

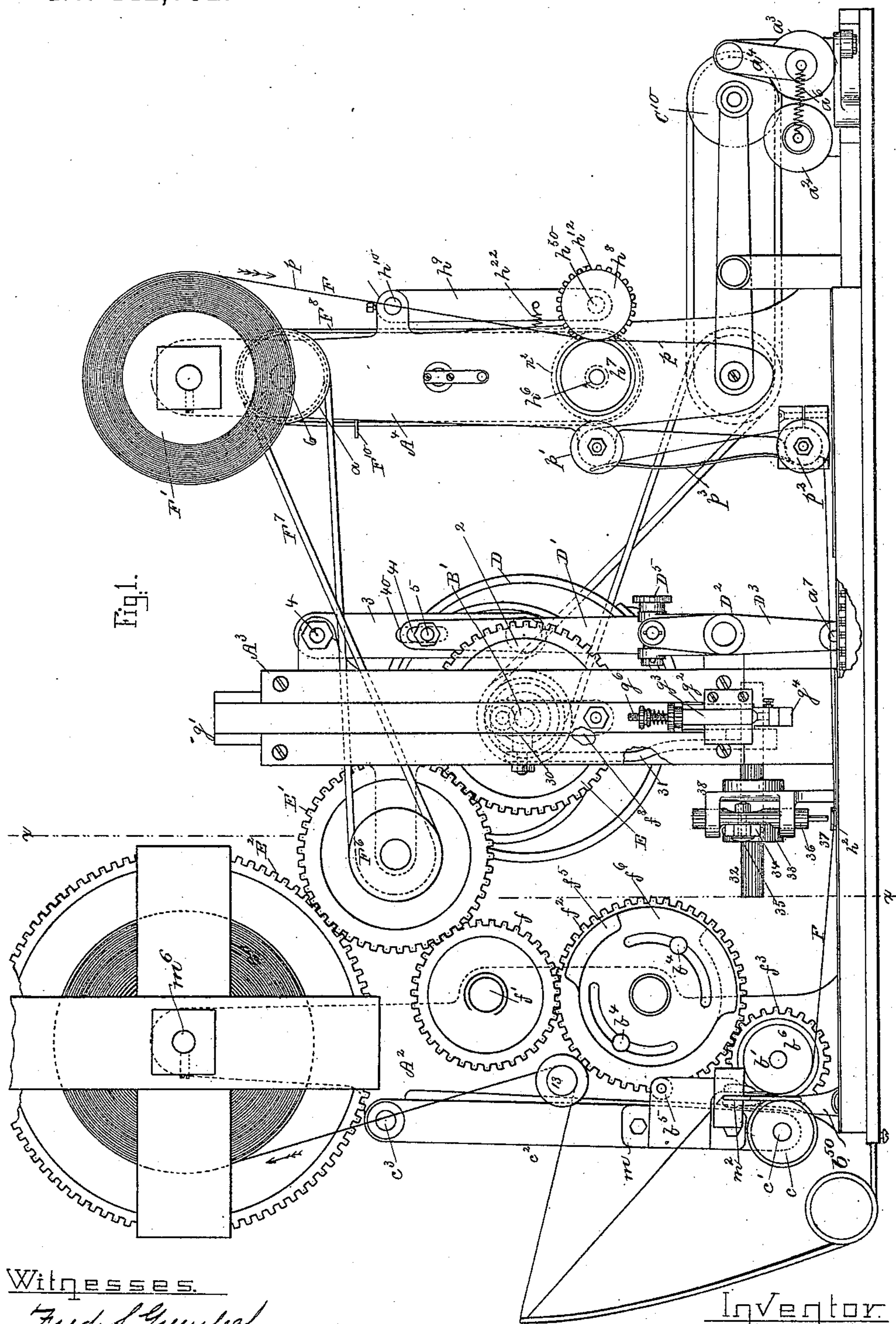
(No Model.)

3 Sheets—Sheet 1.

E. WOODWARD.  
ADDRESS PRINTING MACHINE.

No. 442,752.

Patented Dec. 16. 1890.



Witnesses.

Fred. S. Greenleaf  
Frederick L. Emery-

Inventor.

Erastus Woodward,  
by Leroy S. Gregory attys.

