

(No Model.)

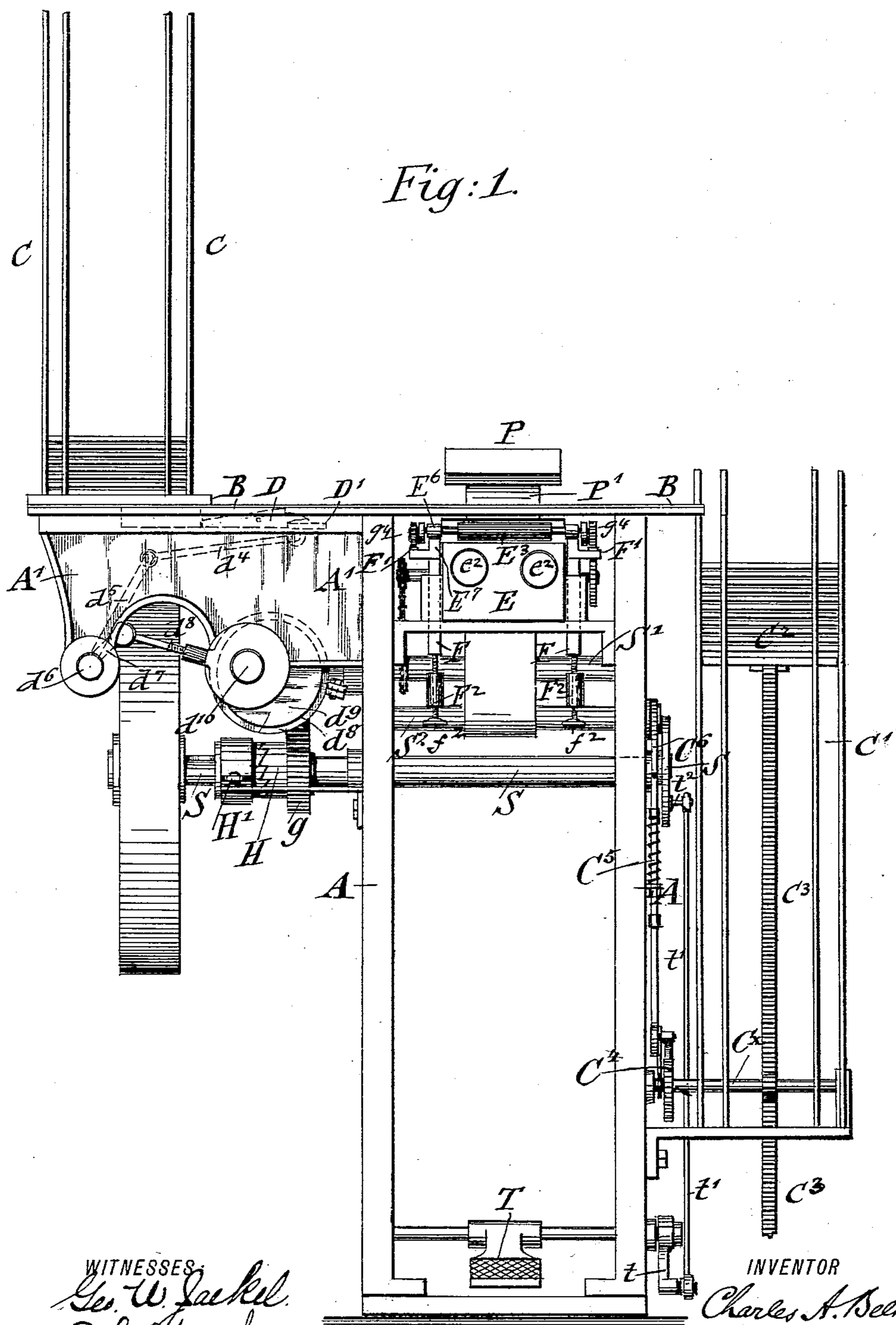
4 Sheets—Sheet 1.

C. A. BELKNAP.

MACHINE FOR ADDRESSING ENVELOPS OR WRAPPERS.

No. 560,018.

Patented May 12, 1896.



WITNESSES:
Geo. W. Jackel.
Ch. Gash.

INVENTOR
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(No Model.)

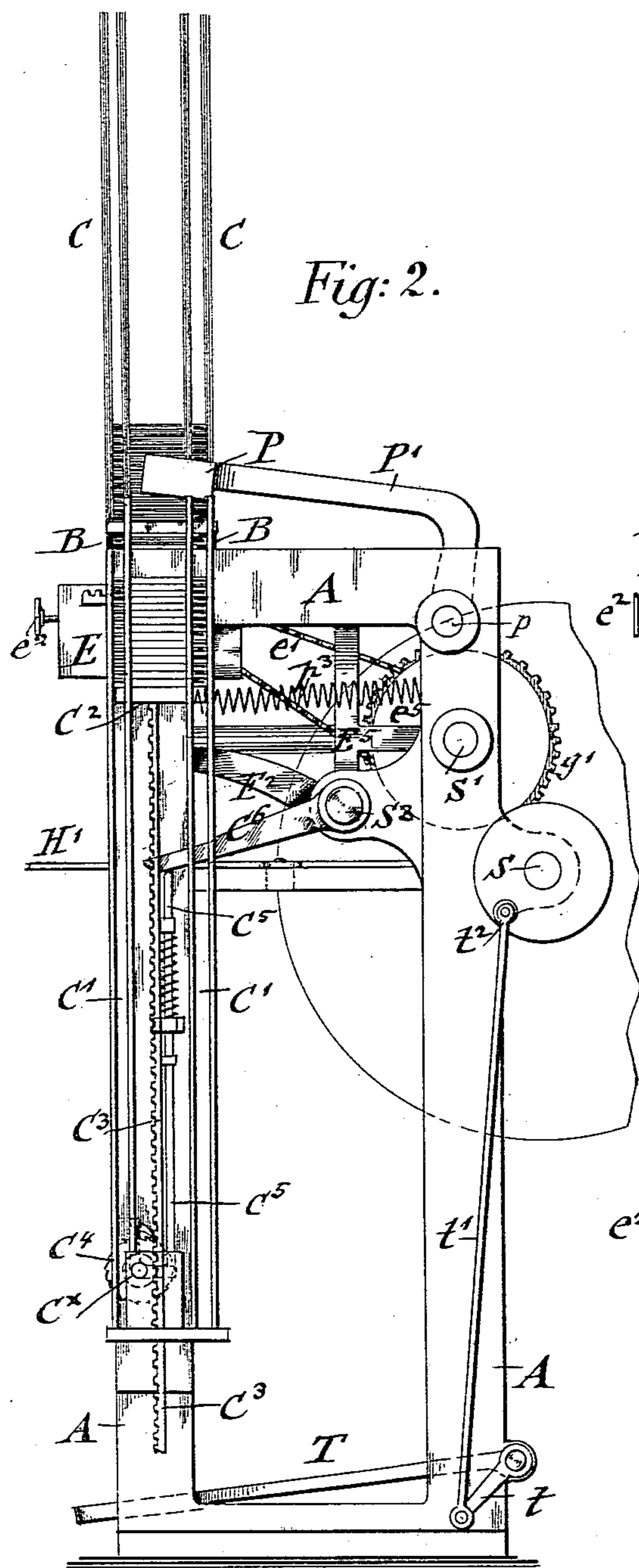
4 Sheets—Sheet 2.

