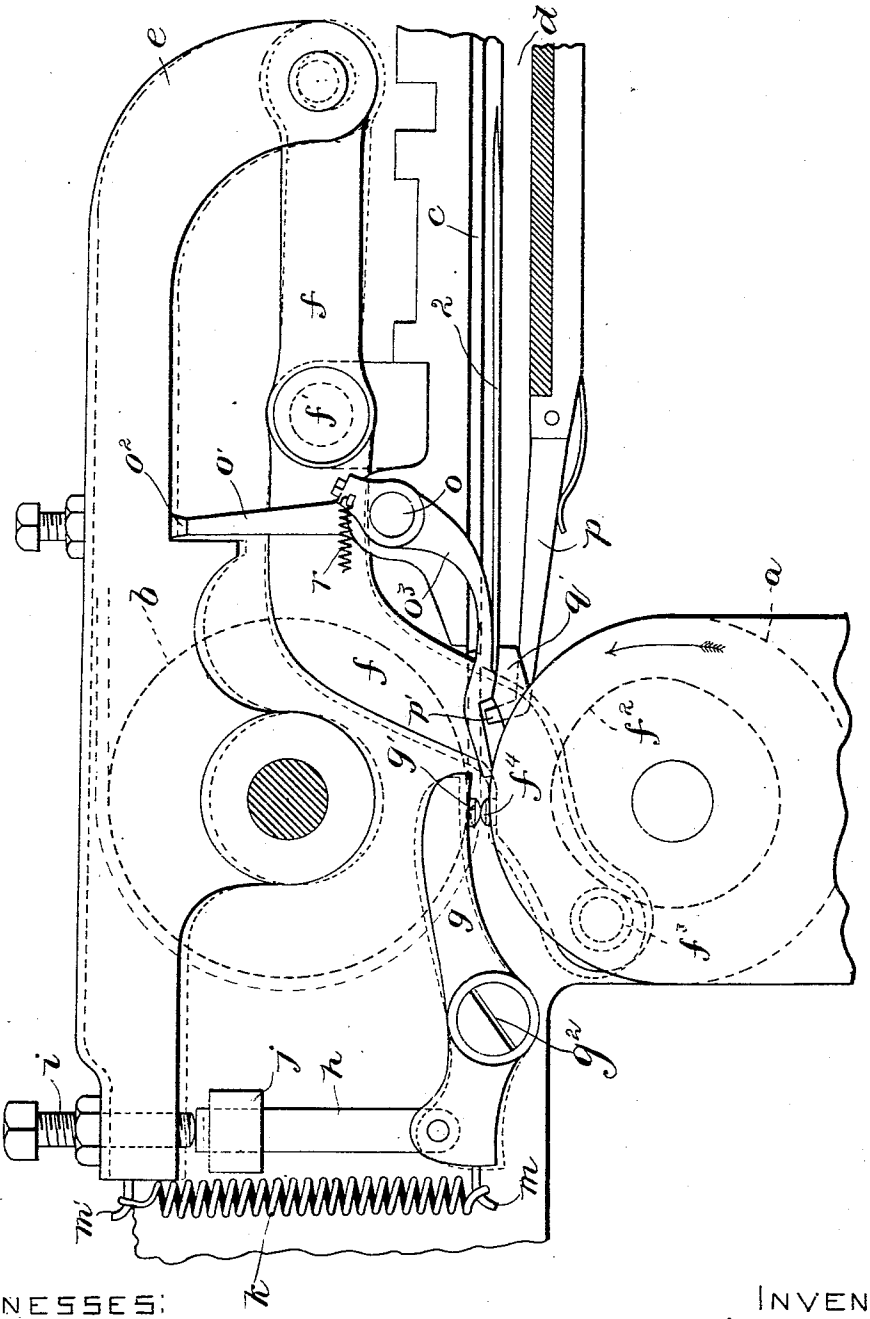
No Model.)

J. S. HANSEN.

MAIL MARKING MACHINE.

No. 573,653. Patented Dec. 22, 1896.



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

UNITED STATES PATENT OFFICE.

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MAIL-MARKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 573,653, dated December 22, 1896.

Application filed April 29, 1896. Serial No. 589,581. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. HANSEN, of Medford, 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 mail-marking machines of the type wherein the mail-pieces are fed by a belt or carrier between a printing-cylinder and an impression-cylinder, one of which is movable toward and from the other, the impression-cylinder being normally separated from the printing-cylinder by a cam rotating with the latter and pressed automatically toward the printing-cylinder when a piece of mail-matter is in position to receive an impression.

