No. 700,586. Patented May 20, 1902.

H. E. WAITE.

MAIL MARKING MACHINE.

(Application filed Jan. 13, 1902.)

(No Model.) 3 Sheets—Sheet 1.

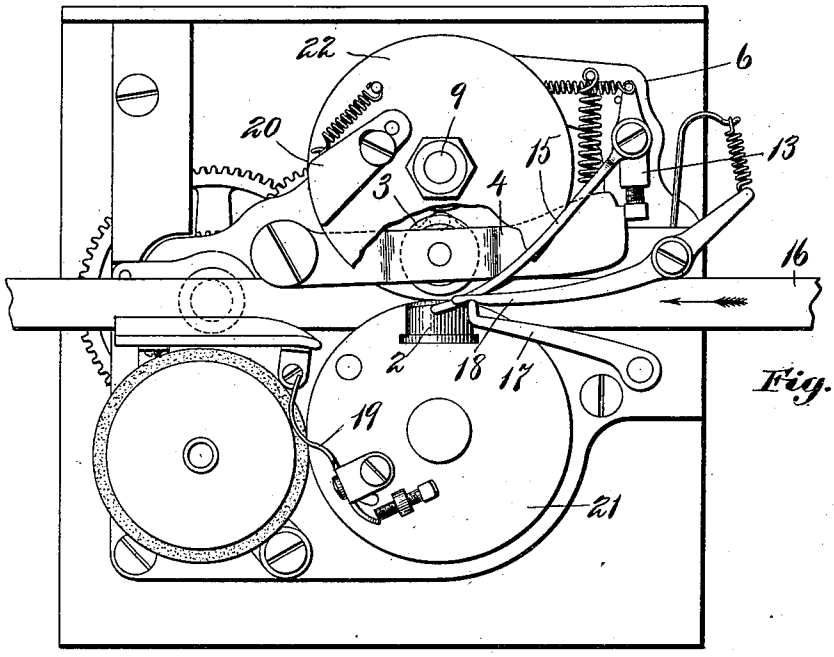


Fig. 1.

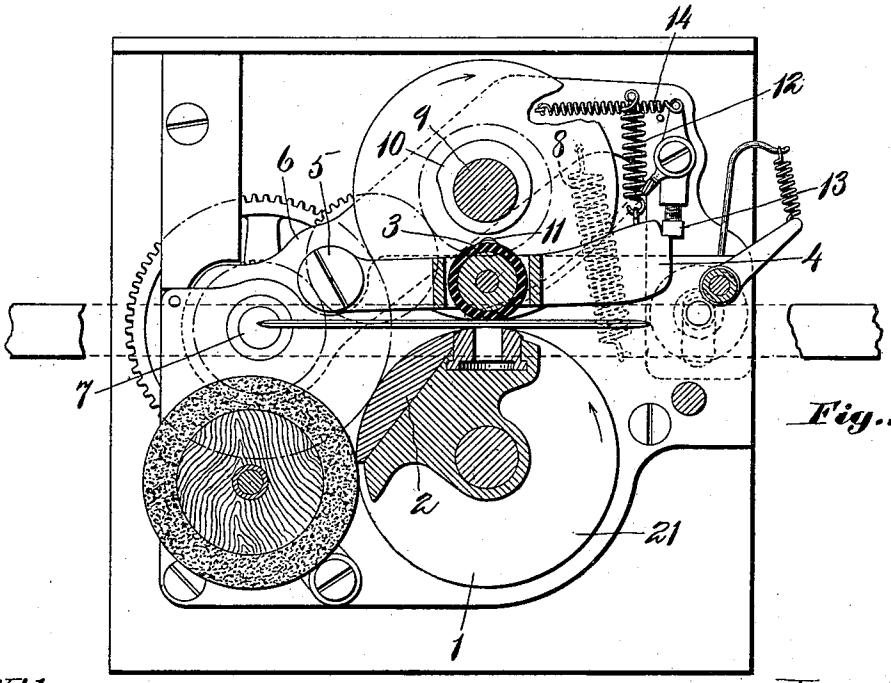


Fig. 2.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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Fig. 3.

