

(No Model.)

2 Sheets—Sheet 2.

C. W. AYERS.
AUTOMATIC LETTER STAMPING MACHINE.

No. 558,141.

Patented Apr. 14, 1896.

Fig. 3.

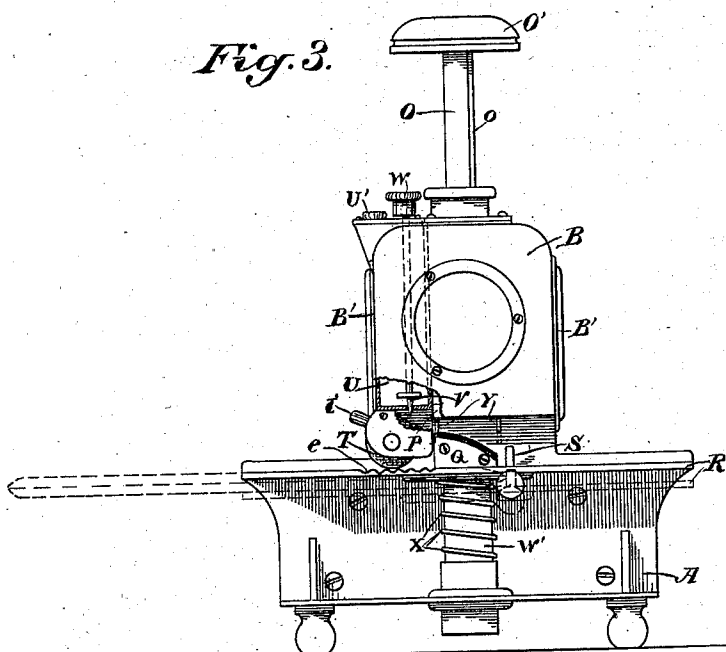
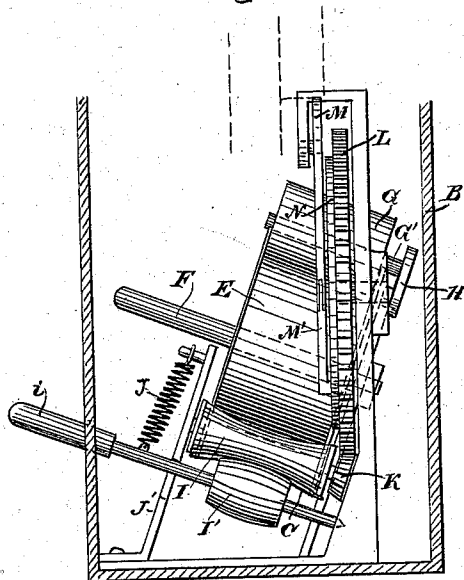


Fig. 4.



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UNITED STATES PATENT OFFICE.

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AUTOMATIC LETTER-STAMPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 558,141, dated April 14, 1896.

Application filed May 22, 1895. Serial No. 550,259. (No model.)

To all whom it may concern:

Be it known that I, CLARENCE W. AYERS, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Automatic Letter-Stamping Machines; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an automatically-operating device for feeding stamps and applying them to letters or packages.

It consists in certain details of construction, which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a perspective view of my apparatus. Fig. 2 is a longitudinal section through the casing, showing the interior mechanism. Fig. 3 is a front view. Fig. 4 is an end view of the feed mechanism.

My machine may be arranged in any suitable or convenient way for the purpose.

In the present case I have shown a base A with suitable feet, and upon this base is fixed a casing B, within which the apparatus is contained. Upon one side of the casing is an opening of sufficient size to allow ready access to the interior parts, and this opening is covered with a glazed door B', which allows ready inspection of the interior of the apparatus. In the lower part of the casing is a guiding-table C, over which the stamps pass to the point where they are to be severed and applied to the letters. In the rear of the case and in line with the table is a slot or opening D, through which strips of stamps may be fed upon the table as required; but, if preferred, I have found a very convenient method is to have the stamps printed in long strips and coiled upon a drum E, which is journaled within the casing and just above the guide-table. This drum has flanges, which insure the stamps retaining their proper position thereon, and the table being also provided with flanges causes the stamps to move forward in proper line.

