

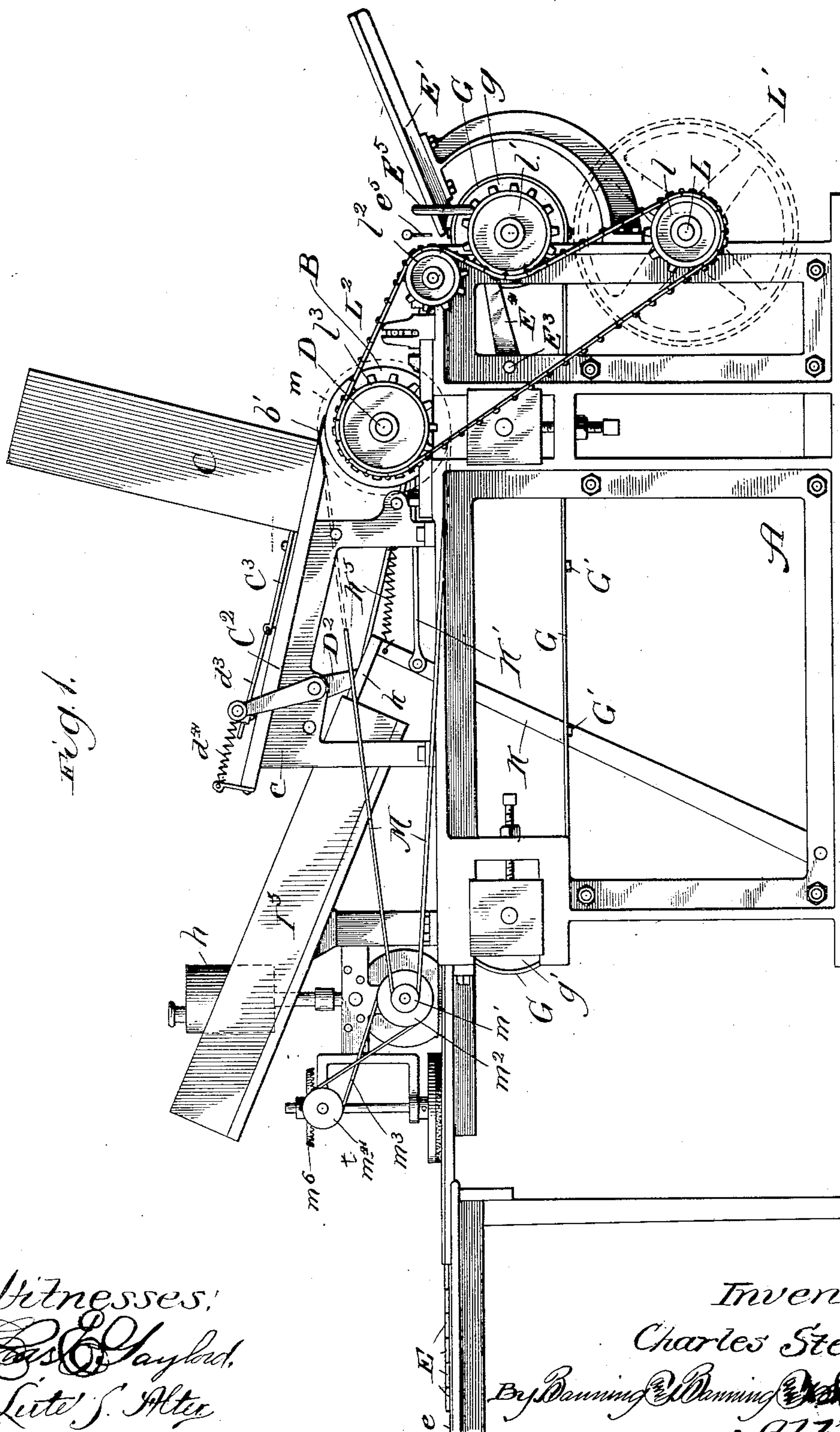
(No Model.)

4 Sheets—Sheet 1.

C. STEVENS.
PRINTING PRESS.

No. 563,627.

Patented July 7, 1896.



Witnesses:
E. Gaylord,
Lute S. Alter.

Inventor:
Charles Stevens,
By Banning & Banning ~~Attorneys~~
Attys.