C. A. BELKNAP.

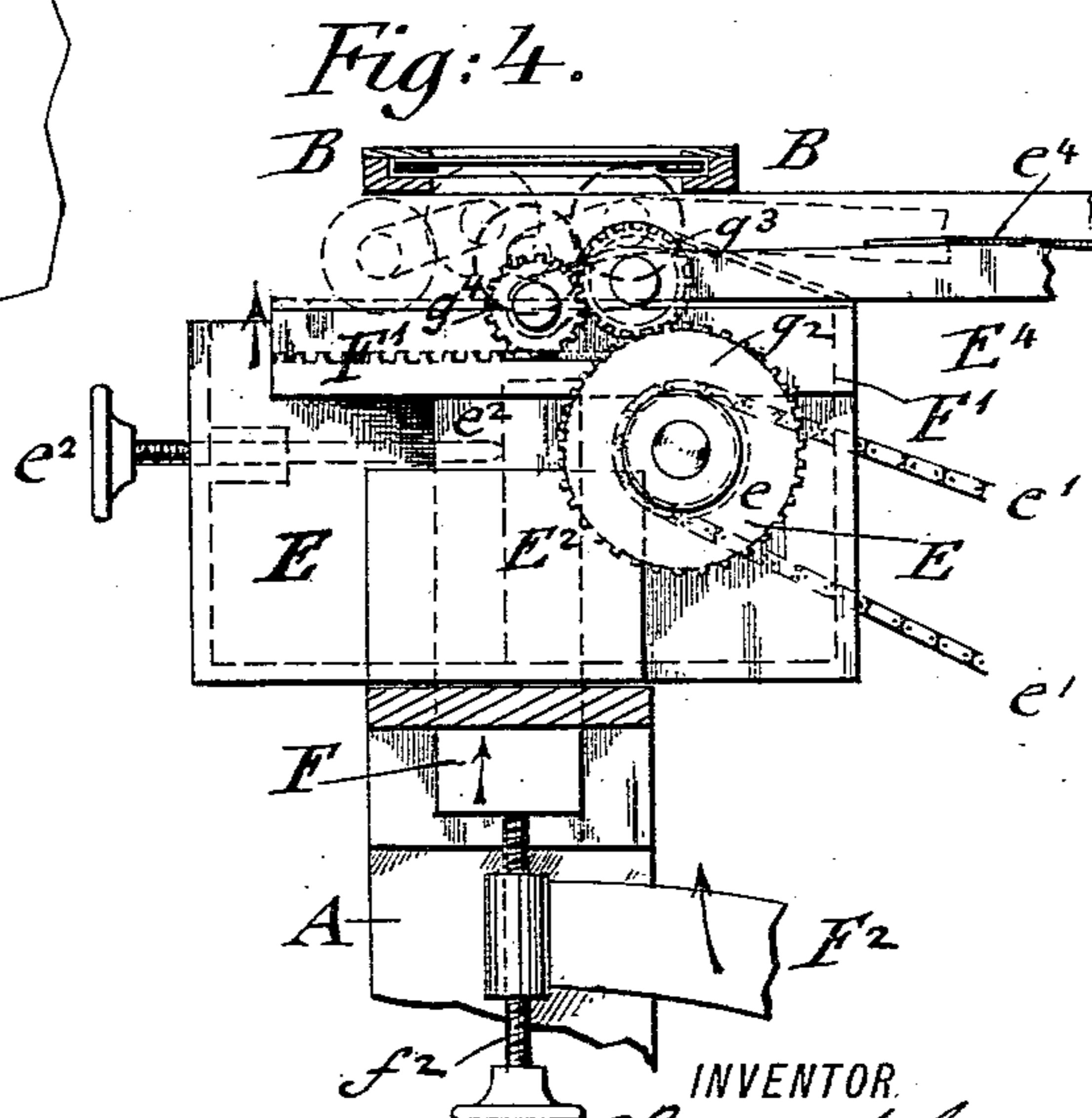
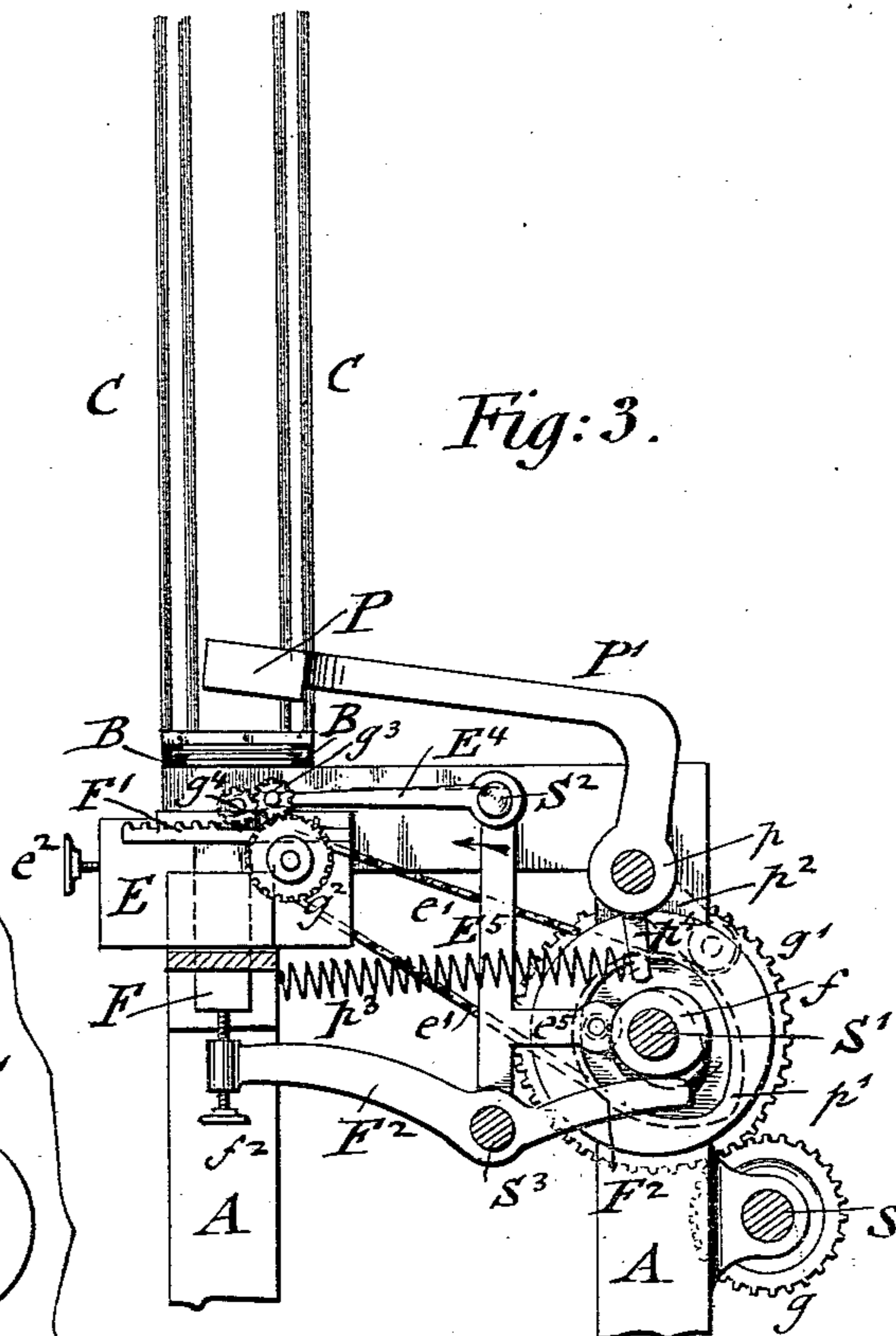
MACHINE FOR ADDRESSING ENVELOPS OR WRAPPERS.