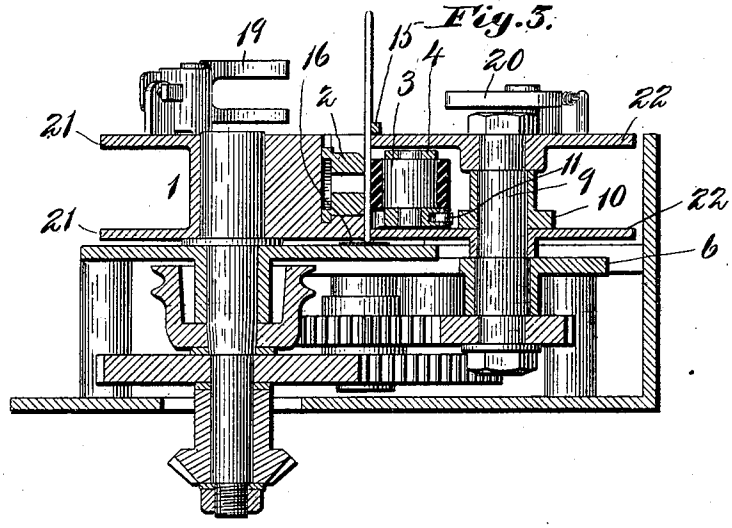
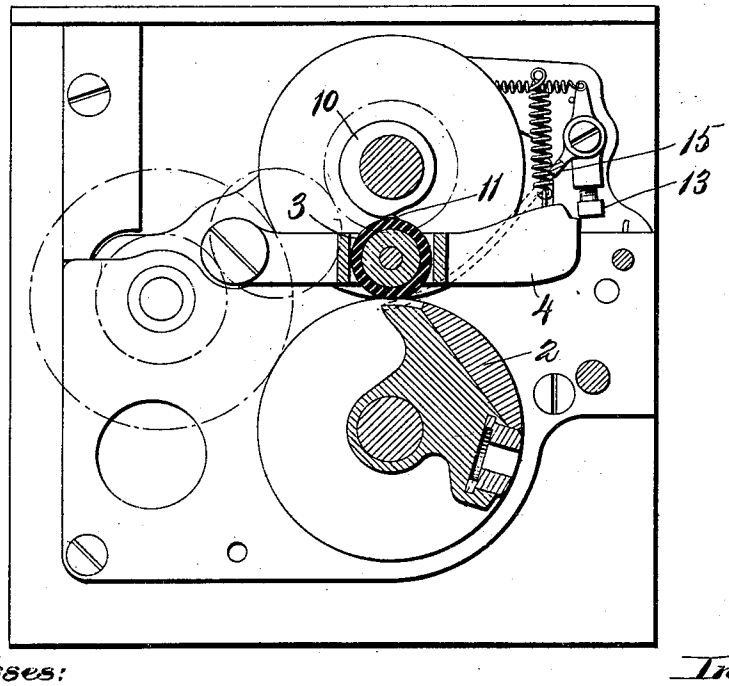


Fig. 4.



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Fig. 5.