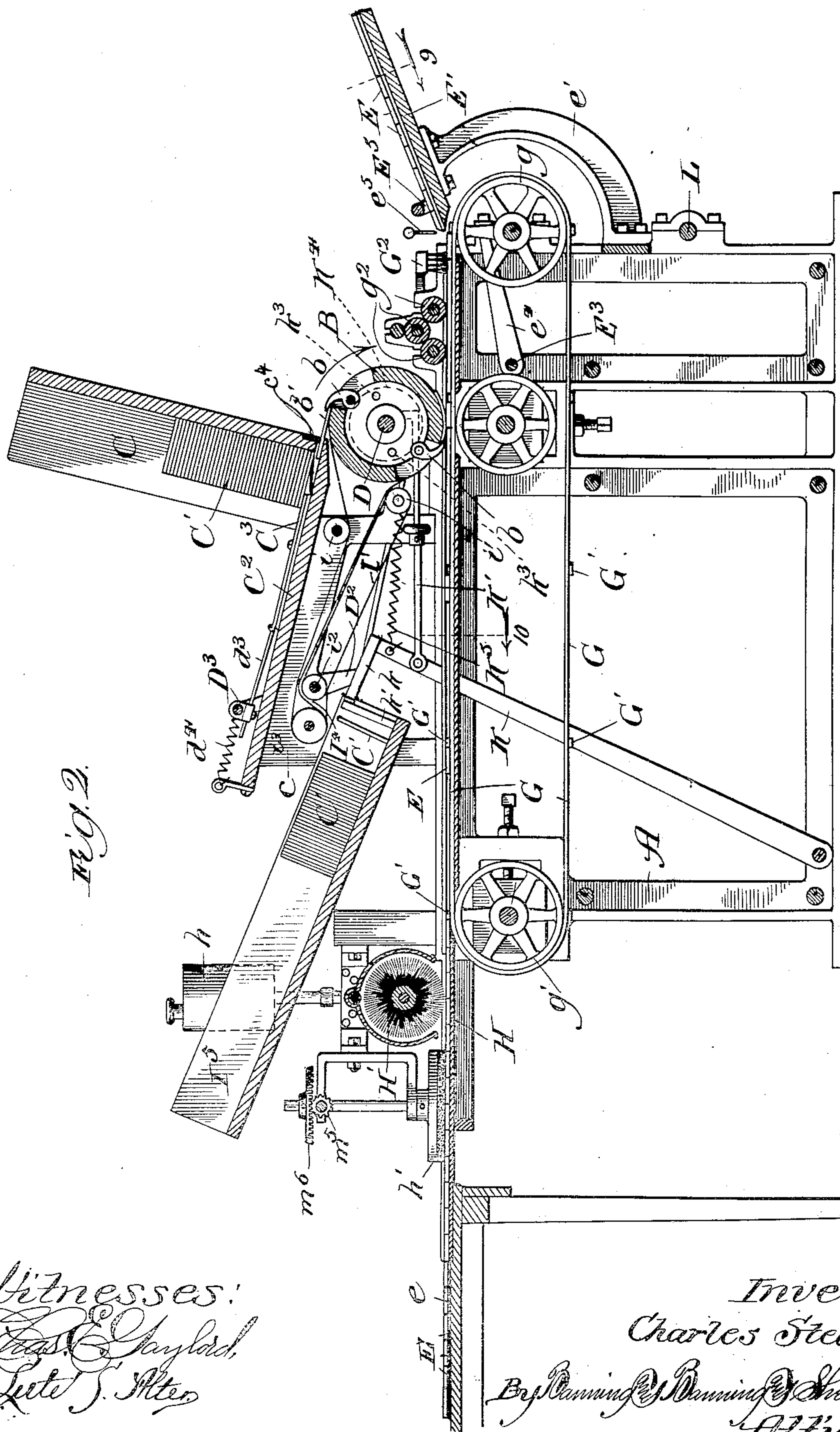
(No Model.)

4 Sheets—Sheet 2.

C. STEVENS.
PRINTING PRESS.

No. 563,627.

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Witnesses:
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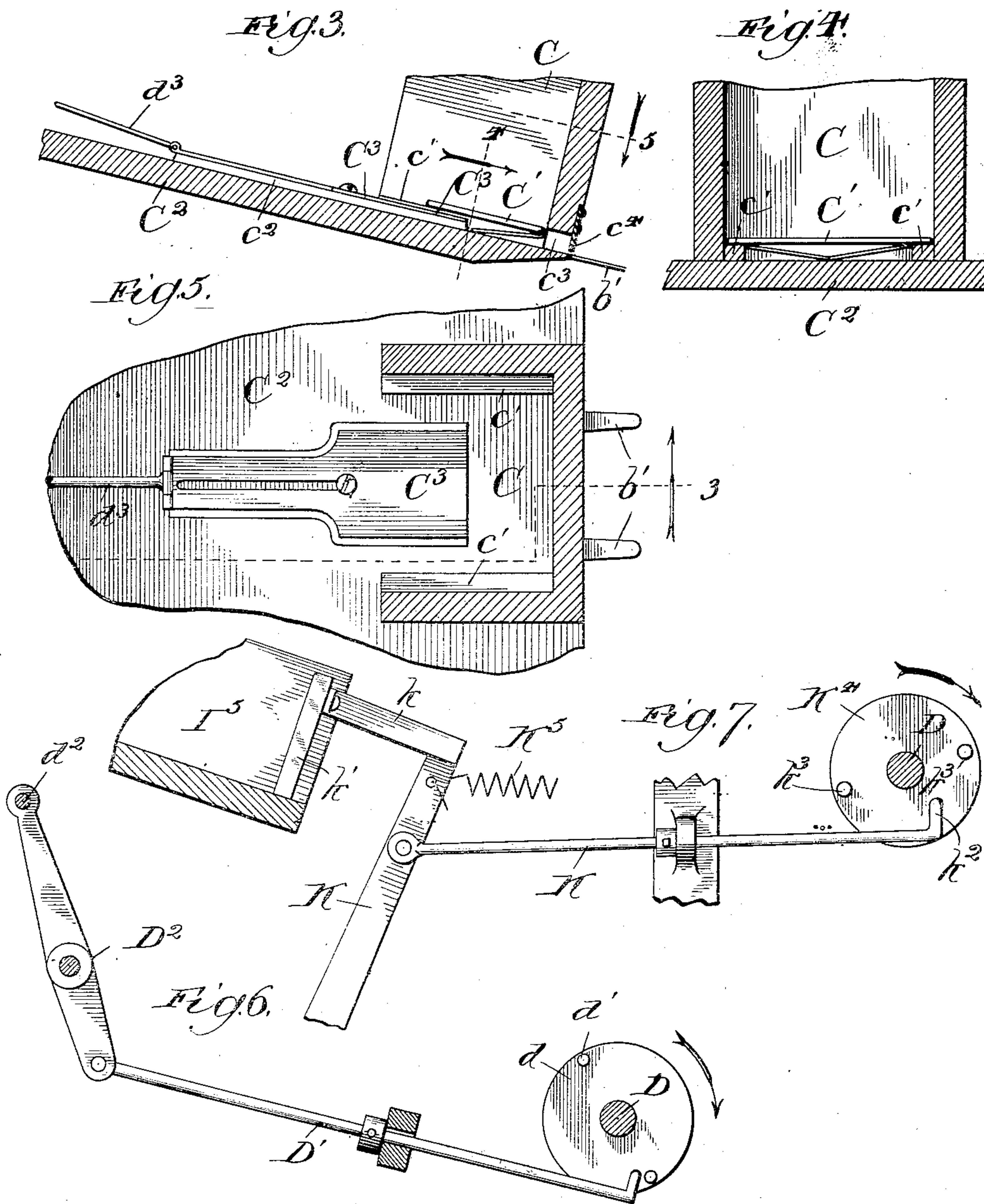
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4 Sheets—Sheet 3.

