

No. 759,214.

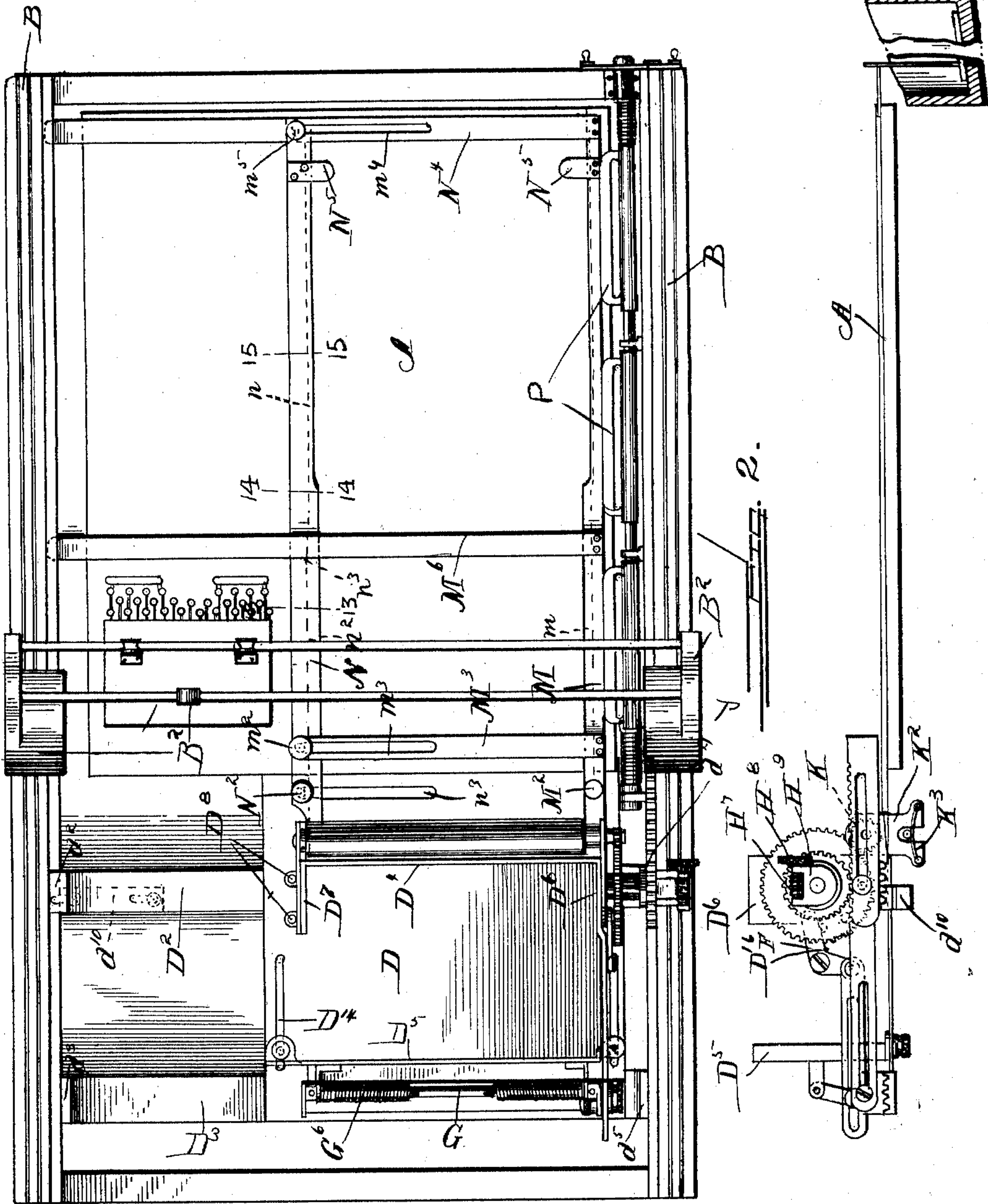
PATENTED MAY 3, 1904.

G. W. DONNING.  
CARD FEEDING AND POSITIONING DEVICE.

APPLICATION FILED JULY 10, 1903.

NO MODEL.

5 SHEETS - SHEET 1.



WITNESSES:

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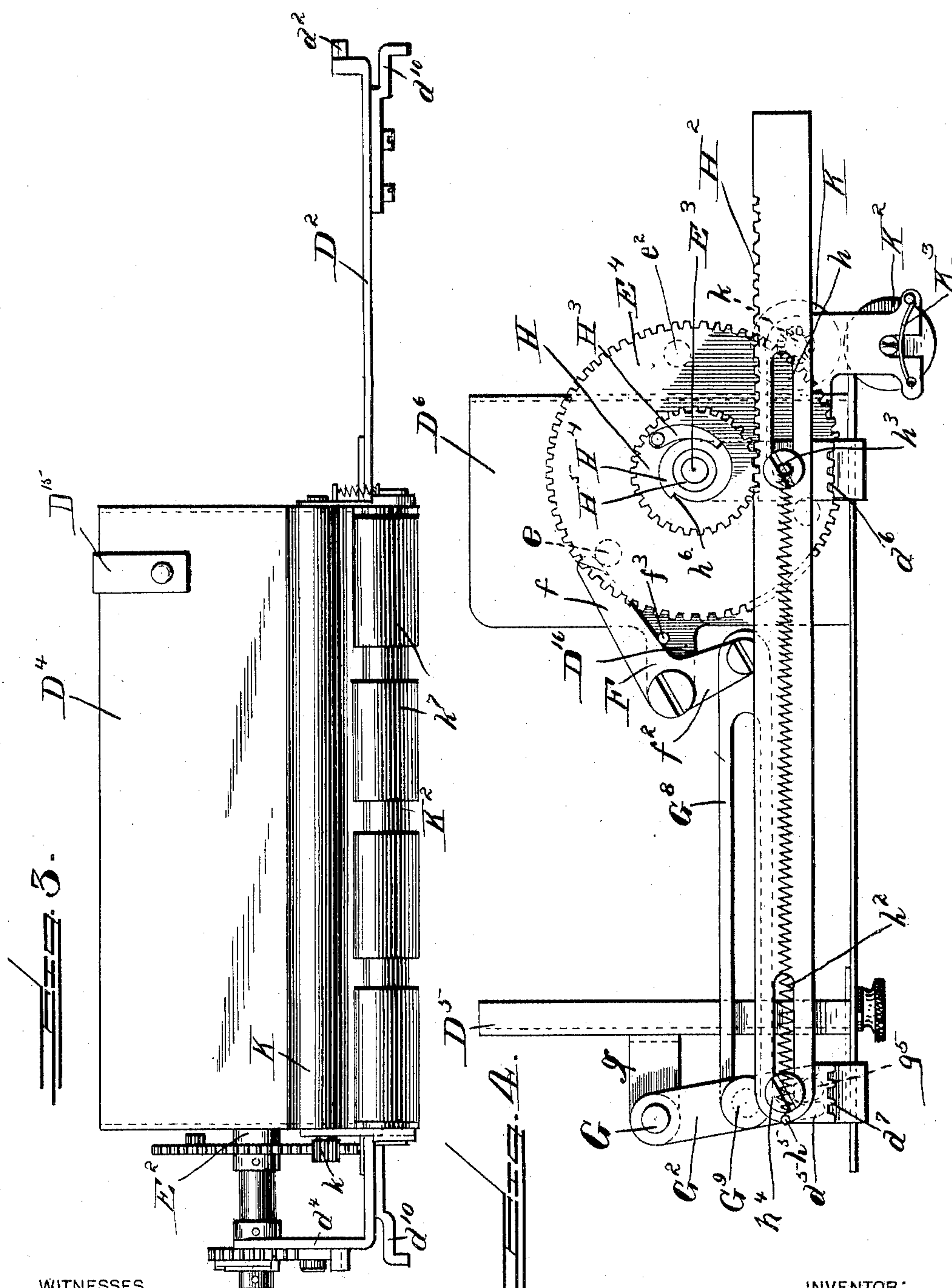
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5 SHEETS—SHEET 2.



