

No. 773,952.

PATENTED NOV. 1, 1904.

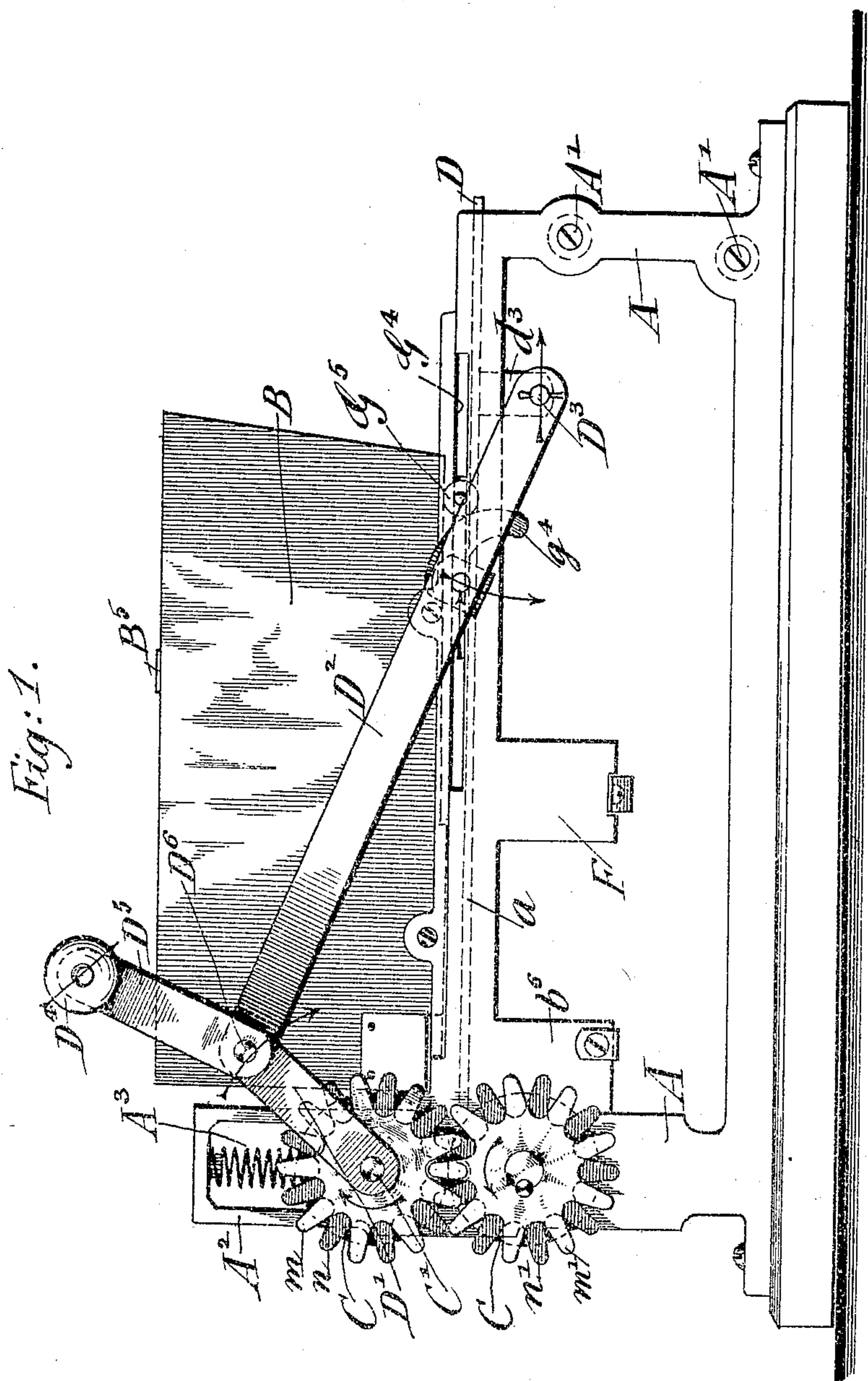
L. MADAS.

MACHINE FOR SEALING ENVELOPS.

APPLICATION FILED FEB. 20, 1904.

NO MODEL.

5 SHEETS—SHEET 1.



Witnesses
Henry J. Schurber.
Frank E. Boyce.

Inventor
Louis Madan,
By his Attorneys
Goepel & Niles.

