

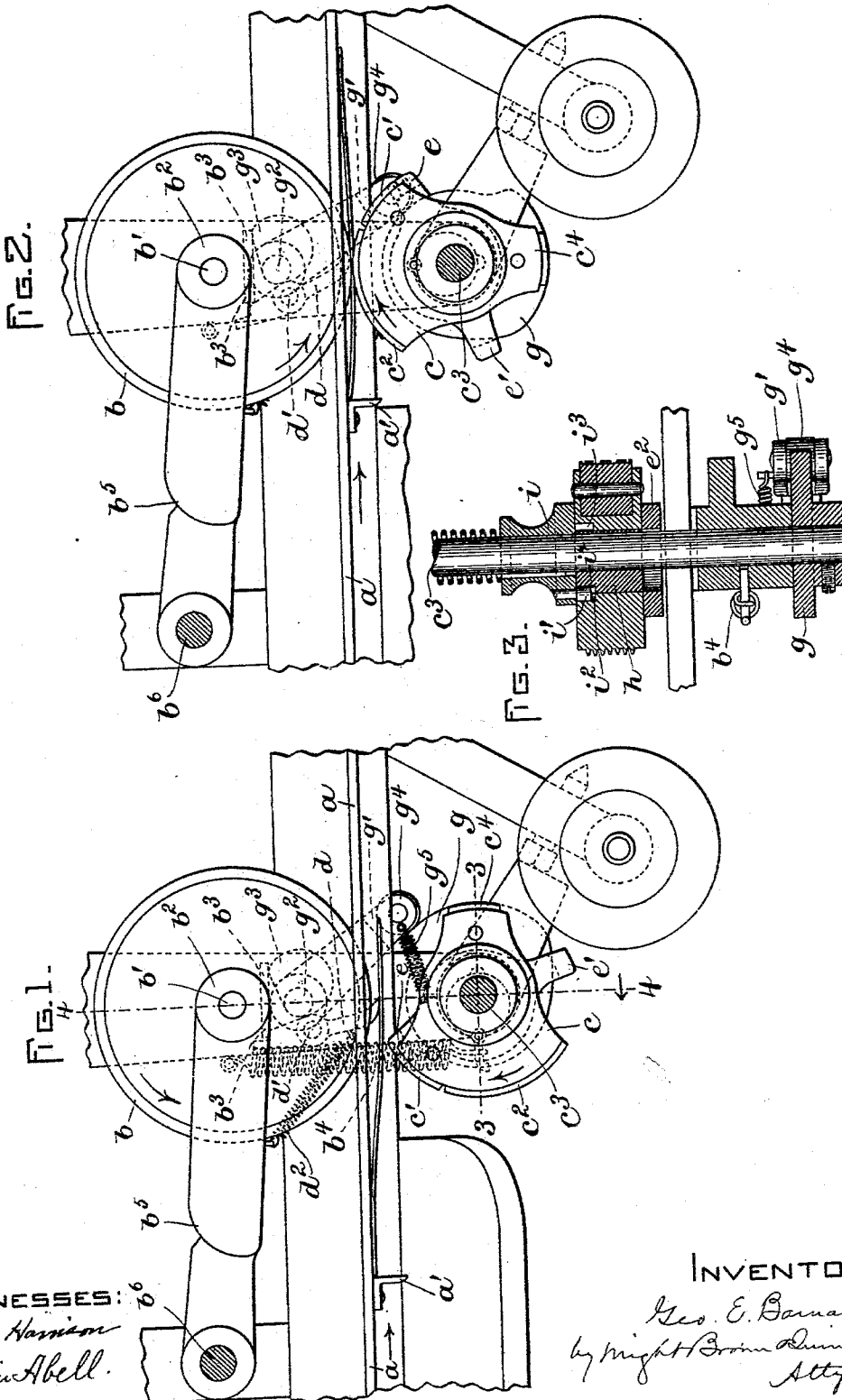
(No Model.)

2 Sheets—Sheet 1.

G. E. BARNARD.
MAIL MARKING MACHINE.

No. 569,780.

Patented Oct. 20, 1896.



WITNESSES:
A. D. Harrison
Rollin Abell.

INVENTOR:
Geo. E. Barnard
by Wright Brown Quincy
Atty.