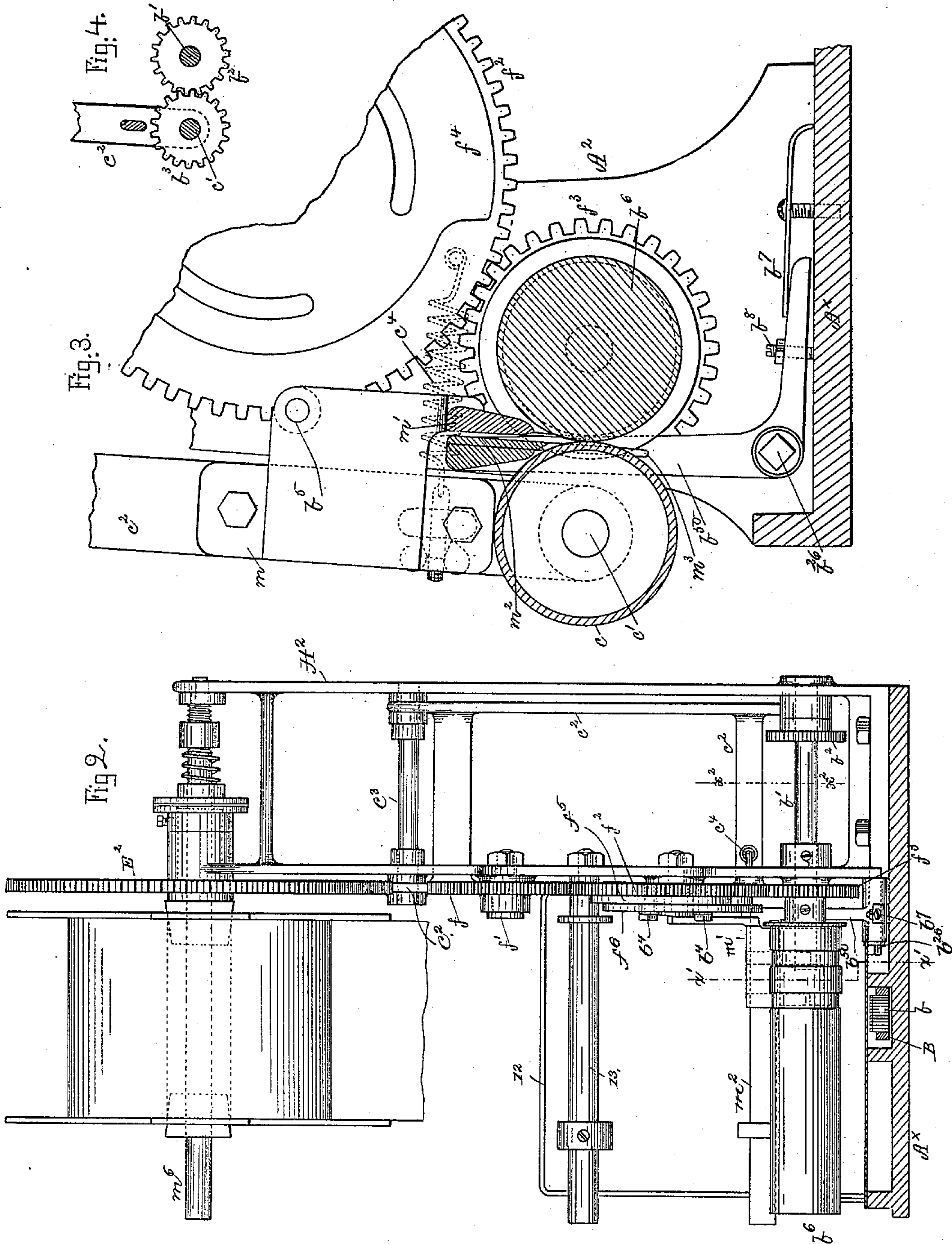
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