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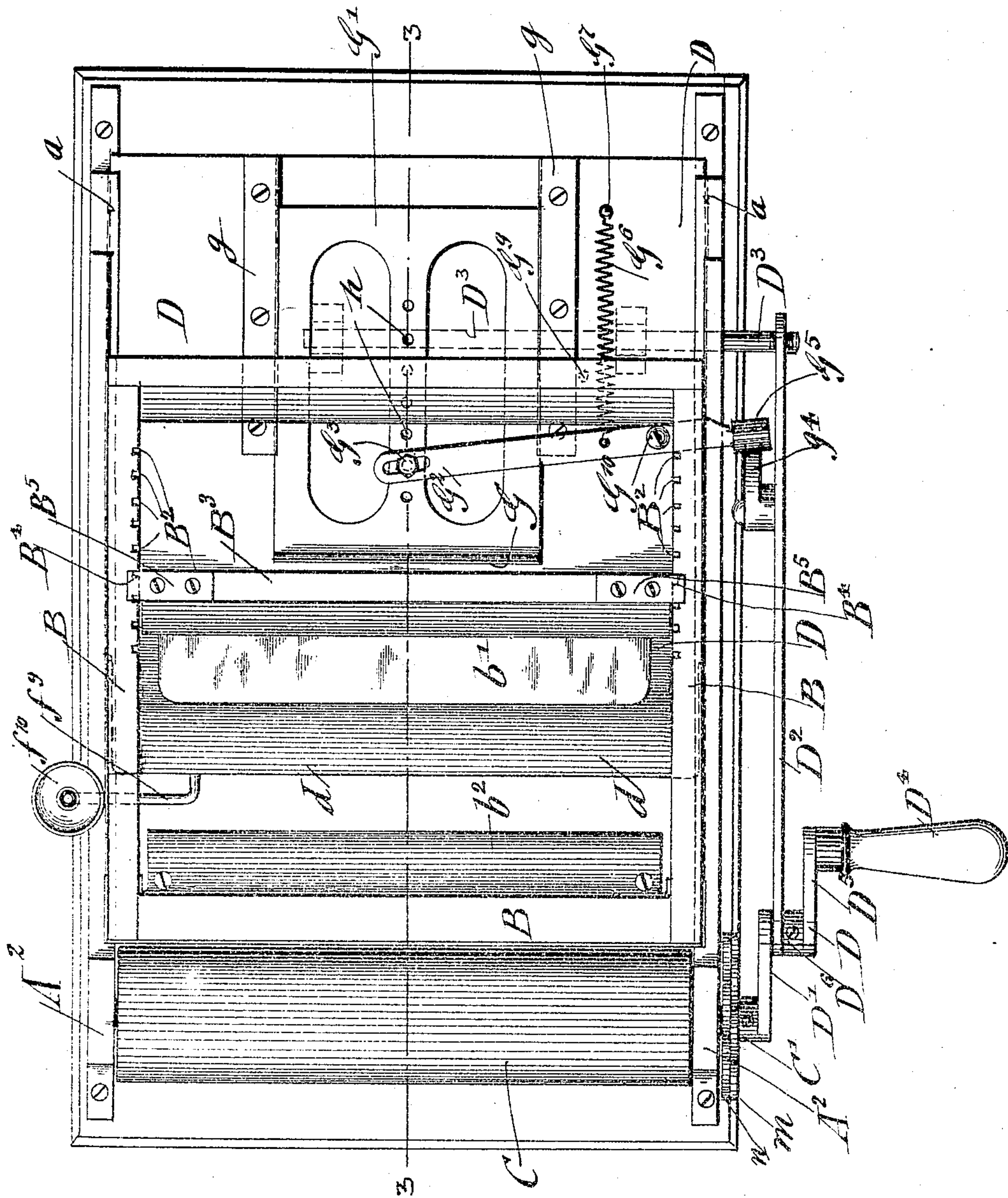


Fig. 2.

Witnesses
Henry J. Suberter.
Frank E. Boyse.

Inventor
Louis Madas.
By his Attorneys
Goepel & Viles.

