

S. McAULIFFE.

MACHINE FOR PRINTING CARDS, &c.

No. 395,499.

Patented Jan. 1, 1889.

Fig. 1.

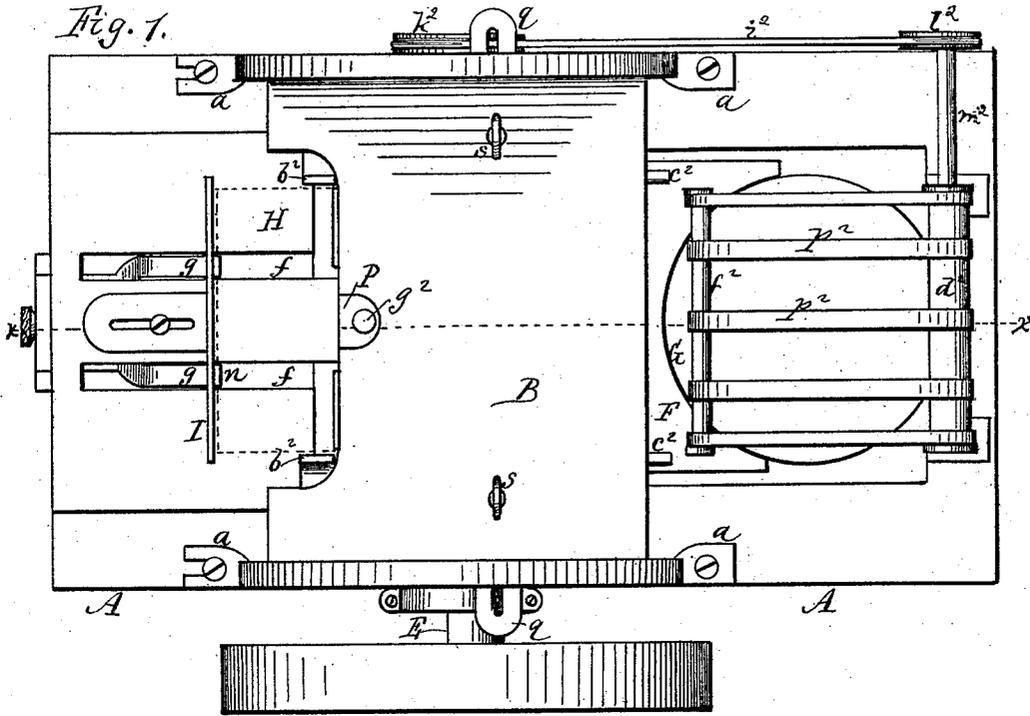
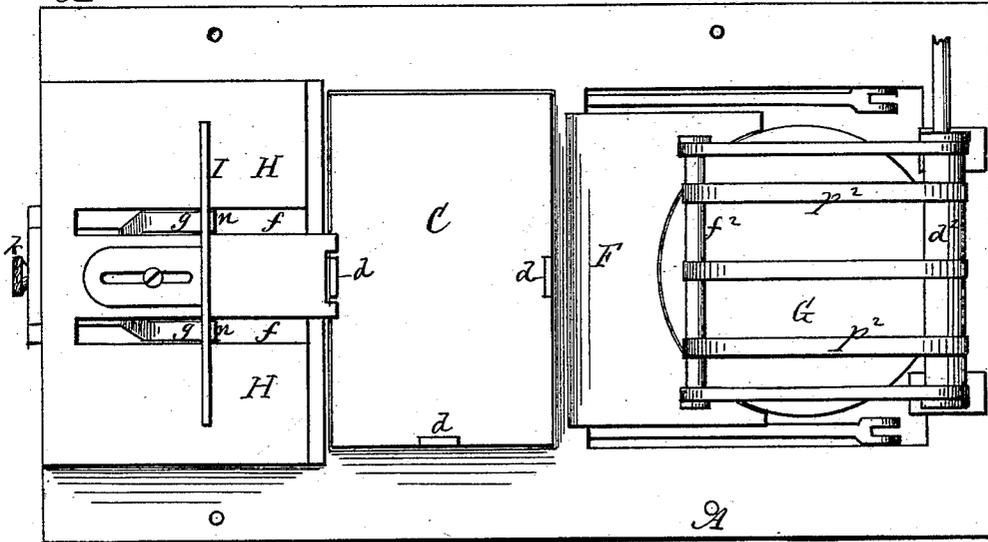


Fig. 2.