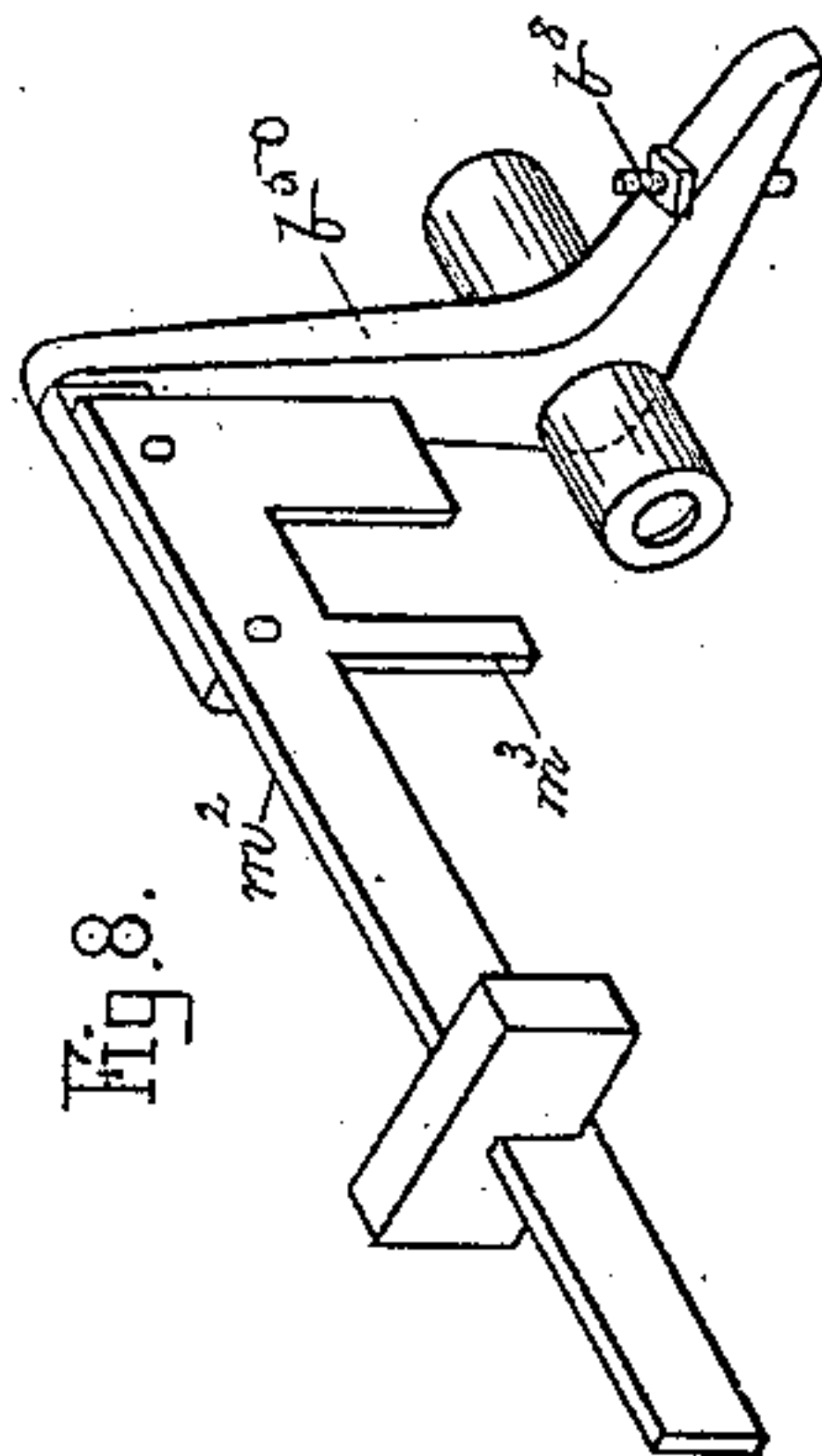