The invention has particular reference to the means for moving the impression-cylinder toward and from the printing-cylinder, the special object being to provide means for enabling the cam on the printing-cylinder to displace or force back the impression-cylinder to a greater extent than heretofore without increasing the size of said cam.

The drawing which accompanies and forms part of this specification illustrates an embodiment of the invention, that drawing showing a sectionalized plan view of a sufficient portion of the machine to show the invention, with a broken-line representation of the change in relation of parts brought about by passage of a letter between the printing and impression cylinders.

The dotted circles *a* and *b* indicate, respectively, the printing and impression cylinders of a mail-marking machine, and the letter *c* designates the conveyer-belt, which extends along one side of the hopper *d* and is supported at one end by the impression-roll, so that it forms the impression-bed for the letters. The impression-cylinder is movable toward and from the printing-cylinder, so that it may or may not coact therewith, according as there is present or absent a letter to be marked, the impression-cylinder being displaced or forced away from the printing-cylinder when there is no letter between the two cylinders by a cam f^2, affixed to the shaft of the printing-cylinder and rotating therewith, and suitable devices to communicate motion from said cam to the impression-cylinder. It is desirable that said cam be made of small size and impart a relatively short movement to the part or lever that bears against it in order that the noise and wear attending the operation of the machine may be reduced to the minimum; and to this end I have devised the improved means hereinafter described for imparting motion from the cam to the impression-cylinder.

In carrying out my invention I journal the impression-cylinder *b* in a bearing formed on and between the ends of an elongated bar *e*, said bar constituting in effect a cylinder-support movable bodily toward and from the printing-cylinder. One end of said support *e* is curved inwardly behind the hopper *d* and is there pivotally connected with one arm of a primary lever *f*, which is pivoted to a fixed part of the machine at the point *f'*. The other arm of said lever *f* is bent outwardly to coöperate with the cam f^2, which is affixed to the journal of the printing-cylinder and rotates with the latter, the said lever carrying a roller f^3, bearing against the perimeter of said cam.

A secondary lever *g*, pivoted at g^2 to a fixed part of the machine, bears at its inner end against the back of the primary lever *f*, the two levers being equipped with bearing-studs f^4 and *g'* to sustain the wear involved by the contact of the levers with each other. The lever *g* has pivotally connected with it at its outer end a bearing *h*, extending transversely of the machine, the inner end of said bearing supporting an adjustable screw *i* on the forward end of the support *e*, the said bearing being movable in a guide *j*, fastened to the machine-frame. A spring *k* is engaged at one end with an arm *m*, projecting from the forward end of the lever *g*, and at the other end with an arm *m'*, projecting from the forward end of the support *e*. The tension of said spring holds the bearing *h* and screw *i* in contact with each other, presses the lever *g* against the lever *f*, and presses the lever *f* against the cam f^2. It may be here explained that the effect the spring has to press the longer arm of the lever *g* against the lever *f* is due to the fact that said spring

is connected with the lever g at a point laterally removed from a line embracing the point of contact between the support e and the post h and the pivotal point between the latter and the lever g, the spring tending to straighten the toggle formed by the short arm of the latter and the post or bar h. The rotation of the cam f^2 causes an oscillatory movement of the lever f, as indicated by the full and dotted lines representing said lever in the drawing, the full lines showing the position when the roll f^3 is on the lowest part of the cam, while the dotted lines show the position when the roll is on a higher part of the cam. The movements of the lever f are imparted to the secondary lever g, which occupies the full-line position shown when the roll f^3 is on the lowest part of the cam and the dotted-line position when the roll is on a higher part of the cam. It will be seen that the bearing h and the outer end of the lever f are simultaneously moved outward, or away from the printing-cylinder, when the lowest part of the cam is presented to the roll f^3, so that both ends of the support e are moved outwardly, and a more extended outward movement or displacement of the impression-cylinder is effected than would be the case if the bearing h were fixed and the support e moved only by the lever f, as heretofore. By thus providing means for imparting motion from the cam to both ends of the impression-roll support simultaneously I am enabled to employ a relatlvely small cam f^2, and avoid the noise and wear that would attend the employment of a cam having a throw sufficient to impart the desired displacement to the impression-cylinder by moving the support e from one end only.

