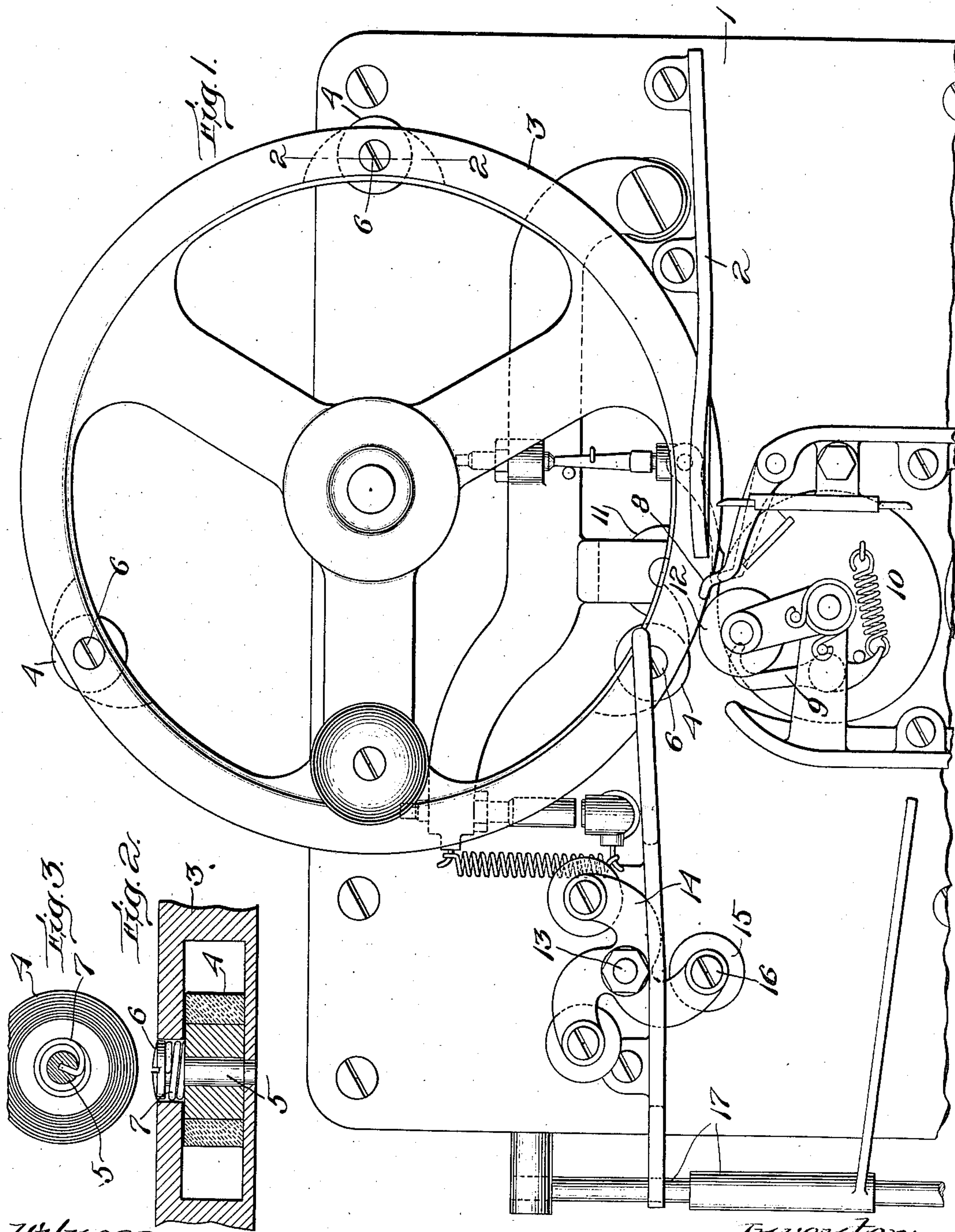


T. G. STODDARD.  
MAIL MARKING MACHINE.  
APPLICATION FILED AUG. 13, 1908.

948,712.

Patented Feb. 8, 1910.



Witnesses:  
M. L. Gilman.  
H. D. McPhail

Inventor:  
Thomas G. Stoddard  
by  
Phillips Han Everett & Fish  
Attys



# UNITED STATES PATENT OFFICE.

THOMAS G. STODDARD, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE AMERICAN POSTAL MACHINES COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MAINE.

