

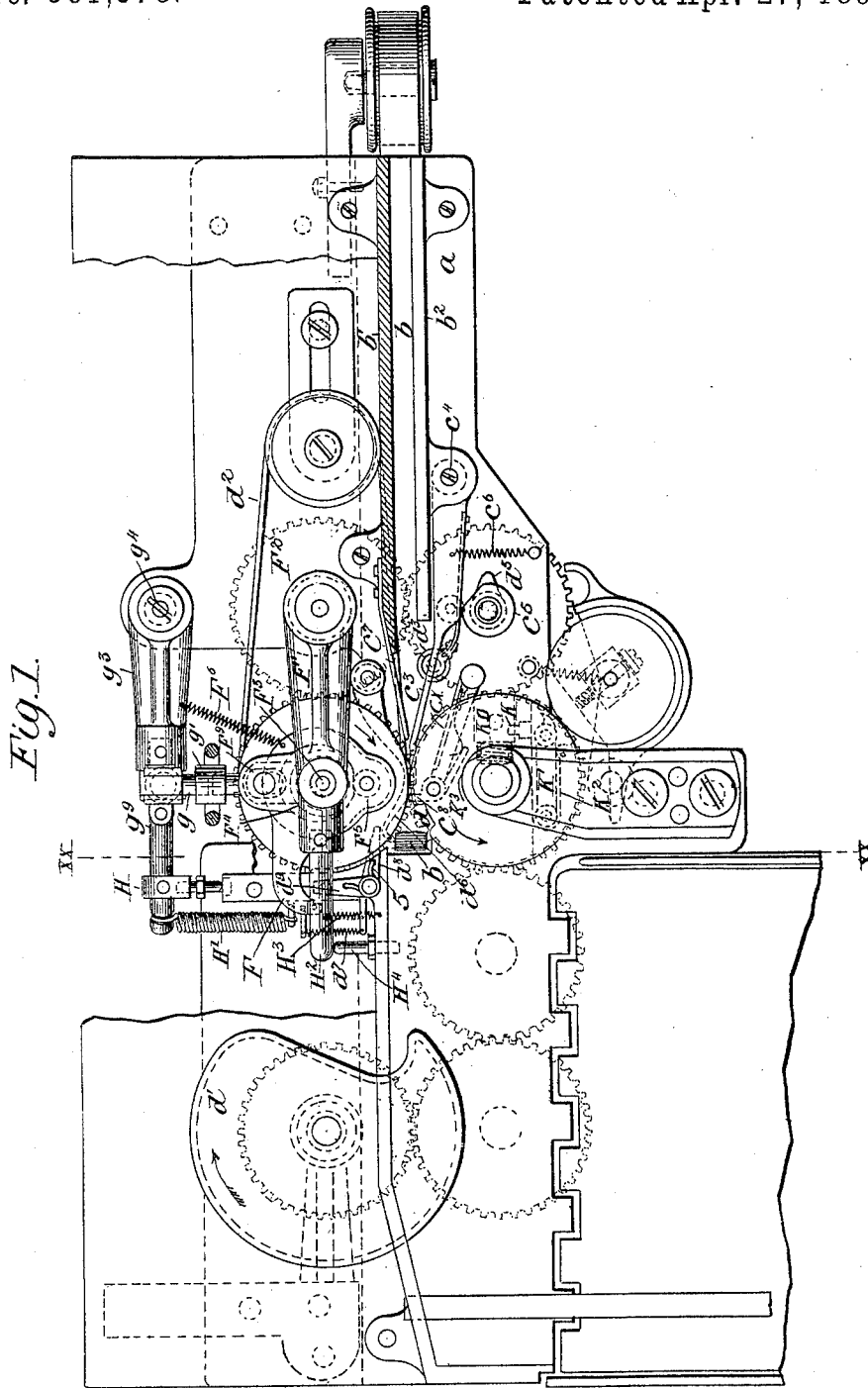
(No Model.)

4 Sheets—Sheet 1.

M. V. B. ETHRIDGE & J. B. YOUNG.
MAIL MARKING MACHINE.

No. 581,578.

Patented Apr. 27, 1897.



Witnesses:

A. D. Carroll
M. J. Kearney

Inventors.

Martin Van Buren, Ethridge
Brooks Young.

(No Model.)