The spool or drum E, about which the stamps are rolled, is fitted loosely on a spindle F, fixed just above the guide-table, and this spindle is screwed in or out of the supporting-standard at one side, so that the drum or spool can be easily removed when the stamps thereon

are exhausted and another spool substituted therefor. Above this spool is a heavy roller G, turning loosely upon a spindle G', which projects from an arm H. This arm is fulcrumed above the spool and turns loosely upon its fulcrum-pin, so that the weight of the roller will be sufficient to cause it to press upon the roll of stamps and prevent their being drawn out too rapidly, and it regulates the rotation of the drum or spool.

I and I' are feed-rollers between which the stamps pass and by the operation of which they are drawn forward when desired. The uppermost roller I is made concave and the lowermost roller I' is made convex, or vice versa, and as the stamps leave the guide-table they pass between these rollers. The object of the curvature of the roller-faces is to curve the stamp a little, which causes it to be projected straight out beneath the cutting-knife and prevents the end from drooping before it is cut off. The spindle *i* of the lowermost roller has its inner end loosely pivoted, and the outer end projects through a slot in the side of the casing, being provided with a suitable cap, so that the operator may by pressing upon it draw the lower roller away and leave a space between the two for the introduction of the stamps or to prevent their being fed, if desired. This movable end of the roller-spindle is normally held up to place by a spring J, suitably connected with it and with a fixed support or standard J', in which one end of the upper feed-roller shaft turns, as shown. The upper feed-roller shaft has a pinion K fixed upon one end, and this is engaged by a gear-wheel L, suitably journaled within the casing. When this gear-wheel is rotated, it acts upon the pinion and rotates the upper roller a sufficient number of times to advance the roll of stamps so that one stamp will be projected in position to be cut off and applied.

M is a lever, fulcrumed, as shown, to a stationary portion of the frame, and having pivoted to its lower end a weighted or spring-actuated pawl M'. This pawl engages with corresponding ratchet-teeth N upon the side of the gear-wheel, so that when the lever is moved the pawl engaging the ratchet will rotate the gear-wheel a fixed distance, this distance being such that it acts upon the upper

feed-roller so as to advance the strip of stamps sufficiently to project one stamp for each movement. This lever is actuated by a plunger O, which extends up vertically through the top and front of the case and has a cap O', upon which pressure may be applied to force it down. This plunger-rod is made hollow in the form of a sleeve and slides over a second spindle or stem O², this second stem being fixed to the plunger P, which serves to place the stamp. The upper sleeve O has a lug or projection o upon it, which engages the rounded end of the lever M, so that the first motion of depressing the sleeve acts to move the lever M and through it to rotate the gear-wheel and the stamp-feeding rollers. This projects a stamp through a slot formed in the front of the casing and directly over a diagonally-placed knife or cutter Q. As the handle continues to move downward, being depressed, the lever M moves to such a point that the lug will cease to act upon it, but will slide past the end of the lever, leaving the latter stationary, and the gear and feed-rollers then cease to move. The continued movement of the handle causes the sleeve O to slide down over the inner stem O² until it strikes the bottom of the plunger, to which the inner stem is secured. As the movement then continues, the plunger is moved downward and with it a second knife or cutter Q', which is fixed to the inner side of the plunger in line with the blade Q, or so as to just pass it with a shearing motion. This severs the stamp which has been projected, and the bottom of the plunger carries it down and deposits it upon the letter or package beneath.

The letter or package to be stamped is supported upon a table R just beneath the plunger, and is placed upon the table by sliding it in from the left side until it is arrested by a stop S, suitably fixed and projecting upward from the surface of the table.

It is necessary, in order to cause the stamp to stick to the letter, that either the stamp or the letter-surface should be previously moistened.