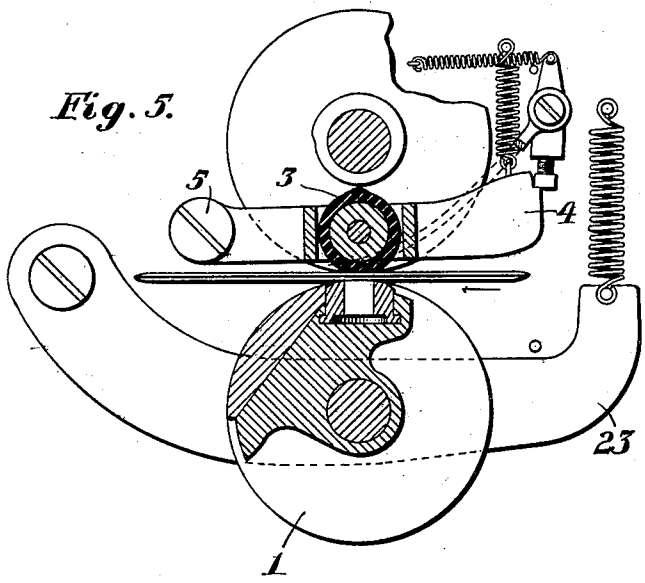
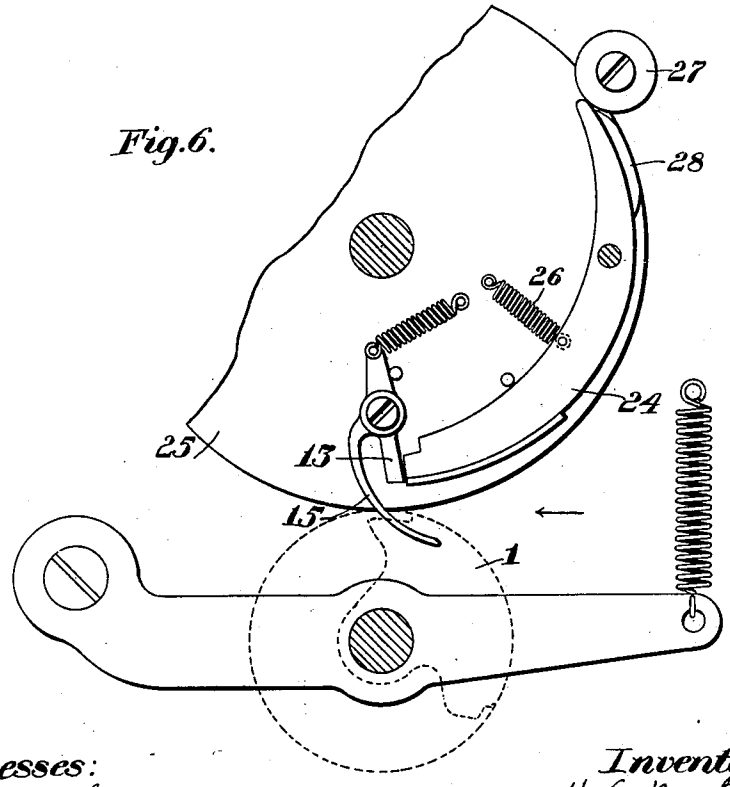


Fig. 6.



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UNITED STATES PATENT OFFICE.

HENRY E. WAITE, OF NEWTON, MASSACHUSETTS.

MAIL-MARKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 700,586, dated May 20, 1902.

Application filed January 13, 1902. Serial No. 89,416. (No model.)

To all whom it may concern:

Be it known that I, HENRY E. WAITE, of Newton, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Mail-Marking Machines, of which the following is a specification.

This invention relates to that class of mail-marking machines examples of which are shown in my former patents, Nos. 646,198 and 688,214, in which one of the members of the printing-couple is intermittently moved into and out of printing position when no letter is present, but in which the force which has to be overcome by the cam or equivalent device so moving the said member is less than the full printing-pressure, whereby wear, noise, and the absorption of power are decreased as compared with other machines in which the full printing-pressure has to be overcome.

In each of the machines of my above-mentioned patents the movable member is yieldingly projected into printing position and is positively retracted by the cam, a letter-controlled locking device being provided for supporting the said member in printing position when a letter is present. This arrangement requires that provision shall be made for disabling or neutralizing the cam when the member is locked in printing position, such disablement being accomplished in the former of my aforesaid patents by supporting the cam under a spring-pressure greater than that which intermittently moves the member into printing position, but less than the force of the spring which supplies the full printing-pressure when a letter passes through, while in the second of said patents the disablement is accomplished by providing a normally rigid connection between the cam and the movable member of the printing-couple, which connection, however, is capable of yielding when said member is locked. The above arrangement of my said two patents, while affording excellent results at moderate or even fairly high speeds, is yet open to the objection of depending upon the differential action of two springs working against each other, an action which becomes less reliable at high speeds on account of the increasing effect of inertia, a further objection being that on account of inertia a spring becomes less reliable at high speeds as a means for throwing the movable member out into printing position in time to be locked by the action of the passing letter on the trip.

According to my present invention I yieldingly retract the movable member of the printing-couple and positively project it into printing position, where it is locked by the action of a passing letter on the trip—an arrangement which enables me to dispense with means for disabling the cam and also eliminates the described ill effects of inertia.

Of the accompanying drawings, Figure 1 represents a plan view, partly broken away, of a mail-marking machine constructed in accordance with my invention. Fig. 2 represents a horizontal section thereof. Fig. 3 represents a transverse vertical section. Fig. 4 represents a horizontal section of the principal working parts in a different position from that occupied in Fig. 2. Fig. 5 represents a horizontal section showing a modification. Fig. 6 represents a similar view showing a second modification.

The same reference characters indicate the same parts in all the figures.