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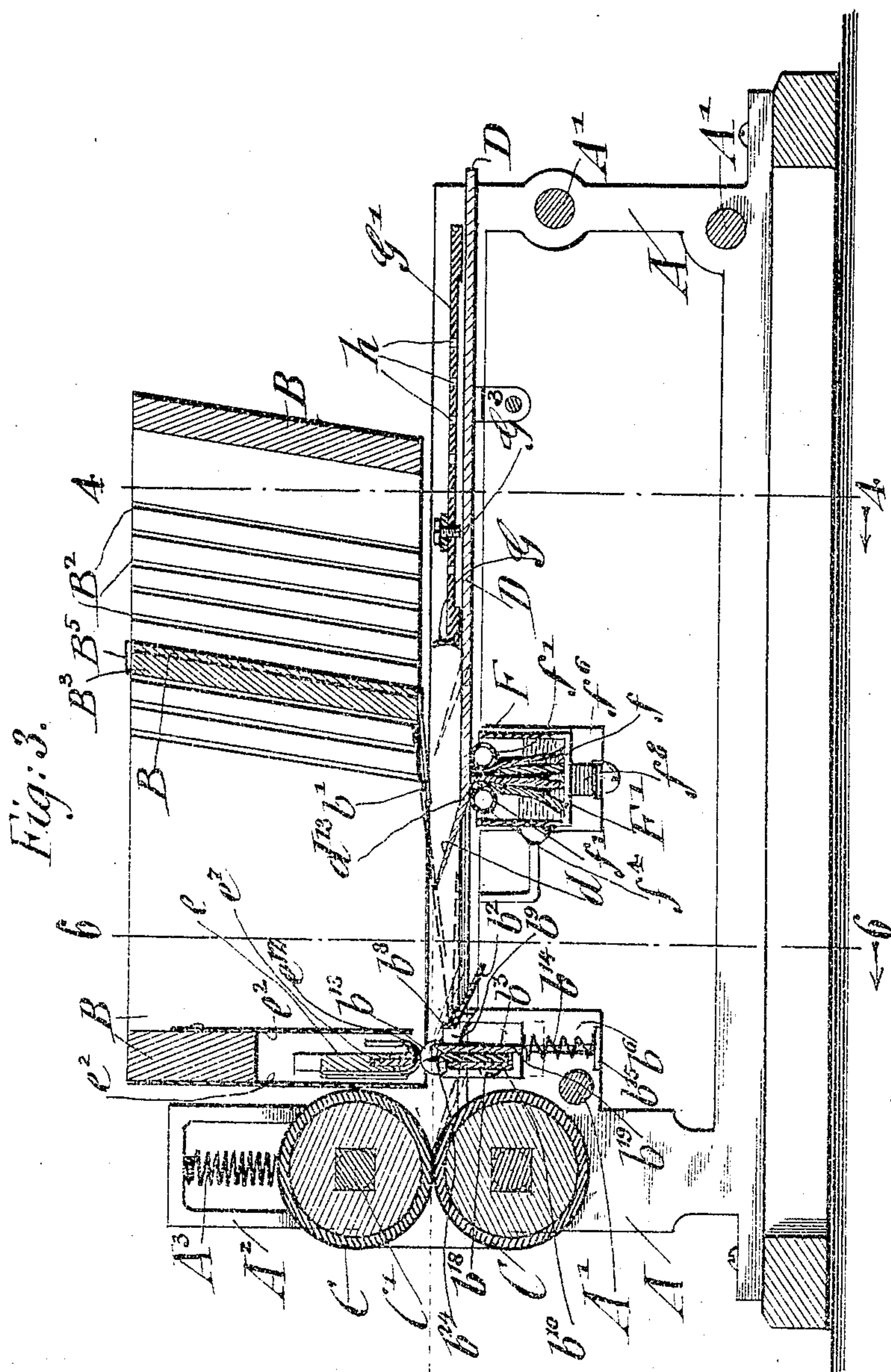
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5 SHEETS—SHEET 3.



Witnesses
Henry J. Suhrbier.
Frank E. Boyce.

By his Attorney, *Frederick & Niles,*
Louis Madar,
 Executor.

No. 773,952.

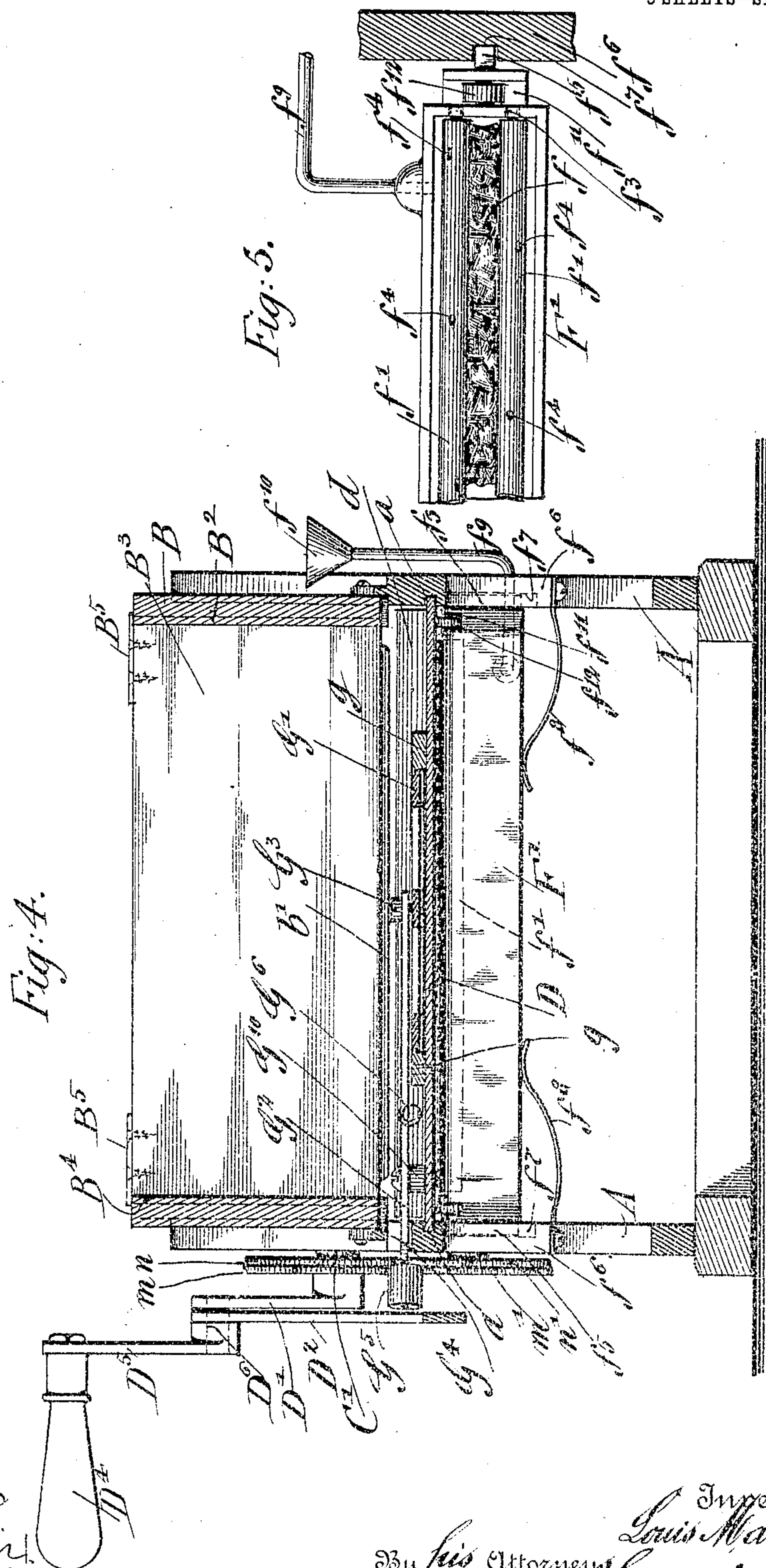
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5 SHEETS—SHEET 4.