C. STEVENS.
PRINTING PRESS.

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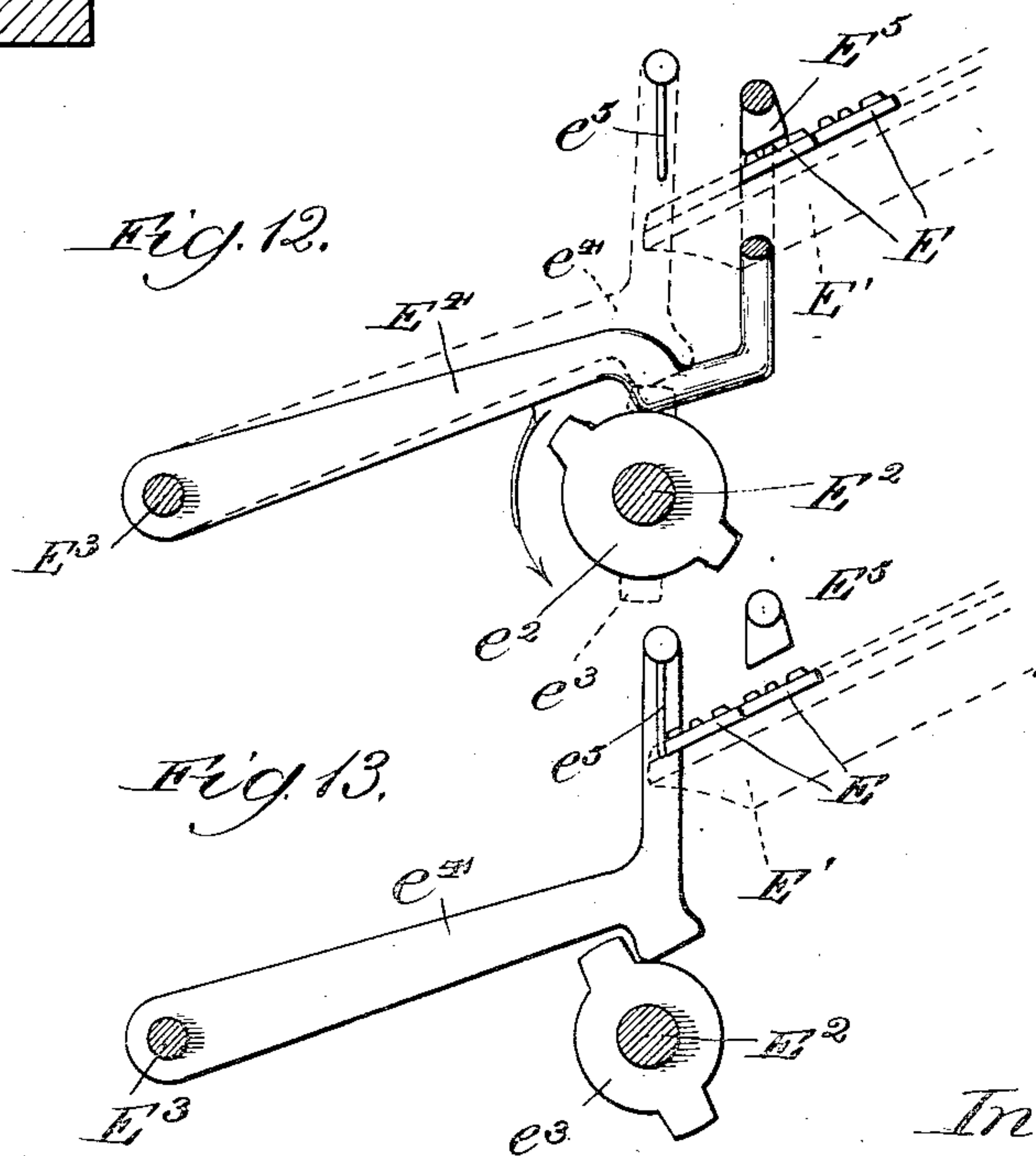
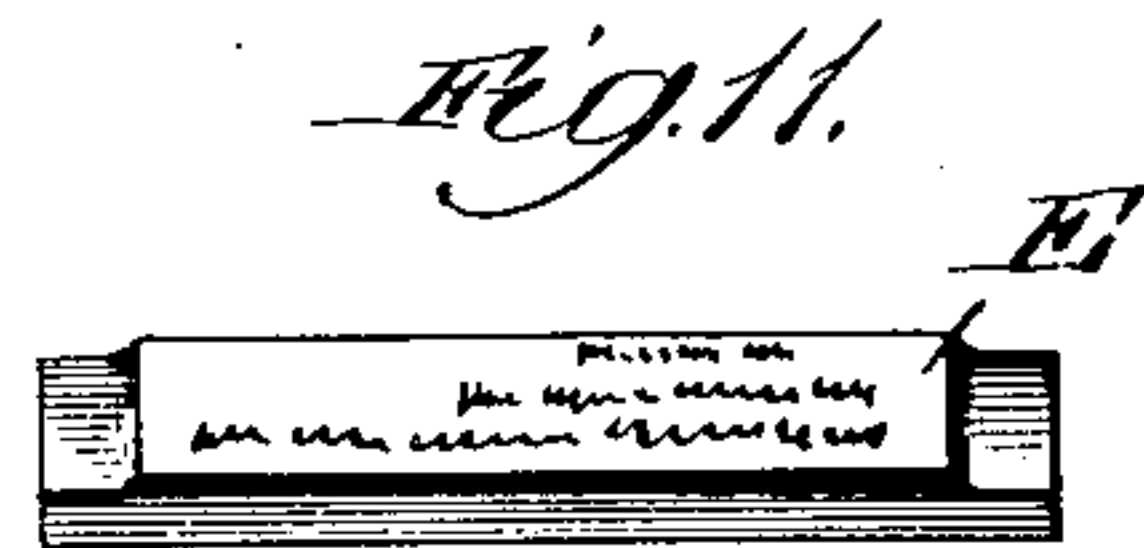
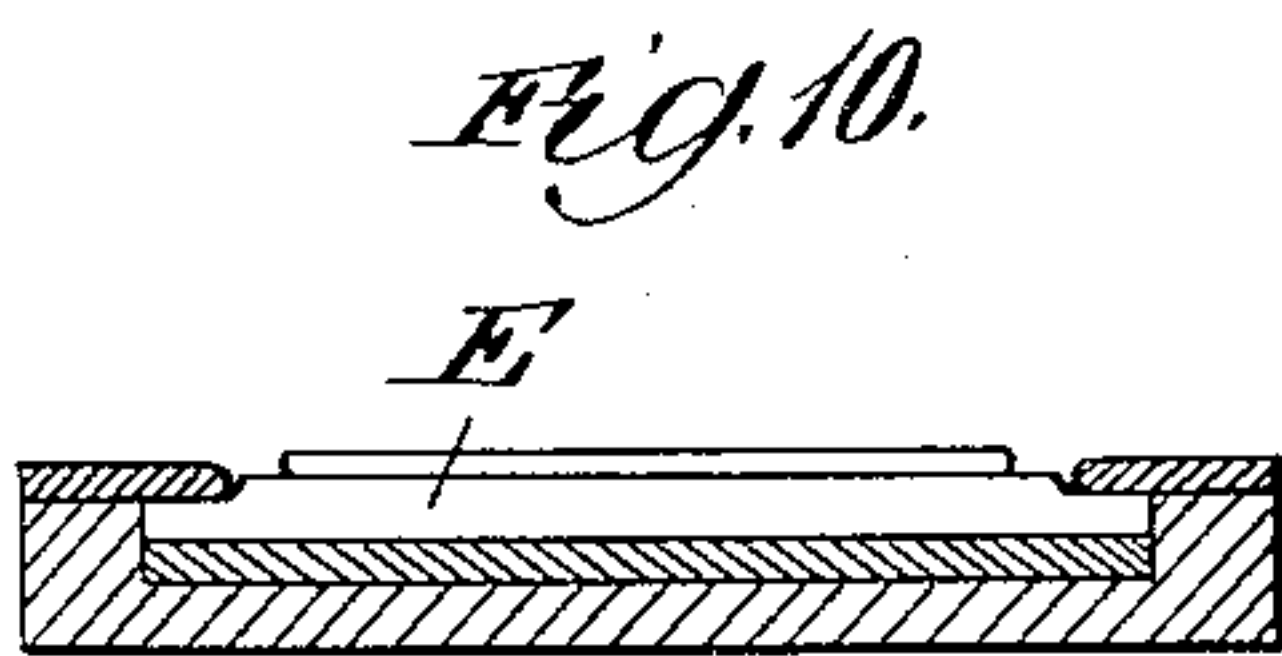