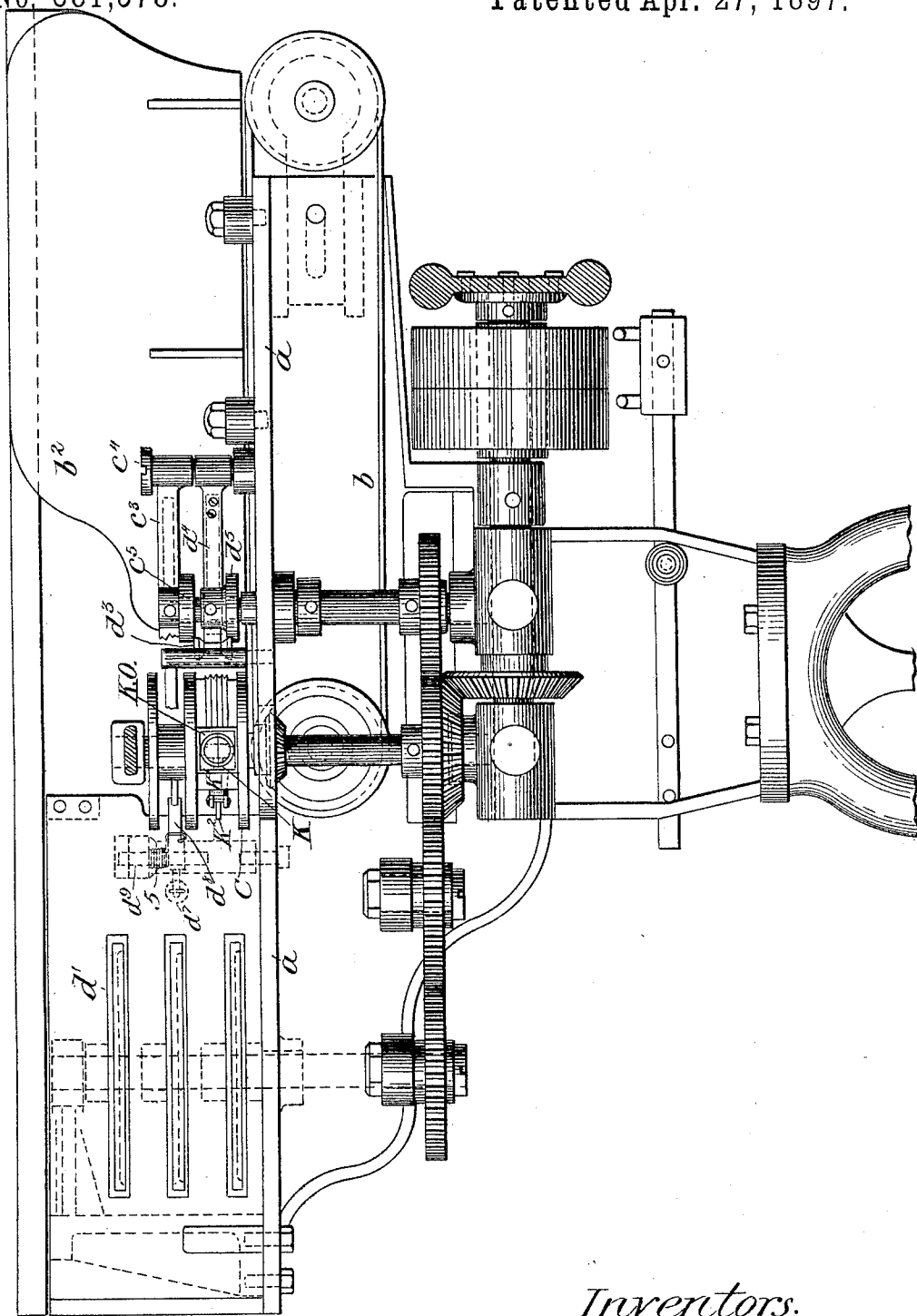
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M. V. B. ETHRIDGE & J. B. YOUNG.
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Fig. 2.



