

(No Model.)

4 Sheets—Sheet 1.

T. LEAVITT.
POSTMARKING AND CANCELING MACHINE.

No. 464,329.

Patented Dec. 1, 1891.

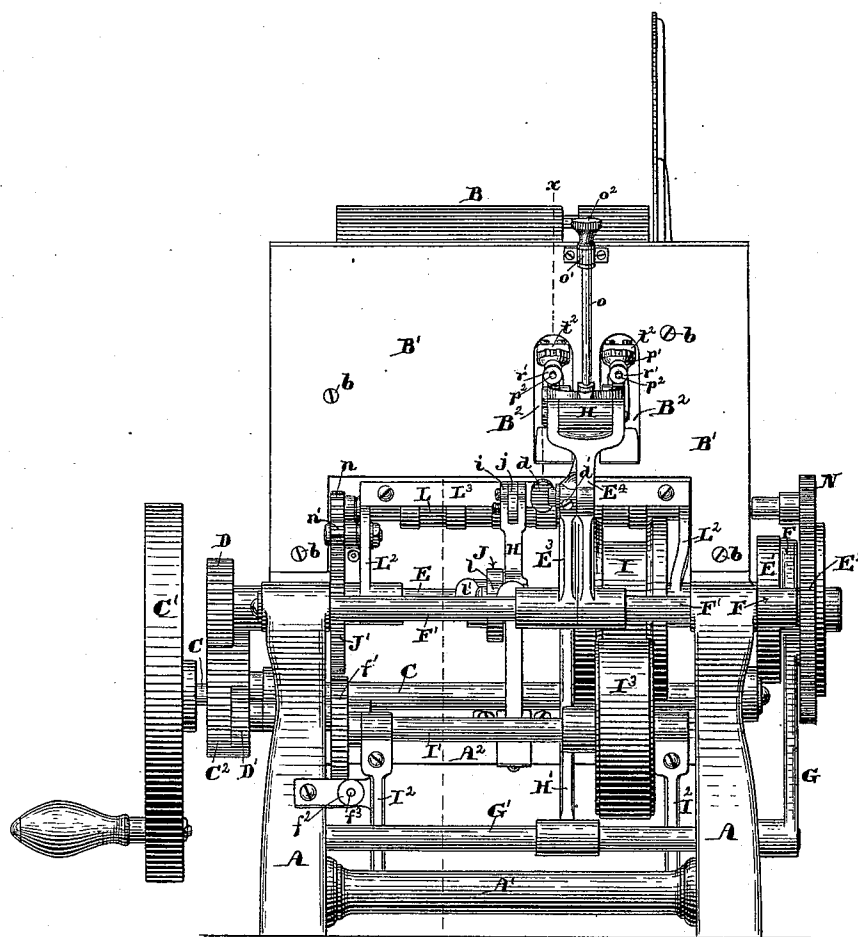


Fig. 1.

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Robert B. Edes.

Inventor:
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by N. C. Lombard
Attorney.

4 Sheets—Sheet 2.

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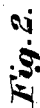


Fig. 3.

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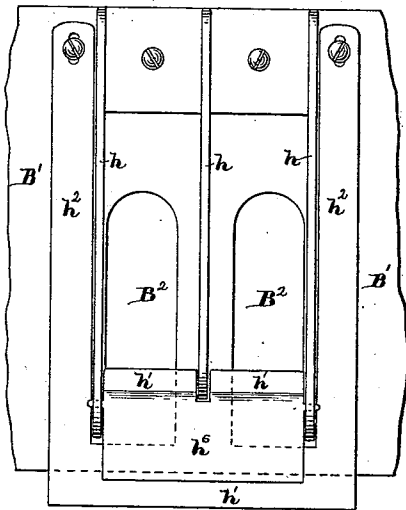


Fig. 4.

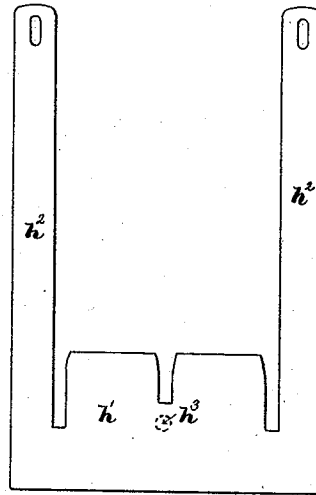


Fig. 5.