## MAIL-MARKING MACHINE.

948,712.

Specification of Letters Patent.

Patented Feb. 8, 1910.

Application filed August 13, 1908. Serial No. 448,290.

*To all whom it may concern:*

Be it known that I, THOMAS G. STODDARD, citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Mail-Marking Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The invention relates to mail marking machines, and more especially to the devices employed in such machines for successively advancing or feeding forward the letters either in separating individual letters from a pack and feeding them to the marking devices, or in feeding forward and stacking the letters as they are delivered from the marking devices.

It has been customary heretofore in certain types of mail marking machines to separate individual letters from the face of a pack by means of letter engaging members which are mounted to travel longitudinally of the face of the pack while in engagement therewith, and advance the letter at the face of the pack by frictional engagement therewith. The letter engaging surface of such feeding devices must apply an effective frictional grip to the surface of the letters in order that they may act properly upon the different letters of a miscellaneous pack, and in case the letters are advanced against a fixed abutment, the ends of the thinner letters are frequently crumpled against the abutment, or the weaker envelopes are torn by the continued travel of the letter engaging surface along the letter after the advance of the letter has been arrested by the abutment. The frictional grip of the letter engaging surface upon the letter will vary with the force with which the letters are pressed against the surface, and careful attention and skill on the part of the operator is required in order that the feeding devices may operate to properly advance the letters, and still not apply a sufficiently heavy frictional grip thereto to injure the letters.

It is the object of the present invention to provide a letter advancing device for acting upon mail matter which will apply an effective grip to the surface of the letters for feeding them forward from or against the face

of the pack without danger of injury to the letters when their advance is arrested by engagement with a stop or abutment or otherwise.

To this end the invention contemplates the provision of a letter advancing device having provision for a relative backward movement of its letter engaging surface when the resistance offered by the letter to its advance increases beyond a certain point. With this construction the surface of the letter engaging member may be of such a character that it will effectively grip the surface of the letter and carry it forward until the further advance of the letter is arrested, and then in case the resistance offered to the sliding of the letter engaging member along the surface of the letter exceeds a certain amount, the letter engaging surface may, during its continued forward travel in engagement with the letter, travel along the letter without slip, the surface having a relative backward travel as the member progresses.

By properly regulating the resistance offered to the relative backward movement of the letter engaging surface of the feeding member, an effective feeding of miscellaneous mail matter may be secured without danger of injury to the letters even when handled by an unskilled or careless operator, since the force applied to the letters by the letter engaging surface will not depend upon the grip of the surface on the letter, and will not vary with the pressure of the letters against the letter engaging surface.

Broadly considered, the invention contemplates the employment of any suitable form and construction of letter engaging member or members having provision for a relative backward movement of its letter engaging surface when the resistance offered to its advance increases beyond a certain point.

In its preferred form the invention contemplates the employment of a letter engaging member, such as a belt or roll, having an endless periphery, and the provision of means for frictionally holding the member from rotation or relative backward movement as it travels in the direction of movement of the letters.

The invention may be embodied in various devices for advancing or feeding forward letters, as, for instance, in devices for separating individual letters from the face of



the pack and advancing them against a timing stop, or to the marking device, or in a device for feeding and stacking the letters as they come from the marking device.

5 The invention will be readily understood from an inspection of the accompanying drawing, in which—

Figure 1 is a plan view of a manually operated mail marking machine provided with letter separating and feeding devices and with letter stacking devices embodying the invention in its preferred form; Fig. 2 is a sectional view on line 2—2, Fig. 1; and Fig. 3 is a detail view of one of the letter engaging members.

In the drawings the invention is illustrated as embodied in a manually operated mail marking machine having the same general construction as the mail marking machine shown and described in Patent No. 891,195, dated June 16, 1908.

