

(No Model.)

3 Sheets—Sheet 1.

E. WOODWARD.
MACHINE FOR MARKING MAIL MATTER.

No. 469,004.

Patented Feb. 16, 1892.

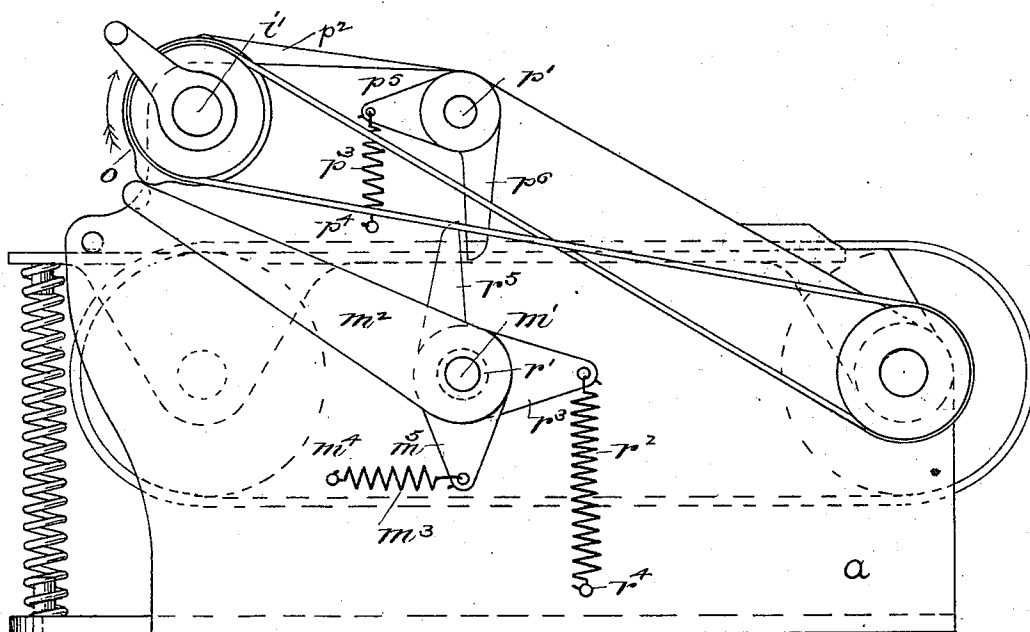


Fig 1.

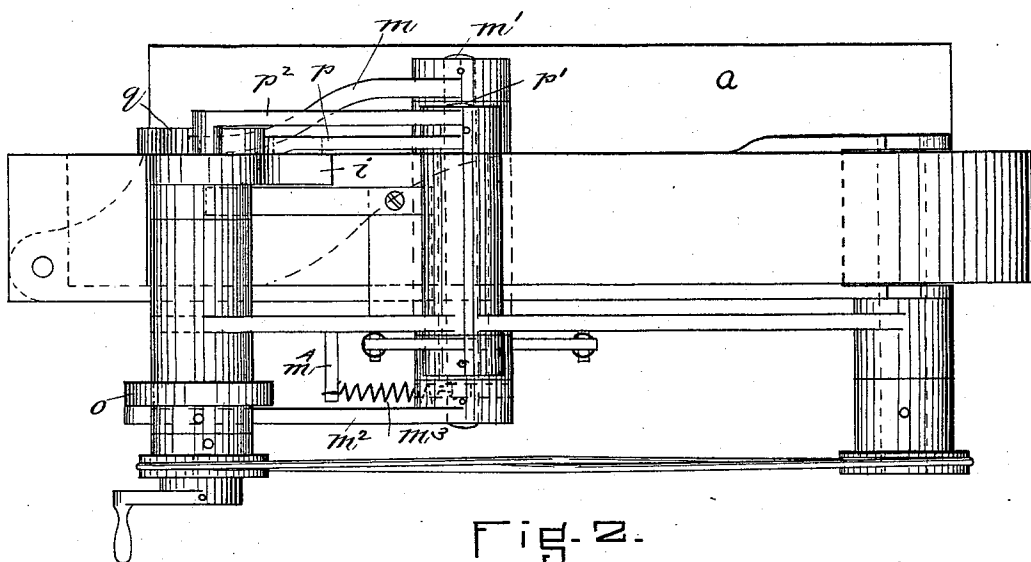


Fig-2.

WITNESSES.