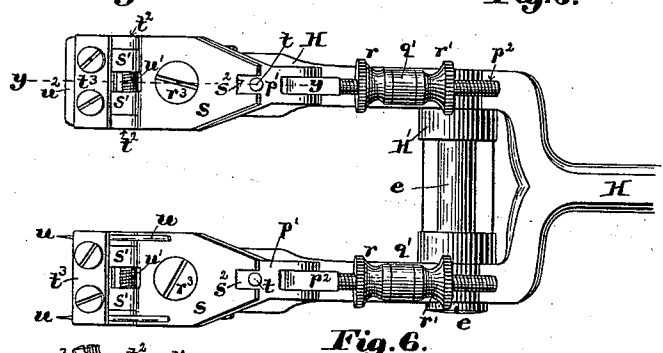


Fig. 6.

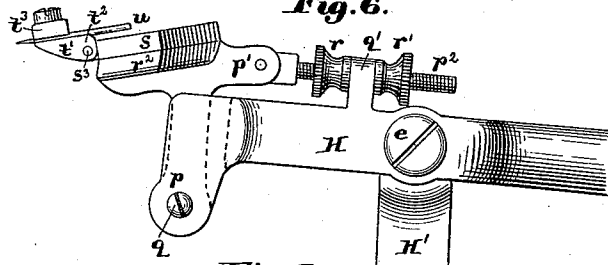


Fig. 7.

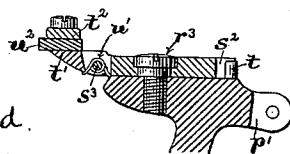


Fig. 8.

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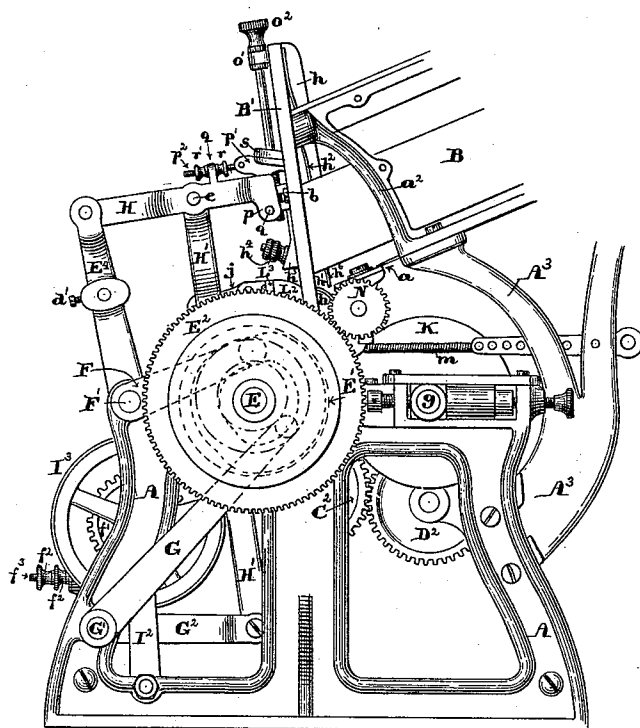


Fig. 9.



Fig. 10.

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UNITED STATES PATENT OFFICE.

THOMAS LEAVITT, OF EVERETT, MASSACHUSETTS, ASSIGNOR TO THE
AMERICAN POSTAL MACHINES COMPANY, OF PORTLAND, MAINE.

POSTMARKING AND CANCELING MACHINE.

SPECIFICATION forming part of Letters Patent No. 464,329, dated December 1, 1891.

Application filed February 4, 1891. Serial No. 380,170. (No model.)

To all whom it may concern:

Be it known that I, THOMAS LEAVITT, of Everett, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Postmarking and Canceling Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to postmarking and canceling machines, and is an improvement upon the machines described in the Letters Patent Nos. 219,586 and 235,952, granted to me September 16, 1879, and December 28, 1880, respectively; and it consists in certain novel features of construction, arrangement, and combination of parts, which will be readily understood by reference to the description of the drawings, and to the claims hereinafter given, in which my invention is clearly pointed out.