Witnesses
A. Suberkin
Frank E. Boyce

Inventor
Louis Madas,
By his Attorneys
Goepel & Niles.

No. 773,952.

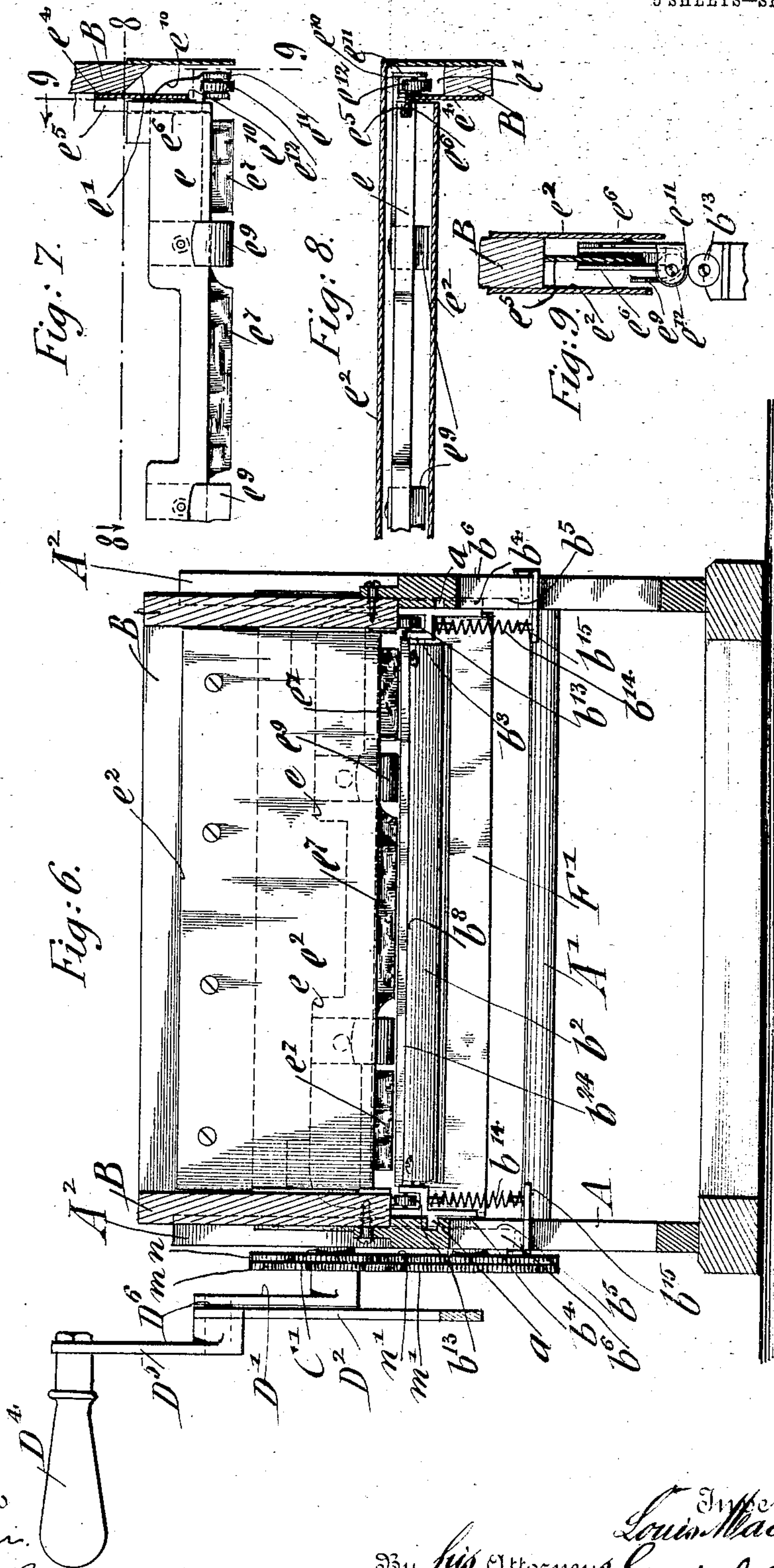
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NO MODEL.