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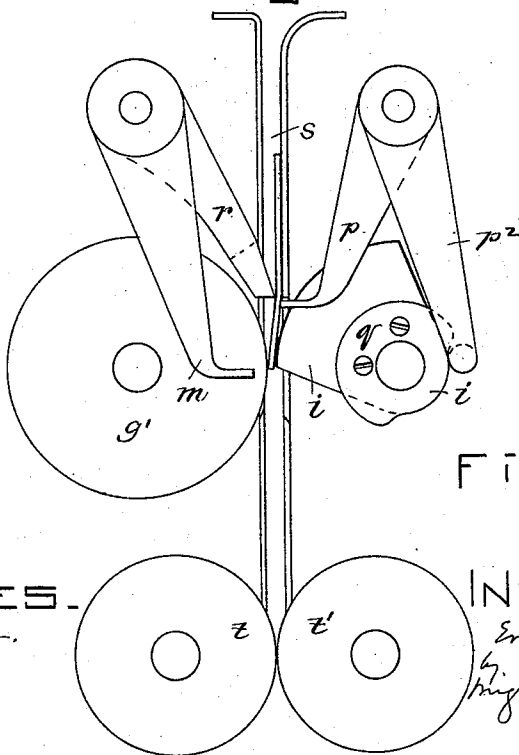
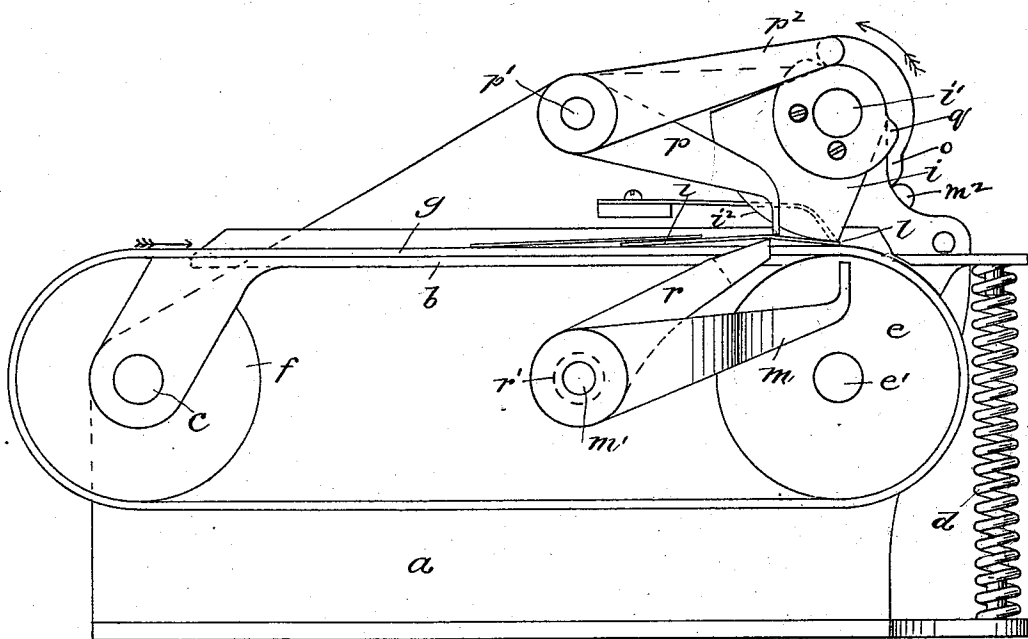
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3 Sheets—Sheet 3.

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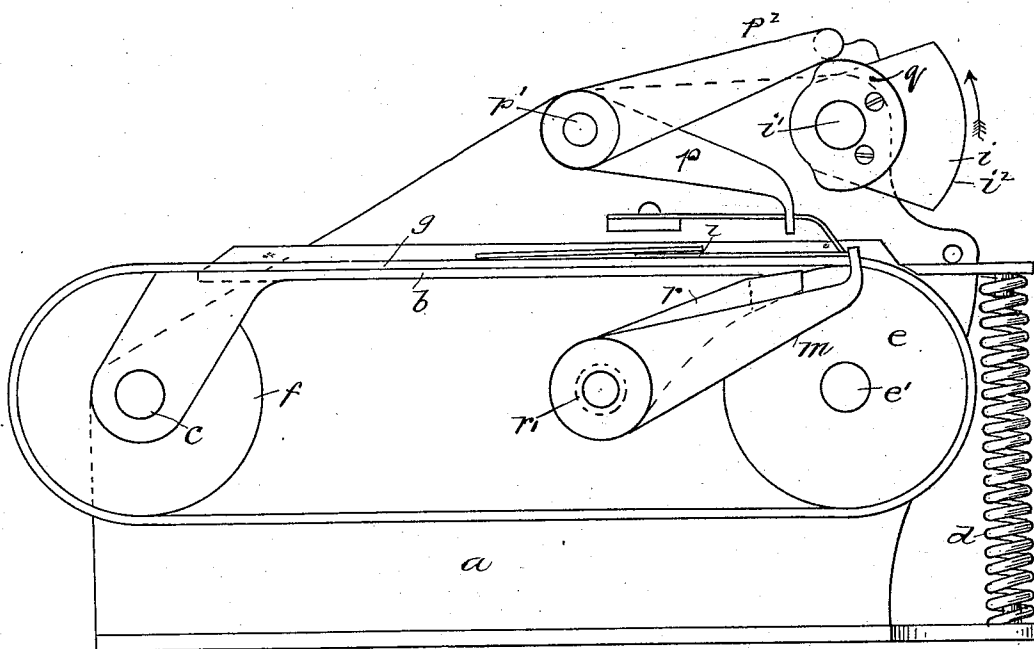