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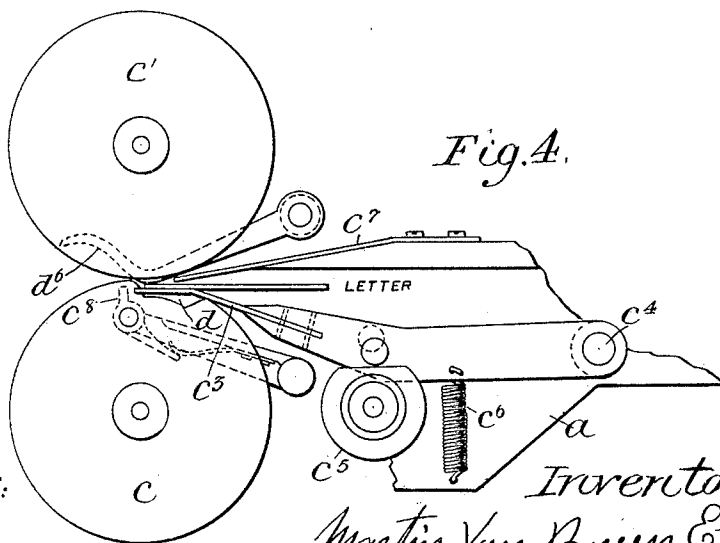
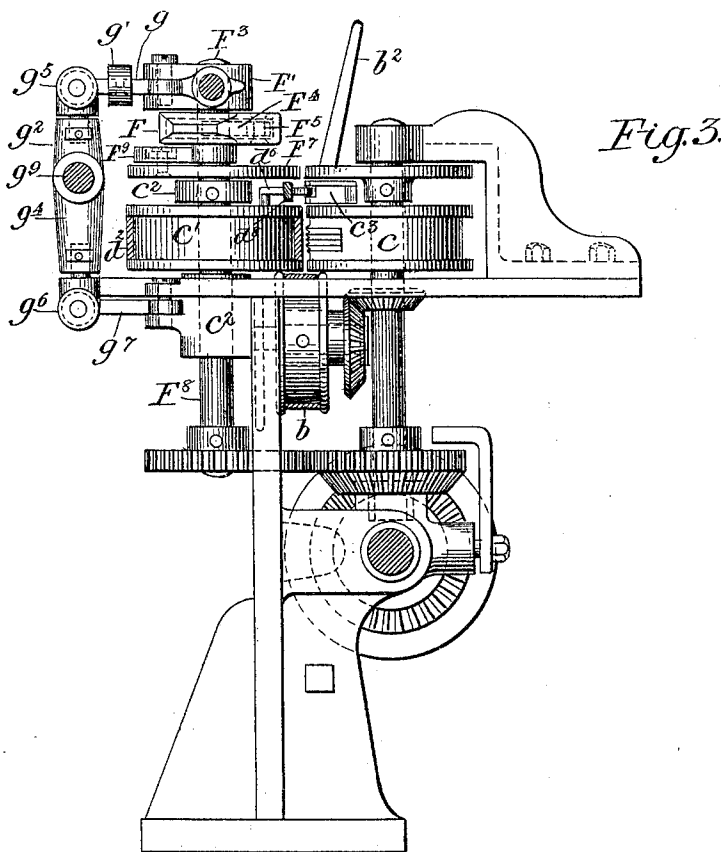
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MAIL MARKING MACHINE.

No. 581,578.

Patented Apr. 27, 1897.