5 SHEETS—SHEET 5.



Witnesses
H. Buhner.
Frank E. Boyce.

Inventor
Louis Madas,
By his Attorneys
Goepel & Niles.

UNITED STATES PATENT OFFICE.

LOUIS MADAS, OF NEW YORK, N. Y., ASSIGNOR TO RAPID ENVELOPE SEALING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

MACHINE FOR SEALING ENVELOPS.

SPECIFICATION forming part of Letters Patent No. 773,952, dated November 1, 1904.

Application filed February 20, 1904. Serial No. 194,530. (No model.)

To all whom it may concern:

Be it known that I, LOUIS MADAS, a citizen of the Empire of Austria-Hungary, residing in New York, borough of Manhattan, and State of New York, have invented certain new and useful Improvements in Machines for Sealing Envelops, of which the following is a specification.

It was found by practical tests that the machine for sealing envelops for which an application for Letters Patent was filed by me on April 25, 1903, Serial No. 154,312, could be considerably simplified and its operation be made more reliable and effective, so that the sealing of the envelops as they are delivered from a pile in the receiving-box is accomplished in a very effective and reliable manner by the use of one set of presser-rollers only instead of two, as heretofore, and by the employment of a simplified motion-transmitting mechanism, whereby the expense of making the machine is considerably decreased without impairing the reliable working of the same; and for this purpose the invention consists of an envelop-sealing machine which comprises an envelop-receiving box, a reciprocating moistening and feeding plate at the lower part of the receiving-box, having its front edge turned upwardly, a pair of sealing-rollers in line with said plate, a reciprocating pusher guided on the moistening and feeding plate, and mechanism for imparting reciprocating motion to said pusher at the proper time so as to feed the envelop forwardly by the moistening and feeding plate into the bight of the presser-rollers during the return motion of the plate.

The invention consists, further, in the special construction of the pusher and its actuating mechanism, also in a number of novel features, which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a side elevation of my improved machine for sealing envelops. Fig. 2 is a plan view of the same, showing the reciprocating moistening and feeding plate with the pusher mechanism arranged on the same. Fig. 3 is a ver-

tical longitudinal section on line 3 3, Fig. 2. Fig. 4 is a vertical transverse section on line 4 4, Fig. 3. Fig. 5 is a detail plan view of the moistening device. Fig. 6 is a vertical transverse section on line 6 6, Fig. 3. Fig. 7 is a detail rear view of a portion of the keeper at the front end of the envelop-receiving box. Fig. 8 is a horizontal section of the keeper on line 8 8, Fig. 7; and Fig. 9 is a vertical transverse section on line 9 9, Fig. 7.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the side standards of the supporting-frame of my improved envelop-sealing machine, and B the envelop-receiving box, which is open at its top and bottom and supported on the frame of the machine. The side standards A of the supporting-frame are connected by transverse brace-rods A', so as to impart the required stiffness to the frame. The side standards of the frame are provided at their front portions with vertical extensions A², in which are mounted two rubber-covered sealing or presser rollers C, the upper roller being yieldingly journaled in guide-blocks that are adapted to move in vertical ways of the extensions A² under control of helical springs A³, while the lower presser-roller is supported in stationary bearings of the side standards A.

Along the upper edges of the side standards A, at the interior of the same, are arranged horizontal guideways a, in which the side edges of a reciprocating plate D are guided. Reciprocating motion is imparted to the plate D by a crank D', which is keyed to the shaft C' of the upper presser-roller C, said crank being connected by a connecting-rod D² with a transverse shaft D³, that passes through perforated lugs a³ at the under side of the plate D. A rod D⁵, to which a crank-handle D⁴ is attached, is connected with the crank D' and rod D² by a pin D⁶. The direction of motion of these parts is indicated by arrows in Fig. 1.

The shaft of each presser-roller is provided at one end with two spur-wheels m n and m' n', which are keyed to the shaft, but offset from each other, as shown in Fig. 1. By the

offsetting of one spur-wheel to the other the teeth of one spur-wheel are located midway between the space in the other spur-wheel, the upper double spur-wheel meshing with the
 5 double spur-wheel on the lower shaft, so as to produce thereby an effective gearing for rotating the presser-rollers by the motion of the crank. The intermeshing of the double gear-wheels produces the reliable and easy rotary
 10 motion of the presser-rollers. In place of the spur-wheels, however, any other gear-wheel transmission for the rollers may be used.

