the county of Gloucester and State of New Jersey, have invented a new and useful Printing-Press for Printing Envelops, of which the following is a specification.

This invention relates to printing, and particularly to the printing of envelops, and has for its object the rapid automatic feeding of envelops to the printing mechanism with exact register as to the ends and edges of the envelops and the delivery of the envelops in a regular pile, so that a high velocity of printing is practicable with a minimum of labor and attention.

To this end this invention consists in a rotary printing-machine having a special arrangement of grippers, a roller coöperating with an impression-cylinder, and a reciprocating feed mechanism coöperating therewith, and a discharging and piling mechanism, as hereinafter fully described, and shown in the accompanying drawings, in which—

Figure 1 shows a plan of my envelop-printing machine; Fig. 2, a side elevation thereof; Fig. 3, a vertical central section; Fig. 4, a front end elevation; Fig. 5, a rear end elevation, and Fig. 6 a detached view of the gripping mechanism.

Referring to the drawings, *a* and *b* are the side frames united by girths or cross-bars *c*, *d*, and *e*.

f is the impression-cylinder, having a shaft *g* turning in bearings *h*, fitted in the frames *a* and *b*.

i is the printing-cylinder, having a shaft *j* turning in bearings *k*, fitted in the frames *a* and *b*. The printing-cylinder *i* has the form *l* attached to it and is pressed toward the impression-cylinder *f* by set-screws *m* in the bearings *k*. A suitable blanket or tympan is placed on the cylinder *f*.

Below the cylinder *f* is placed a third cylinder *n*, having a shaft *o*, turning in bearings *p*, fitted in the frames *a* and *b*. The bearings *p* are provided with set-screws *q*, by means of which the shaft *o* and cylinder *n* are held in parallel adjustment with the cylinder *f* and

shaft *g*. The cylinder *f* and shaft *g* are held in parallel adjustment with the cylinder *n* and shaft *o* by set-screws *r*, applied to the bearings *h*.

In the cylinder *f* is a segmental recess or opening *s*, in which is located a gripper-arbor *t*, having gripping-jaws *u*, arranged to clamp the edge of an envelop tightly against the edge of the opening *s*. A spring *v* serves to press the jaws *u* against the cylinder *f*. A projecting arm *w*, secured to the arbor *t*, by contacting with a roller *x*, secured to the frame, turns the arbor *t* and raises the jaws *u* to permit the edge of an envelop 6 to pass under them, and so soon as the projecting arm *w* has passed the roller *x* the jaws *u* clamp the envelop 6 to the cylinder *f*. A cam *y*, attached to the frame *a*, serves by contacting with the projecting arm *w* to release the envelop 6 at the proper point in the rotation of the cylinder *f*.

A pair of slides *z*, attached to the frames *a* and *b*, support and guide a cross-head 1 in reciprocating horizontally by motion transmitted by connecting-rods 2 from cranks 3 on the ends of the shaft *g*. To the cross-head 1 are attached fingers 4, which engage in the fold between the flap 5 of the envelop 6 and the face thereof.

The envelops are placed in a frame or skeleton rack 7 with the lapels or flaps 5 downward and with the fold or crease uniting the lapels with the faces of the envelops toward the gap or slot 9 at the rear of the rack 7. The gap or slot 9 at the back of the rack 7 permits one envelop to be pushed through by the fingers 4. In this operation the pressure of the envelops above makes a sufficient friction and resistance to stretch the lowest envelop sufficiently tight and thin at the crease 8 to pass through the gap 9, while the elasticity of the flap of the envelop above it in the rack 7 prevents it from descending to the gap 9 until it is engaged and moved by the fingers 4. Converging guides 10 place and guide the envelop in proper register in endwise position as it passes to the cylinder *f*. The fingers 4 pass under the back of the lowest envelop and above the flap thereof and engaging the fold or crease