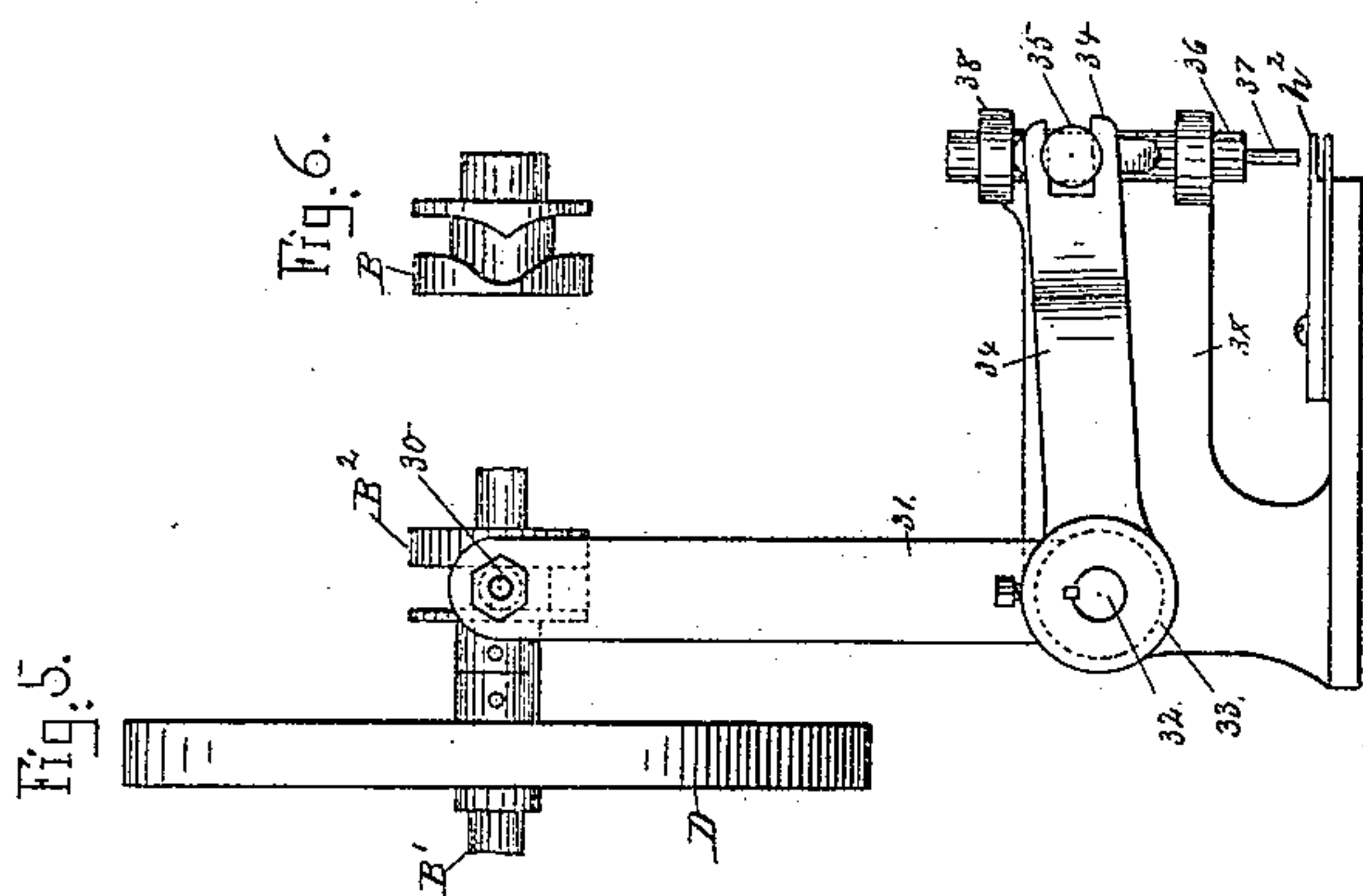
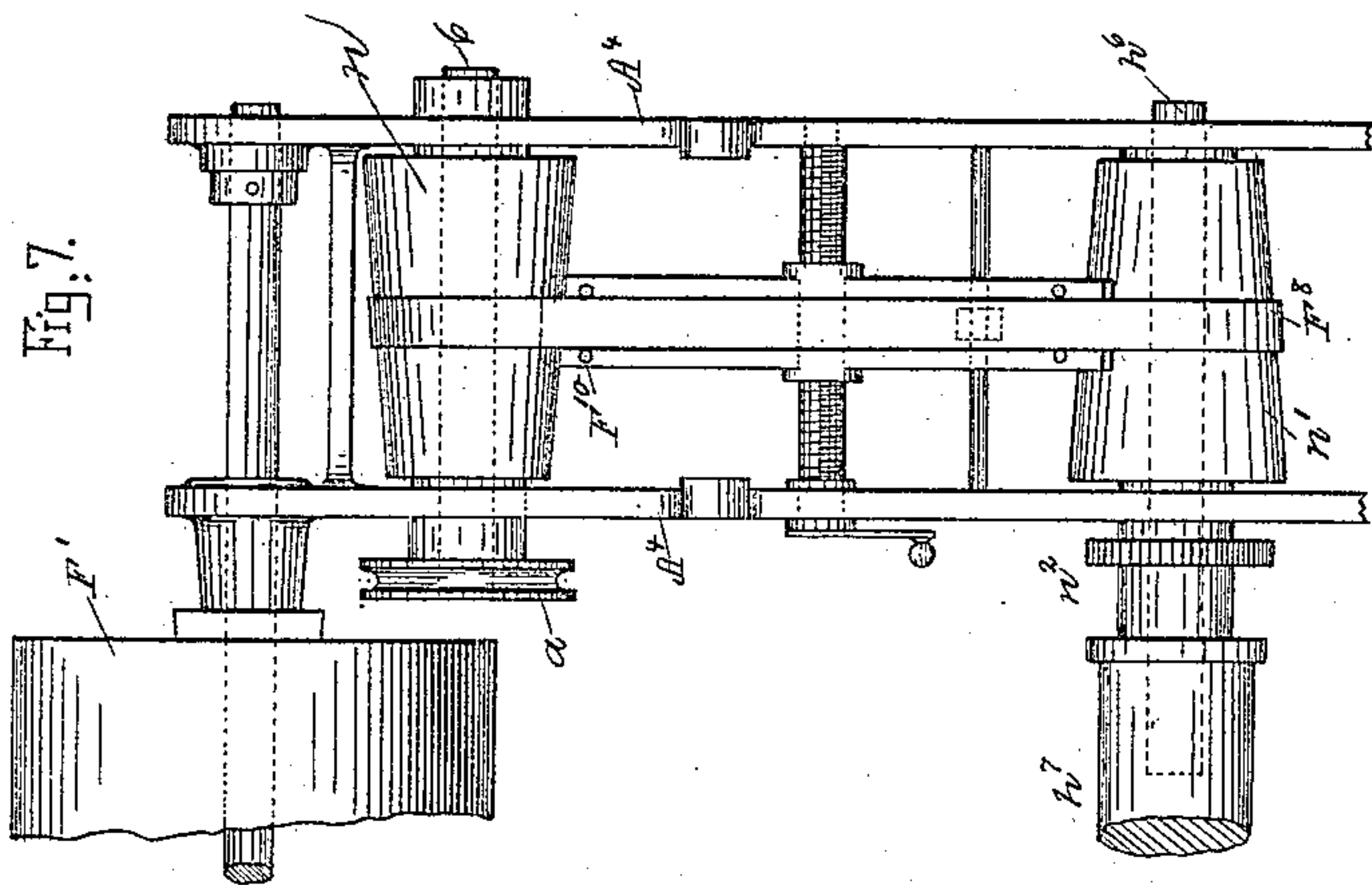
(No Model.)