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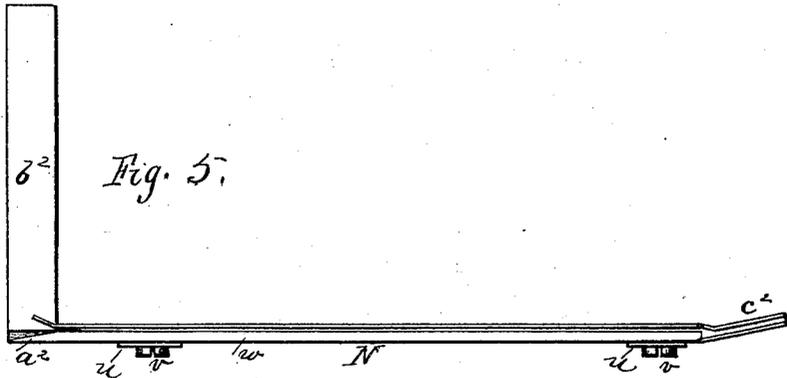


Fig. 5.

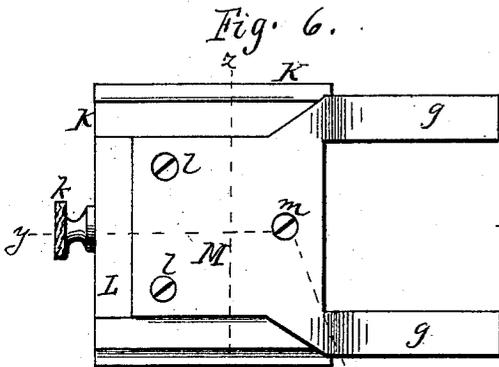


Fig. 6.

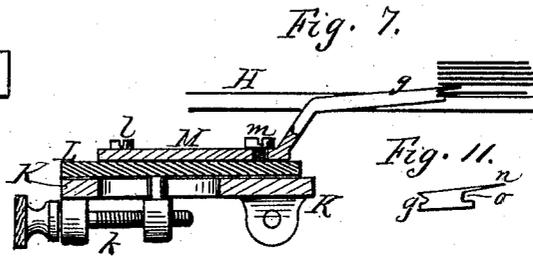


Fig. 7.

Fig. 11.

Fig. 8.

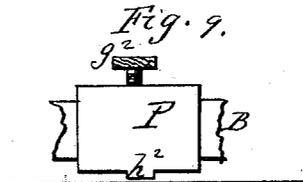
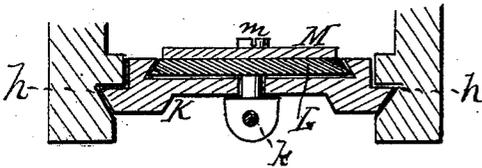


Fig. 9.

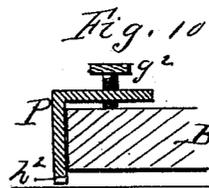


Fig. 10.

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# UNITED STATES PATENT OFFICE.

SAMUEL MCAULIFFE, OF ROCHESTER, NEW YORK.

## MACHINE FOR PRINTING CARDS, &c.

SPECIFICATION forming part of Letters Patent No. 395,499, dated January 1, 1889.

Application filed October 19, 1885. Renewed October 11, 1888. Serial No. 282,256. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL MCAULIFFE, of the city of Rochester, in the county of Monroe and State of New York, have invented a certain new and useful Improvement in Machines for Printing Cards, &c.; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the drawings accompanying this application.

My improvement relates more particularly to machines for printing cards and envelopes and similar articles, and specifically to a machine in which the feeding is done automatically; and it consists in the following construction and arrangement.