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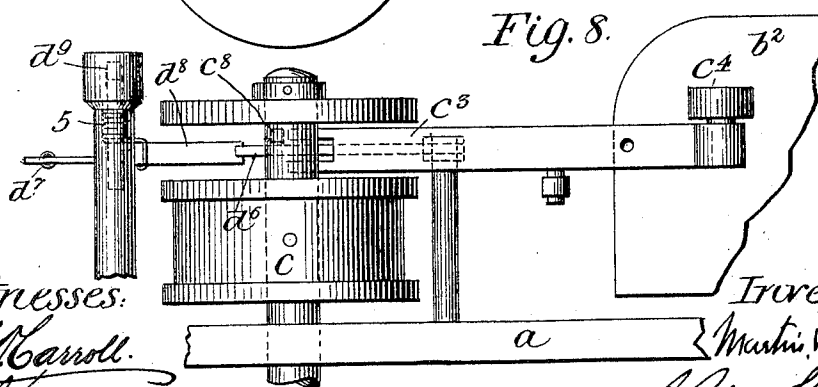
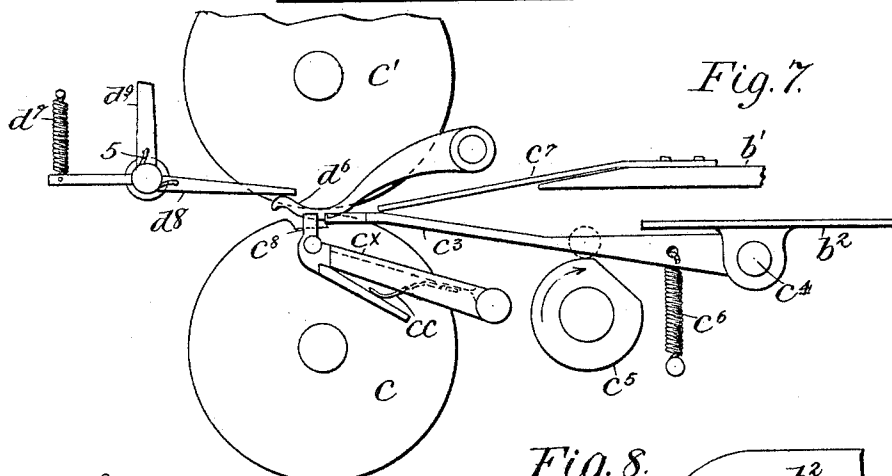
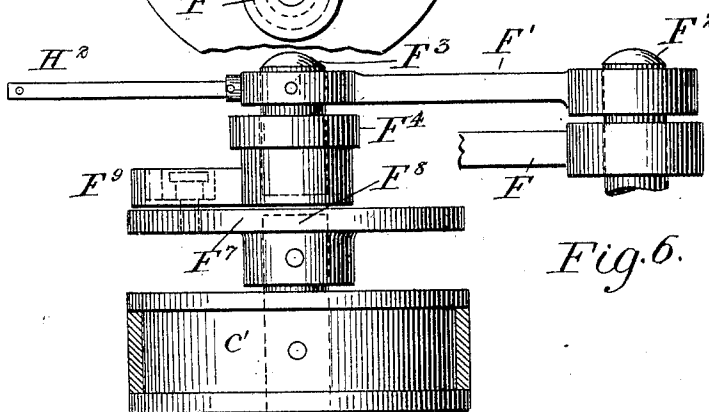
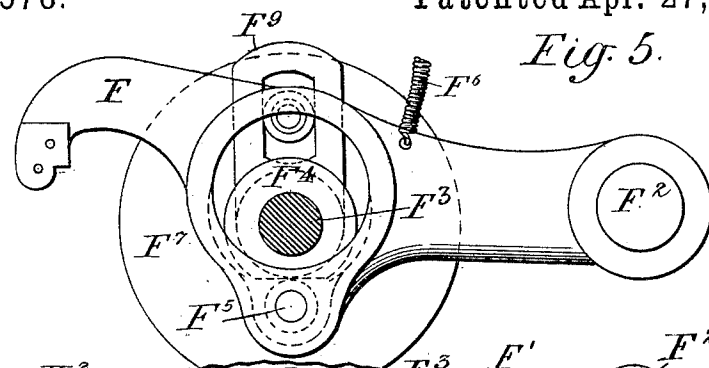
4 Sheets—Sheet 4.

M. V. B. ETHRIDGE & J. B. YOUNG.

MAIL MARKING MACHINE.

No. 581,578.

Patented Apr. 27, 1897.



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UNITED STATES PATENT OFFICE.

MARTIN VAN BUREN ETHRIDGE, OF EVERETT, MASSACHUSETTS, AND JOHN BROOKS YOUNG, OF MONTREAL, CANADA, ASSIGNORS TO AGNES D. CARROLL, OF MONTREAL, CANADA.

MAIL-MARKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 581,578, dated April 27, 1897.

Application filed July 11, 1896. Serial No. 598,910. (No model.)

To all whom it may concern:

Be it known that we, MARTIN VAN BUREN ETHRIDGE, of Everett, county of Middlesex, and State of Massachusetts, and JOHN BROOKS YOUNG, of the city of Montreal, Province of Quebec, Canada, gentlemen, have invented certain new and useful Improvements in Mail-Marking Machines; and we do hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to machines for post-marking and stamp-canceling mail-matter wherein the mail-pieces are dropped one by one into a receiving-hopper onto a carrying-belt which carries them to the timing devices and printing-cylinders. The momentum of the printing-cylinders then passes the mail-pieces into packing-disks, which stack them in order, the stack being supported by a sliding block, which moves back to the extent of the thickness of each mail-piece received into the stack.