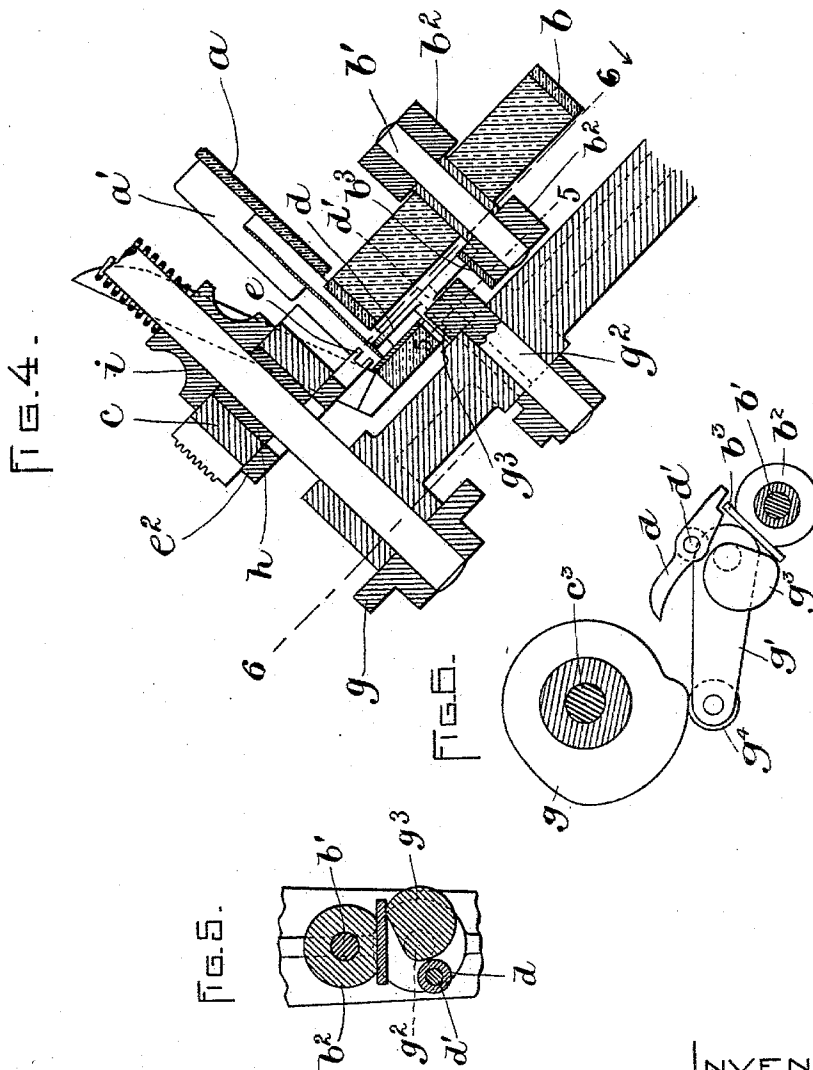
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UNITED STATES PATENT OFFICE.

GEORGE E. BARNARD, OF FITCHBURG, MASSACHUSETTS, ASSIGNOR TO THE
AMERICAN POSTAL MACHINES COMPANY, OF BOSTON, MASSACHUSETTS.

MAIL-MARKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 569,780, dated October 20, 1896.

Application filed October 28, 1895. Serial No. 567,067. (No model.)

To all whom it may concern:

Be it known that I, GEORGE E. BARNARD, of Fitchburg, in the county of Worcester 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 mail-marking machines employing a printing-cylinder and an impression-cylinder at opposite sides of the path through which letters are moved endwise by a suitable carrier, one of said cylinders being movable toward and from the other and normally pressed into the letter-path to make the two cylinders operative.

The invention has for its object to provide improved means whereby the movable cylinder is kept out of the letter-path when no letter is present between the two cylinders, one feature of the invention being certain improved mechanism whereby the movable cylinder is forced away from the other cylinder at regular intervals with the minimum expenditure of power.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a top view of portions of a mail-marking machine embodying my invention, showing the movable cylinder displaced and held out of its operative position. Fig. 2 represents a similar view showing the movable cylinder released and in its operative position. Fig. 3 represents a section on line 3 3 of Fig. 1. Fig. 4 represents a section on line 4 4 of Fig. 1. Fig. 5 shows a section on line 5 5 of Fig. 4. Fig. 6 shows certain parts in plan view which appear in broken lines in Fig. 1, the view being taken substantially on line 6 6 of Fig. 4, but with the frame omitted.