In the machine illustrated in the patent above referred to, the individual letters are separated from the face of the pack and advanced against a timing stop by the action of a series of friction feeding pads mounted to project from the periphery of a feed wheel against which the stack is pressed by the operator. In order that the friction pads may have an effective grip upon the letters, these pads are formed of friction material, preferably of rubber. The force with which the friction pads grip the surface of the letter will depend upon the force with which the letter pack is pressed against the periphery of the feed wheel, and it has been found that even when the pack is carefully manipulated by a skilled operator the thinner or weaker letters will frequently be torn and injured by the feeding pads when the forward movement of the letter is arrested by the timing stop, the force with which the feed pads grip the surface of the letter being sufficient to either crumple the letter against the stop, or to tear the envelopes as the feeding pad travels along the letter after it has been arrested by the stop. Difficulty has also been experienced in securing a proper action of the stacking devices which feed the letters forward as they are delivered from the marking devices, and advance them against an end guide or abutment and force them against the face of the pack of letters already stacked. It has been found that if the letter engaging surface or surfaces of the stacking device are of such a character that they will properly advance the successive letters against the abutment or end gage, the frictional grip exerted by the stacking devices on the letters will frequently cause injury to the letters. On the other hand, if the frictional grip of the letter engaging surface or surfaces of the stacking device is decreased, then letters

frequently are not properly advanced against the abutment, and interfere with the proper stacking of the succeeding letters. These defects in the operation of the letter advancing devices are eliminated in the machine shown in the drawing by embodying the preferred form of the present invention in the feed wheel for advancing the letters against the timing stop, and in the stacking device for stacking the letters as they are delivered from the marking devices.

In the machine shown in the drawings the letter pack is supported upon edge on a feed table 1, and the front face of the pack is pressed by the operator against a front guide wall 2, the forward end of the latter at the face of the pack resting against the periphery of the feed wheel 3. The feed wheel is provided with a series of letter engaging members 4, the letter engaging surfaces of which project beyond the periphery of the wheel 3. These letter engaging members are in the form of rolls provided with treads of friction material, such as rubber, and these rolls are mounted upon studs 5 secured in the rim of the wheel 3. The studs 5 are provided with heads 6, and springs 7 are interposed between the heads 6 and the ends of the rolls, and serve as means for frictionally holding the rolls from rotation on the studs.

As the wheel 3 is revolved, the letter engaging surface of the roll 4 is brought against the face of the letter pack, and exerts an effective frictional grip on the letter, so that the letter is carried forward until its front end brings up against the timing stop 8. When the advance movement of the letter is arrested by the timing stop, the roll 4 will continue to travel along the letter. If the frictional grip between the surface of the roll and the letter is sufficient to overcome the force with which the roll is held from turning on the stud 5, the roll will rotate during the continued advance of the roll along the letter, so that its letter engaging surface will have a relative backward movement, and the roll will travel along the letter without slip upon the letter. The force required to start the rotation of the roll will be greater than the force required to continue its rotation after it has started, and the feeding force applied to the letter by the roll will therefore be decreased or relieved when the letter brings up against the timing stop or abutment. By properly regulating the force of the springs 7, the force required to rotate the roll may be so regulated that the roll will rotate as it advances before sufficient feeding force is applied to the letter to cause injury thereto, and still a feeding grip between the surface of the roll and the letter may be secured which will insure a proper feeding forward of the letters against the stop.

The letters are carried past the timing stop by a feeding foot 9 mounted on the



marking roller 10, and as they pass between the marking roller and an impression roll 11 they are acted upon by suitable dies carried by the marking roll. The letters are delivered from the marking devices by a delivery roll 12 coöperating with the periphery of the wheel 3, and are advanced into position to be acted upon by a stacking device. As shown, the stacking device is mounted to rotate upon a shaft 13, and is provided with a series of arms 14 carrying letter engaging and advancing members 15. These letter engaging members are in the form of rolls similar to the rolls 4, and mounted upon studs 16 in the ends of the arms in the same manner that the rolls 14 are mounted in the rim of the wheel 3. These rolls are frictionally held from rotation upon the studs 16 by springs similar to the springs 7 interposed between the rolls and the heads of the studs. The action of the rolls as they engage and feed forward the letters against the end gage or abutment 17 is similar to the action of the rolls 4 in feeding the letters against the stop or abutment 8. The rolls, as they engage the face of a letter, carry the letter forward against the abutment 17, and then continue to travel along the face of the letter until they pass out of engagement therewith. If the resistance offered by the letter to the forward travel of the roll 15 is sufficient to overcome the friction on the roll which tends to prevent its rotation, then the roll will be rotated and will roll along the surface of the letter during its continued forward travel in engagement therewith. The force exerted upon the letter by the roll as it travels in the direction of movement of the letter is determined by the force with which the rotation of the roll is resisted, and not by the pressure between the roll and letter, and this force may be regulated so that the rolls will act to properly advance the letters under all conditions without danger of injury thereto. While I prefer to construct the letter engaging members in the form of rolls, as shown and described, it will be understood that this form of letter engaging member is not essential to the broader features of the invention, and may be varied or modified without departing therefrom. It will also be understood that the letter engaging members, whether in the form of rolls or in other forms, may be mounted to travel in the direction of movement or feed of the letters in any suitable manner, the manner of mounting and carrying the letter engaging devices being varied or modified as found desirable and to suit the conditions existing in the machine in which the invention is to be embodied.