3 Sheets—Sheet 3.

E. WOODWARD.  
ADDRESS PRINTING MACHINE.

No. 442,752.

Patented Dec. 16. 1890.



Witnesses.

Fred. S. Hunt  
Admiral. Engr.

Inventor

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by Leroy Gregory atty

# UNITED STATES PATENT OFFICE.

ERASTUS WOODWARD, OF SOMERVILLE, MASSACHUSETTS, ASSIGNOR TO  
THE WATERS WRAPPING AND MAILING MACHINE COMPANY, OF  
PORTLAND, MAINE.

## ADDRESS-PRINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 442,752, dated December 16, 1890.

Application filed May 15, 1890. Serial No. 351,911. (No model.)

*To all whom it may concern:*

Be it known that I, ERASTUS WOODWARD, of Somerville, county of Middlesex, State of Massachusetts, have invented an Improve-  
5 ment in Address-Printing Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters and figures on the drawings representing like parts.

10 The machine to be herein described is an improvement on that represented in application Serial No. 329,379, filed November 5, 1889, to which reference may be had.

One part of my invention relates to means  
15 for intermittently feeding the web of paper to be addressed, the said means including as a member a cam or pattern to control the extent of movement of the web, said movement depending upon the time during which the  
20 feeding-rolls remain in contact with the web.

Another part of my invention comprehends an impression-pad and an independently-actuated punch made adjustable toward and  
25 from the impression-pad in the direction of the length of the web.

Other features of invention will be pointed out in the claims at the end of the specification.