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

In the drawings, *a* represents the letter-carrying band or drive-belt, which is positively engaged with a driving-pulley by eye-lets or gromets in the belt and corresponding teeth or projections on the pulley, as shown in my Patent No. 518,440, dated April 17, 1894, the belt having also a series of sets of

points or letter-carrying projections *a'*, as described in said patent, so that the delivery of the letters to the impression and printing cylinders is positively controlled and timed, the said driving-pulley being positively geared to the printing-cylinder.

The general construction and operation of the machine, with the exception of the improvements hereinafter described, is or may be the same as set forth in the above-mentioned patent.

My present improvements relate to the printing-cylinder and to the letter-controlled means hereinafter described for making the impression-cylinder and printing-cylinder operative when a letter is in position to be printed and inoperative at all other times.

b represents the impression-cylinder, which supports the letters against the printing-cylinder *c* and is affixed to a shaft *b'*, which is journaled in bearings *b²* on the arms of a forked rocker-arm *b³*. Said arm is pivoted at *b⁶* to the supporting-frame of the machine and is adapted to oscillate, so that the impression-cylinder can be moved toward and from the printing-cylinder, said impression-cylinder being normally held by a spring *b⁴* in position to cooperate with the printing-cylinder.

d represents a detent which is pivoted at *d'* to the supporting-frame and is normally held by a spring *d²* in position to engage a shoulder or projection *b³* on the rocker-arm *b³*. When the detent is thus engaged with said projection, as shown in Fig. 1, it holds the impression-cylinder out of its operative position, its periphery being held back from contact with the printing-cylinder, so that the impression-cylinder will not be inked by the dies of the printing-cylinder when there is no letter between the two cylinders. The detent *d* normally projects across the letter-path, its outer end being preferably curved, as shown, on the side of the approaching letter, so that a letter can easily slide over the end of the detent, the letter being laterally deflected by the detent toward the printing-cylinder.

A trip-arm *e* is affixed to the printing-cylinder and projects therefrom in advance of the postmarking and canceling dies *c' c²*. The outer end of said trip-arm is slotted or forked, and is arranged so that when the arm reaches

the letter-path it will bestride and pass over the detent d without moving the same if there is no letter between the impression and printing cylinders. When a letter is present between the said cylinders, the trip e strikes the face of the letter, which acts as a pressure-transmitting device or mechanical connection between the trip and the detent d , so that the detent is displaced, as shown in Fig. 2, and permits the impression-cylinder to move toward the printing-cylinder; this movement taking place just before the printing-cylinder comes into position to commence its impression on the letter. The letter therefore acts as an agent to release the impression-cylinder and make the printing mechanism operative, said mechanism being inoperative without a letter.

Means are provided whereby the impression-cylinder is displaced or forced positively back from its operative position during each rotation of the printing-cylinder. Said means comprise a cam g , affixed to the printing-cylinder shaft c^3 , and a lever g' , pivoted at g^2 to a fixed support and provided at one end with a trundle-roll g^4 , which is held by a spring g^5 against said cam, and at the other end with a cam-shaped arm g^3 , bearing against the projection b^3 on the rocker-arm b^5 . The cam g , lever g' , and arm g^3 are so arranged that when the lever is moved outwardly by the higher portion of the cam g , as shown in Fig. 1, the arm g^3 , acting on the rocker-arm b^5 , moves the impression-cylinder back to its inoperative position, and when the lever g' is moved inwardly by the spring g^5 to the lower portion of said cam the arm g^3 releases the rocker-arm and the impression-cylinder.

The cam g and lever g' hold the rocker-arm and impression-cylinder in their displaced position when the trip-arm is in position to displace the detent d through the agency of an interposed letter, so that the displacing movement of the detent is opposed only by the light spring d^2 , which offers comparatively little resistance to said movement, there being no actual contact at that time between the detent and the projection b^3 on the rocker-arm, because said projection is held back from the detent by the arm g^3 until the trip-arm e comes into position to displace the detent. It will be seen, therefore, that the impression-cylinder and its rocker-arm or carrier are positively forced back at regular intervals and are held back while the detent is being engaged with and disengaged from the rocker-arm, the action of the detent being therefore practically unopposed both in engaging and releasing the said rocker-arm.