I prefer to keep the stamps perfectly dry to prevent any sticking to each other or to the surfaces over which they pass. I have therefore arranged a device for moistening the surface of the letter, which is as follows: T is a roller, of any suitable absorbent material, journaled in the frame just above the table and at the left of the plunger which carries the stamp down. Above this roller is a small tank U, containing water, which is introduced through a stopper U' at the top.

V is a valve, of any suitable construction, adapted to close a small opening in the bottom of the tank, and it is operated by a milled head W, projecting out through the top of the tank. The valve is preferably a small pointed pin fitting a corresponding hole in the bottom of the tank just above the roller, and it may be provided with a leather or other washer to insure an absolutely tight closing of the open-

ing when desired. By slightly opening this valve a little moisture will escape from the tank and will sufficiently saturate the roller so that when a letter is placed upon the table and pushed along from the left its surface will be moistened sufficiently to receive and hold the stamp when the latter is placed upon it.

In order to accommodate the apparatus to various thicknesses of letters or packages, I have shown the table supported upon one or more slidable guide-stems W', extending upward from beneath, and having springs X, by which the table is normally held up close against the moistening-roller. If a thin letter is introduced, the stamp will be properly applied to it by depressing the vertical spindle, as previously described. If a thick letter or a newspaper is to be stamped, the table will simply be moved away by the thickness of the material and the yielding of the spring which holds the table up, so that the surface to be stamped is always presented at the same point with relation to the stamp and plunger.

In order to keep the stamp in its proper position, I have shown a guide or guides Y, which are preferably slidably adjusted upon the side of the plunger, so that when the plunger is depressed these guides will pass down upon each side of the stamp, keeping it in position, and, striking the table, will be arrested, while the plunger, sliding with relation to the guide or guides, will continue its motion until the stamp has been applied.

It will be manifest that the drum or spool upon which the stamps are placed, the guide-table, and feed-rollers, as well as the cutters, may be variously arranged; but I have found that a diagonal arrangement of the cutting edge of the fixed knife and a corresponding arrangement of the guide-table over which the stamps pass and the spool upon which they are rolled, with an essentially horizontal arrangement of the movable blade of the cutter, insure the best results in cleanly cutting the stamps off from the strip, while the diagonal or inclined curved arrangement of the feeding-rolls and the slot through which the stamp passes above the fixed cutter-blade produces such an arched form of the stamp where it is projected that it will retain its position and will not droop before it is cut off when the plunger carries it down to its destination.

The purpose of giving the stamp an arched form by means of the arrangement just described may be briefly stated as follows: If the stamp is simply curved and is presented with the two edges essentially on a level, the cutter will strike the middle of the stamp and no advantage of shearing cut can be obtained. If the stamp stands diagonally, as described, the knife commences cutting on the upper edge of the stamp and has a rigid bearing underneath, which continues from that side to the other as the cut is made. In addition to this, this position of the stamp, with the edge nearest the approaching letter

standing the highest, will insure the letter passing under the stamp in case the latter should accidentally drop, whereas if the curvature were such that this edge curved downwardly the letter might pass over the stamp, so that it would not be properly applied. It will be manifest that as this position of the cutting-blade is important it is necessary to place the table and carriers at the same angle, since it could not very well be constructed in a horizontal position and the change made from one position to the other.

The operating-spindle is raised up and returned to its normal position, when released, by means of a spring *a*, which may be variously arranged. In the present case I have shown it extending through the base-plate of the casing into the hollow base, and it is connected with the spindle by a strap *b* passing over a roller *c* in the top of the case, and thence extending down and connecting with the hollow spindle, as before described. The plunger is in like manner raised, after it has been depressed, by means of a spring *d*, connected with the upper part of it, and extending thence to some fixed point in the upper part of the casing.

In order to dispose of any surplus moisture which may be caused by drip from the moistening-roller, the table upon which the letters are deposited for stamping is made with corrugations or channels *e* in its upper surface, these being slightly inclined, so that any surplus moisture will pass off and the edges of the channels form a sufficient support for the letter as it passes beneath the roller without allowing its lower surface to come in contact with the water which might be in the channels.