No. 560,018.

Patented May 12, 1896.



WITNESSES:
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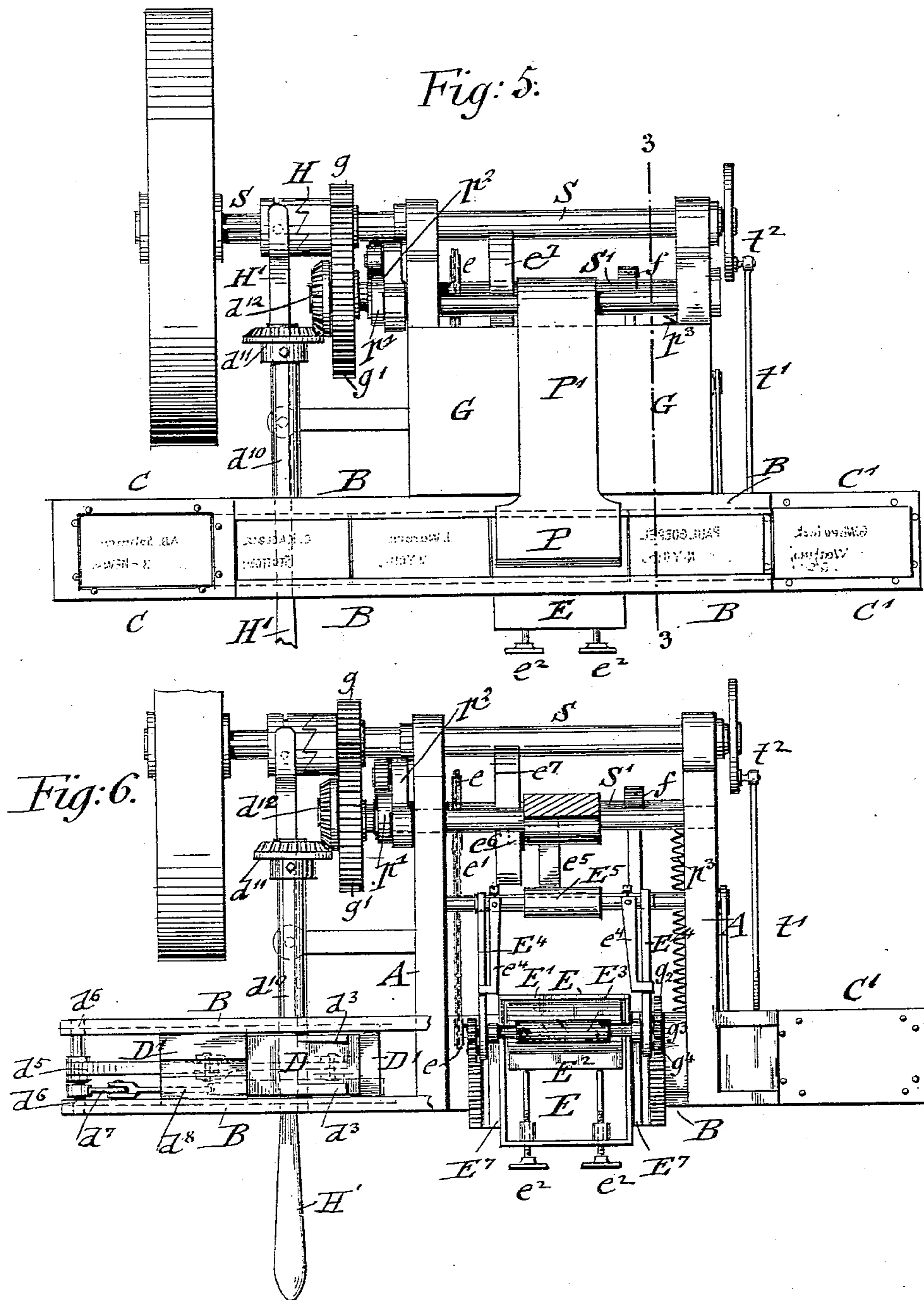
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C. A. BELKNAP.