The relative arrangement of the lever g' and arm g^3 (the latter being much shorter than the former) is such that the said lever and arm are adapted to displace the rocker-arm and impression-cylinder against the force of the spring b^4 with the minimum expenditure of power, the power required being so slight that it does not affect the operation of the

machine. The printing-cylinder is provided with two alternative printing means, one comprising the postmarking and canceling dies c^1 and c^2 for marking the face of a letter, and the other the die c^4 for marking the back of a letter. The printing-cylinder (which in fact is not a complete cylinder, its periphery being cut away at both sides of the die c^4 , as shown) is adjustably mounted on an eccentric hub h , affixed to the shaft c^3 , said hub being arranged so that when the cylinder is turned to one position on the hub the dies c^1 c^2 will be projected, so as to cooperate with the impression-cylinder, the die c^4 being at the same time prevented by the cam from cooperating with said cylinder. When the printing-cylinder is turned to another position, the relative positions of the dies will be reversed, only the die c^4 being in position to cooperate with the impression-cylinder. The printing-cylinder is locked to the hub in either of said positions by a spring-pressed locking-collar i , which is movable on the shaft c^3 and has a pin i^1 , adapted to enter a socket formed partly in the hub and partly in the cylinder. The cylinder has two of these half-sockets i^2 i^3 , either of which is adapted to coincide with the half-socket i^4 in the hub and engage the pin i^1 . When the half-socket i^2 is engaged with said pin, the dies c^1 c^2 are in operative position, and when the half-socket i^3 is engaged with the pin the die c^4 is in operative position.

The above-described construction of the printing-cylinder and means for adjusting it do not form parts of my present improvement.

A trip-arm e' is affixed to the printing-cylinder in position to precede the die c^4 and act through a letter on the detent d when the machine is adjusted for marking the backs of letters. The trip-arms e and e' are rigidly affixed to the printing-cylinder and are adjusted therewith, each trip-arm being made operative and inoperative with the corresponding die or dies by the described adjustments of the printing-cylinder. The trip-arms are preferably formed on a ring e^2 , Fig. 2, affixed to the under side of the printing-cylinder.

I claim—

1. In a mail-marking machine, the combination with a marking and an impression-cylinder arranged in juxtaposition and one journaled in fixed bearings and the other in a support movable toward and from the one in fixed bearings and yieldingly pressed toward the same, and a letter-displaced detent engaging said movable support to hold the cylinders apart; of a lever pivoted to a fixed support and engaging the said movable support, and means associated with the cylinder in fixed supports and coacting with said lever to effect outward movement of said movable support, substantially as described.

2. In a mail-marking machine, the combination with a marking and an impression cylinder arranged in juxtaposition and one journaled in fixed bearings and the other in a

support movable toward and from the one in fixed bearings and yieldingly pressed toward the same, and a letter-displaced detent engaging said movable support to separate the cylinders; of a cam-lever pivoted intermediate of its length to a fixed support and bearing at one end against the said movable support, and means associated with the cylinder in fixed supports and cooperating with the other end of said lever to effect outward movement of the opposed cylinder substantially as described.

3. In a mail-marking machine, the combination of a printing-cylinder and an impression-cylinder at opposite sides of the letter-path, one of said cylinders being journaled in fixed bearings and the other in a movable carrier which is normally pressed toward the letter-path, a cam which rotates with the fixed cylinder, a lever pivoted to a fixed support

and located between said cylinders and comprising a longer arm engaged with said cam and a shorter arm engaged with said movable carrier, whereby said carrier is intermittently displaced and its cylinder forced out of the letter-path with the minimum expenditure of power, and a detent normally restraining the carrier and projecting into the letter-path so that it may be displaced to release the carrier and its cylinder through the agency of an approaching letter, substantially as described.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 27th day of March, A. D. 1895.

GEORGE E. BARNARD.

Witnesses:

C. F. BROWN,
A. D. HARRISON.