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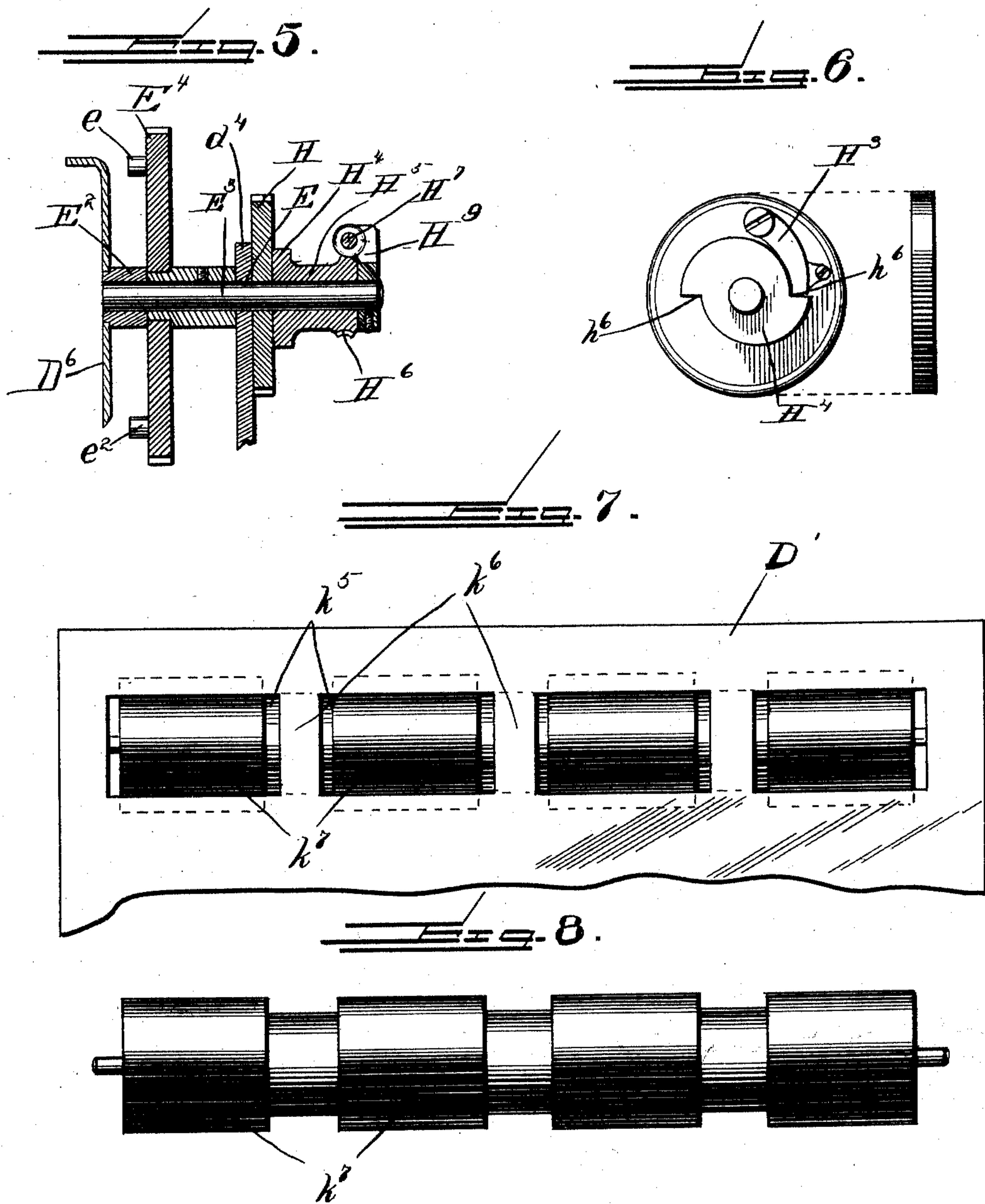
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5 SHEETS—SHEET 3.



WITNESSES

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No. 759,214.

PATENTED MAY 3, 1904.