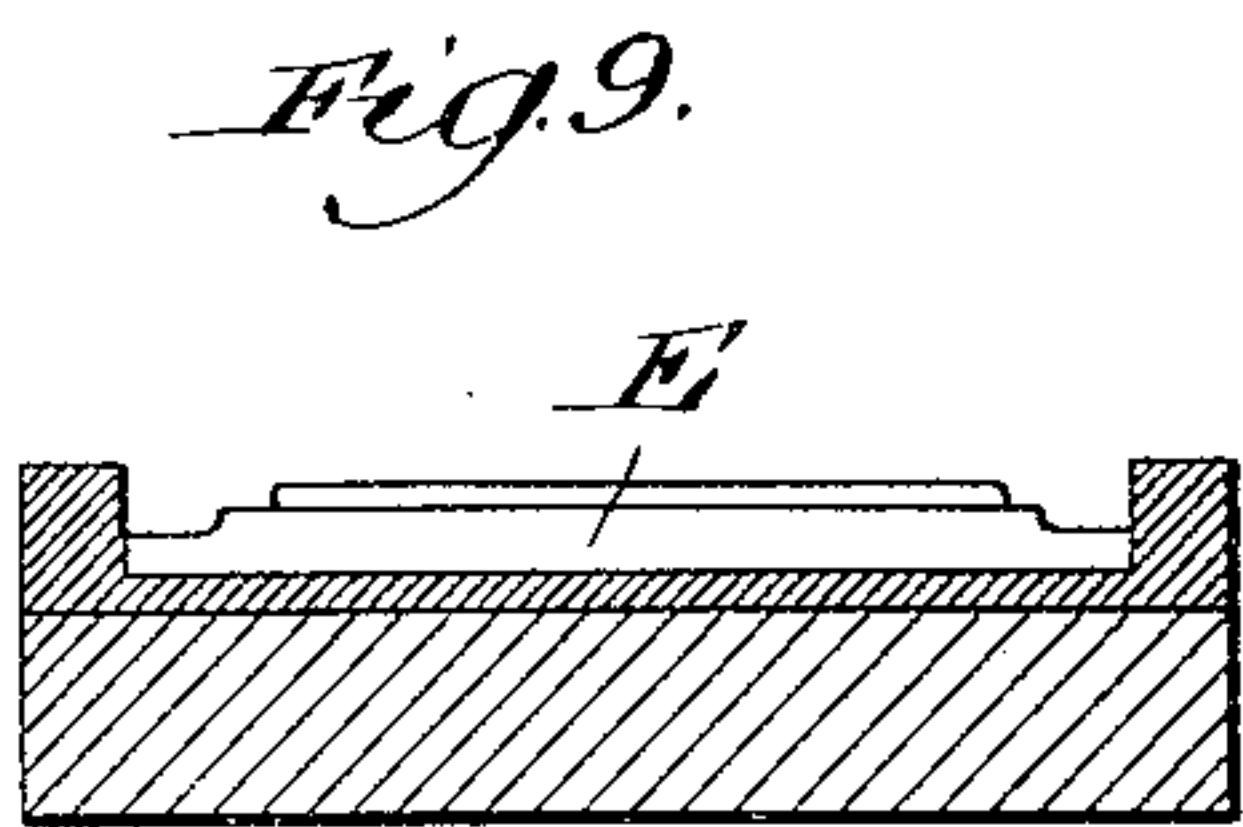
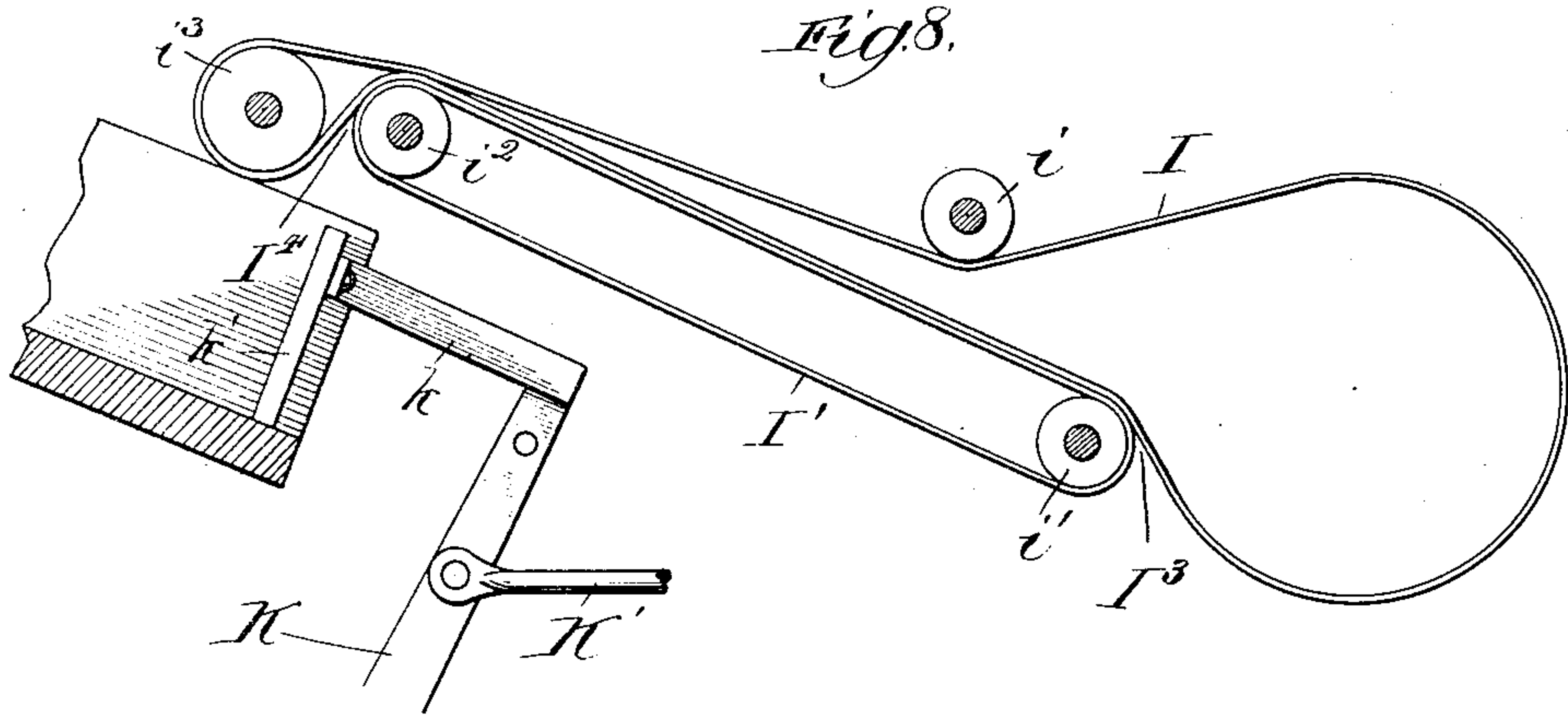
(No Model.)