MACHINE FOR ADDRESSING ENVELOPS OR WRAPPERS.

No. 560,018.

Patented May 12, 1896.



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(No Model.)

4 Sheets—Sheet 4.

C. A. BELKNAP.

MACHINE FOR ADDRESSING ENVELOPS OR WRAPPERS.

No. 560,018.

Patented May 12, 1896.

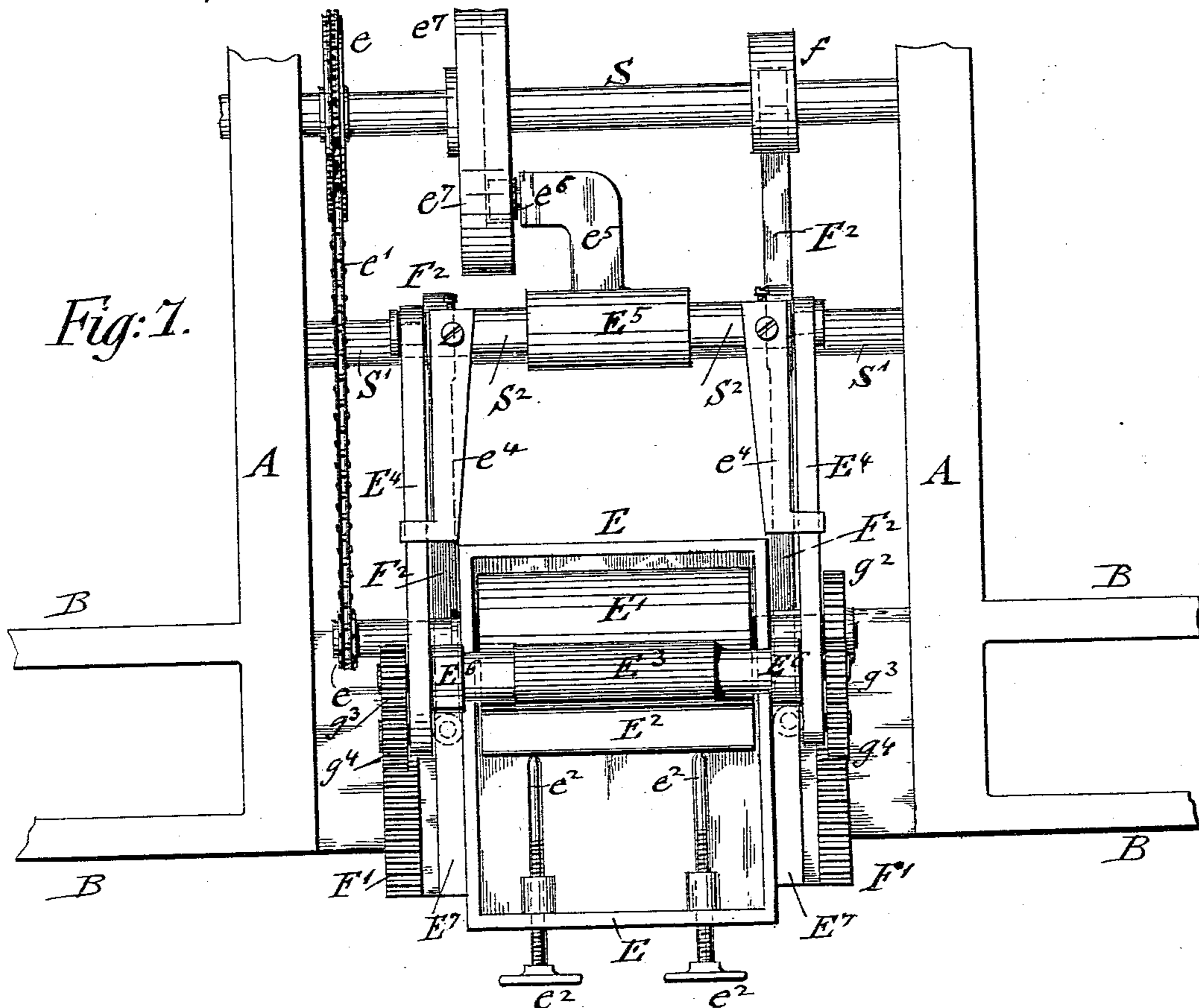


Fig: 8.