Figure 1, in front elevation partially broken out, represents a sufficient portion of an address-printing machine, which, taken in connection with the machine shown in the said application, will enable one to fully understand my invention. Fig. 2 is a section to the left of the dotted line  $x$ , Fig. 1; Fig. 3, a  
30 much enlarged detail of the feeding-rolls and some of their adjuncts, looking to the right of the line  $x'$ , Fig. 2. Fig. 4 is a detail in the line  $x^2$ , Fig. 2, looking to the right. Fig. 5 is a detail showing part of the main shaft, the  
35 punch, and its actuating devices. Fig. 6 shows the punch-actuating cam; Fig. 7, a detail view showing part of the right-hand end of the machine; and Fig. 8 shows the lever  $b^{50}$  detached.

45 The table-plate  $A^x$ , the uprights  $A^2$  and  $A^4$  erected thereon, the head or guide  $A^3$ , in which is reciprocated the slide-bar  $g'$ , provided at its lower end with the impression-pad  $g^4$ , secured to a bar  $g^3$ , adapted to slide  
50 in the guide  $g^2$ , the said slide-bar  $g'$  being

operated by a pitman  $f^8$ , connected with a crank upon the main shaft  $B'$ , (shown by dotted lines in Fig. 1,) the galley  $B$ , containing the type  $b$  set up or otherwise formed therein to represent the names and addresses  
55 to be printed upon the web  $F$ , taken from the delivery-roll  $F'$  and wound upon the receiving-roll  $e^3$ , the ink-rolls  $a^2$   $a^3$ , their supports, the spring  $a^6$ , the distributing-roll  $C^{10}$ , the lever  $D^3$ , pivoted at  $D^2$  and connected at its lower  
60 end with the feeding device to engage and move the galley  $B$ , the adjusting-screw  $D^5$ , the lever  $D'$ , and punch or stripper-plate  $h^2$  are and may be substantially as in the application referred to.

The main shaft  $B'$ , driven in any usual way, preferably by a clutch-pulley surrounded by a suitable belt, (not shown, but substantially as in the said application,) has a cam-disk  $D$ , provided at its front side with a cam-groove,  
65 in which enters a roller or other stud at the lower end of a link 3, pivoted at 4, the said link having a slot 40, through which and through a slot 41 in the lever  $D'$  is passed an adjusting-bolt 5. The adjustment of this bolt  
70 in the slots enables the lever  $D'$  to be moved for a greater or less distance through the medium of the link 3 and cam.

The shaft  $B'$  (see the detail, Figs. 5 and 6) has a cam-hub  $B^2$ , provided with a suitable  
80 groove to receive the roller 30 (shown by dotted lines in Fig. 1) at the upper end of a lever 31, connected to a rock-shaft 32, the said rock-shaft having fast upon it the hub 33 of an arm 34, which is forked and embraces a pin  
85 on the punch-carrying bar 36, provided with a punch 37, which passes down through the stripper-plate  $h^2$ , common to the said application, and at each descent punches a hole  
90 in the web  $F$ .

The punch-carrying bar 36 is adapted to slide up and down in suitable bearings in the stand 38, the said stand and lever 34 being made adjustable on or with relation to the rock-shaft 32 and the frame-work toward and  
95 from the impression-pad  $g^4$ , according to the length of the wrapper.

In the application referred to the punch was moved up and down in unison with the bar  $g'$ ; but herein the said punch-bar is en- 100



tirely independent of the bar carrying the impression-pad, which provides for adjustments not possible to be gained in the machine described in the application referred to.