4 Sheets—Sheet 4.

C. STEVENS.
PRINTING PRESS.

No. 563,627.

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Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES STEVENS, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE UNIVERSAL
PRINTED ADDRESS COMPANY, OF SAME PLACE.

PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 563,627, dated July 7, 1896.

Application filed April 27, 1895. Serial No. 547,336. (No model.)

To all whom it may concern:

Be it known that I, CHARLES STEVENS, of Chicago, Illinois, have invented certain new and useful Improvements in Printing-Presses, of which the following is a specification.

My invention relates particularly to printing-presses for printing addresses on envelopes, postal cards, &c., and has for its object the providing of a simple, economical, and efficient address-printing press; and the invention consists in the features and combinations hereinafter described and claimed.

In the drawings, Figure 1 is a side elevation of my machine; Fig. 2, a longitudinal section thereof, in vertical elevation, taken in a line about midway of the machine; Fig. 3, a longitudinal section of the envelop-feeding mechanism, taken on line 6 of Fig. 5; Fig. 4, a transverse section of Fig. 3, taken on line 4 of Fig. 3; Fig. 5, a plan view, partly in section, taken on line 5 of Fig. 3; Fig. 6, a longitudinal detail of the actuating mechanism for operating the envelop-feeding mechanism shown in Fig. 3; Fig. 7, an enlarged detail of a portion of the mechanism for packing the printing-envelops or postal cards shown in Fig. 2 of the drawings; Fig. 8, an enlarged detail of the discharging mechanism. Figs. 9 and 10 are enlarged transverse sections of the printing-plate guides, taken on lines 9 and 10 of Fig. 2; Fig. 11, a perspective view of one of the independent address-printing plates, and Figs. 12 and 13 reverse views of the escape mechanism for releasing the printing-plates.

In the art of printing it is well known that the printing of a large number of addresses directly onto envelopes, postal cards, or similar articles is the most laborious as well as expensive process known in plain printing. This is largely due to the fact that changes in addresses frequently occur, and where a large number have to be taken into consideration—say, between twenty and fifty thousand—the expense of changing alone is enormous, as well as to the fact that the arrangement of the type is very much different than in regular printing. Various methods are now in use, such as the printing of addresses on large pieces of paper which are afterward gummed, and, by means of machinery, clipped

and placed on the desired package, which alone entails large expense. Other means of printing, arrangement, &c., are now in vogue, which, however, I do not deem it necessary to detail here.

My invention is intended to obviate most of the disadvantages incident to the methods now in use, and to provide a printing-press by which any number of independent address-printing plates, each bearing a single address, can be fed in regular rotation to the press in numerical or alphabetical order, print the address on a desired package, and during their passage through the press be cleaned and delivered onto a receptacle by which they and a series of others may be piled away for future use. These type or addressing plates are arranged in series of any desired relation upon boards or metal plates, which may be stored away in any desired manner, so that free access may at all times be had for the purpose of changing the individual addressing-plates or to use any desired portion of them.

In constructing my improved printing-press, I make a main frame or bed A of the desired form and size, partaking generally of the form of a table, and secure to it in suitable bearing-brackets a rotating impression-cylinder B, preferably designed to carry around with it during each rotation one or more envelopes or packages into proper position to have the address printed thereon.

As illustrated in Fig. 2 of the drawings, I have designed my cylinder of such size and proportions as to carry two envelopes and print an address on them during each rotation.

To grasp the envelopes and carry them around during their rotation, I provide two sets of nippers *b* of the type now in ordinary use, which are pivoted in proper position on the cylinder and arranged to be actuated in any of the usual manners. (Not shown in detail in the drawings.) As the impression-cylinder rotates the nippers *b* remain normally closed until they have passed out from under the envelop-feeding mechanism, when they are opened in time to grasp an envelop, as shown at *b'*, which is pushed in by mechanism hereinafter described, and the nippers closed, car-

rying the same a little more than one-half a revolution to the opposite position, when the nippers release the envelop and it is carried out by the discharging mechanism.

5 To hold the envelopes in their proper position to be fed into the machine and provide mechanism by which they are fed in at the correct period of time, I provide a rectangular open-ended box C, which is secured to the
10 main bed of the machine on suitable framework *c* in any convenient manner, and arrange envelops in a pile C' with their flaps down, as shown in Fig. 2 of the drawings, adjacent to the impression-cylinder. The
15 lower edge of the envelop rests on a ledge *c'*, so as to leave a space between the lower envelop and the bottom of the box.

Arranged on the bottom of the box C², which may be of any desired length, is a metal plate
20 *c*², upon which is mounted and moved a reciprocating feed-slide C³, adapted to engage with the flap of an envelop and push it out through the opening *c*³ of the box in time to engage with the nippers of the impression-
25 cylinder. The end of the box at *c*³ is closed by means of a rubber flap *c*⁴, which serves to hold the envelop back until adjusted or alined properly on the reciprocating feed-
30 the printing-cylinder it is properly alined.

To actuate the feed-slide at the proper time, I mount upon the shaft D, which carries the rotating impression-cylinder, a disk *d*, which is provided with two projecting pins *d'*, oppositely arranged upon its side face to contact
35 a sliding rod D'. This sliding rod has one end pivotally connected with a double lever D², which is pivoted on the frame *c* of the machine and which has its upper end provided
40 with a cross-shaft *d*², upon which is pivotally mounted a box D³. The box D³ is connected by means of the rod *d*³ to the feed-slide, so that as the cylinder rotates the pins on the disk *d* strike the slide-rod D' and vibrate the pivoted
45 lever D², so as to throw the feed-plate forward and feed in an envelop or similar article. As the disk *d* rotates farther the sliding rod D' is released and a spiral spring *d*⁴ acts to bring the parts back to their normal position,
50 or in position to engage the next envelop in the pile C'.

It will be understood that the disk *d* may be provided with any number of pins corresponding to the number of envelops that are
55 printed during one rotation of the impression-cylinder.