Figure 1 of the drawings is a front elevation of a machine embodying my invention. Fig. 2 is a side elevation of the same with the driving-wheel removed. Fig. 3 is a partial vertical section on line *xx* on Fig. 1. Fig. 4 is an elevation of a portion of the end plate of the hopper and the yielding throat-plates, looking toward the right of Figs. 2 and 3. Fig. 5 is an elevation of the main yielding throat-plate detached from the machine. Fig. 6 is a plan of a portion of the feed-lever with the two feed-pawls mounted thereon. Fig. 7 is a side elevation of the same parts. Fig. 8 is a partial section of the feed-pawl and its carrier on line *yy* on Fig. 6. Fig. 9 is a partial elevation of the side of the machine opposite to that shown in Fig. 2; and Fig. 10 is an elevation of the wedge *h*⁵, looking toward the hopper. Figs. 4, 5, 6, 7, 8, and 10 are drawn to an enlarged scale.

In the drawings, A A are the side frames of the machine connected together by the tie-rods A' and A² and the throat-plate *a* and having secured to their rear edges the brackets A³, only one of which is shown. To the upper ends of said brackets A³ are secured the stands *a*' and *a*² and the supports for the bottom and side of the inclined hopper B, the end plate B' of which is secured to the front ends of the stands *a*' and *a*² and to the frames A A by the screws *b*, as shown in Figs. 1 and 2.

C is the driving-shaft mounted in bearings in the frames A, and having secured thereon the fly-wheel C' and the spur gear-wheel C², which meshes into and imparts motion to the spur gear-wheels D, D', and D², as shown in Fig. 2. The gear-wheel D is secured upon the end of the shaft E, mounted in suitable bearings in the frames A and having secured upon its opposite end outside of the frame A the cam-disk E' and the spur gear-wheel E², said disk E' having formed therein a cam-path (shown in dotted lines in Fig. 9) which acts upon a truck mounted on a stud set in the end of the lever F firmly secured on the end of the rocker-shaft F' so as to vibrate said lever and oscillate said shaft, and the inner face of the spur gear-wheel E², having formed therein a cam-path (also shown in dotted lines in Fig. 9) which in like manner acts upon the free end of the lever G, secured upon the rocker-shaft G', so as to vibrate said lever and oscillate the shaft G'. The shaft F' has firmly secured thereon between the frames A A the arm E³, and also has loosely mounted thereon contiguous to said arm E³ the lever E⁴, which is adjustably secured to said arm by means of the clamping-screw *d* and the set-screw *d*', and is pivoted at its upper end to the feed-lever H, which in turn is connected at *e* to the upper end of the link H', the lever end of which is pivoted to the movable end of the lever G², firmly secured upon the shaft G', between the frames A, as shown in Figs. 1 and 3. The shaft E also has secured thereon between the frames A A the type-cylinder I, the cam J, and the spur gear-wheel J', as shown. The gear-wheel D' is secured upon one end of the short shaft *e*', mounted in a bearing in the left-hand frame A and having secured to its opposite end, just inside the frame A, the spur gear-wheel *f*, which meshes into the back side of and imparts motion to the spur gear-wheel *f*', secured upon the shaft I', mounted in bearings in the upper ends of the radius, arms I² I³, which are held in adjusted position by the screw-stem *f*³ and the nut *f*², and said shaft has secured thereon the inking-roll I³, as shown in Figs. 1, 2, and 3.

K is the impression-cylinder mounted upon the shaft *g*, which has secured thereon the

gear-wheel g' , which engages with and has motion imparted thereto by the gear-wheel D^2 .

The end plate B' of the hopper has formed upon its inner side a series of inwardly-projecting ribs h , and has secured to said inner face the yielding throat-plate h' , having the spring-arms h^2 h^3 , as shown in Fig. 5.

So far as above described, except as to the cam J and the gear-wheel J' , the machine is substantially the same as described in my 1880 patent before cited.