Means of well-known description are employed to obstruct the inward movement of the impression-cylinder support in the absence of a mail-piece, such means comprising a lever pivoted at o to a fixed support and having two arms $o'o^3$, the arm o' constituting a stop normally standing in front of an abutment-screw o^2, entered through the bar e, while the other arm o^3 extends in the path of a mail-piece 2, brought forward by the conveyer-belt c, which has the usual horizontal ledge on which the mail-piece rests. A spring-pressed stop-arm p is pivoted to the side of the hopper opposite the conveyer and has an inwardly-bent end p' projecting behind a shoulder of the lever-arm o^3. The approaching letter is deflected by the arm o^3 and checked in its advance by the stop-arm p, and is thus held until the arrival of a displacing device in the form of a shoe q, carried by the printing-cylinder and arranged to come against the mail-piece and push it back free of the stop, at the same time carrying it forward by coaction with the conveyer-belt. At this time the low part of the cam f^2 is still running in contact with the roller f^3, so that the bar e is held at the limit of its outward movement, and the screw o^2 is not pressed against the stop o', so that the latter may be readily displaced from its position in front of said screw when the lever-arm o^3 is moved back through the medium of the mail-piece.

So long as the stop o' remains in front of the screw o^2 the impression-roll cannot be brought against the printing-roll, and when the high part of the cam acts against the lever f a rocking motion of the bar e will ensue, the stop o' then constituting a fulcrum and the spring k yielding, while the screw i separates from the post h. Of course when the post o' is displaced, as above described, and the high part of the cam comes into play the support e is drawn bodily inward and the impression-cylinder pressed against the printing-cylinder.

A spring r restores the stop o' to position in front of the screw o^2 when the letter has passed, and the low part of the cam again runs against the roller f^3.

It is evident that the invention may be embodied in other forms than that here disclosed, and hence it is to be understood that I do not limit myself to the one form of embodiment shown and described.

I claim—

1. In a mail-marking machine, the combination with printing and impression cylinders and a support for one of said cylinders extending on opposite sides thereof and movable bodily toward and from the other cylinder, of a cam which rotates with that other cylinder, and connections between said cam and support engaging the latter on both sides of the cylinder it carries whereby motion is transmitted from the cam simultaneously to both ends of said support.

2. In a mail-marking machine, the combination with printing and impression cylinders and a support for one of said cylinders, of a cam which rotates with the other cylinder, means for communicating motion from the cam to one end of the support, a movable bearing for the other end of the support, and means for communicating motion from the cam to said movable bearing.

3. In a mail-marking machine, the combination with printing and impression cylinders and a movable support for one of said cylinders, of a cam which rotates with the other cylinder, a lever pivoted between its ends to a fixed support and engaged with one end of the movable support and with the cam, a movable bearing for the other end of the movable support, and means for imparting motion from the cam to said movable bearing.

4. In a mail-marking machine, the combination with printing and impression cylinders and a movable support for one of said cylinders, of a cam which rotates with the other cylinder, a primary lever pivoted between its ends to a fixed support and engaged with one end of the movable support and with the cam, a movable bearing for the other end of the movable support, and a secondary lever pivoted to a fixed support and engaged at one

end with the movable bearing and at the other end with the primary lever.

5. In a mail-marking machine, the combination with printing and impression cylinders, of a movable support for one of said cylinders, a cam positively rotated with the other cylinder, a primary lever coacting with said cam and connected with the said movable support, a secondary lever coacting with the primary lever, a spring connecting said movable support and the secondary lever, a movable bearing interposed between the movable support and the secondary lever, and a letter-displaced abutment normally limiting inward movement of the movable support.

6. In a mail-marking machine, the combination with printing and impression cylinders, of an elongated movable support or bar supporting the impression-cylinder, a primary lever pivoted intermediate of its ends to a fixed support and pivotally connected at one end with said movable support, a cam on the journal of the printing-cylinder coacting with the other end of said lever, a secondary lever pivoted intermediate of its ends to a fixed support and bearing at one end against the primary lever, a movable bearing pivotally connected with the other end of said secondary lever and constituting an abutment for the movable support, a guide for said bearing, a spring engaged at one end with the movable support and at the other with the secondary lever, and a letter-displaced abutment normally limiting inward movement of the movable support.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 21st day of April, A. D. 1896.

JOHN S. HANSEN.

Witnesses:
HENRY B. RICE,
A. D. HARRISON.