5 The main shaft B' has fast upon it a toothed gear E, which engages an intermediate E', which in turn engages a second intermediate f, supported on a stud f', the intermediate f' engaging and rotating a toothed gear f<sup>2</sup>, the  
10 toothed gear f<sup>2</sup> engaging and rotating the gear f<sup>3</sup>, fast on the shaft b', carrying the feed-roll b<sup>6</sup>. The shaft b' has secured to it a gear b<sup>2</sup>, (see Figs. 2 and 4,) which engages a gear b<sup>3</sup>, fast on the shaft c', to which is secured the  
15 second roll c of the pair of feed-rolls c b<sup>6</sup>. The gear f<sup>2</sup>, as shown, has bolted to it by bolts b<sup>4</sup> a pattern composed of two cam-plates f<sup>5</sup> f<sup>6</sup>, slotted where the said bolts pass through them, so that the said cams may be adjusted  
20 on the wheel f<sup>2</sup> and present a cam-surface of greater or less length as compared to the circumference of the gear f<sup>2</sup>, the said cam acting upon a roller b<sup>5</sup>, attached to the arm c<sup>2</sup>, pivoted at c<sup>3</sup>, the lower end of the said arm  
25 having bearings for the shaft c' referred to. The arm c<sup>2</sup> has connected to it a spring c<sup>4</sup>, one end of which spring is joined to a pin or stud on the upright A<sup>2</sup>, (see Fig. 3,) the said spring acting to normally keep the feed-roll  
30 c against the paper on the feed-roll b<sup>6</sup>. The roll b<sup>5</sup> is on a bracket m, secured to the arm c<sup>2</sup>, and this bracket has a clamping-bar m'. (Shown in section, Fig. 3.) The lever b<sup>50</sup>, pivoted at b<sup>26</sup>, has at its upper end a supporting bar  
35 or plate m<sup>2</sup>, as best shown in Figs. 3 and 8, a portion of the bar or a plate connected thereto and extended below the rolls, as shown by m<sup>3</sup>, acting as a guide for one edge of the paper, which in practice is led under the roll b<sup>6</sup> and  
40 over the bar m<sup>2</sup> and about the slack-controller 12, as represented in Fig. 1. The spring b<sup>7</sup>, acting on the lever b<sup>50</sup>, normally keeps the stop b<sup>8</sup>, carried by the lever b<sup>50</sup>, on the plate A<sup>x</sup>, thus determining the position of plate m<sup>2</sup>  
45 with relation to roll b<sup>6</sup>. When the cam-plates f<sup>4</sup> f<sup>5</sup> do not contact with the roll b<sup>5</sup>, the spring c<sup>4</sup> causes the feed-roll c to act against and nip the web of paper F between it and the roll b<sup>6</sup> and feed the said web; but as soon as the  
50 said cams in the rotation of gear f<sup>2</sup> strike the said stud the frame or arm c<sup>2</sup> is pushed back, and with it the roll c, so that the feeding of the paper is immediately stopped, the clamping-bar m' at such time clamping the paper  
55 between itself and the bar m<sup>2</sup>, so that the paper must remain at rest while the feed-rolls do not grasp and feed the paper.

The gear E' has fast upon it a belt-pulley F<sup>6</sup>, which receives the cross-belt F<sup>7</sup>, extended  
60 over a sheave a, fast on the shaft 6, provided with a cone n, (see Fig. 7,) over which is extended a belt F<sup>8</sup>, which is passed about a second cone n', fast on the shaft h<sup>6</sup>, to which is secured the pulling-off roll h<sup>7</sup>, the said pulling-off roll at or near one end having a suitable  
65 toothed gear n<sup>2</sup>, (represented by dotted outline, Fig. 1,) which engages a toothed gear

h<sup>12</sup>, fast on the shaft h<sup>50</sup>, to which is secured the second pulling-off roll h<sup>8</sup>. The shaft h<sup>50</sup> takes its bearing in a swing-frame h<sup>9</sup>, pivoted  
70 at h<sup>10</sup> and acted upon by a spring h<sup>22</sup>, which normally acts to keep the roll h<sup>8</sup> in contact with the roll h<sup>7</sup>, the said rolls serving by their action upon the web to pull the same continuously from the said roll F', the said web  
75 being fed off faster than required and being permitted to hang in loop form, as at p, Fig. 1, the said web passing over a guide-roll p' and under a guide-roll p<sup>2</sup>, a spring p<sup>3</sup> acting at its upper end against the web of paper on  
80 the roll p' to prevent more paper passing that roll than is actually taken away by the feeding-rolls c b<sup>6</sup> during their intermitting action, it being understood that the paper is fed past the impression pad and punch while the lat-  
85 ter are elevated and so long as the feeding-rolls c and b<sup>6</sup> engage the paper; but at the instant that the roll c is pushed back so that its periphery does not contact with the paper upon the roll b<sup>6</sup> the feeding movement of the  
90 web of paper stops, the said feeding-rolls being kept out of contact and the web at rest so long as the cams f<sup>5</sup> f<sup>6</sup> act during each rotation of the toothed gear f<sup>2</sup> upon the roll b<sup>5</sup>. The web of paper between the plate m<sup>2</sup> and  
95 the receiving-roll e<sup>3</sup> is passed about the slack-controlling or tension spring 12 and around a guide-roll 13.