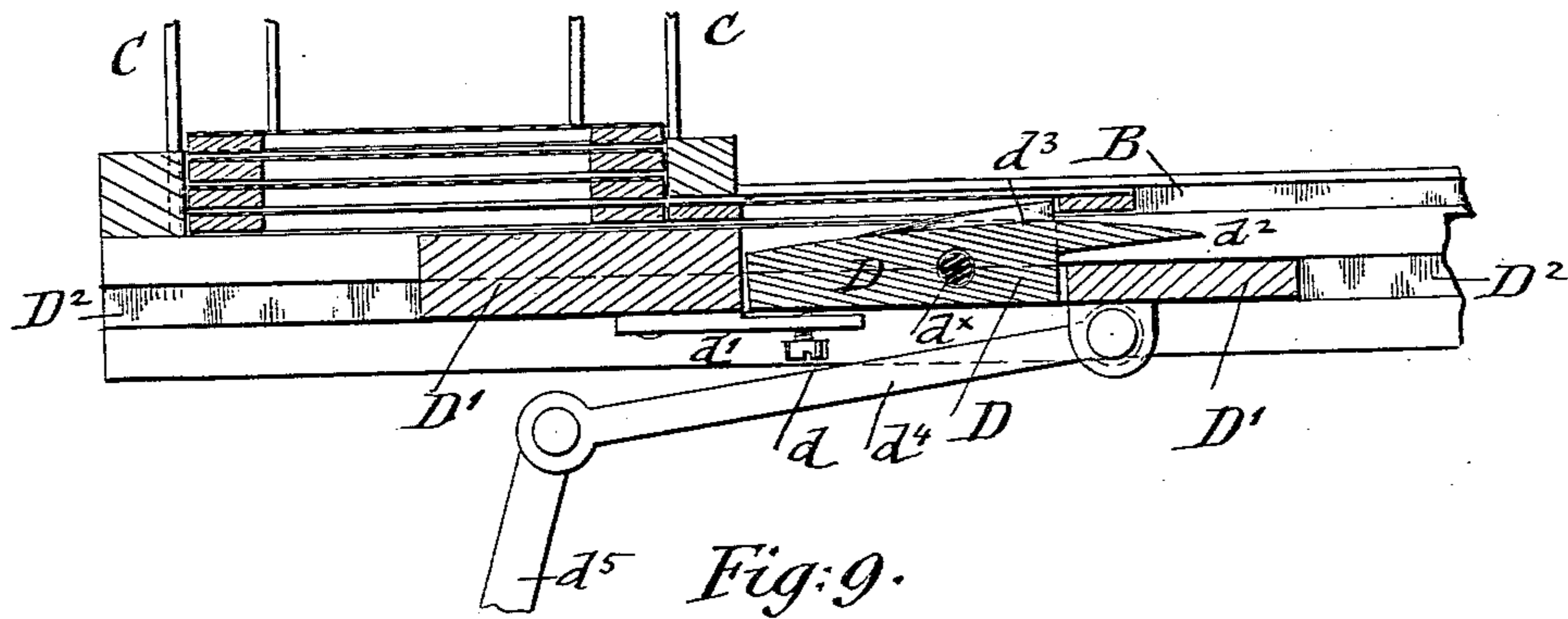
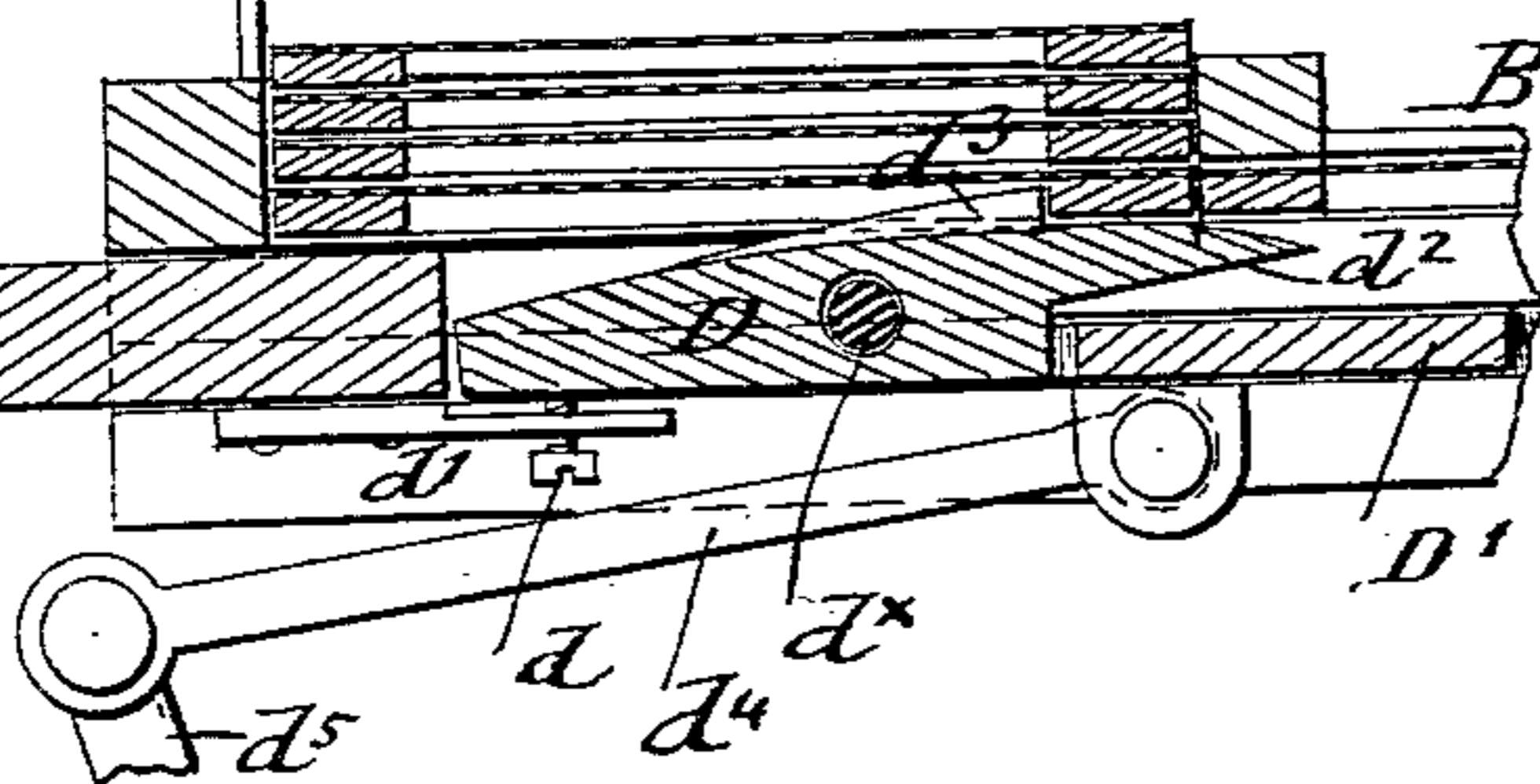


Fig: 9.