The envelop-receiving box B is supported on the frame and extends forward to a point
 15 near the sealing or presser rollers C, having its side walls provided with interiorly-inclined grooves B² for inserting a transverse partition B³, having corresponding tongues B⁴ at its sides, outwardly-extending lugs B⁵ at its top,
 20 which serve to support the partition on the side walls of the box, and a stationary forwardly-extending lip b' at its lower end, which serves to support the pile of envelops in the box B.

25 The front part of the reciprocating plate D is cut away, so as to be of smaller width than the rear part and permit the front end of the reciprocating plate to be bent so as to form an upwardly-inclined lip d, that is adapted to
 30 engage the sealing-flap of the lowermost envelop of the pile supported by the lip b' and to carry the same forwardly to the sealing or presser rollers C. The lip d tapers to an edge, which edge is adapted to engage the
 35 envelops between the body of the same and the flap. The under side of the reciprocating plate D is moved over a moistening device F, which consists of moistening-wicks f, that are held between rollers f'. These rollers are
 40 arranged at both sides of the wicks and journaled in slots f³ in the end walls of a trough F' of the moistening device, as shown most clearly in Fig. 5. The rollers f' are provided with socket-holes f⁴ for facilitating the rota-
 45 tion of said rollers by means of a small lever to be inserted therein in the well-known manner. By the rotation of the rollers in one or the other direction the wick can be raised or lowered, as desired. The trough F' extends
 50 transversely between the side standards A below the reciprocating plate D and is guided by end pins f⁵ in brackets f⁶, having guide-ways f⁷, of the standards A. The trough F' is pressed upwardly by flat cushioning-springs
 55 f⁸, fastened to the lower sides of the brackets f⁶ and acting on the bottom of the trough F'. The trough F' is supplied from time to time with water by means of a supply-tube f⁹, having a funnel-shaped enlargement f¹⁰,
 60 which supply-tube is connected with the lower part of the side walls of the trough, as shown in Figs. 4 and 5. The end walls of the trough F' are provided with transverse recesses f¹¹, in which are supported antifriction-rollers f¹², the upper surface of which

extends slightly above the end walls of the trough, so as to cause the reciprocating plate D to make sufficient contact with the wick to be moistened and at the same time to prevent
 the wick from being subjected to excessive 70 wear, which would result were the rollers not present, owing to the repeated hammering of the corner d¹³ of the reciprocating plate, formed by the plate D proper and the upwardly-inclined lip d or from the to-and-fro 75 bending of the wick during the reciprocation of the plate. These rollers greatly facilitate the motion of the reciprocating plate when passing over the moistening-wick. During the forward motion of the reciprocating plate 80 D the upwardly-inclined lip d of the same will positively enter between the body and the sealing-flap of the lowermost envelop of the pile and move it forwardly over an inclined lip b², attached to the keeper b³, which is lo- 85 cated below the front wall of the receiving-box. The keeper b³ is provided at its ends with tongues b⁴, which engage vertical grooves b⁵ of brackets b⁶ of the side standards A. The keepers b³ are also provided 90 with recesses in which are arranged antifriction-rollers b¹³, which project slightly above the end walls of the keeper, so as to be in line with an elastic layer b²⁴. The inclined lip b² is provided with a bent-up vertical end b⁸, 95 which is supported by a bracket b⁹ of the keeper b³. Set off at some distance from the bent-up end b⁸ of the inclined lip b² is a clamping-plate b¹⁹, beveled at its upper end, which end is somewhat higher than the bent-up end 100 b⁸ of the inclined lip b². Interposed between the plate b¹⁹ and a second clamping-plate b¹⁰ is the layer or wiper b²⁴ of elastic material, preferably rubber, which is arranged so as to be somewhat higher than the adjacent clamping- 105 plates. These plates and the elastic material are held in position by screw-bolts b¹⁸, passing through the same. The keeper b is cushioned by helical springs b¹⁴, the lower ends of which rest on inwardly-projecting seats b¹⁵ of the side standards A, as shown in Figs. 3 and 6. 110

Vertically above the keeper b is arranged in the recessed lower part of the front wall of the envelop-receiving box B a second keeper c. For this purpose the front wall of the box 115 does not extend down so far as the remaining walls of the box B, and the front end of the side walls are suitably recessed at c'. To the front wall are suitably fastened strips or plates c², which serve as elongations of the shortened 120 front wall. To the front ends of the side walls are suitably fastened small plates or strips c⁴, having inwardly-extending bent-up ends c⁵, which engage recesses c⁶ of the keeper c, so as to guide the same and adapt the same to move 125 freely up and down. The keeper c is provided at its lower edge with independently-yielding wipers c⁷. Intermediately between the wipers c⁷ are arranged U-shaped guides c⁹, the shanks of which are attached to the keeper c and bent 130