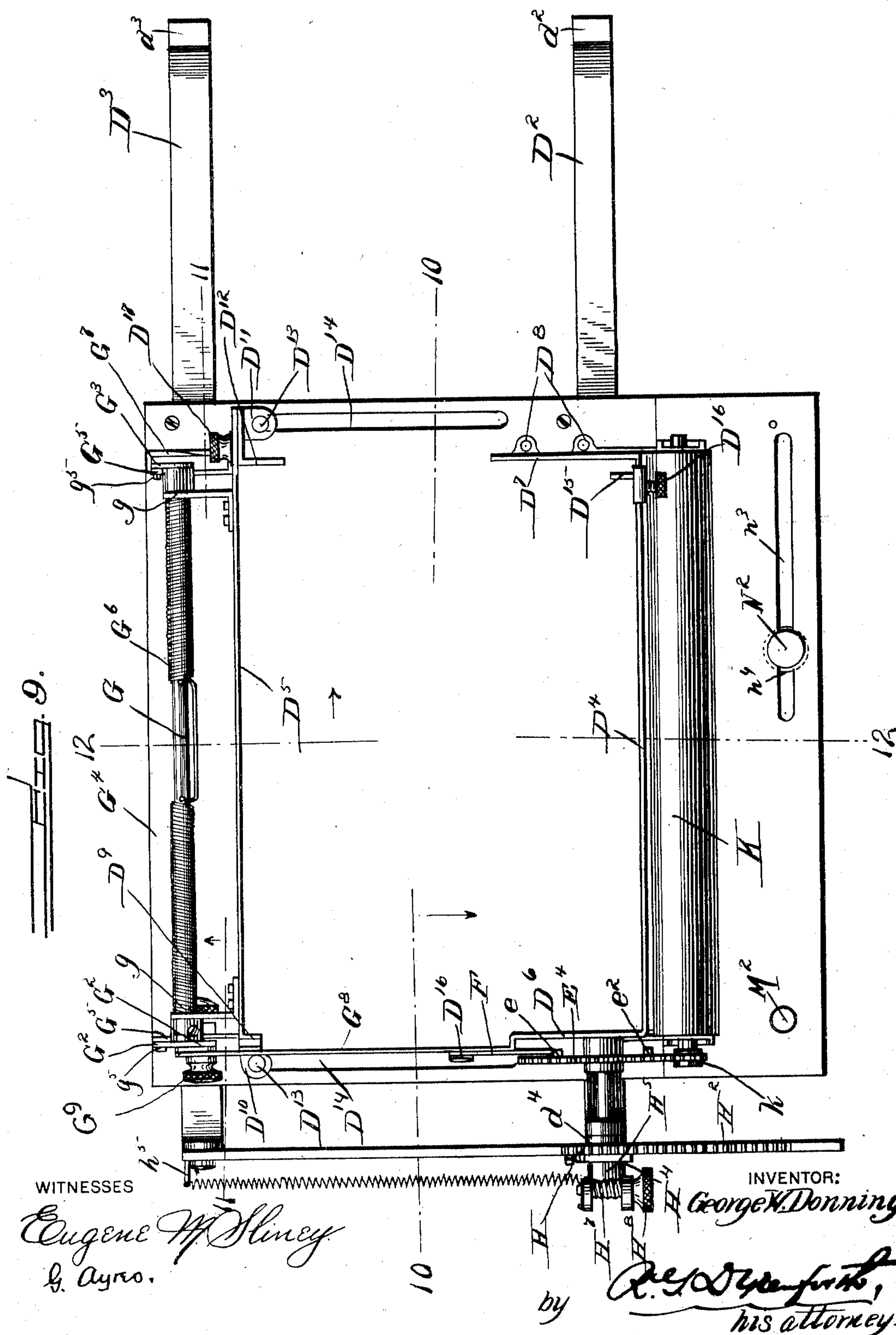
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5 SHEETS—SHEET 4.