In order to prevent the use of the machine by unauthorized persons, a lock may be so fixed as to prevent the depression of the plunger. This may be arranged in various ways. In the present case I have shown a bolt *m* slidable in the upper part of the case through which the plunger moves, and adapted to engage a perforation or slot in the side of the plunger-spindle, and the bolt may be withdrawn by a key of any suitable construction to release the parts.

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

1. In a device for stamping letters, means for feeding the stamps in strips and projecting a single stamp over the letter or surface to which it is to be applied, comprising convex and concave feed-rollers, a gear and pinion by which one of said rollers is rotated, and a lever fulcrumed between its ends, cutters by which the stamp is severed from the main strip, a plunger adapted to press the stamp upon the letter after it is severed and a means for operating the feed and cutting mechanism and plunger consisting of a slidable spindle by which the plunger is actuated, and a sleeve movable upon the spindle having a lug adapted to first engage one end of the

fulcrumed lever and actuate the feed mechanism, said sleeve adapted to operate the cutter and plunger with a single continuous movement.

2. In a device for stamping letters, a table adapted to receive the stamps, a feed mechanism comprising concave and convex feed-rollers, a pinion on the axis of one of the rollers and an intermeshing gear-wheel whereby the stamps are advanced and projected above the table, a cutter by which a single stamp is severed from the main strip, a plunger by which the stamp is applied upon the letter, a spindle carrying the plunger, a sleeve slidable on the spindle and means between the sleeve and the gear-wheel and operated by the former whereby the feeding, cutting and stamping operations are successively performed by a single operation.

3. In a device for stamping letters, a table upon which the letters are placed, rolls between which the stamps pass whereby they are advanced above the table, interengaging gears on the axes of the rolls, one of said gears having a ratchet, a lever fulcrumed between its ends and having a pawl to engage the ratchet, cutters for severing a single stamp from the strip, a plunger by which the severed stamp is applied, a sleeve slidable upon the spindle in the path of the free end of the lever whereby the feeding, cutting and stamping operations are successively performed by a single movement, and a moistening-roll beneath which the letter is passed when introduced to position to receive the stamps.

4. In a device for stamping letters, the combination, of feed-rolls, gearing upon the axis of the same, one of said gears having a ratchet, a lever fulcrumed between its ends, having at one end a pawl to engage said ratchet and rotate the feed-rolls, means for severing the stamp from the sheet, a plunger adapted to press the stamp upon the letter, a sleeve slidable upon the spindle of the plunger and in the path of the free end of the lever whereby the feeding, cutting and stamping operations are successively performed by a continuous movement of the sleeve, a table upon which the letter is placed to receive the stamp, and a guide or guides and springs whereby the table is yieldingly supported to receive packages of different thickness.

5. In a device for stamping letters, a guide-table over which the strip of stamps is adapted to pass, concave and convex feed-rollers and connected gearing for feeding the stamps forward, a curved slot in the front of the casing through which the stamps are projected, and a correspondingly-shaped knife, forming the lower edge of said slot, in combination with a vertically-movable plunger having a cutter-blade or knife fixed to it and movable over the fixed cutter upon the casing for the purpose of severing the stamp.

6. In a device for applying stamps to letters, a guide-table over which the strips of stamps pass and an inclined curved slot in the front of

the casing through which the stamps are projected, feed-rollers between which the strips of stamps pass beneath the table and the slot, one of said rollers being made concave and the other convex whereby the stamps are curved to correspond with the opening through which they pass.

7. In a device for applying stamps to letters a guide-table over which the strips of stamps are adapted to pass, a curved inclined opening and cutter-blade in the front portion of the casing, concave and convex feed-rollers between which the stamps pass from the table to the opening, a cutter carried by a vertically-moving plunger and corresponding with the fixed cutter and the opening through which the stamps are projected, and a mechanism whereby the stamps are advanced consisting of a pinion upon the shaft of one of the feed-rollers, a gear-wheel engaging said pinion, a vertically-moving sleeve, and a pawl-and-lever mechanism actuated by said sleeve whereby the gear-wheel is rotated at each depression of the sleeve.