WITNESSES:
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UNITED STATES PATENT OFFICE.

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MACHINE FOR ADDRESSING ENVELOPS OR WRAPPERS.

SPECIFICATION forming part of Letters Patent No. 560,018, dated May 12, 1896.

Application filed November 5, 1895. Serial No. 567,967. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. BELKNAP, a citizen of the United States, residing in Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Machines for Addressing Envelops or Wrappers, of which the following is a specification.

This invention relates to an improved addressing-machine of that class in which envelopes and wrappers which are fed to the machine by an attendant are addressed by means of perforated stencil-cards, so that the sending out of letters, circulars, newspapers, &c., is greatly facilitated and cheapened, especially when such addressing and sending out take place at regular intervals of time; and the invention consists of a machine for addressing envelopes and wrappers which comprises a delivering-box for the perforated address-cards, horizontal guideways for guiding the same, means for intermittently feeding the perforated address-cards from the delivering-box to said guideways, a rotating and reciprocating inking mechanism below the guideways, an oscillating platen above the guideways and inking mechanism, and a collecting-box at the opposite end of the guideways for receiving the perforated address-cards after the addresses are printed.

The invention consists, further, of an improved device for intermittently feeding the perforated address-cards from the receiving-box into the guideways for said cards, next in the construction of the reciprocating inking mechanism and its actuating mechanisms and in the construction of the collecting-box for the perforated address-cards, so that the box can be readily removed from the machine and the cards transferred to a suitable storage receptacle, as will be fully described herein-after, and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a front elevation of my improved machine for addressing envelopes and wrappers. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical transverse section of the machine on line 3 3, Fig. 5. Fig. 4 is a detail side elevation of the ink-fountain and of the mechanism for actuating the inking-roller, drawn on a larger scale. Fig. 5 is a plan view of the machine. Fig. 6 is a plan

view, partly in section, and with other parts broken away. Fig. 7 is a plan view of Fig. 4, drawn on a larger scale, and showing the ink-fountain, the inking-roller, and the actuating mechanism of the same; and Figs. 8 and 9 are vertical longitudinal sections of the pusher mechanism for feeding the perforated address-cards, drawn on a larger scale, and showing the pusher in position respectively after and before feeding an address-card into the guideways.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the upright supporting-standards of my improved machine for addressing envelopes and wrappers. The standards A are connected transversely by suitable braces and are provided with journal-bearings for the shafts of the different rotary parts of the machine. On the standards A are supported horizontal guideways E, at the ingoing end of which is arranged a delivering-box C, which is open at the upper and lower ends, while at the opposite or outgoing end of the horizontal ways B B is arranged a collecting-box C' for the perforated address-cards. These are preferably composed of stiff frames of pasteboard or other material and of a web of parchment-paper into which the address is stenciled by suitable perforating-type of a type-writing machine. The delivering and collecting boxes C C' are constructed in any approved manner, either of solid walls having an opening in the front wall or of corner-rods and auxiliary rods at the front part, so that the perforated address-cards after being placed in the boxes are guided in downward direction along the walls or rods.

Between the delivering and collecting boxes C C' is arranged, below the guideways B B, the inking mechanism, and above the guideways and inking mechanism an oscillating platen P.

Below the lower end of the delivering-box C is arranged the mechanism for intermittently feeding the perforated address-cards to the printing mechanism. This feeding mechanism consists of a horizontally-reciprocating pusher D, which is applied to a transverse pivot d^x of a pusher-frame D' in such a manner that the pivot is slightly in front of

the center of gravity of the pusher, so that the rear part is heavier than the front part and drops on an adjusting-screw d , applied to a bracket d' at the under side of the pusher-frame D' . The dropping of the heavier rear part of the pusher D imparts to the front part of the pusher a tendency to rise in upward direction. The screw d serves for adjusting the pusher D into a more or less inclined position, so that the shoulders of the pusher can be set in line with the frame of the address-card and the rear part of the pusher prevented from dropping below the pusher-frame. The tapering front portion d^2 of the pusher D is convexly curved at its upper side and provided with two projecting shoulders d^3 on said front portion, which shoulders engage the inner edge of the frame of the lowermost address-card in the delivering-box and push the same in forward direction into the guideways $B B$.

Below the delivering-box C and the guideways $B B$ are arranged guideways D^2 , in which the pusher-frame D' is guided. To the under side of the pusher-frame D' is pivoted a connecting-rod d^4 , which is again pivoted to a crank-arm d^5 of a short transverse shaft d^6 , that is supported in bearings of a bracket-shaped extension A' of one of the supporting-standards A . A shorter crank-arm d^7 on the shaft d^6 is connected with a strap-rod d^8 on an eccentric d^9 , which is keyed to the front end of an auxiliary shaft d^{10} , located at right angles to and below the guideways $B B$ for the address-cards, said shaft receiving rotary motion by bevel gear-wheels $d^{11} d^{12}$ from the cam-shaft S' of the machine, as shown clearly in Fig. 5. At each rotation of the driving-shaft the eccentric d^9 is rotated and the pusher D moved by the connecting mechanism in backward direction, it being slightly tilted in passing the lower end of the delivering-box and returned into its slightly-inclined position when it arrives at the inside of the frame of the address-card, so that the front portion d^2 and shoulders $d^3 d^3$ are lifted for taking hold of the end of the address-card, as shown in Fig. 8. The pusher D is then pushed forward and the lowermost address-card pushed forward into the guideways $B B$ until it passes entirely outside of the lower end of the delivering-box C . By the forward motion of the pusher D all the address-cards that are in the guideways are simultaneously moved forward, so that one address-card after the other is moved in position over the printing mechanism, which is located intermediately between the receiving and collecting boxes $C C'$, as shown in Fig. 1. After the address-cards are printed they are pushed forward until they arrive at the outgoing end of the guideways B and are delivered into the collecting-box C' .