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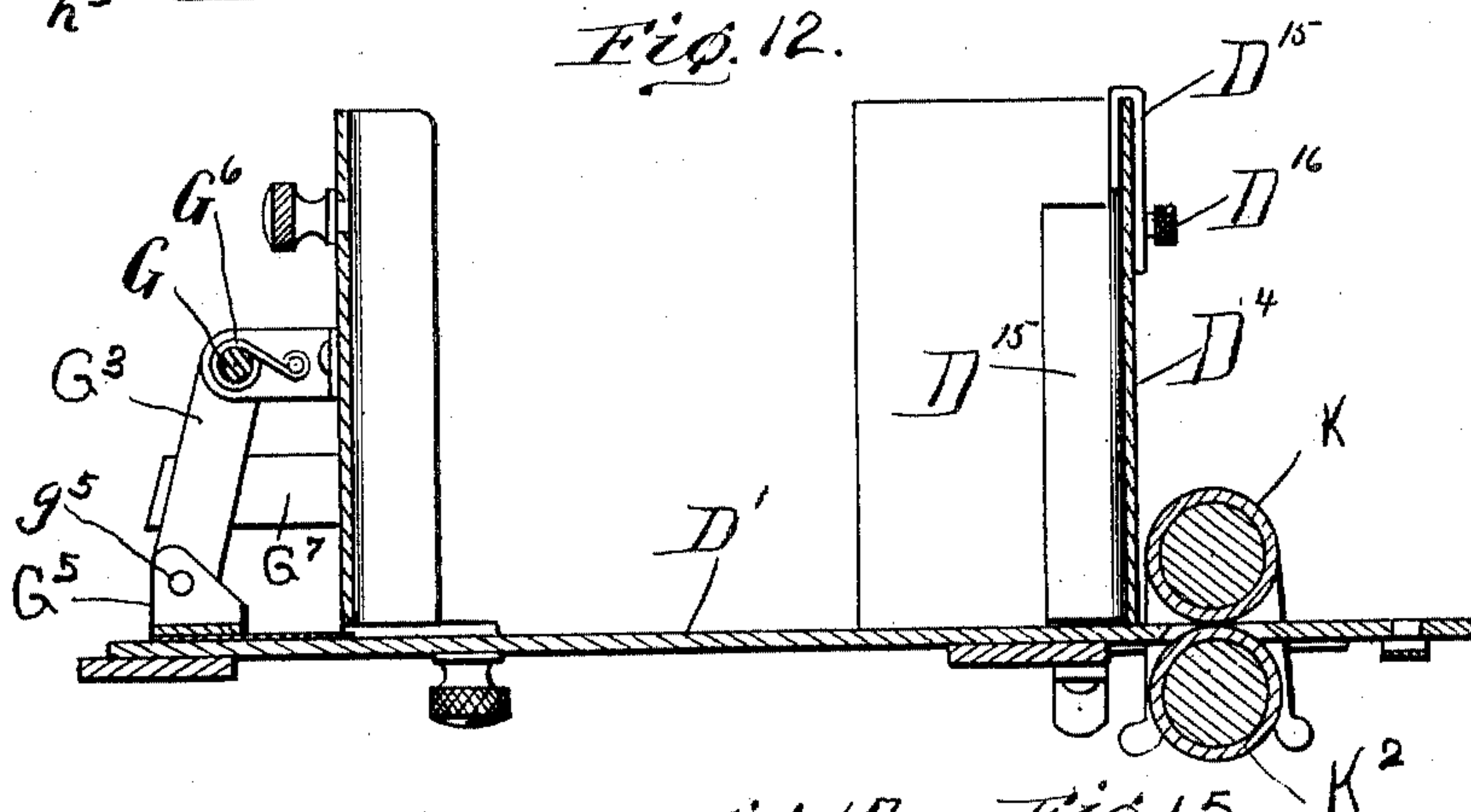
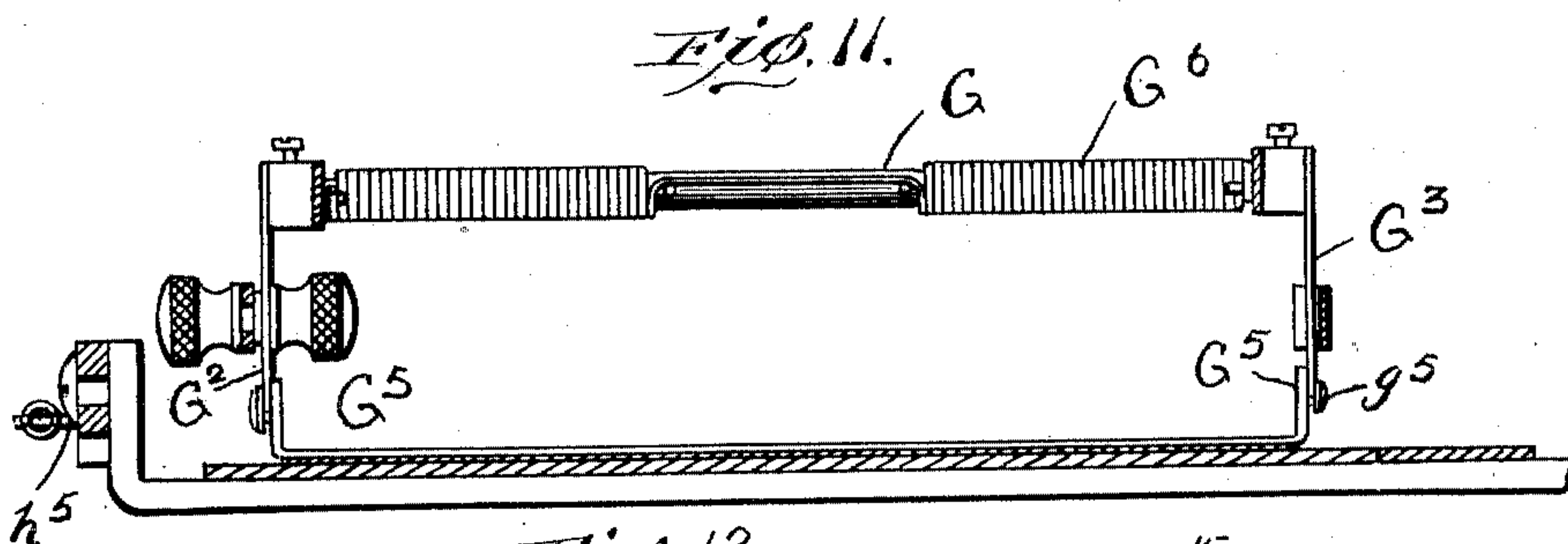
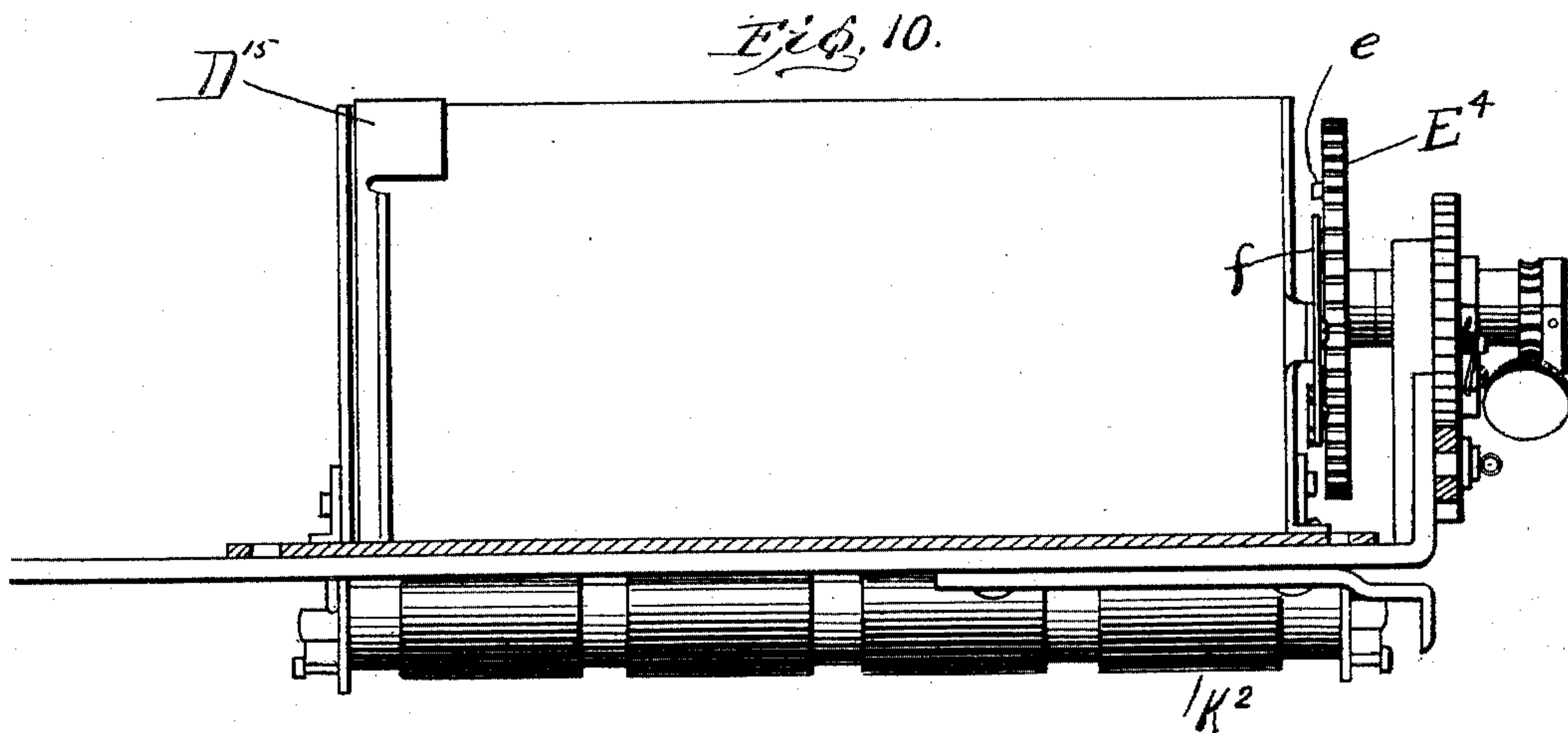
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NO MODEL.