Fig. 5.

WITNESSES.

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UNITED STATES PATENT OFFICE.

ERASTUS WOODWARD, OF SOMERVILLE, ASSIGNOR TO BARRETT
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MACHINE FOR MARKING MAIL-MATTER.

SPECIFICATION forming part of Letters Patent No. 469,004, dated February 16, 1892.

Application filed April 30, 1891. Serial No. 391,043. (No model.)

To all whom it may concern:

Be it known that I, ERASTUS WOODWARD, of Somerville, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Machines for Marking Mail-Matter, of which the following is a specification.

This invention relates to machines for printing postmarks and cancellation-marks on pieces of mail-matter, in which the pieces to be marked are passed one at a time between a printing roll or member and an impression member.

The invention relates, particularly, to the means for insuring the passage of only one piece at a time between said printing and impression members, the object of the invention being to insure the proper printing of each piece, and to prevent such interference with the proper printing as might be caused if one letter was superposed upon or overlapped another in passing between the printing and impression members.

The invention consists, chiefly, in the combination, with two parts or members which are adapted to intermittently grasp and move forward the letter or other piece of mail-matter, and are separated after their action on each piece, of a stop which is adapted to arrest the letter at a given point between the said feeding members when the latter are separated, thus arresting the letter in position to be grasped by said feeding members when they become operative, said stop being retracted and permitting the letter to be moved onward when grasped by said feeding members, and another stop which is arranged in advance of the point where a letter is grasped by said feeding members, and is adapted to arrest a succeeding letter while said feeding members are co-operating in moving a letter grasped by them, thus preventing more than one letter from reaching said feeding members at the same time, the last-mentioned stop being made inoperative to permit the access of the letter retained by it to the space between the said feeding members when the latter are separated.

In the accompanying drawings, forming a part of this specification, Figure 1 represents a side elevation of a portion of a machine embodying my invention.

Fig. 2 represents a top view of the same. Fig. 3 represents an elevation of the side opposite that shown in Fig. 1. Fig. 4 represents a side view of a modification. Fig. 5 represents a view similar to Fig. 1, showing the parts in different position.

The same letters of reference indicate the same parts in all the figures.

In the drawings, referring first to Figs. 1, 2, 3, and 5, *a* represents a suitable supporting frame or base, and *b* represents a substantially-horizontal table or platform having ears at one end pivotally connected to a shaft *c*, the opposite end of said table being free to rise and fall, and supported by a spring *d*.

e represents a roller or pulley, which is mounted upon a shaft *e'*, journaled in bearings on the table *b*. *f* represents a similar pulley, which is mounted upon the shaft *c*.

g represents an endless band or letter-carrier, which is mounted to run upon the pulleys *e f*, the upper portion of said band being above the table *b*.

i represents a segmental roller, which is affixed to a shaft *i'*, journaled in fixed bearings on the supporting-frame, the periphery of said roller being concentric with said shaft. The arrangement of the segmental roller *i* is such that when the roller rotates its periphery alternately approaches and recedes from the portion of the band *g* that is supported by the highest part of the pulley *e*. When said periphery is at its nearest approach to said band, it co-operates with the band in grasping and moving forward a letter *l*, which may be resting upon the band. When the periphery of the segmental roller passes from the band, a space or opening exists above the band for the reception of another letter.