A valuable feature of our machine is the simplicity of its construction. It is durable and capable of taking care of a large variety of work without danger of defacing or damaging it. It is practically noiseless when in operation, easily cared for, and can be readily comprehended and repaired by an ordinary mechanic.

Of the accompanying drawings, which illustrate the machine and form part of this specification, Figure 1 shows a plan view of the complete machine with hopper *b'* shown in section. Fig. 2 shows a front elevation. Fig. 3 shows a sectional end elevation on line *x x* in Fig. 1, looking to the right. Fig. 4 shows an enlarged view of the printing-cylinder and impression-roll, the stop open, and the notch in the printing-cylinder at a position to admit the letter to be printed. Fig. 5 shows a full-sized plan of the lever *F* and the cam *F'*. Figs. 6, 7, and 8 are detail views.

The letter *a* designates a horizontal table having a longitudinal opening occupied by the horizontal upper stretch of a conveyer-belt *b*, forming the bottom of the hopper, the sides *b'* and *b''* of which are erected on the table *a*. At some distance from the discharge end of the hopper the printing and impres-

sion cylinders *c* and *c'* (shown in Fig. 3) are located, the former being in fixed bearings and the latter in bearings on a pivoted spring-pressed frame *c''*. (Shown in Fig. 3.) These cylinders are connected by gearing, so as to have a fixed relation of movement.

Near to the printing-cylinder is a vibrating arm *c³*, one end pivoted on hopper *b'* at *c⁴*, and the other end is slotted so as to pass by the letter trip-arm *d⁶* when there is no letter between them, as shown in Fig. 7. The vibrating arm *c³* with its slotted end is also shown in Fig. 8. This arm *c³* is moved forward by a cam *c⁵* and drawn backward by a spring *c⁶*. Opposite this arm *c³* is a stiff flat spring *c⁷*, which is limited in its movements toward the arm *c³*. By the inward movement of the arm *c³* it comes in contact with the spring *c⁷* and forms a stop for the letter and holds the same until the notch *d* in the printing-cylinder arrives at a proper position to form an opening between the two cylinders *c* and *c'*. Then the arm *c³* moves toward cam *c⁵*, drawn by the spring *c⁶*. The flat spring *c⁷* is not allowed to follow the movement of the arm *c³*. Thus an opening is made, and the letter released moves forward into the notch *d* and against a timing-stop *c⁸*, located at or past the center of the printing-cylinder and impression-cylinder, ready to be caught by the cylinders *c* and *c'* and properly canceled, postmarked, and delivered to the packing-disks *d'*. Stop *c⁸* is pivoted to the end of a rigid arm *c^x*. (Shown in Fig. 1.) One end of said stop projects into the path of the letter and the other end is supported by a flat spring *cc*, one end of which is made fast to the arm *c^x*. The normal position of the right-hand face of the timing-stop *c⁸* is at right angles with the line of the hopper *b'* and *b''*. Thus a thick letter may force back the stop *c⁸* by the depression of the spring *cc* and prevent tearing such letter. The arm *c³* and the flat spring *c⁷* forms a letter retaining and automatic releasing timing-stop. In case the letter fails to start quick enough to get into the notch *d* of the cylinder *c* it is acted upon by a vibrating roller *d³*, fixed to one end of a flat spring, and the other end made fast to an arm *d⁴*. (Shown in Fig. 2.) Said arm is

flexibly pivoted at c^4 to hopper b^3 (shown in Fig. 1) and vibrated by a cam d^5 . (Shown in Fig. 2.) The roller d^3 is pressed onto the letter which is against the vertical belt d^2 , and the letter is moved quickly into the notch d in the cylinder c and carried through the cylinders c and c' to the packing-disks d' . The roller d^3 is a permanent part of the machine and always in position to act upon the letter in case it is not advanced quickly enough to reach the notch d in the printing-cylinder.