In my 1879 patent before cited I used a pair of feed-rolls for presenting the letter or card to the action of the type and impression cylinders, one of which rolls was mounted in fixed bearings and had a positive and constant rotary motion imparted thereto, while the other roll was mounted in movable bearings, but was pressed constantly into contact with said first-mentioned roll or the letter or card being passed between them and was rotated only by friction, said roll yielding to permit the letter or card to pass between the two rolls. This arrangement I have found in practice to be somewhat unsatisfactory, because of the fact that occasionally the grip upon the letter or card would not be sufficient to insure the delivery of said card or letter to the type and impression cylinders at the proper time to place the canceling-marks at the right place thereon. To obviate this objection in my present invention, I mount the rear feed-roll L and operate it in the same manner as described in my before-cited 1879 patent; but the front feed-roll L' , I mount in bearings in the upper ends of the radius-arms L^2 L^3 , mounted loosely upon the shaft E and connected together at their movable ends by the bar L^4 , which is provided at the middle of its length with a pair of ears i i' , to which is pivoted one end of the link j , the opposite end of which is pivoted to the upper end of the lever M , having its fulcrum at k and carrying the roll L , mounted upon the adjustable stud U in proper position to be acted upon by the cam J to move said roll L' away from the roll L , said cam being so shaped and timed as to hold said roll L' in said retracted position till the lower end or edge of the letter or card being fed downward by the feed-pawls has reached the level of the axes of said rolls, when the roll L' is moved into contact with the letter or card by the tension of the springs m , the front ends of which are connected one to the upper end of each of the radius-arms L^2 L^3 , as shown in Figs. 1, 2, and 3. A positive and constant rotary motion is imparted to said roll L' at all times when the driving-shaft C is being revolved by means of the pinion n , secured on said roll, and the intermediate gear-wheel n' engaging therewith upon one side, and with the gear-wheel J' upon the other side, as shown in Figs. 1 and 2.

Rotary motion is imparted to the roll L by the action of the teeth of the gear-wheel E^2

upon the teeth of the pinion N , said gear and pinion being so proportioned relative to the proportions of the gear J' and pinion n that the peripheries of the rolls L and L' shall move at the same speed. By this construction and operation of the feed-rolls a uniform and certain presentation of the letters and cards to the action of the type and impression cylinders is assured.

In the machine shown and described in my before-cited 1880 patent the yielding throat-plate was so constructed and arranged that when in its normal position its inner surface, at or near its lower edge, was in contact with the edge of the fixed throat-plate, and was not adjustable except to press it harder toward said fixed throat-plate and thus increase its tension. This was found to be a source of unreliability, and to obviate it I have set in the yielding throat-plate h' the curved screw-stem h^3 , which projects through an opening in the plate B' toward the front of the machine, and has fitted thereon the thumb-nut h^4 , between the inner surface of which and the plate B' is mounted, so as to be movable vertically, the plate h^5 , the lower end of which is made in the form of a blunt wedge and is forked to permit the passage of the stem h^3 . The upper end of plate h^5 has a threaded hole formed therein, into which is fitted the threaded lower end of the spindle o , mounted in a bearing in the stand o' , secured to the front side of the plate B' near its upper edge and having secured to its upper end the milled head o^2 , by which it may be rotated to raise or depress the wedge-plate h^5 for the purpose of adjusting the yielding throat-plate to a greater or less distance from the edge of the fixed throat-plate, which may be done while the machine is in operation.

Instead of a single feed-pawl or frictional feed-bar, as shown and described in my before-cited Letters Patent, I now bifurcate the inner end of the lever H and provide each arm thereof with a pair of downwardly-projecting ears p , between which is fitted the T-shaped lever p' , which is pivoted thereto at q , the outer end of each of said levers p' having pivoted thereto a threaded rod p^2 , which projects through a smooth hole in the ear q' on the lever H , and has fitted thereon—one upon each side of said ear—the adjusting-nuts r and r' . The inner arm of the lever p' is expanded laterally, as shown at r^2 , Fig. 7, and has loosely pivoted thereto by the screw-pivot r^3 the plate s , provided at its inner end with the ears s' s' and at its outer end with an open slot s^2 , into which projects the pin l , set in lever p' and having a diameter somewhat less than the width of the slot s^2 , as shown in Fig. 6. The inner ends of the ears s' s' are inclined to a perpendicular and have pivoted thereto by the pin s^3 the feed-bar U' , having an ear t^2 at each end and having its outer edge between said ears inclined to the same bevel as the inner ends of the ears s s ,

against which it abuts, to serve as a stop to limit the upward movement of the bar t' relative to the plate s .