m represents an arm, which is affixed to a rock-shaft *m'*, and is adapted to be oscillated so that its outer end, which is bent upwardly, as shown in Fig. 3, will alternately stand below the highest part of the band *g*, as shown in Fig. 3, and above the same, as shown in Fig. 5. When the arm *m* is raised above the band *g*, its upper end stands in position to arrest the forward end of the letter *l* at the point where the periphery of the roller *i* first

commences to co-operate with the band *g* in grasping the letter. The arm *m* is oscillated vertically by means presently described, and its movements are so timed relatively to those of the rotation of the segmental roll *i* that when the said roll is separated from the band *g*, as above described, the arm *m* is raised and constitutes a stop to arrest the forward end of the letter, so that it cannot advance beyond the point where the periphery of the roll commences to grasp it. At the moment that the periphery of the roll *i*, moving in the direction indicated by the arrow in Fig. 3, strikes the letter *l* and commences to co-operate with the band *g* in moving the letter progressively, the arm *m* is depressed below the band *g*, so that it no longer obstructs the letter, but permits the free movement thereof by the conjoint action of the roll *i* and the band *g*. It will be seen, therefore, that the arm *m* determines or times the movement of each letter out from between the roll *i* and band *g*, and for this reason I call said arm a "timing-out stop."

The arm or timing-out stop *m* may be given the described oscillating movements by any suitable means, the means here shown being as follows: The rock-shaft *m'*, supporting the arm *m*, is journaled in a fixed bearing in the frame of the machine and has affixed to it at the end opposite that which supports the arm *m* another arm or lever *m²*, which is held by a spring *m³* against a cam *o*, affixed to the shaft *i'*, which carries the segmental roll, said spring *m³* being secured at one end to a fixed stud *m⁴* and at its forward end to a short arm *m⁵*, affixed to a rock-shaft *m'*. The cam *o* is formed to alternately raise and depress the arm *m²* and with it the stop-arm *m*, the latter being thus alternately raised and depressed, as above described.

To prevent the access of more than one letter at a time to the point where the roll *i* co-operates with the band *g*, I provide a device to time the entrance of the letters to the space between the roll *i* and the band *g* when the periphery of the roll is separated from the band, and I term said device a "timing-in stop." Said timing-in stop is here shown as an arm *p*, affixed to a rock-shaft *p'*, which is journaled in suitable fixed bearings and is provided with another arm *p²*, which is held by a spring *p³* against the periphery of a cam *q* on the shaft *i'*, the spring *p³* being attached at one end to a fixed stud *p⁴* and at its other end to an arm *p⁵*, affixed to the rock-shaft *p'*. The timing-in stop *p* is alternately raised and depressed by the means described, and when depressed bears on or is in close proximity to the upper surface of the letter *l*, which is grasped by the roll *i* and band *g*, as shown in Fig. 3, the stop being depressed to said position at the moment that the roll *i* commences to co-operate with the band *g* in feeding a letter, and remaining in said position during the entire period of co-operation of said roll and band. After the segmental periphery of

the roll *i* has been separated from the band by the rotation of the roll and the timing-out stop has been raised to arrest a letter entering between said band and roll the timing-in stop is raised to permit the passage of the letter last arrested by it forward to the timing-out stop, the timing-in stop being raised long enough to permit one letter to pass under it and then depressed to form a barrier for the succeeding letter, the letters being fed into the machine so that they follow one another in a procession, as usual in machines of this class. It will be seen that the timing-out stop accurately determines the position of each letter with reference to the roll *i* and insures the contact of the periphery of said roll with the letter at a uniform point in all the letters that are passed through the machine, so that in case the printing mechanism is affixed to or formed on the roll *i*, as may be the case, the printing will be commenced on each letter at a uniform distance from the advancing end thereof, so that there will be no uncertainty or variation in the location of the marks printed on the letters. The same result will be produced in case the printing-roll is separate from the segmental roll *i*, as shown in Fig. 4, hereinafter described, in which case the advantage gained by the employment of the timing-out stop will be due to the fact that it causes the intermittently-feeding devices to present each letter to the printing devices at a given point, thus insuring the printing of each letter at a uniform distance from its advancing end. It will also be seen that the timing-in stop, by preventing the access of more than one letter at a time to the point where the periphery of the roll co-operates with the band *g*, prevents any possibility of imperfect printing arising from the overlapping of one letter upon another during the printing operation.

I have shown in Fig. 3 an auxiliary device co-operating with the timing-in stop, said device being an arm *r*, arranged at the opposite side of the path through which the letters travel from the timing-in stop, so as to bear against or be in close contact with the under side of the letter that is passing under the timing-in stop, as shown in Fig. 3. Said arm *r* is attached to a sleeve *r'*, (shown in dotted lines in Figs. 1 and 3), said sleeve being mounted upon the rock-shaft *m'* and free to rotate independently thereon. The spring *r²*, attached at one end to an arm *r³* on the sleeve *r'* and at the other end to a fixed stud *r⁴*, acts to normally press the arm *r* upwardly to the position shown in Fig. 3. The arm *r* is depressed from said position when not in operation by means of an arm *p⁶*, affixed to the rock-shaft *p'*, and another arm *r⁵*, affixed to the sleeve *r'*, said arm *r⁵* being arranged to be moved by the arm *p⁶* when the rock-shaft *p'* is moved in the direction required to raise the timing-in stop *p*, the arm being thus given a downward movement. The outer end of the arm *r* constitutes, therefore, a rising and fall-