Referring to Figs. 1 to 4, inclusive, 1 represents a marking-cylinder mounted to revolve continuously in fixed bearings and having a printing or marking die 2, and 3 represents a rubber-faced impression-roll idly mounted in a rock-lever 4, pivoted at 5 to a second rock lever or arm 6, pivoted at 7 to the frame of the machine. The free end of this arm is held by a heavy spring 8, adapted to yield for thick letters. The arm 6 carries in bearings a shaft 9, geared to rotate in unison with the marking-cylinder 1, the direction of rotation of the said shaft and the said marking-cylinder being indicated by arrows in Fig. 2. The shaft 9 carries a cam 10, and the rock-lever 4 has a small roller 11, adapted to bear against said cam. A spring 12, attached at one end to the arm 6 and at the opposite end to the lever 4, exerts a pressure tending to yieldingly hold the roller 11 against the cam 10.

13 is a locking-dog pivoted to the rock-arm 6 and normally held by a spring 14 out of the path of the end of rock-lever 4, and 15 is a trip-arm attached to the hub of said locking-dog and normally extending across the path of the letter, as indicated in Fig. 1.

16 is a continuously-moving belt adapted to engage the lower edges of the letters and advance them into coaction with the marking devices.

17 and 18 are coacting fixed and yielding stops, respectively, extending into the letter-path and adapted to arrest the letters until the die has reached a predetermined position.

19 20 are pivoted spring-projected grippers carried, respectively, by the shaft of the marking-cylinder 1 and the shaft 9 and adapted to engage a letter arrested by the stops 17 18 and advance it past said stops into the throat between the printing and impression-rolls 1 3. On opposite sides of the die 2 the printing-cylinder is provided with rigid cylindrical carrying-treads 21 21, and rigidly mounted on the shaft 9 are similar coacting cylindrical treads 22 22. These treads 21 22 are adapted to assist in the advance of the letters during the printing of the latter and to advance said letters after the printing-die has passed from engagement therewith and are adapted to yield relatively to each other for thick letters.

The foregoing being the principal working parts of the machine, their operation is as follows: When no letter is present, the locking-dog 13 is out of the path of the rock-arm 4, and the impression-roll 3 is therefore intermittently moved into printing position by the cam 10 and out of printing position by the spring 12. The arrangement is such that the low part of the cam comes into action just before the die reaches the impression-roll, as indicated in Fig. 4, and the cam allows the impression-roll to remain out of printing position until the die has passed, thus avoiding a deposit of ink on the impression-roll. It will be noted that the spring 12 need be of only sufficient power to hold the roll 11 against the cam 10 and may be of much less power than the spring 8, which provides the printing-pressure between the die and impression-roll. I thereby avoid the noise, wear, and absorption of power incident to the intermittent overcoming of the full printing-pressure when no letter is present. When a letter is present, it is moved against the trip 15 just before the high part of the cam 10 comes out of action, and said trip is thereby displaced, causing the locking-dog 13 to move into the path of the arm 4, thereby affording a rigid connection or support between the impression-roll 3 and the rock-arm 6, whereby the impression-roll is held in printing coaction with the die, and the letter is marked as it passes between the rolls. After the letter has passed the high part of the cam again coming into action lifts the rock-lever 4 slightly from the locking-dog 13 and allows said dog to move out of the way, so that the machine is then ready for another operative or inoperative cycle.

The impression-roll need not be the member of the printing-couple which yields for thick letters.

Fig. 5 shows a modification in which the rock-lever 4, carrying the impression-roll 3, oscillates upon a fixed pivot 5, while the printing-cylinder 1 is mounted in a pivoted rock-arm or lever 23.

Fig. 6 represents another modification. In this arrangement 1 is the printing-cylinder, (indicated in dotted lines,) and 24 is an impression member pivoted to a rotating support 25, said impression member being held by a spring 26 out of printing position and intermittently moved into printing position when no letter is present by a cam which takes the form of a stationarily-journaled roll 27, arranged to act against a protuberance 28 on the edge of the impression member. A locking-dog 13, pivoted to the support 25 and actuated by a letter-controlled trip 15, locks the impression member 24 in printing position when a letter is present to engage the trip.

I claim—

In a mail-marking machine, a member of a printing-couple yieldingly held out of printing position, means for intermittently and positively moving said member into printing position when no letter is passing, and letter-controlled means to lock said member in printing position.

In testimony whereof I have affixed my signature in presence of two witnesses.

HENRY E. WAITE.

Witnesses:
R. M. PIERSON,
E. BATCHELDER.