The printing mechanism consists of an ink-fountain E , in which is arranged a supply-roller E' , to which rotary motion is imparted by sprocket-wheels $e e$ and a chain e'

from the cam-shaft S' , to which rotary motion is transmitted from the driving-shaft S by the gear-wheels $g g'$. An adjustable block or doctor E^2 is arranged in front of and in contact with the ink-supply roller E' and adjusted by means of set-screws e^2 , which pass through the front wall of the ink-fountain, so that thereby the supply of ink to the inking-roller can be regulated. Above the supply-roller E' is arranged an inking-roller E^3 , which is made of the usual composition used for printers' rollers, so as to take up the ink from the supply-roller and transfer the same to the address-card. To the inking-roller E^3 is imparted a threefold motion—a rotary motion around its axis by gear-wheels $g^2 g^3$, which are applied, respectively, to the shaft of the supply-roller and to the shaft of the inking-roller, a horizontally-reciprocating motion, and a vertically-reciprocating motion. The horizontally-reciprocating motion is imparted to the inking-roller E^3 by two parallel arms E^4 , that are applied at their rear ends to a transverse connecting-shaft S^2 at their inner end, said arms being acted on by flat springs e^4 , the rear ends of which are attached to the shaft and the front ends of which extend over the parallel arms E^4 , as shown in Figs. 6 and 7. An arm E^5 extends from the shaft S^2 and has its lower end journaled on an auxiliary transverse shaft S^3 , said arm being provided with a curved rearwardly-extending portion e^5 , having a roller e^6 , that is engaged by a cam-groove of a cam e^7 on the driving-shaft S' , as shown in Figs. 3 and 7, so that positive forward and backward motion is imparted to the inking-roller.

The shaft of the inking-roller turns in bearings at the front ends of the parallel arms E^4 and is provided with rollers E^6 , which are guided in ways E^7 , arranged outside of the ink-fountain E . These ways serve for the purpose of steadying the motion of the inking-roller in its forward and backward motion. While the inking-roller is moved in forward direction it is simultaneously raised by the mechanism by which vertically-reciprocating motion is imparted to the inking-roller E^3 , so that it approaches the under side of the address-card which is then above the inking-roller. The lifting motion is produced by vertical slides F , which are guided at opposite sides of the ink-fountain and which carry the guideways E^7 and horizontal rack-bars F' , which are both arranged outside of the ink-fountain and below the gear-wheels g^3 at the ends of the shaft of the inking-roller. The rear portions of the rack-bars F' are made plain and without teeth. In front of the gear-wheels g^3 are arranged in bearings of the extensions of the arms E^4 gear-wheels g^4 , which are always in mesh with the gear-wheels g^3 and which serve to gear with the toothed ends of the rack-bars F' when the gear-wheels g^3 and the rack-bars F' are lifted up sufficiently, so that during the forward motion of the inking-roller its rotary motion is continued until the

same has passed over the under side of the address-card, as shown in dotted lines in Fig. 4. The lifting motion of the slides F is accomplished by two arms F^2 , which are fulcrumed to the auxiliary shaft S^3 , the front ends of the arms being provided with adjusting-screws f^2 , while one of their rear ends is acted upon by an eccentric cam f on the cam-shaft S' , as shown in Fig. 3. While the cams F act on the rear end of the arm F^2 the lifting action of the inking-roller takes place. When the cams release the fulcrumed arm F^2 , the inking-roller is returned by gravity into its normal position, its gear-wheels g^3 being returned at the same time into mesh with the gear-wheels g^2 of the supply-roller, as in the meantime the inking-roller E^3 has been moved back by the action of the cam-groove of the cam on the arm E^5 , by which the horizontally-reciprocating motion is imparted to the inking-roller.

By the triple motion which is imparted to the inking-roller by the mechanisms described the inking-roller is first rotated in contact with the supply-roller, then moved forward and lifted simultaneously with the rack-bars, and then moved along the under side of the address-card in forward direction, during which forward motion its rotary motion is continued by the intermeshing of the gear-wheels g^4 with the rack-bars F' and the gear-wheels g^3 , so that the ink is transmitted from the inking-roller through the perforations in the address-cards to the envelop or wrapper that is placed over the same, both when moving in forward and when moving in backward direction, whereby the address is printed in a very clear and distinct manner on the envelop or wrapper. When the rack-bars are lowered, the inking-roller is likewise lowered, so as to be placed in mesh with the gear-wheels g^2 on the shaft of the supply-roller. This motion of the inking-roller is repeated with every rotation of the driving-shaft, so that the inking-roller is moved forward and backward over the under side of the address-card. The ink-fountain is closed at its top part by a suitable cover, while a platform G is arranged back of the horizontal guideways B B, as shown in Fig. 5. On this platform are arranged the usual adjustable gages, (not shown in the drawings,) so that the position of the envelops or wrappers relatively to the inking-roller and address-card can be accurately adjusted. A boy or other attendant feeds one envelop or wrapper to the gages on the platform G, which hand-feeding in practice is found to be more reliable than the automatic feeding devices, which are objectionable owing to the irregular functioning of the same. When the wrappers or envelops were supplied by hand, it was found that almost as large a number could be printed as when the supply of the same was accomplished by automatic means. As soon as the envelop or wrapper is placed against the gages of the platform G and in its proper position over the address-card, the os-

cillating platen P is lowered, which presses on the envelop or wrapper and holds it firmly in position over the address-card, so that the address is clearly and legibly printed during the reciprocating motion of the inking-roller.