5 SHEETS—SHEET 5.



WITNESSES:

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*Fig. 13.*

*Fig. 14.*

*Fig. 15.*

INVENTOR  
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# UNITED STATES PATENT OFFICE.

GEORGE W. DONNING, OF EAST ORANGE, NEW JERSEY, ASSIGNOR OF  
ONE-HALF TO HARRY T. AMBROSE, OF ORANGE, NEW JERSEY.

## CARD FEEDING AND POSITIONING DEVICE.

SPECIFICATION forming part of Letters Patent No. 759,214, dated May 3, 1904.

Application filed July 10, 1903. Serial No. 164,995. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE W. DONNING, a citizen of the United States, residing at East Orange, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Card Feeding and Positioning Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of this invention is to provide a device for feeding cards from a suitable receptacle onto a flat platen or similar writing or printing surface and to position the cards successively in proper place to be printed upon by the writing mechanism.

Another object is to provide means whereby the cards will be fed out of the receptacle onto the platen automatically and preferably operated by the return-line-spacing movement of the writing mechanism.

A further object is to provide the said device with adjustments for feeding various-sized cards.

Another object is to provide an adjustment whereby the cards as fed onto the platen at each movement can be thereby positioned at different places on the platen in the line of their feed.

Another object is to provide means for automatically removing the cards as they are printed and new ones presented for printing.

Another object is to provide means for receiving the printed cards and stacking them so that they will be arranged in the order as printed and not with the last card printed first, as is customary.

With these objects in view and others my invention comprehends the construction, arrangement, and combination of parts hereinafter set forth with reference to the drawings and then pointed out in the claims.

In the drawings, representing an apparatus embodying my invention in my preferred form, Figure 1 is a plan view. Fig. 2 is a side elevation with parts omitted. Fig. 3 is an end elevation showing the card-receptacle, the feeding-rolls, and their actuating mechanism.

Fig. 4 is a side elevation showing the parts advanced to feed a card. Fig. 5 is a section through the operating-gears. Fig. 6 shows the pawl and ratchets. Fig. 7 shows the bottom plate with the lower feed-roller. Fig. 8 shows the lower feed-roller, and Fig. 9 shows the receiving-hopper. Fig. 10 is a sectional elevation on a plane indicated by the line 10 10 of Fig. 9. Fig. 11 is a sectional elevation on a plane indicated by the line 11 11 of Fig. 9. Fig. 12 is a sectional elevation indicated by the line 12 12 of Fig. 9. Figs. 13, 14, and 15 are detail sectional views taken, respectively, on planes indicated by lines 13 13, 14 14, and 15 15 of Fig. 1.

In the several views, in which the characters of reference indicate the same parts, A is the platen, and B B the track-rails, of a flat-platen type-writer. The writing mechanism B<sup>2</sup>, carrying the type-bars, key-levers, and other mechanism, may be mounted on any carriage movable along the track-rails in the direction of line-spacing. At the rear of the track-frame is detachably supported a receptacle D for containing a stack of cards. It comprises a base-plate D', carried by two cross-arms D<sup>2</sup> D<sup>3</sup>, extending from one side of the track-frame to the other. At one side of the frame the ends of the arms D<sup>2</sup> D<sup>3</sup> have offset portions d<sup>2</sup> d<sup>3</sup>, respectively, that engage the track-frame. At the other side of the track-frame the ends of the arms D<sup>2</sup> D<sup>3</sup> have bent portions d<sup>4</sup> d<sup>5</sup>, to each of which is secured a short rack d<sup>6</sup> d<sup>7</sup>, that engages a rack carried by the track-frame. A short slidable bar d<sup>10</sup> d<sup>10</sup> is slidably supported on each of said arms in position to engage the under side of the track-rails, and thus securely hold the arms in position on the track-frame.

On the base-plate D' is mounted the hopper, that preferably has a fixed side D<sup>4</sup> and a movable side D<sup>5</sup> to accommodate various sizes of cards. The stationary side member D<sup>4</sup> has angular projections D<sup>6</sup> D<sup>7</sup> at its ends, at the lower part of which are lugs D<sup>8</sup> D<sup>8</sup>, by which the member is secured to the base. The lower edge of the side D<sup>4</sup> is raised above the base for its entire length for a distance equal to the thickness of the cards to be fed, so that a



card may be passed under this side from the hopper. The movable side member  $D^5$  has an angular portion  $D^9$  and also has apertured lugs  $D^{10}$   $D^{11}$  at the bottom, in each of which works a screw  $D^{13}$ . The latter screws pass through parallel slots  $D^{14}$   $D^{14}$  in the base and serve to clamp the side member  $D^5$  in a number of positions parallel with the fixed side  $D^4$  to adjust the hopper to cards of different size. When cards are used of a length less than that between the end extensions of the two side members  $D^6$   $D^7$ , I arrange an adjustable abutment  $D^{15}$ , having a U-shaped portion slidable on the upper edge of the side  $D^4$  and having a clamping-screw  $D^{16}$  for securing it in position adjacent the ends of the cards. I also may arrange a similar abutment  $D^{12}$  with adjustment-screws  $D^{17}$  on the movable side  $D^5$  for the same purpose as the other abutment.

On the angular side  $D^6$  is secured a bearing  $E^2$ , in which is mounted a shaft  $E^3$ , which extends through a journal-bearing  $E$  in the bent portion  $d^4$ . A gear  $E^4$  is secured to the shaft  $E^3$  and carries two diametrically opposite pins  $e$   $e^2$  on its side. An arm  $D^{16}$  is secured to or integral with the side  $D^6$  and carries a bell-crank  $F$ , one arm,  $f$ , of which is supported in the path of the pins  $e$   $e^2$  by a pin  $f^3$  on the arm  $D^{16}$ , so that the crank will be rocked twice on each revolution of the gear  $E^4$ .

A horizontal shaft  $G$  is supported from the outer side of the movable member  $D^5$  by brackets  $g$   $g$ , and at each extremity is secured a depending arm  $G^2$   $G^3$ . The lower edge of the movable side  $D^5$  is raised a short distance from the base, so that a follower-plate  $G^4$ , that slides on the base, may enter the bottom of the hopper and force the lowermost of a stack of cards out under the fixed plate  $D^4$ , the follower-plate being of a thickness about equal to the card used. The ends of the follower-plate each have an ear  $G^5$   $G^5$ , carrying pins  $g^5$   $g^5$ , that engage the arms  $G^2$   $G^3$  at slotted portions therein. A coil-spring  $G^6$  is wound on the shaft  $G$  at one or both ends and is connected to the shaft and supporting-brackets. Such spring acts to rock the shaft and withdraw the follower after the latter has been moved into the hopper to force a card out therefrom under the stationary side. A bent arm  $G^7$  limits the swing of the shaft by the spring. The sides of the follower-plate slide under overhanging portions of the lugs, which insures a movement in close contact with the bottom of the hopper. The arm  $f^2$  of the bell-crank is pivoted to one end of a link  $G^8$ , which contains a slot extending from the other end portion. A milled headed screw  $G^9$ , extending through this slot and threaded into the arm  $G^2$ , constitutes means for securing the link to the arm  $G^2$  in any adjusted position of the movable side of the hopper.