around the bottom of the keeper from one side to the other and in upward direction. To the ends of the keeper e are attached plates e^{10} , which extend beyond the end of the keeper and which are provided with ears e^{11} , bent at right angles to the plates, said ears serving to receive antifriction-rollers e^{12} vertically above the antifriction-rollers b^{13} of the lower keeper. These rollers permit the convenient passage of the reciprocating plate between the upper and lower keepers and facilitate thereby the easy forward-and-backward motion of the same. The object of the elastic wipers of the upper and lower keepers is to press the inner and gummed sides of the flap of the envelop tightly against the moistened lower side of the upwardly-extending lip d of the reciprocating plate D, so as to cause the efficient moistening of the gummed flap of the envelop. The lower keeper b is pressed downwardly against the action of the springs b^{14} , while the upper keeper e presses by gravity on the body of the envelop, and thereby on the upper side of the reciprocating plate. The passage of the reciprocating plate D to and fro and between the wipers would soon cause their deterioration. To prevent this, the U-shaped guides e^9 are provided, which receive the force of the lip d of the plate D, while owing to their U shape and owing to the inclination of the lip d permit the pressure of the adjacent wipers e^7 downwardly against the envelop, while simultaneously the wiper b^{21} presses the flap upwardly against the reciprocating plate. The keepers serve also for pressing down on envelops having thicker contents than the ordinary ones and for preventing any crowding which might occur with envelops of poor quality.

To the upper surface of the reciprocating plate D are attached ways g , in which is guided a plate G' . The plate G' , provided with a pusher G at its front end, is adapted to move between the reciprocating plate D and below the box B in such a manner as not to conflict with the downwardly-extending lip b' of the partition B³. The plate G' is also provided with a number of holes h in line with each other, which are adapted to be connected with the slotted end of a fulcrumed lever G^2 by a detachable pivot-pin G^3 . The holes permit the adjustment of the pusher for any size of envelop. The lever G^2 extends through a slot G^4 in one side of the standard A to the outside of the same and is provided with an antifriction-roller G^5 at its end. A helical spring G^6 is interposed between the lever G^2 , which is fulcrumed at G^{10} , and a stationary pin G^7 on the reciprocating plate D, so as to cause the plate G' to be moved backwardly when the fulcrumed lever is not engaged by the actuating mechanism now to be described. On the forward movement of the reciprocation of the plate D the antifriction-roller G^5 of the lever G^2 is engaged by a cam g^4 , firmly riveted to the connecting rod or link D^2 between the

crank D' of the upper presser-roller and the transverse rod D^3 of the reciprocating plate. The forward movement of the reciprocating plate D is accomplished by the actuation of the connecting-rod D^2 , and the position of the cam on the same is such as to be engaged by the roller G^5 of the lever G^2 , so that the lever G^2 is actuated so as to move the plate G' forwardly at the end of the reciprocating plate D somewhat quicker than the plate D itself, so as to move the envelop at the proper moment quickly away from the lip d of the plate D and into the bight between the presser-rollers C, which grip the envelop and draw it finally off the reciprocating plate, during which time the plate commences its return movement. During the return movement of the reciprocating plate the pusher-plate G' moves with it so long as the cam acts on the antifriction-roller G^5 ; but as soon as the cam releases the antifriction-roller the action of the spring-actuated lever G^2 moves the plate G' backwardly again into its normal position. To prevent the pusher-plate from being moved too far to the rear, a pin G^9 is provided, which is adapted to be engaged by the lever G^2 on its rearward movement.

The operation of my improved envelop-sealing machine is similar to that clearly described in the application above referred to, with this difference, that the reciprocating plate being guided on the antifriction-rollers in the end walls of the moistening-trough and between the antifriction-rollers of the keepers moves with less friction on its forward and backward motion, so as to require less power for reciprocating the same. The moisture is supplied to the gummed flap by the under side of the upwardly-inclined tapering lip of the reciprocating plate, which the same has taken up from the moistening-trough. The envelop moved forwardly by the reciprocating plate is then, together with the plate, passed between the upper and lower keepers, which press the flap of the envelop tightly against the under side of the moistened plate, so as to take up ample quantities of moisture. At a proper moment of the forward movement of the reciprocating plate the pusher-plate is moved forwardly and moves the envelop in the same direction, so as to insert the envelop into the bight of the rollers, which grip the same and drawing it from the plate D cause the envelop to be passed between the same, and thereby efficiently seal it, delivering it in sealed condition on the other side of the rollers. On the return of the reciprocating plate to its normal position the pusher-plate is also returned to its normal position, so as to be ready to perform its function on the next forward motion of the reciprocating plate.

I claim as new and desire to secure by Letters Patent—

1. A machine for sealing envelops, compris-

ing a supporting-frame, means thereon for supporting a pile of envelopes, means adapted to separate one from the pile of envelopes and convey the same forwardly, sealing means, and means adapted to push the separated envelop away from the conveying means into operative proximity of the sealing means, substantially as described.

2. A machine for sealing envelopes, comprising a supporting-frame, an envelop-receiving box on the same, a moistening device, sealing-rollers, a reciprocating plate, and means on said plate adapted to push the envelop forwardly off from the same into the bight of the sealing-rollers, substantially as described.