ing bed, which rises to the position shown in Fig. 3 when the timing-in stop is depressed and constitutes a yielding support, which presses the letter being moved by the roll *i* and band *g* closely against the timing-in stop, and thus prevents another letter from passing under said stop so long as the latter is depressed, the arm *r* being depressed below the band *g* when the timing-in stop is raised.

In the construction above described, the band *g* is a conveyer, which operates in substantially the same way as the band shown in the Ethridge patent, No. 323,799, and in this case the printing-surface may be affixed to the segmental feed-roll *i* or to its shaft *i'*, or may be a part of said roll *i*, said segmental roll and the traveling band *g* constituting letter-feeding members, which alternately grasp and release a letter presented to them and feed a letter forward a predetermined distance while they are grasping it.

My invention is not limited, however, to intermittently-operating feeding or letter-grasping members, it being my intention to cover, broadly, the combination of timing-in and timing-out stops arranged to operate, as above described, in connection with any intermittently-operating letter grasping and feeding devices, whether said devices form parts or include printing mechanism, as would be the case if the printing-form were affixed to the shaft *i'* or are separate from the printing mechanism, as in the construction shown in Fig. 4, which I will next describe.

In Fig. 4 I show the timing-in stop *p* and the timing-out stop *m*, arranged to operate in connection with a cylindrical feed-roll *g'*, taking the place of the band *g*, and a segmental feed-roll *i*, arranged to co-operate with the roll *g'*. Said rolls *g'* and *i* are arranged to act in a vertical letter receiving and guiding throat *s*, into which the letters are dropped, so that they reach the said stops and rolls by gravitation, instead of being carried by a conveyer, as in the construction first described. Below the feed-rolls *g'* and *i* are arranged a printing-roll *t* and an impression-roll *t'*, to which the letters are presented by said feed-rolls, the printing-rolls being positively rotated and caused to positively move the letters forward while printing them. In this case the means for operating the timing-in and timing-out stops may be the same as in the construction shown in Figs. 1, 2, and 3.

I do not limit myself, however, to the means herein shown and described for operating said stops, but may operate the same in any suitable way. Neither do I limit myself to the construction of the intermittently-operating letter grasping and feeding devices here shown, but may use said stops in connection with any devices that are adapted to intermittently close upon and feed a letter and to then separate to permit the free insertion of another letter between them.

I claim—

1. The combination of a letter grasping and feeding device comprising two parts or members which are separated at intervals to permit the free insertion of a letter between their acting surfaces and are brought into operative relation, so as to grasp said letter at a given point, said members having a feeding movement, whereby they are caused to progressively move a letter grasped by them, a timing-out stop arranged to arrest a letter at the point where the acting surfaces of the feeding members first co-operate in grasping the letter, means whereby said stop is moved into the letter-path between said members when the latter are separated and out of said path before the letter is moved by said members, a timing-in stop arranged to arrest a letter before it reaches the point where the feeding members first grasp it, and mechanism whereby said timing-in stop is made operative to arrest a letter while the feeding members are moving a preceding letter and is made inoperative when said feeding members are separated, as set forth.

2. The combination of a progressively-moving letter-conveying belt, a segmental roll, the periphery of which is caused by the rotation of said roll to alternately approach and recede from the carrying-surface of said belt, said periphery being arranged to co-operate with the belt in grasping and progressively moving a letter when at its closest approach to the belt, a timing-out stop which is adapted to arrest a letter between said roll and belt when the same are separated and is retracted when the roll and belt grasp a letter, and a timing-in stop adapted to arrest a letter on the belt at a point in advance of the roll when the latter is in operation, thereby permitting the engagement of two letters at the same time by the belt and roll, said timing-in stop being released and made inoperative when the roll is separated from the belt, as set forth.

3. The combination of two intermittently-operating separable letter-feeding members, a timing-out stop arranged to arrest a letter between said members when they are separated, a timing-in stop arranged to arrest a letter at a point in advance of said members when they are operating, and a movable arm or bed adapted and arranged to yieldingly press a letter against the timing-in stop, as set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 24th day of April, A. D. 1891.

ERASTUS WOODWARD.

Witnesses:

C. F. BROWN,
EWING W. HAMLEN.