To print the address upon the envelop at the proper time, I provide independent address-printing plates E, upon which is cast
60 or set, in the desired type, the name and address desired to be printed upon an envelop or other package. Any number of these plates can be used, each bearing a different address. These plates are arranged upon a
65 board *e*, holding, say, each about fifty, so that they may be handled or stored away more readily and easily. When it is desired to

bring the machine into action and print the addresses, one of these boards *e* is taken and its plates slid down upon an inclined guide
70 or chute E', that is secured to the main frame of the machine by brackets *e'* in any desired manner and at such an angle that the addressing-plates will, by their own gravity, be fed into the machine. 75

To feed the plates in one at a time at regular and proper intervals, I arrange an escapement formed of primary and secondary detents at the lower end of the inclined table in the following manner: Mounted upon the
80 shaft E² are two cams *e*² and *e*³, while pivotally and loosely mounted upon a shaft E³ are vibrating lever-arms E⁴ and *e*⁴, which carry the detents. The lever E⁴ carries the primary detent and is arranged to be operated
85 by the cam *e*² during its rotation, so that normally it will be in the position shown in Fig. 12 of the drawings, and the primary detent E⁵, which is preferably formed of rubber, will rest upon one of the addressing-plates, preferably the lower, and hold it and the following ones from being fed into the machine.
90 As the shaft E rotates the primary lever is raised by its cam, and the cam *e*³ passes out of engagement with the second lever *e*⁴, so
95 that the lever-arm drops down until the secondary detent *e*⁵ engages with the inclined table. As the lever-arm with its primary detent is raised the entire set of addressing-plates slide down the table, but are stopped
100 from entering the machine by the secondary detent. The further rotation of the shaft rotates the cam *e*³ out of action with the primary lever, so that it again drops and the primary detent engages with the next
105 addressing-plate. The continued rotation of the shaft again raises the lever with its secondary detent and permits one of the addressing-plates—the lower—to enter the machine. 110

To carry the addressing-plate along and print the required address upon the envelop, I provide a flexible carrier-belt G, which is mounted upon and driven by the pulleys *g* and *g'*, which are mounted upon suitable
115 shafts in the bearing-brackets upon the main frame of the machine. This plate-carrier is provided with stops G', projecting above the upper surface of the belt to contact the addressing-plates and carry them along at the
120 desired time and in proper alinement. To be sure that the addressing-plate is not carried in before its time or out of alinement, I secure to the bed of the machine a flexible detent or brush G², which holds the addressing-
125 plate back until a stop G' comes along and carries it by into the press. As it is carried into the press inking-rolls *g*², of the usual type, apply the requisite amount of ink to the addressing-plate. Carried along farther
130 it is brought into position to contact an envelop on the impression-cylinder and imprint the desired address.

To take the addressing-plates out of the

machine at the proper time, clean, and arrange them in their proper order upon boards or plates ready for subsequent use, I arrange an extension-plate II on the same plane as the upper surface of the flexible carrier, so that the addressing-plates are forced thereon, one at a time, and pass under a rapidly-rotating cleaning-brush II', which is supplied with naphtha or benzene from a can *h*, and the upper surfaces cleaned. To further clean and dry the addressing-plates, I arrange preferably a felt brush *h'*, which rotates in a horizontal plane and in position to contact the face of the type and dry it. The plates are then pushed along gradually, one at a time, by the projections upon the carrier until the holder *e* is filled, when the holder is removed and the empty one put in its place to receive the subsequent address-plates.

To discharge the printed envelops or packages after they are printed, I arrange a discharge-belt I, with one portion around the rotating printing-cylinder, (see Fig. 8,) and guide or carry it around its path by means of the idler-pulleys *i'*, *i''*, and *i'''*, having the pulley *i'''* arranged immediately over a discharging box or receptacle. Arranged immediately under the belt I is a secondary belt I', mounted on and rotated by the pulleys *i'* and *i''*. The main discharging-belt I is driven by the rotating impression-cylinder and is in rubbing contact with the second or lower belt I', so that such belt is thereby propelled by frictional contact. As the rotating impression-cylinder revolves, as hereinbefore stated, the grasping-nippers *b* are released just before they come opposite the pulley *i'*, so that the addressed envelop is released and enters in between both the belts at about I³ and is carried thereby and between such belts, coming out at I⁴ and dropping into the box or receptacle I⁵ in the manner shown in Fig. 2 of the drawings. To push the addressed envelops along in their receiving-box, so that there is always sufficient room for a discharged or discharging envelop, I pivot at any suitable point of the machine a pushing-lever K, preferably provided with an angular projection *k*, to which is secured at its free end a push-plate *k'*, of about the size of an envelop and inside the envelop-receiving receptacle I⁵. Pivotaly connected to this packing-arm or vibrating lever is a slide-rod K', which has one end mounted in a suitable bracket upon the frame of the machine and its opposite end provided with an upturned projection *k''*, arranged to be contacted by pins *k'''* upon a rotating disk K⁴, which is mounted upon and rotated by the shaft D. At the proper time and when an envelop has been discharged into the discharging-receptacle the slide-rod K' is pushed forward by the pins on the rotating disk and the pushing-lever vibrated to push any envelop in the receiving-box out of the way of the following envelops. The further rotation of the disk K⁴ carries its pin out

of contact with the sliding rod, and a spiral spring K⁵ carries the parts back to their normal position in condition to push forward another envelop and pack them closely, as illustrated in Fig. 2 of the drawings.