To the upper surface of the bar t' is secured the cap-plate t^3 , between which and the bar t' are secured the two needle-like feeding-points u , as shown in the lower half of Fig. 6 and in Fig. 7, or a piece of sheet-rubber u^2 , as shown in the upper half of Fig. 6 and in Fig. 8, which points or rubber serve to engage the forward letter or card in the hopper to feed it down between the fixed and yielding throat-plates. A coiled spring u' is wound around the pin s^3 and is connected at one end to the plate s and at the other end to the bar t' in such a manner that its tension tends to maintain the bar t' in its normal or raised position in contact with the inclined ends of the ears s' , while it will yield to permit the feed-bar to move about its pivotal axis when the feed-rolls have seized the letter and are moving it downward faster than the pawls are moving by the action of the lever H , so as not to injure the letter or card. The object of pivoting the plate s and allowing a slight movement thereof about said pivot is to permit a slight lateral movement of the feed-pawl, so that it may accommodate itself to any unevenness in the surface of the letter due to an increased thickness of material in one end of the envelope. The feed-bars or frictional feeding-surfaces carried by the inner ends of the lever H have imparted thereto, by means of the cams E' and E^2 and the levers F , G , E^3 , and G^2 , the link H' , and the rocker-shafts F' and G' , four motions—viz., a forward motion, a downward motion, a backward motion, and an upward motion. The plate B' , forming the front end of the hopper, has cut through it the two slots B^2 B^2 for the passage of the feed-pawls, as shown in Figs. 1, 3, and 4. A thin curved plate h^6 is pivoted near its upper edge to two of the ribs h of the plate B' , and bears at its lower edge against the inner surface of the throat-plate h' , as shown in Figs. 2 and 4.

The letters and cards to be canceled and the follower for pressing them toward the front and into contact with the ribs h of the plate B' are not shown in the drawings, because the letters and cards are arranged in the hopper and the follower is constructed and operates precisely as shown and described in my before-cited 1880 patent.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In combination with a pair of printing-cylinders and a hopper arranged above said cylinders and provided with a throat for the passage of the letters to be canceled, a pair

of positively-revolved feed-rolls, one of which is mounted in movable bearings, a cam constructed and arranged to move said bearings and the roll mounted therein toward and from the other roll of the pair, and mechanism for feeding the letter or card through the throat of the hopper and into the bite of said feed-rolls, comprising the forked lever H , the T-shaped levers p' , pivoted to the inner forked ends of said lever H , the pivoted bars t' , secured to said levers p' and each provided with engaging points or frictional surfaces, springs to maintain said bars t' in their normal positions relative to the levers p' , the levers F , G , E^4 , and G^2 , the link H' , the rocker-shafts F' and G' , and the cams E' and E^2 , all constructed, arranged, and adapted to operate substantially as described.

2. The combination, with the spring throat-plate h' , provided with the screw-stem h^3 , of the nut h^4 , the wedge-plate h^5 , and the screw-spindle o , all constructed and arranged to operate substantially as described.

3. The combination of the cam-disks E' and E^2 , the levers F and G , the rocker-shafts F' and G' , the levers F^4 , G^2 , and H , the link H' , the T-shaped lever p' , pivoted to the inner end of the lever H and adjustable about its pivot, the plate s , pivoted to said lever p' so as to be movable laterally thereon, a stop to limit said lateral movement, the feed-bar t' , connected to said plate s by a stop hinge-joint and provided with letter-engaging points or frictional surfaces, and a spring constructed and arranged to maintain said pawl-bar in its normal or raised position and to yield when the feed-rolls are acting upon the letter or card, substantially as described.

4. In a postmarking and canceling machine, the combination of a pair of printing-cylinders, a hopper for receiving the letters or cards to be stamped, a pair of positively-revolved feed-rolls between said hopper and printing-cylinders, and a four-motion feeding device provided with a stop-hinge pivoted feed, constructed and arranged to engage the front letter or card in the hopper and feed it between the feed-rolls and then yield downward as the letter or card is seized and drawn away by the feed-rolls, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 30th day of January, A. D. 1891.

THOMAS LEAVITT.

Witnesses:

N. C. LOMBARD,

WALTER E. LOMBARD.