The platen P is arranged at the front end of the angular arm P' , the lower end of which is applied to a transverse shaft p , supported in bearings of the standards A. Oscillating motion is imparted to the arm of the platen P by means of a cam p' on the cam-shaft S' , which cam acts on an antifriction-roller at the end of a short downwardly-extending arm p^2 of the shaft p , by which the platen P is lowered at the proper time against the tension of a helical spring p^3 , that is applied to a lug p^4 on the hub of the oscillating arm P' and to a stationary point of the supporting-frame, as shown in Fig. 3. By the arrangement of the cams on the cam-shaft and the intermediate transmitting mechanisms the motions of the different parts of the machine are so timed that they take place in successive order, so that with each rotation of the driving-shaft S an envelop or wrapper is printed. The machine can be operated either by power, in which case the driving-shaft S receives rotary motion by pulleys and belt, or by a treadle T, crank t , pitman t' , and crank-pin t^2 , which latter is applied to a crank-disk on the driving-shaft, as shown in Figs. 1 and 2. When the machine is driven by power, the pitman t' between the crank T on the treadle-shaft and the crank-pin t^2 on the driving-shaft has to be disconnected. A clutch H is arranged on the driving-shaft S, which is operated by a suitable lever H' , extending toward the front of the machine, so that the machine can be quickly stopped or started by disconnecting or connecting the clutch members in the usual well-known manner.

The operation of my improved machine for addressing envelops and wrappers is as follows: The perforated address-cards are placed in the delivering-box. The inking mechanism is then adjusted and the machine started. By the proper mechanism the lowermost card of the pile is fed forward with each forward motion of the pusher until the first address-card arrives below the platen and above the inking mechanism. An envelop or wrapper is placed over the address-card and against the gages of the platform and the address printed by the forward and backward motion of the inking-roller over the under side of the address-card and the simultaneous lowering of the platen on the card. As soon as the printing is accomplished the card is moved forward in the guideways until it arrives at the end of the same and is dropped into the collecting-box, in which they are piled up one on top of the other, the frames of the cards preventing the contact of the perforated address-sheets with each other. As one address-card after the other is fed into the collecting-box a follower C^2 , which is supported on a rack-bar C^3 , is gradually lowered in the

collecting-box C', an intermittent or step-by-step downward motion being imparted to the follower by means of a pinion C^x, which receives intermittent motion by a pawl-and-ratchet mechanism C⁴, that is operated by a spring-actuated guide-rod C⁵ and actuated by an oscillating arm C⁶ from a cam on the shaft S². When the collecting-box is filled with address-cards, it is detached from its support-
 10 ing-brackets and the address-cards are removed therefrom by pushing up the follower, the cards being then placed into a suitable storage-box, in which they are kept until again required for addressing envelopes or wrappers,
 15 when they are transferred to the receiving-box and passed through the machine in the same manner for printing another set of envelopes or wrappers.

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

1. The combination of a delivering-box for the address-cards, guideways for the address-cards, leading from the lower end of the delivering-box and upon which the pile of address-cards is adapted to be supported, a
 25 pusher-frame, ways for guiding the pusher-frame, below the first-named guideways, in a plane substantially flush with the latter, a
 30 pusher centrally pivoted in said frame at a point below the line of the guideways for the address-cards, the upper surface of said pusher being adapted to be moved substantially flush with the upper surface of the
 35 pusher-frame, and means for reciprocating the pusher-frame, substantially as set forth.

2. The combination of a delivering-box for the address-cards, guideways for the address-cards, leading from the lower end of the delivering-box and upon which the pile of address-cards is adapted to be supported, a
 40 pusher-frame, ways for guiding the pusher-frame, below the first-named guideways, in a plane substantially flush with the latter, a
 45 pusher centrally pivoted in said frame at a point below the line of the guideways for the address-cards, said pusher being constructed with a tapering front portion and upper shoulders to the rear of said tapering portion, and
 50 the upper surface of said pusher being adapted to be moved substantially flush with the upper surface of the pusher-frame, and means for reciprocating the pusher-frame, substantially as set forth.

3. The combination of the guideways for the address-cards, an inking-roller below said
 55 guideways, mechanism for imparting an upward motion to the inking-roller at the beginning of its forward stroke and a downward
 60 motion at the end of its return stroke, respectively, mechanism for rotating said ink-

ing-roller in contact with the under sides of the address-cards, mechanism for horizontally moving the inking-roller forward and backward over and in contact with the under
 65 sides of the address-cards, and a movable platen adapted to hold the article to be addressed in position on the address-card, substantially as set forth.

4. The combination of guideways for the
 70 perforated address-cards, an ink-fountain below said guideways, a rotary ink-supply roller in said fountain, means for rotating the roller, an inking-roller arranged normally in contact with the supply-roller, whereby the inking-
 75 roller may be inked, mechanism for imparting an upward motion to the inking-roller at the beginning of its forward stroke and a downward motion at the end of its return
 80 stroke, respectively, mechanism for horizontally moving the inking-roller forward and backward over the under sides of the address-cards while being rotated, and a movable
 85 platen adapted to hold the article to be addressed in position on the address-card, substantially as set forth.

5. The combination of guideways for the perforated address-cards, an inking-roller below said guideways, means for movably supporting said inking-roller with respect to its
 90 distance from the guideways, a mechanism for reciprocating the supporting means of the inking-roller, whereby the latter is moved forward and backward over the under sides of the address-cards, vertically-movable hori-
 95 zontal guide-bars arranged under the guideways for raising the inking-roller at the beginning of its forward stroke and lowering it at the end of its return stroke, respectively, and a platen arranged over the guideways,
 100 substantially as set forth.

6. The combination of guideways for the perforated address-cards, an inking-roller below said guideways, said inking-roller being provided with gear-wheels at each end, means
 105 for supporting the inking-roller and horizontally reciprocating the same transversely of the guideways, vertically-movable rack-bars arranged under the guideways, gear-wheels arranged intermediately of the rack-bars and
 110 the gear-wheels on the inking-roller, whereby rotary motion is imparted to the inking-roller, and a movable platen arranged over the guideways, substantially as set forth.

In testimony that I claim the foregoing as
 115 my invention I have signed my name in presence of two subscribing witnesses.

CHARLES A. BELKNAP.

Witnesses:

PAUL GOEPEL,
 GEO. W. JAEKEL