Mounted upon the rotating shaft I is a driving-pulley I', which may be connected with any suitable source of motive power, and the different rotating shafts are connected with and driven by this driving-shaft, by means of the sprocket-wheels *l*, *l'*, *l''*, and *l'''* and a sprocket-chain I², so that the proper time and speed of the different portions of the mechanism are thereby attained. The cleaning-brushes are driven by means of the round belts M, grooved pulleys *m m'*, cross-belt *m''*, pulleys *m''' m''''*, beveled pinions *m''''*, and beveled gears *m''''*. I will not enter into a detailed description of the rest of such mechanism, as it is of the ordinary and usual construction, and can be readily understood by the ordinary mechanic or persons skilled in the art from a mere inspection of the drawings.

In operation the envelops are placed in their upright box, as shown in Fig. 2 of the drawings, and a set of addressing-plates are placed upon the inclined table in position to be fed into the machine. Power is then applied to the machine. The feed-slide is reciprocated and an envelop pushed in in time to be engaged by the grasping-nippers on the rotating impression-cylinder. The envelop is carried around in time to meet the first addressing-plate, which is fed into the press in the manner hereinbefore described, and the address printed thereon. By this time a second envelop is fed into engagement with the grasping-fingers on the opposite side of the printing-cylinder and carried into the position to be imprinted by the second addressing-plate, which is fed into the machine while the first envelop is discharged into the box I⁵, and the first addressing-plate carried along, discharged, cleaned, and placed upon a plate ready for removal. These operations are continued indefinitely until any number of addresses can be printed upon any desired number of packages.

The principal advantage of my mechanism is that the addresses of any desired number of subscribers or people may be printed upon any desired number of packages in any desired sequence or order, and the addressing-plates put away in a desired receptacle ready for use at any time.

While I have described my invention with more or less minuteness as to detail and as being embodied in precise forms, I do not desire to be limited thereto unduly, any more than is pointed out in the claims. On the contrary, I contemplate all proper changes in form, construction, and arrangement, the omission of parts and substitution of equivalents, as circumstances may suggest or necessity render expedient.

I claim—

1. In address-printing press, the combination of a rotating impression-cylinder, for carrying an envelop or similar article into position to be printed, an endless flexible carrier-belt arranged to travel in a path directly under the impression-cylinder, stops on such belt arranged to bring the address-printing plates into contact with the cylinder at desired time or times, an inclined table for holding and feeding the address-printing plates onto the carrier-belt, a double detent-lever escapement for holding the individual address-printing plates and permitting them to be fed onto the carrier-belt one at a time at the desired moments of time, and a flexible detent adapted to hold the address-printing plates until contacted by the stop on the carrier-belt and properly position the same, substantially as described.

2. In address-printing press, the combination of a rotating impression-cylinder, for carrying an envelop or similar article into position to be printed, an endless flexible carrier-belt arranged to travel in a path directly under the impression-cylinder, stops on such belt arranged to bring the address-printing plates into contact with the cylinder at desired time or times, an inclined table for holding and feeding the address-printing plates onto the carrier-belt, a double detent-lever escapement for holding the individual address-printing plates and permitting them to be fed onto the carrier-belt one at a time at the desired moments of time, means for feeding the envelops forward to the impression-cylinder at the proper time, means on the impression-cylinder for grasping the envelop or similar article, and an endless belt adapted to receive the printed article and deliver it to a suitable point of discharge, substantially as described.

3. In address-printing press, the combination of a rotating impression-cylinder, for carrying an envelop or similar article into position to be printed, an endless flexible carrier-belt arranged to travel in a path directly under the impression-cylinder, stops on such belt arranged to bring the address-printing plates into contact with the cylinder at desired time or times, an inclined table for holding and feeding the address-printing plates onto the carrier-belt, a double detent-lever escapement for holding the individual address-printing plates and permitting them to be fed onto the carrier-belt one at a time at the desired moments of time, a flexible detent adapted to hold the address-printing plates until contacted by the stop on the carrier-belt and properly position the same, means located adjacent to the carrier-belt and between the flexible detent and impression-cylinder for applying ink to the individual ad-

dress-printing plates, substantially as described.

4. In address-printing press, the combination of a rotating impression-cylinder, for carrying an envelop or similar article into position to be printed, an endless flexible carrier-belt arranged to travel in a path directly under the impression-cylinder, stops on such belt arranged to bring the address-printing plates into contact with the cylinder at the desired time or times, an inclined table for holding and feeding the address-printing plates onto the carrier-belt, a double detent-lever escapement for holding the individual address-printing plates and permitting them to be fed onto the carrier-belt one at a time at the desired moments of time, flexible detent adapted to hold the address-printing plates until contacted by the stop on the carrier-belt and properly position the same, means located adjacent to the carrier-belt and between the flexible detent and impression-cylinder for applying ink to the individual address-printing plates, a brush arranged adjacent to the discharging-point on the carrier-belt to clean the face and sides of the type, and a secondary felt brush rigidly mounted in a plane with the type for cleaning and drying the face of the type, substantially as described.

5. In address-printing press, the combination of a rotating impression-cylinder, for carrying an envelop or similar article into position to be printed, an endless flexible carrier-belt arranged to travel in a path directly under the impression-cylinder, stops on such belt arranged to bring the address-printing plates into contact with the cylinder at a desired time or times, an inclined table for holding and feeding the address-printing plates onto the carrier-belt, a double detent-lever escapement for holding the individual address-printing plates and permitting them to be fed onto the carrier-belt one at a time at the the desired moments of time, means for feeding the envelops forward to the impression-cylinder at the proper time, means on the impression-roller for grasping the envelop or similar article, an endless belt adapted to receive the printed article and deliver it to a suitable point of discharge, a receptacle adapted to receive the discharged printed envelops, and means for pushing the imprinted article forward into the receptacle and suitably packing the same, substantially as described.

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