In the drawings, Figure 1 is a plan view of the machine. Fig. 2 is a similar view with the top plate removed from place. Fig. 3 is a longitudinal vertical section in line *x x* of Fig. 1. Fig. 4 is a bottom view of the top plate, showing the guides through which the cards pass. Fig. 5 is a side elevation of one of the guides enlarged. Fig. 6 is a plan view of the carriage that carries the pushing-fingers enlarged. Fig. 7 is a longitudinal vertical section of Fig. 6 in line *y y*. Fig. 8 is a vertical cross-section of same in line *z z*. Fig. 9 is a front elevation of the adjustable gage for regulating the passage of the cards through the machine. Fig. 10 is a vertical cross-section of Fig. 9. Fig. 11 is a side elevation of one of the fingers. Fig. 12 is a cross-section of one of the guides in a plane indicated by the line *l l*, Fig. 4.

A indicates the frame of the machine, which may be of any convenient construction.

B is a platen attached to the top of the frame, against which the printing is done. It is attached by feet *a a*, so as to be easily removable.

C is a bed or follower located below this platen and moving freely up and down in the top plate of the frame. Motion is given to the bed by a cam, D, on the driving-shaft E, said cam having a friction-roller, *b*, that rests in contact with a steel plate, *c*, set into the bottom of the bed. The "chase" (shown in dotted lines, Fig. 3) is set on top of the bed, being held in place by stops *d d d*, Fig. 2. As

the cards or envelopes are fed into the machine they pass between the bed and platen, and every up movement of the bed produces an impression.

F is a fixed plate on the delivery side of the bed, and G is the common inking-bed.

My improvement is as follows:

H is a table or platform on which the cards or envelopes are placed preparatory to being fed into the machine. This table is provided with slots *f f*, in which run pushing-fingers *g g*, that push the cards forward into the machine.

I is an adjustable gage, against which the cards are placed in a pile, as shown in Fig. 3.

K is a carriage or slide running forward and back in ways *h h* and operated by any suitable means, that shown in the drawings being a crank-arm, J, provided with a slip-joint that allows easy motion.

L is a slide dovetailed into the carriage, having free motion therein and adjustable forward and back by means of an adjusting-screw, *k*, as shown in Fig. 7. The plate M, to which the fingers *g g* are attached, is attached fast to the slide L by set-screws *l l*, and the front end is adjusted higher or lower by an adjusting-screw, *m*, which passes through it and rests on top of the dovetailed slide L, as shown most clearly in Fig. 7. By this means the points of the fingers can be adjusted up and down to take cards of greater or less thickness, as will presently be described. The fingers *g g* are offset or raised above the level of the plate, and the lengths of the fingers that rest in the slots *f f* are made inclined, so as to fall below the top of the slots at the rear, by which means the fingers will slide back easily under the cards and not disturb them. The front ends, *n*, of the fingers are made thin and sharp-edged, so as to spring down in passing back under the cards, then to spring up back of the cards, and serve as a divider by catching the edge of the lower card and resting between it and the pack above in the forward movement. Back of the sharp edge above described each finger has a notch, *o*, Fig. 11, into which the edge of the lower card drops when it has passed below the sharp edge. This notch forms a shoulder which

pushes the card along between the platen and the bed. It may be either inclined, as shown, or perfectly square.

In operation the cards, envelopes, or other articles to be printed are placed against the gage I and next to the platen in a pack or bunch, one on top of another, and a suitable weight,  $e$ , is placed on top. Then when the fingers are pushed forward they catch the bottom card and force it forward between the platen and bed. In retracting the fingers pass under the cards. This same process is repeated as long as desired, and by this means the feeding of the machine is perfectly automatic, the cards being inserted very accurately, and much better and far more rapidly can be done than by hand. The fingers are gaged to different thicknesses of the cards by turning the set-screw  $m$ , which correspondingly raises or lowers it. The machine can also be adapted to larger or smaller cards by adjusting the fingers forward or back by the adjusting-screw  $k$ .