8. In a device for applying stamps to letters, a table over which the strips of stamps are delivered, a slotted opening in the front of the casing through which the stamps are projected, feed-rollers between which the stamps pass from the guide-table to the opening, a pinion upon the shaft of one of the feed-rollers and a gear engaging said pinion, a ratchet fixed upon said gear and a pawl fulcrumed to a lever and adapted to engage said ratchet, in combination with a vertically-sliding sleeve adapted to engage the end of the lever and actuate the pawl mechanism so as to advance the stamps.

9. In a device for applying stamps to letters, a guide-table over which the strips of stamps pass, a slotted opening in the front of the casing through which the stamps are projected, a cutter-blade fixed to the lower edge of said opening, feed-rollers situated between the guide-table and the opening and adapted to receive and advance the stamps, a gear and pinion by which one of the rollers is rotated, a pawl-and-ratchet mechanism engaging the gear so as to advance it, a vertically-moving plunger having a cutting-blade fixed upon it corresponding with the blade which is fixed to the side of the opening through which the stamps pass, a spindle connected with the plunger, a sleeve slidable upon said spindle having a lug which engages the lever to first actuate the pawl and ratchet and feed mechanism so as to advance a stamp, said sleeve afterward engaging the plunger and moving that downward to sever the stamp, and finally apply the stamp to the letter or surface beneath.

10. In a device for applying stamps to letters, a guide-table, feed-rollers, a stationary and a movable cutter-blade by which the stamps are severed, a gear and pinion by which the feed-roller is rotated, a pawl-and-

ratchet mechanism engaging the gear, a lever fulcrumed between its ends, carrying said pawl at one end and having its opposite end free, a vertically-moving spindle carrying a plunger, a vertically-movable sleeve on said spindle whereby the first movement of the sleeve actuates the feeding mechanism and advances the stamp, and a continued movement severs the stamp and applies it to the letter or package beneath, and springs whereby the plunger and sleeve are returned to their normal position when released.

11. In a device for applying stamps to letters or packages, a guide-table over which the strips of stamps are adapted to pass, a slotted opening in the front of the casing through which the stamps are projected, and cutters by which they are severed at the proper time, in combination with feed-rollers situated between the guide-table and the cutters having concave and convex surfaces respectively, one of said rollers having stationary journals and the other roller having one end of its shaft pivoted, and the other end projecting through the side of the casing, and a spring whereby the movable end of the roller-shaft is normally drawn upward to hold the feed-rollers in contact, said spring yielding when pressure is applied to the outer end of the roller-shaft whereby the rollers may be separated for the introduction of stamps or to prevent feeding.

12. In a device for applying stamps to letters, a guide-table, a slotted inclined opening in the front of the casing through which the stamps are projected, an inclined feed mechanism and rollers whereby the stamps are advanced a stated distance, pawl-and-ratchet mechanism whereby said advance is accomplished, a lever fulcrumed between its ends, carrying said pawl at one end and having its opposite end in the path of main actuating device, and a drum or spool journaled above the table, adapted to receive a roll of stamps and deliver them upon the table by the action of the feed mechanism.

13. In a device for applying stamps to letters, a guide-table over which the stamps pass in strips, concave and convex feed-rollers between which the stamps pass, a curved inclined slotted opening in the front of the casing through which the stamps are delivered from the feed-rollers, cutters by which they are severed, and a plunger by which they are applied to the letters, in combination with an inclined spool or drum upon which a strip of stamps is coiled, and a weighted pressure-roller journaled so as to rest upon the stamp-carrying drum or spool.

In witness whereof I have hereunto set my hand.

CLARENCE W. AYERS.

Witnesses:

S. H. NOURSE,
GEO. H. STRONG.