On the driving-shaft  $E^3$  is loosely mounted a gear  $H$ , that engages a slidable rack-bar  $H^2$ ,

having slots  $h$   $h^2$ . Bolts or screws  $h^3$   $h^4$  in the bent arms  $d^4$   $d^5$  support and guide the rack-bar at its slotted portions. A coil-spring, secured at its respective ends to the bolt  $h^3$  and to a pin  $h^5$  on the end of the rack-bar, tends to retain the bar at one limit of its movement.

A pawl  $H^3$ , pivoted on the gear  $H$ , engages a cam-disk  $H^4$ , adjustably secured on the shaft  $E^3$  and having diametrically opposite ratchet-teeth  $h^6$   $h^6$ . The ratchet-disk is carried by a sleeve  $H^5$ , which is provided with a worm-wheel  $H^6$ . A worm  $H^7$ , having a milled head  $H^8$ , is journaled in a hub  $H^9$ , rigidly secured on the shaft  $E^3$  in engagement with the worm-wheel  $H^6$ . Hence the cam-disk will rotate with the driving-shaft, but may be positioned circumferentially thereon by turning the worm  $H^7$ .

A roller  $K$  is mounted on the base just beyond the stationary side of the hopper and carries a gear  $k$ , engaging the gear  $E^4$ , by which the roller is rotated. Adjacent the roller  $K$  the base is cut away at portions  $k^5$   $k^5$ , leaving narrow strips  $k^6$   $k^6$ . A second roller  $K^2$  is mounted on the under side of the base opposite the roller  $K$  and has a series of rolls  $k^7$   $k^7$ , that project through the openings  $k^5$   $k^5$  and engage the roller  $K$ . Springs  $K^3$  are provided for maintaining the rollers  $K$  and  $K^2$  in yielding contact. The contacting portions of the rollers  $K$  and  $K^2$  are preferably made of soft rubber. Hence the upper roller will serve to drive the lower roller, and the plane of contact will be but a very short distance above the bottom plate  $D'$ .

The operation of the above-described parts is as follows: The movable side of the hopper is adjusted so as to fit snugly the stack of cards desired to be printed, and the follower-plate is connected with the link on the bell-crank. The device is secured on the track-frame with the bottom-plate level with the platen, so that the two form a continuous surface. When the rack-bar is moved backward its full limit by any preferred means or by hand, the gear  $H$  will be given a half-revolution, and the pawl  $H^3$  on this gear will engage one of the ratchet-teeth and rotate the cam-disk, the shaft  $E^3$ , and the gear  $E^4$  a half-revolution, and upon the rack-bar being released the coil-spring will retract it and rotate the gear  $H$  in the opposite direction; but during this latter half-revolution of the gear  $H$  the pawl will ride over the ratchet-teeth  $h^6$  without engagement. Hence the shaft will not be moved. Another reciprocation of the rack-bar will rotate the shaft and gear another half-revolution in the same direction. At each half-revolution of the gear  $E^4$  one of the pins thereon will trip the bell-crank and advance the follower-plate, which latter will move the lowermost card in the stack underneath the fixed side  $D^4$  and between the rollers  $K$  and  $K^2$ ; but at each half-revolution of the gear  $E^4$  the meshing



gear  $k$  will cause the rollers to be given a sufficient rotation to cause a card of any size capable of being carried by the hopper to be passed between them and onto the platen.

5 The forward extremity of the rack-bar is arranged to be engaged by the longitudinally-movable carriage-carrying member as it is returned after writing on each card. Hence the follower-plate and rollers will be operated  
10 automatically to feed out one card as each card is written upon.

In order to cause the cards fed along the platen to move in a regular series and each card to be positioned in the same place on the  
15 platen at each return movement of the type-writer carriage, I provide two guide-bars M N, having opposite rabbeted portions  $m n$  on the under side, thus forming, with the platen, grooves for guiding the cards at their edges  
20 and holding them down on the platen. The forward ends of the guide-bars are movably secured to the bottom plate of the hopper by set-screws  $M^2 N^2$  in close proximity to the rollers, so that as soon as the card emerges  
25 from the rollers it is engaged by the guides. The guides are connected by a supporting-arm  $M^3$ , rigidly secured at one end to the guide M and adjustably secured to the guide N by a milled headed screw  $m^2$ , tapped into said guide  
30 and engaging the arm  $M^3$  along a slotted portion  $m^3$ . At the other end of the guides a supporting-arm  $N^4$  is secured at one end to the guide M and provided with an intermediate slotted portion  $n^4$ , by which it is adjustably  
35 secured to the guide N by a milled headed screw  $n^5$ , tapped into said guide. The other end of the supporting-arm  $N^4$  has an offset portion arranged to engage the track-rail. The set-screw  $N^2$  passes through a slot  $n^3$  in  
40 the base-plate and engages a sliding nut  $n^4$ . By loosening the three adjusting-screws  $N^2$ ,  $m^2$ , and  $n^5$  the guide-bar N can be moved to and from the guide-bar M within the limits of the slots in which these screws work to posi-  
45 tion the guides for various lengths of cards. I also preferably arrange a supporting-bar  $M^6$ , secured to the guide-bar M, passing over the guide N and having an offset engaging the track-rails. The guide-bar M is preferably  
50 held against the platen by the marginal spring-clamps P, used to retain the sheet or sheets in place upon the platen. The supporting-arms or bars  $M^6$  and  $N^4$ , already described, which lie transversely of the platen, are formed so that  
55 they bow downward toward the platen at a point intermediate of their length, their ends being somewhat raised above the platen. Then when in operative position the centrally-bowed portion of these arms will bear upon the guide-  
60 rod N, which extends at right angles to the said parallel supporting-arms  $M^6$  and  $N^4$  and press the same downward and hold it against the upper surface of the platen to position this guide close to the platen for proper sliding of