Having explained the nature and object of the invention, what I claim is:—

1. A letter advancing device for mail marking machines comprising a letter en-

gaging member mounted to travel bodily in the direction of movement of the letter, and having provision for a relative backward movement of its letter engaging surface when the resistance to its advance exceeds a certain amount, substantially as described. 70

2. A letter advancing device for mail marking machines comprising a letter engaging member arranged to travel bodily in the direction of movement of the letter and provided with an endless periphery, and means for frictionally holding the member from relative backward movement as it travels in the direction of feed in engagement with the letters, substantially as described. 80

3. A mail marking machine, having, in combination, a letter engaging member having a friction letter engaging surface, means for causing the member to travel bodily in the direction of feed in engagement with the surface of the letter, and means for allowing a relative backward movement of the letter engaging surface when the resistance offered to its advance increases beyond a certain amount, substantially as described. 90

4. A mail marking machine, having, in combination, a letter engaging member having an endless letter engaging friction surface, means for causing the member to travel bodily in the direction of feed in engagement with the surface of the letter, and means for allowing a relative backward movement of the letter engaging surface when the resistance offered to its advance increases beyond a certain amount, substantially as described. 100

5. A letter advancing device for mail marking machines provided with a letter engaging member mounted for relative backward movement as it travels bodily in engagement with the letter in the direction of feed when the letter offers more than a predetermined resistance to its advance, substantially as described. 105

6. A letter advancing device for mail marking machines provided with a letter engaging member having a friction letter engaging surface, and mounted for relative backward movement as it travels bodily in the direction of feed in engagement with the letter when the letter offers more than a predetermined resistance to its advance, substantially as described. 115

7. A letter advancing device for mail marking machines provided with a letter engaging member having an endless periphery, and mounted for relative backward movement as it advances bodily in the direction of feed in engagement with the letter when the letter offers more than a predetermined resistance to its advance, substantially as described. 120

8. A letter advancing device for mail marking machines, provided with a traveling roll having a letter engaging periphery, 130



and mounted for relative backward rotation when the letter offers more than a predetermined resistance to its advance, substantially as described.

5 9. A letter advancing device for mail marking machines, provided with a traveling roll having a letter engaging friction surface, and means for frictionally holding the roll against rotation as it advances in the  
10 direction of feed in engagement with the surface of a letter, substantially as described.

10. A mail marking machine, having, in combination, an abutment against which letters are fed, a letter feeding device provided  
15 with a series of letter engaging members arranged to travel in the direction of movement of the letter while in engagement therewith, and having provision for a relative backward movement when the resistance offered to their advance exceeds a pre-  
20 determined amount, substantially as described.

11. A mail marking machine, having, in

combination, an abutment against which the letters are fed, a letter advancing device pro- 25  
vided with a series of letter engaging rolls arranged to travel in the direction of feed while in engagement with the letter, and means for frictionally holding the rolls against rotation about their axes, substan- 30  
tially as described.

12. A mail marking machine, having, in combination, an abutment against which the letters are fed, a letter advancing device pro- 35  
vided with a letter engaging roll arranged to travel in the direction of feed while in engagement with the letter, and means for frictionally holding the roll against rotation on its axis, substantially as described.

In testimony whereof I affix my signature, 40  
in presence of two witnesses.

THOMAS G. STODDARD.

Witnesses:

IRA L. FISH,

ANNIE C. RICHARDSON.