Between cylinder c' and disk F^7 is a letter trip-arm d^6 , the high part of which is pressed out of the circle of the cylinder c' into the path of the letter by a closed spring d^7 through the lever d^8 . This lever d^8 and the arm which the spring d^7 is fast to are loosely journaled to a shaft, which is solid to the post d^9 . The two are connected together by a spiral spring 5, (shown in Fig. 2,) wound around said shaft with one end fastened to the post d^9 and the other to the lever d^8 . Nominally they move together, but when the post d^9 is locked in notch of lever F the lever d^8 can be pressed farther by the vibrating arm c^3 when there is a letter between said arm and letter trip-arm d^6 . Lever d^8 , being under the influence of spiral spring 5, (shown in Fig. 2,) yields to the pressure of letter trip-arm d^6 and prevents tearing the letter.

The levers F and F' are pivoted at F^2 . Lever F' has a fixed shaft F^3 , and on said shaft a cam F^4 is loosely mounted. Lever F surrounds this cam and carries a roll F^5 , which is kept in contact with the cam F^4 by a spring F^6 . Cam F^4 has a shank that drops down out of lever F onto the disk F^7 and is rotated by said disk, which is fast to the impression-roll shaft F^8 in Fig. 3. This cam-shank has a slot in it and a roll studded to the disk F^7 . The slotted shank F^9 of the cam rests on the disk F^7 with the roll in the slot and the cam and disk move together, as shown in Fig. 3. The slot in the shank of the cam provides for independent movement between the disk and the cam center or fulcrum. The lever F' has a connecting-rod g and an adjusting-nut g' . This rod is joined to a walking-beam g^2 . (Shown in Fig. 3.) This beam is fulcrumed off its center to an arm g^3 , (shown in Fig. 1,) which is studded at g^4 to the frame a and is free to move on said stud. On each end of beam g^2 there are swiveled joints g^5 and g^6 . Connected with g^6 is a rod g^7 , pivoted to the swinging frame c^2 , (shown in Fig. 3,) which carries the impression-roll c' and disk F^7 and cam F^4 , which is on a fixed shaft in lever F' . Lever g^3 has a round rod g^9 pinned to its end, on which beam g^2 in Fig. 3 is fulcrumed. This rod has an adjustable stop H . Said stop is for the purpose of striking the frame so as to maintain the proper position of the fulcrum of the walking-beam g^2 and limiting the action of the spring H' , which is fast to the frame. Lever F' also has a round rod H^2 pinned to its end, and a spring H^3 is fastened to the end of said rod and to the frame

a . Stop H^4 , set in the frame, limits the movement of lever F' . The feed-belt b is constantly traveling toward the printing-cylinders c and c' . The cylinders are also turning in the direction shown by the arrows, as are also the packing-disks d' . When no letter is in the hopper to work the machinery, the letter trip-arm d^6 and lever d^8 and post d^9 remain in the position shown in Fig. 1. The lever F' is held to its inward limit toward the printing-cylinder by a spring H^3 . By adjusting the nut g' , which has a right and a left thread, the rod g is made to locate the impression-roll c' through the beam g^2 and rod g^7 . By shortening the rod g a thirty-second of an inch the long end of beam g^2 is moved nearly double the distance. The impression-roll c' is moved away from the printing-cylinder c and keeps the pad from taking ink from the marking-die. Thus the cylinders revolve apart. While the machine is thus running without letters the arm c^3 is moving to and from the spring c^7 at each revolution of the printing-cylinder.

The end of the arm c^3 is forked, so it passes over the high part of the letter trip-arm d^6 and does not move it or the post d^9 . Impression-roll c' and the disk F^7 are turning the cam F^4 . On the face of the said cam there is a depression which imparts a movement to the lever F . Said cam being in contact with the roll F^5 , located on said lever, lever F' being held by spring H^3 , all the movements produced by the cam F^4 must be made by the notch end of lever F . This movement takes place at every revolution of the printing-cylinders.