8 move the envelop onto the cylinder *f* and under a roller 11, pressed elastically toward the cylinder *f*, so that the envelop is placed by the fingers 4 and held by the roller 11 in proper register on the cylinder *f* and moves with it at the same time the lever *w* passes by the roller *x*, and the jaws *u* grasp and hold the envelop until released after printing by the contacting of the lever *w* with the cam *y*. Stationary curved guides 12 extend around the cylinder *f* and direct the envelop through the printing operation until its release from the jaws *u*. Endless cords 13, passing around the cylinder *n* and rollers 14, convey the envelop after printing and release from the cylinder *f* upon guides 15 to a box or frame 16, into which they are pressed by a reciprocating flier 17, operated by a connecting-rod 18, attached to a crank 19 on the shaft *o*. The several shafts *g*, *j*, and *o* are connected to turn simultaneously by equal spur-wheels 21, 22, and 23.

Ink is applied to the printing-form *l* by rollers 24 and 25, which receive ink from a vibrating roller 26, constantly rotated by an endless band 27 and pulley 28, deriving motion from a pulley 29 on the shaft *g*. A ductor-roller 30, alternatively contacting with the roller 31 of an ink-fountain 32, is reciprocated between the rollers 26 and 31 by a lever 33, actuated by a cam 34, and serves to supply and distribute the ink to the rollers 26, 25, and 24. The roller 31 of the fountain 32 is turned slowly in the usual manner by a ratchet 35 and pawl 36, reciprocated by a lever 37 and cam 38, turning with the shaft *o*. Rotative motion is applied by a pinion 39, engaging in the spur-wheel 23.

The relative adjustment of the reciprocating fingers 4 with the position of the roller 11, the jaws *u*, and the roller *x* and cam *y* and of the printing-form *l* is such that the envelop is securely held in register from the time it contacts with the cylinder *f* until it is printed and discharged.

Constructed as above described this machine secures a positive hold upon the envelop and places it in correct position of register upon the printing-cylinder and retains such hold until the printing is completed. A large number of envelops can be placed in the machine at once, and they can be withdrawn from it without interrupting the operation of the machine, thus permitting rapid continuous operation with a minimum of attention and a certainty of exactly-correct printing.

Having described my invention, what I claim is—

1. In a machine for printing envelops, a rotating printing-form, and means for inking the same, an impression-cylinder opposed to the printing-form, gripping-jaws rotating with the impression-cylinder, means of closing and opening said jaws, a roller pressed toward said cylinder in combination with reciprocating fingers adapted to engage in the crease of an envelop-flap and force the envelop between the cylinder and roller and within the grasp of the gripping-jaws as and for the purpose set forth.

2. In a machine for printing envelops a casing adapted to receive a pile of envelops, provided with slots at the lower end upon the sides, and one or more reciprocating fingers, arranged to enter the slots at one side of the casing, and engage the flap of the lowest envelop therein, and expel such envelop through the opposite slot, and an impression-cylinder provided with gripping-jaws, and a roller pressed toward said cylinder arranged to grasp the envelop from the fingers, as and for the purpose set forth.

3. In a machine for printing envelops an impression-cylinder provided with gripping-jaws, a roller pressed toward the cylinder arranged to grasp the envelop, a case adapted to contain a pile of envelops, reciprocating fingers moving transversely through the base of said case, and adapted to engage in the flap of the lowest envelop in said case, and expel the same into the grasp of gripping-jaws, means of closing and opening said jaws to grasp and release the envelop in combination with a curved guide arranged to direct the envelop around the impression-cylinder, and a cylinder and endless cords thereon, arranged to convey the envelop to a fly and case for receiving the same substantially as set forth.

4. In a device for feeding envelops to printing-machines, an impression-cylinder, gripping-jaws thereon, and means of opening and closing the same, and a roller pressed toward said cylinder, a pair of lateral guides, and one or more reciprocating fingers, arranged to engage in the crease of an envelop-flap, and force the envelop between said guides in definite position of register between said guides and between said cylinder and roller, within the grasp of said jaws, upon the impression-cylinder as and for the purpose set forth.

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Witnesses:

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