The gear E<sup>2</sup> instead of being fast upon the shaft m<sup>6</sup> is secured thereto frictionally, so that  
100 the said shaft m<sup>6</sup> will be rotated only when there is slack in the web to be taken up, the said receiving-roll being mounted substantially as provided for in the said application.

Prior to my invention I am not aware that  
105 a web of paper has ever been passed between two continuously-rotated rolls having combined with one of them a cam by which to separate the said rolls intermittingly to enable the web to remain at rest for a definite  
110 period and then to be started again quickly, this feeding mechanism being especially available in a machine of the kind herein described where the web has to be stopped intermittingly to be printed and punched, the  
115 printing containing the addresses for newspapers and other packages, while the punch-holes become available when the web is applied to a machine such as described in United States Patent No. 408,202 granted to me,  
120 wherein the said holes are entered by a prong to thereby feed the web a definite distance with relation to each address, so that when the addressing strip or web is cut off the addresses will never be cut through, but the web will  
125 be separated between adjacent addresses, all as provided for in the said patent and the said application.

The impression-pad, the type, and the ink-ing-rolls to ink the type constitute the address-  
130 printing mechanism.

I claim—

1. The address-printing mechanism, a roll to deliver a web of paper to be printed, rolls



to pull off said paper continuously, means to support the paper so pulled off in a loose loop to be taken away by the feed-rolls intermittingly, and feed-rolls, combined with a cam 5 to control the intermitting engagement of the said feed-rolls with and to feed the web of paper intermittingly, and a punch to punch a hole in the web between successive engagements thereof by the feed-rolls, substantially 10 as described.

2. The combination, with address-printing mechanism and feed-rolls, of a cam to control the intermitting engagement of the said 15 rolls with and to feed the web of paper intermittingly and a punch to punch a hole in the web of paper, substantially as described.

3. The paper-feeding roll  $b^6$ , the roll  $c$ , its shaft, movable bearings in which the said shaft is mounted and gearing to connect the 20 shafts of the said rolls to cause them to rotate together, the bar  $m'$ , movable with roll  $c$ , the pivoted lever  $b^{50}$ , the supporting-bar  $m^2$  at its upper end to co-operate with bar  $m'$ , an adjustable stop, and a controlling- 25 spring on the other end of the lever, combined with a cam to cause the separation of one of the feed-rolls from the other intermittingly to release and leave the web of paper at rest, the bars  $m' m^2$  at such time clamp- 30 ing the web, substantially as described.

4. The paper-feeding roll  $c$ , its shaft  $c'$ , the movable frame in which the said shaft has its bearings, the stud or roll  $b^5$ , the bar 35  $m'$ , the feed-roll  $b^6$ , its shaft, gears to connect the shafts  $b'$  and  $c'$ , and a cam to move the said frame and cause the rolls  $c$  and  $b^6$  to

release the paper, combined with the independently-pivoted bar  $m^2$ , over which the web of paper is passed, and the downward extension  $m^3$  thereof to guide one edge of the web, 40 the combination being and operating substantially as described.

5. The paper-feeding roll  $c$ , its shaft  $c'$ , the movable frame in which the said shaft has its bearings, the stud or roll  $b^5$ , the bar  $m'$ , and 45 the feed-roll  $b^6$ , its shaft, gears to connect the shafts  $b'$  and  $c'$ , and a cam to move the said frame and cause the rolls  $c$  and  $b^6$  to release the paper, combined with the bar  $m^2$ , over which the web of paper is passed, the slack- 50 controlling spring 12, and web-receiving roll  $e^3$ , the combination being and operating substantially as described.

6. The galley containing type to designate the addresses to be printed, feeding mechan- 55 ism for the web of paper and the said galley, the impression-pad, and means to move it, combined with the stripper-plate, the punch-bar, the punch, the arm 34, the rock-shaft 32, means to actuate the said shaft, and the stand 60 38, the said stand and arm being adjustable on the said shaft toward and from the said impression-pad, substantially as and for the purposes described.

In testimony whereof I have signed my 65 name to this specification in the presence of two subscribing witnesses.

ERASTUS WOODWARD.

Witnesses:

GEO. W. GREGORY,  
EMMA J. BENNETT.