N N are two guides on the under side of the platen B, which guides conduct the cards in their passage through the machine. Each of these guides consists of a flat plate,  $p$ , provided with a right-angled slotted extension-arm,  $q$ , extending out laterally to the side of the machine. A bolt,  $r$ , extends up through the platen, passing through the slot, and on the top of the bolt screws a thumb-nut,  $s$ , Fig. 1, by which the guide is fastened in place. By this means the guides can be adjusted out and in to suit the cards or envelopes of different lengths. The position of the card in passing through between the guides is indicated by the dotted lines in Fig. 4. The inner edge of each guide is notched out, forming a rabbet,  $t$ , Fig. 12.  $u u$  are two thin flat springs attached to two arms,  $q' q'$ , by screws  $v v$ , said springs extending the whole length, and having attached to their inner ends a strip,  $w$ , which nearly fills the rabbet  $t$ . The ends of the cards run in the spaces between the strip and the top of the guide, and the springs exert just enough pressure to hold the ends of the cards in place without binding so closely as to prevent one card from pushing another along as they pass through the machine. The ends of the guides next to the feed are beveled off, as shown at  $a^2$ , Fig. 5, to facilitate the entrance of the cards as they are pushed in by the fingers. At this end the guides are also provided with upright standards  $b^2 b^2$ , which serve to hold the cards in position and from slipping from place. At the opposite or outer end of the guides are runways  $c^2 c^2$ , grooved to correspond with the channels of the guides in which the ends of the cards run, said runways serving to carry the cards beyond the guides and onto the delivery apparatus. This apparatus consists of two rollers,  $d^2 f^2$ , driven by a belt,  $v^2$ , passing from a pulley,  $k^2$ , on the driving-shaft E to a pulley,  $l^2$ , on the shaft  $m^2$  on the shaft

of the roller  $d^2$ , as shown in Fig. 1, or other suitable means, and a set of tapes or bands,  $p^2$ , running around them. The cards as they pass from the runways fall on the tapes and are carried off over the end of the machine.

P is a gage at the feed end of the machine, attached to the edge of the platen B and serving to gage the cards so that but one can enter at a time under the platen and over the bed. This gage is vertically adjustable by a screw,  $g^2$ , or other suitable means, so that it can be moved with great exactness. It is preferably formed with a center lug,  $h^2$ , projecting down and forming the gage proper, as I have found this form most effective in practice; but this may be modified as desired. By adjusting this gage properly only the thickness of one card at a time can enter.

From the above description the operation will be well understood. Motion being imparted to the machine, the fingers will push one card after another from the bottom of the pack into the machine between the bed and platen, and the upward movements of the former will print them as fast as they enter. The cards push one another forward through the guides as fast as entered and deliver them at the outer end. Very rapid work can be done in this manner, and more perfectly than in hand-feeding machines, as the cards are always held squarely to the work in entering and in passing through the machine. The machine is adapted to all kinds of printing where the papers have sufficient stiffness and body to be passed along through the guides in the manner described.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The feed device consisting of the reciprocating carriage K, slide L, adjustable longitudinally upon the carriage, finger-plate M, attached to and adjustable up and down upon the slide, and the push-fingers  $g g$ , projecting forward and upward from the plate, substantially as herein specified.

2. The combination of the reciprocating carriage K, horizontally-adjustable slide L, vertically-adjustable finger-plate M, inclined fingers  $g g$ , adjustable gage I, and vertically-adjustable gage P, substantially as and for the purpose herein specified.

3. The combination of the reciprocating carriage K, slide L, finger-plate M, inclined fingers  $g g$ , having sharp-edged ends  $n n$ , and the slotted table or platform H, substantially as and for the purpose herein specified.

4. The combination of the guides N N, having standards  $b^2 b^2$ , and each provided with a groove,  $t$ , in its inner edge, the spring-strips  $w w$ , runways  $c^2 c^2$  at the rear ends of the guides, and the delivering bands or tapes  $p^2$ , substantially as and for the purpose herein specified.

5. The combination of the reciprocating feed-carriage K, inclined push-fingers  $g g$ ,

actuated by the said carriage, guide I, guides  
N N, each provided with a groove, *t*, in its in-  
ner edge, spring-strips *w w*, and runways *c*<sup>2</sup>  
5 substantially as and for the purpose herein  
specified.

In witness whereof I have hereunto signed

my name in the presence of two subscribing  
witnesses.

SAML. MCAULIFFE.

Witnesses:

R. F. OSGOOD,

E. STARING.