the cards along the platen. In the portion  $n^2$  65 adjacent the rollers the guiding edge of the rabbet on the under side of the movable guide-bar is offset from this edge at the printing area and jointed thereto by an easy incline  $n^3$ , so that the cards as they emerge from the rollers 70 will have a little lateral play and are then guided by the incline into the desired path for printing. Since the rabbeted portions are only equal to the thickness of the cards, as each is forced into the path between the guides 75 it will advance the preceding ones forward in a series. The overlapping portion or edge may be made resilient, so that cards of different thickness may be used, and the cards will force each other along; but they will not ride upon 80 each other. A spring-finger  $N^5$  on each guide-bar acts to retard slightly the advancement of the cards to prevent them being carried forward by their momentum. Hence as each card is written upon and the rack-bar is recip- 85 roated the printed card will be moved into exactly the same space. It follows that whatever be the width of the cards they will be advanced their own width at each reciprocation of the rack-bar. When it is desired to 90 have the card brought to a different position in the printing area, the worm  $H^7$  is actuated to adjust the position of the pawl and ratchets. At the front end of the platen, where the guides terminate, is arranged a suitable 95 hopper R, as shown in Fig. 2. When the first card is forced from the platen, it falls at an angle and rests against the edge of the platen, with its upper portion in the path of the next card. The next card will strike the inclined 100 card and turn it over, so that the printed surface will face downward in the stack. Hence when the stack is removed from the receiving-receptacle and simply turned over the cards will lie face upward and in the exact order as 105 printed.

An important point of my invention is that with it I am enabled to feed a card exactly to the desired position on the platen and position it to correspond with the position of the 110 writing mechanism when the writing mechanism is brought to rest by the stop set on the card-feeding mechanism, wherefore additional adjustment becomes unnecessary before commencing to operate the type-writer. 115 In view of the character of the cards which are to be written upon by machines of this class, in that most of them are ruled and particularly printed with blank spaces to be filled in on the type-writer, it is exceedingly im- 120 portant that the card should be properly positioned and this automatically. By my device the card is not only fed out onto the platen by the movement of the writing mechanism to its initial point, but is at the same 125 time correctly and exactly positioned to receive the matter to be printed.

Without limiting myself to the construc-



tion and arrangement set forth, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a platen and a writing mechanism moved thereover for line and letter spacing, of a guideway on the platen, a receptacle for cards, and means actuated by the movement of the writing mechanism in the direction of line-spacing for automatically feeding the cards from the receptacle along the platen in said guideway, substantially as described.

2. The combination with a platen and a traveling writing mechanism, of a guideway extending along the platen in the direction of the line-feed, a receptacle for cards, and means actuated by the longitudinal movement of the writing mechanism for automatically feeding the cards from the receptacle along the platen in the guideway and means constructed for actuating said automatic means upon movement, substantially as described.

3. The combination with a platen and a traveling writing mechanism, of a receptacle for cards, and means for causing the movement of the writing mechanism in the path of its line-feed automatically to feed the cards from the receptacle along the platen, substantially as described.

4. The combination with a platen, and a traveling writing mechanism, of a receptacle for cards, a guideway on the platen adjustable for different-sized cards, and means actuated by the movement of the writing mechanism for line-positioning for automatically feeding the cards from the receptacle along the platen in said guideway, and means for actuating said automatic means, substantially as described.

5. The combination with a platen and a traveling writing mechanism, of a receptacle for cards, and means for causing each return movement of the writing mechanism in the path of its line-feed to automatically feed one card from the receptacle and along the platen, substantially as described.

6. The combination with a platen and a traveling writing mechanism, of a receptacle for cards, and means for causing each return movement of the writing mechanism in the path of its line-feed to feed one card from the receptacle and along the platen, said latter means being arranged to feed cards of different sizes, substantially as described.

7. The combination with a platen and a traveling writing mechanism, of a receptacle for cards, a guideway detachably secured to the platen, and means operated by the movement of the writing mechanism for automatically feeding the cards from the receptacle along the platen in the guideway, substantially as described.

8. The combination with a platen and a traveling writing mechanism, of a receptacle for

cards, a guideway secured to the platen, means actuated by the movement of the writing mechanism in the direction of line-spacing for feeding the cards from the receptacle along the platen in the guideway, and a retarding device arranged to retard the movement of the cards in the guideway, substantially as described.

9. The combination with a platen and a traveling writing mechanism, of a receptacle for cards, a guideway on the platen for the cards, means actuated by the movement of the writing mechanism for line-positioning for automatically feeding the cards from the receptacle through the guideway, means constructed to actuate said automatic feeding means, and a receptacle arranged to receive the card as passed through the guideway in a stack disposed with the printed faces in the order as printed, substantially as described.

10. The combination with a platen and a traveling writing mechanism, of a receptacle for cards, a follower-plate arranged to force the cards singly from the receptacle, and means actuated by the movement of the writing mechanism for automatically reciprocating the follower-plate, substantially as described.

11. The combination with a platen and a traveling writing mechanism, of a receptacle for cards, a follower-plate arranged to force the cards singly from the receptacle, one or more rollers arranged to receive the cards as delivered by the follower-plate, and force them onto the platen, and means actuated by the movement of the traveling writing mechanism for automatically operating the follower-plate and rollers, and means constructed to actuate the said automatic operating means, substantially as described.

12. The combination with a platen and a traveling writing mechanism, of a receptacle for cards, a follower-plate arranged to force the cards singly from the receptacle, one or more rollers arranged to receive the cards as delivered by the follower-plate and force them out onto the platen, and means for causing the delivery of one card by the said follower-plate and rollers at each return movement of the writing mechanism in the path of its line-feed, substantially as described.

13. The combination with a platen and a writing mechanism, of a receptacle for cards, a guideway on the platen for the cards, means actuated by the movement of the writing mechanism for line-positioning for automatically feeding the cards singly from the receptacle along the guideway, and means for adjusting said latter means to vary the position to which the cards are moved in the guideway at each operation of the feeding means, to conform to the movement of the writing mechanism, substantially as described.

14. The combination with a platen and a writing mechanism, of a receptacle for cards, a guideway on the platen for the cards, a fol-



lower-plate arranged to force the cards singly from the receptacle, rollers arranged to receive the cards as delivered by the follower-plate and force them along the guideway on the platen, means for causing the return movement of the writing mechanism in the path of its line-feed to feed one card into and along the guideway, and means for adjusting the position to which the cards are fed by said means at the said return movement, substantially as described.

15. The combination with a platen and a traveling writing mechanism, of a receptacle for cards, having a stationary and a movable side, a follower-plate mounted on the movable side of the receptacle, means actuated by the movement of the writing mechanism for line-positioning for effecting movement of the follower-plate to feed the cards singly from the receptacle, and an adjustable connection between the follower-plate and the follower-plate-actuating mechanism, substantially as described.