We will now explain what takes place when a letter is dropped into the hopper. The letter moves toward the printing-cylinders. If it approaches them out of time, or after the opening d in the printing-cylinder has passed the center of the impression-cylinder, then the arm c^3 will be closed to the spring c^7 and the letter will be held until the opening in the printing-cylinder has revolved around so as to make an opening between the cylinders. Then the arm c^3 is drawn away from c^7 by the spring c^6 and the letter is released. At this instant the intermittent roll d^3 pinches the letter onto the moving belt d^2 and causes the letter to start quickly into the opening notch or space between the printing-cylinders against a timing-stop c^8 . This operation times the letter to the printing device so the cancellation of the stamp will be assured and the postmark in the proper place. As soon as the letter gets into or between the cylinders then the arm c^3 moves to close with the spring c^7 and clamps onto the letter. The letter having got between the letter trip-arm d^6 and the arm c^3 the letter trip-arm d^6 is pressed back onto d^3 , which causes the post d^9 to move into the notch on lever F . The depression on the face of the cam F^4 allows the spring F^6 to raise the notch on lever F , so the post d^9 can enter said notch. The post d^9 is now

in the notch. The high point on cam F^4 now comes in contact with the roll on lever F , which has its notch end resting on the post d^9 . Now the lever F cannot move, so the cam F^4 and its support, the lever F' , must move back, F' being connected with the short end of walking-beam g^2 . (Shown in Fig. 3.) This movement must tip the beam over the fulcrum g^9 and push the impression-roll into contact with the letter, and the same be printed upon. By this operation the letter is post-marked, the stamp canceled, and the letter stacked by the disks d' .

If there is no letter carried into the printing-cylinders at the next revolution of the same, then the letter trip-arm d^6 , lever d^8 , and post d^9 will resume their former position, reset by the spring d^7 . The post d^9 is out from under the notch in the lever F , and the lever F goes on with its movements, while lever F' has been drawn forward to its normal position by the spring H^3 . This movement of lever F' tips the beam g^2 back and moves the impression-cylinder away from the marking-die when no letter is there to protect it from inking and soiling its surface. In the printing-cylinder circle c in Fig. 1 is shown in dotted lines a square die K^0 , carrying type. A pin K is inserted into said die held in this position by a lever K' with a spring K^2 at its back. A spiral spring K^3 is shown at the back of die K^0 , which pushes the die K^0 out when the pin K is drawn out of the die K^0 , all inside and between the disks or tread of the cylinder. When a thick letter comes between the printing-rolls, then the long end of the beam g^2 , which is tied to the impression-roll frame c^3 , must move back. This movement will cause the large spring H' to yield, and the fulcrum of the beam g^9 will move also on its pivoted end g^4 . By this arrangement thick and thin letters are provided for and properly handled.

By the use of the walking-beam g^2 and the movement of the cam F^4 , applied to the short end of the beam g^2 , the impression-roll is moved away from the printing-cylinder a proper distance by the use of a very small de-

pression on the face of cam F^4 , which is very desirable.

Having described our invention, we claim as follows:

1. In a mail-marking machine, the combination of a hopper, a horizontal and a vertical carrying-belt therein, a vibrating arm c^3 , one end of which is pivoted to a rigid support and the other end is slotted and located so as to permit it to vibrate into the circle of the printing-cylinder and above said cylinder, means for vibrating said arm, a letter trip-arm, one end of which is loosely pivoted to a rigid support and the other end extends into the path of the letter and is adapted to move a lever d^8 , which is fixed to post d^9 , a timing-stop, an impression-cylinder, a cam and connections for vibrating said cylinder, a continuously-rotating printing-cylinder having a portion of its periphery cut away in advance of the canceling-marker.

2. In a mail-marking machine, the combination of a hopper, a horizontal and a vertical carrying-belt therein, a vibrating arm c^3 one end of which is pivoted to a rigid support and the other end is slotted and located so as to permit it to vibrate into the circle of the printing-cylinder and above said cylinder, means for vibrating said arm, a letter trip-arm one end of which is loosely pivoted to a rigid support and the other end extending into the path of the letter and adapted to move a lever d^8 which is fixed to post d^9 , a timing-stop, an impression-cylinder, a cam and connections for vibrating said cylinder, a continuously-rotating printing-cylinder having a portion of its periphery cut away in advance of the canceling-marker, an intermittently-vibrating roll for clamping the letter onto the vertical belt to force the letter up to the stop, means for vibrating said roll.

Montreal June 22, 1896.

MARTIN VAN BUREN ETHRIDGE.
JOHN BROOKS YOUNG.

In presence of—

HARRISON B. YOUNG,
A. D. CARROLL.