3. A machine for sealing envelopes, comprising a supporting-frame, an envelop-receiving box on the same, a moistening device, sealing-rollers, a reciprocating plate adapted to be moistened when passing over the moistening device and engage the lowermost envelop in the receiving-box, means interposed between the sealing-rollers and the moistening device adapted to press the envelop against the reciprocating plate, and means for pushing the envelop off from the reciprocating plate into the bight of the sealing-rollers, substantially as described.

4. In a machine for sealing envelopes, the combination with an envelop-receiving box, of a reciprocating envelop feeding and moistening plate forming the bottom therefor, upper and lower keepers having wipers, sealing-rollers for receiving the envelop fed by the reciprocating plate, a pusher-plate, means for guiding said pusher-plate on the rear part of the reciprocating plate, and means for imparting independent reciprocating motion to said pusher-plate at the proper time for producing the reliable feeding of the envelop to the wipers and to the sealing-rollers, substantially as described.

5. In a machine for sealing envelopes, the combination with an envelop-receiving box, of a reciprocating moistening and feeding plate below the same, means for moistening the front end of the plate, and yielding keepers provided at their ends with registering rollers, substantially as described.

6. In a machine for sealing envelopes, the combination with an envelop-receiving box, of a reciprocating moistening and feeding plate below the same, means for moistening the front end of the plate, an upper keeper provided with rollers movable in the front wall of the receiving-box, and a spring-actuated lower keeper provided with rollers registering with those of the upper keeper, substantially as described.

7. In a machine for sealing envelopes, the combination with an envelop-receiving box, of a pair of yieldingly-supported keepers having rollers registering with each other, the one keeper having an inclined lip and an elastic wiper, and the other keeper having U-shaped

guides and wipers adjacent thereto, substantially as described.

8. In a machine for sealing envelopes, a pair of keepers yieldingly supported in respect to each other, each having rollers registering with each other, substantially as described.

9. In an envelop-sealing machine, the combination, of a supporting-frame, guideways on the same, an envelop-receiving box, guideways at the forward ends of the side walls of the same, and a pair of yieldingly-supported keepers each having rollers registering with each other, one keeper being spring-actuated and having an inclined lip, clamping-plates for said keeper, a wiper interposed between the clamping-plates, and tongues at the ends of said keeper engaging the guideways in the frame of the machine, and the other keeper having tongues engaging the guideways of the box, substantially as described.

10. In an envelop-sealing machine, the combination, with envelop-feeding means adapted to engage one from a pile of envelopes, of means adapted to push the envelop engaged by the feeding means off from the same, substantially as described.

11. In a machine for sealing envelopes, the combination with a reciprocating plate adapted to engage one from a pile of envelopes, of means adapted to push the envelop engaged by the plate forwardly off from the same, substantially as described.

12. In an envelop-sealing machine, the combination, with a reciprocating plate having an upwardly-inclined lip at its front end adapted to engage one from a pile of envelopes, of means adapted to push the envelop engaged by the plate forwardly off from the same, substantially as described.

13. In an envelop-sealing machine, the combination, of a reciprocating plate, guideways on the same, a pusher-plate movable in the guideways, and means for moving the pusher-plate at the proper time relatively to the reciprocating plate, substantially as described.

14. In a machine for sealing envelopes, the combination, of a reciprocating plate, a pusher-plate guided on the reciprocating plate and reciprocatory thereto, a fulcrumed lever adjustably connected with said pusher-plate, means for actuating the lever, and means independently thereof for returning the pusher-plate to its original position, substantially as described.

15. In an envelop-sealing machine, the combination, with a reciprocatory plate, of a pusher-plate on the same and reciprocatory thereto, substantially as described.

16. In an envelop-sealing machine, the combination, with a reciprocatory plate having an upwardly-inclined lip, of a pusher-plate on the reciprocatory plate and reciprocatory to the same, and having an upwardly-extending pusher end, substantially as described.

17. In a machine for sealing envelopes, the

combination, of a reciprocating plate, a pusher-plate movable thereon having an upwardly-extending pusher end, and means for actuating the pusher-plate at the proper time relatively to the reciprocating plate, substantially as described.

18. In a machine for sealing envelopes, the combination, of a reciprocating plate, a pusher-plate movable thereon, means for actuating the pusher-plate at the proper time relatively to the reciprocating plate, and means for limiting the return movement of the pusher-plate, substantially as described.

19. In an envelop-sealing machine, the combination, with supporting-frames, and an envelop-receiving box on the same, of a reciprocating envelop feeding and moistening plate forming the bottom therefor, a connecting-rod adapted to reciprocate the plate, upper and lower keepers having wipers, sealing-rollers

for receiving the envelop fed by the reciprocating plate, a pusher-plate guided on the reciprocating plate, means for guiding said pusher-plate on the rear part of the reciprocating plate, a fulcrumed and spring-actuated lever for operating said pusher-plate, said lever extending through a slot in one of the supporting-frames to the outside of the same, an antifriction-roller at the outer end of said lever, and a cam on the connecting-rod of the reciprocating plate for imparting an independent reciprocating motion to the pusher-plate at the proper time, substantially as described.

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

LOUIS MADAS.

Witnesses:

PAUL GOEPEL,
C. P. GOEPEL.