16. The combination with a platen and writing mechanism, of a receptacle for cards, or kindred articles, having a side adjustable to accommodate various-sized articles, a shaft carried by the said side, arms secured to the shaft, a follower-plate connected with said arms and arranged to force the articles from the receptacle singly, a bell-crank having a stationary pivot, means for rocking the crank, and a link pivoted to the crank and containing a slotted portion, and a screw-clamp arranged to connect one of said arms with the link at various positions along its slotted portions, substantially as described.

17. The combination with a platen and writing mechanism of a rack-bar, a driving-shaft, a gear connected with the shaft and arranged to be rotated by the rack-bar, a disk secured to the shaft, one or more crank-pins on the disk, a bell-crank having one arm arranged to be engaged by the crank-pins and moved in one direction, a receptacle having a movable side, a follower-plate arranged to advance articles singly from the receptacle, a shaft carried by said side, arms on said shaft, and connected with the follower-plate, a link pivoted to the said bell-crank, and having a slotted portion, a clamp-screw arranged to connect one of said arms to the link at its slotted portion, and a coil-spring on said latter shaft on the movable side arranged to rock the shaft and return the follower-plate, bell-crank and connected parts when moved in one direction by the operating means, substantially as described.

18. The combination with a platen and writing mechanism of a rack-bar, a driving-shaft, a gear loose on the shaft, a pawl on the gear, one or more ratchet-teeth connected with the shaft and arranged to engage the said pawl, a second gear secured to the shaft, a receptacle, a follower-plate in the receptacle, means

for causing the second gear to operate the follower-plate, and rollers operated by the second gear, substantially as described.

19. The combination with a platen and writing mechanism, of a rack-bar, a driving-shaft, a gear loose on the shaft and engaging the rack-bar, a pawl on the gear, a sleeve carrying ratchet-teeth that are engaged by the pawl, means for adjusting the sleeve circumferentially on the shaft, a second gear on the shaft, a receptacle, a follower-plate connected with the receptacle, means on the second gear for operating the follower-plate, and rollers operated by the said second gear, substantially as described.

20. The combination with a platen and writing mechanism, of a rack-bar, a driving-shaft, a gear loose on the shaft and engaging the rack-bar, a pawl on the gear, a sleeve loose on the shaft and having ratchet-teeth engaged by the pawl, a worm-wheel on the sleeve, a hub secured to the shaft, a tangent screw on the hub arranged to engage the said worm-wheel and thereby adjustably connect the sleeve to the shaft, a receptacle, a follower-plate connected with the receptacle, a second gear on the shaft, means for operating the follower-plate from the second gear, and rollers operated by the second gear, substantially as described.

21. The combination with the track-frame and the platen, writing mechanism traveling upon said track-frame, of a receptacle detachably secured to the track-frame, guide-bars removably secured to the platen and arranged to guide cards from the receptacle, and means actuated by the movement of the writing mechanism for feeding the cards from the receptacle through said guideway on the platen, and means for actuating said feeding means, substantially as described.

22. The combination with a flat platen or writing-surface, and traveling writing mechanism, of a card-receptacle, a pair of substantially parallel guide-bars secured to the platen and having a rabbet portion on their lower opposite edges arranged to overlap and guide a card or cards moved along the platen, and means for automatically feeding the cards from the receptacle, said means being actuated by the movement of the traveling writing mechanism, substantially as described.

23. The combination with a flat platen or writing-surface, a traveling writing mechanism, and a card-receptacle, of a pair of substantially parallel guide-bars secured to the platen and having a rabbet portion on their opposite lower edges arranged to overlap and guide a card or cards along the platen, one of the guide-bars being adjustable to and from the other to accommodate different widths of cards, means operated by the movement of the traveling writing mechanism for positioning the cards, and means for actuating said card-positioning means, substantially as described.



24. The combination with a flat platen or writing-surface, of a pair of substantially parallel guide-bars secured to the platen and having rabbet portions on their opposite lower  
5 edges, arranged to overlap and guide a card or cards along the platen, the vertical wall of the rabbet on one of the guide-bars being offset at one end portion and removed at a greater distance from the corresponding wall  
10 on the other guide-bar, and a vertical wall inclined to the parallel walls joining the said parallel walls in the guide-bar, substantially as described.

25. The combination with a flat platen or  
15 writing-surface, a traveling writing mechanism, means operated by the movement of the traveling writing mechanism for positioning the cards upon the platen, and means for actuating said card-positioning means, of a pair  
20 of substantially parallel guide-bars, cross-bars each secured by one end to one of the guide-bars, the cross-bars containing slotted portions, screws tapped into the other guide-bar and arranged to clamp the cross-bars along  
25 their slotted portions, substantially as described.

26. The combination with a flat platen or writing-surface, a traveling writing mechanism, means operated by the movement of the  
30 writing mechanism for moving cards over the platen, and means for actuating said card-moving means, of a pair of substantially parallel guide-bars, cross-bars connected with the guide-bars, means for holding the cross-bars  
35 at their ends on the platen, the cross-bars being bowed downwardly and thereby press the guide-bars against the platen, substantially as described.

27. The combination with a flat platen and  
40 a track-frame, and a traveling writing mechanism, of a receptacle attached to the frame

beyond the platen, means operated by the movement of the traveling writing mechanism for feeding cards from the receptacle onto the platen, and guide-bars mounted on the  
45 platen with their ends secured to the receptacle and arranged to receive the cards fed from the receptacle and guide them along the platen, substantially as described.

28. The combination with a flat platen and  
50 a longitudinally and laterally traveling writing mechanism of a guideway on the platen, a receptacle for cards, and means actuated by the movement of the writing mechanism for effecting feeding of the cards from the recep-  
55 tacle along the platen in said guideway, substantially as described.

29. The combination with a flat platen and a traveling writing mechanism movable there-  
60 over for letter and line spacing, of a guideway on the platen, a receptacle for cards, and card-moving mechanism disposed contiguous to the receptacle and actuated by the movement of the writing mechanism automatically to effect  
65 feeding of the cards from the receptacle along the platen in said guideway in the direction of line-spacing, and means for operating said card-moving mechanism, substantially as described.

30. The combination with a platen and a  
70 traveling writing mechanism, of a receptacle for cards, a follower-plate, means actuated by the traveling mechanism for positioning the follower-plate into the receptacle, and means for effecting withdrawal of the follower-plate  
75 from the receptacle, substantially as described.

In testimony whereof I affix my signature in the presence of two subscribing witnesses.

GEORGE W. DONNING.

Witnesses:

ANDREW W. STEIGER,  
JOHN R. WILTSIE.