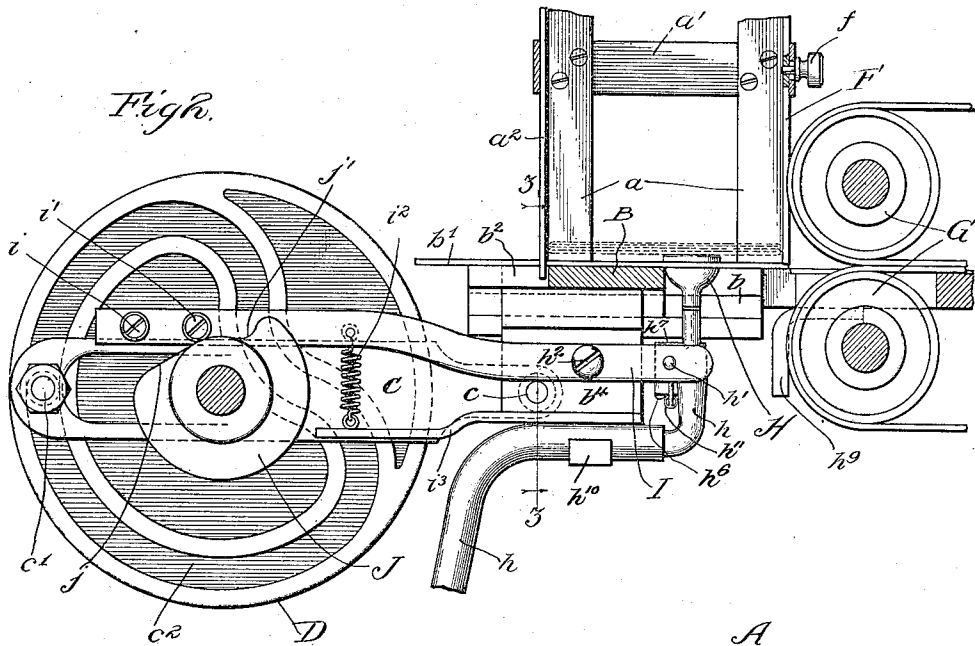
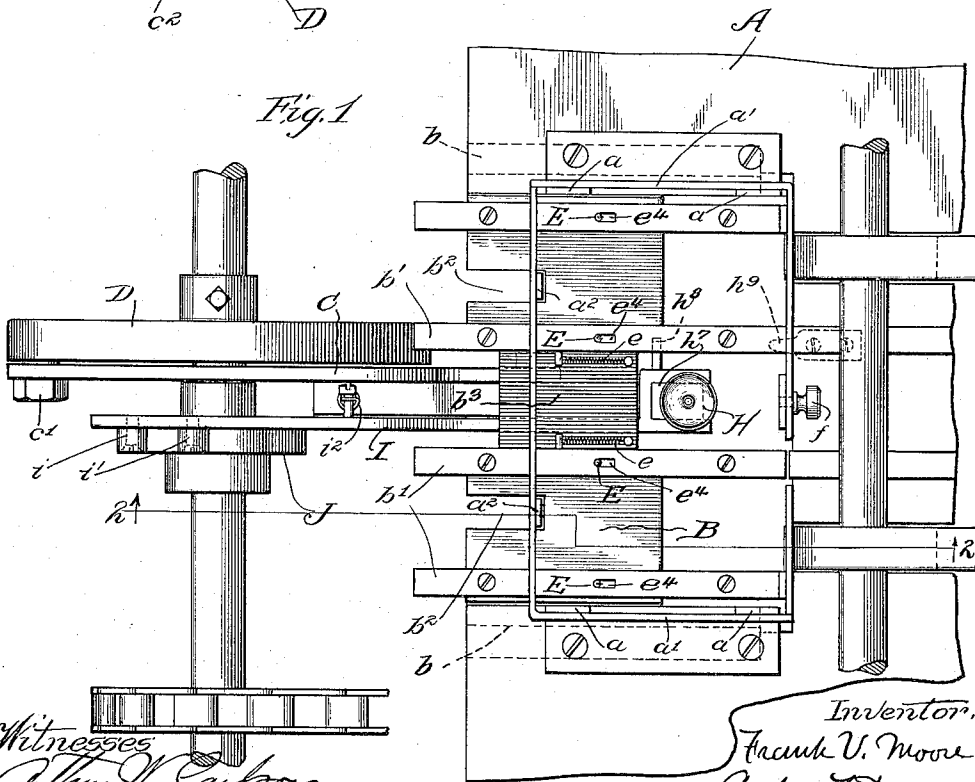


1,155,503.

2 SHEETS—SHEET 1.



Witnesses
Arthur H. Carlson
Stephena Ebra

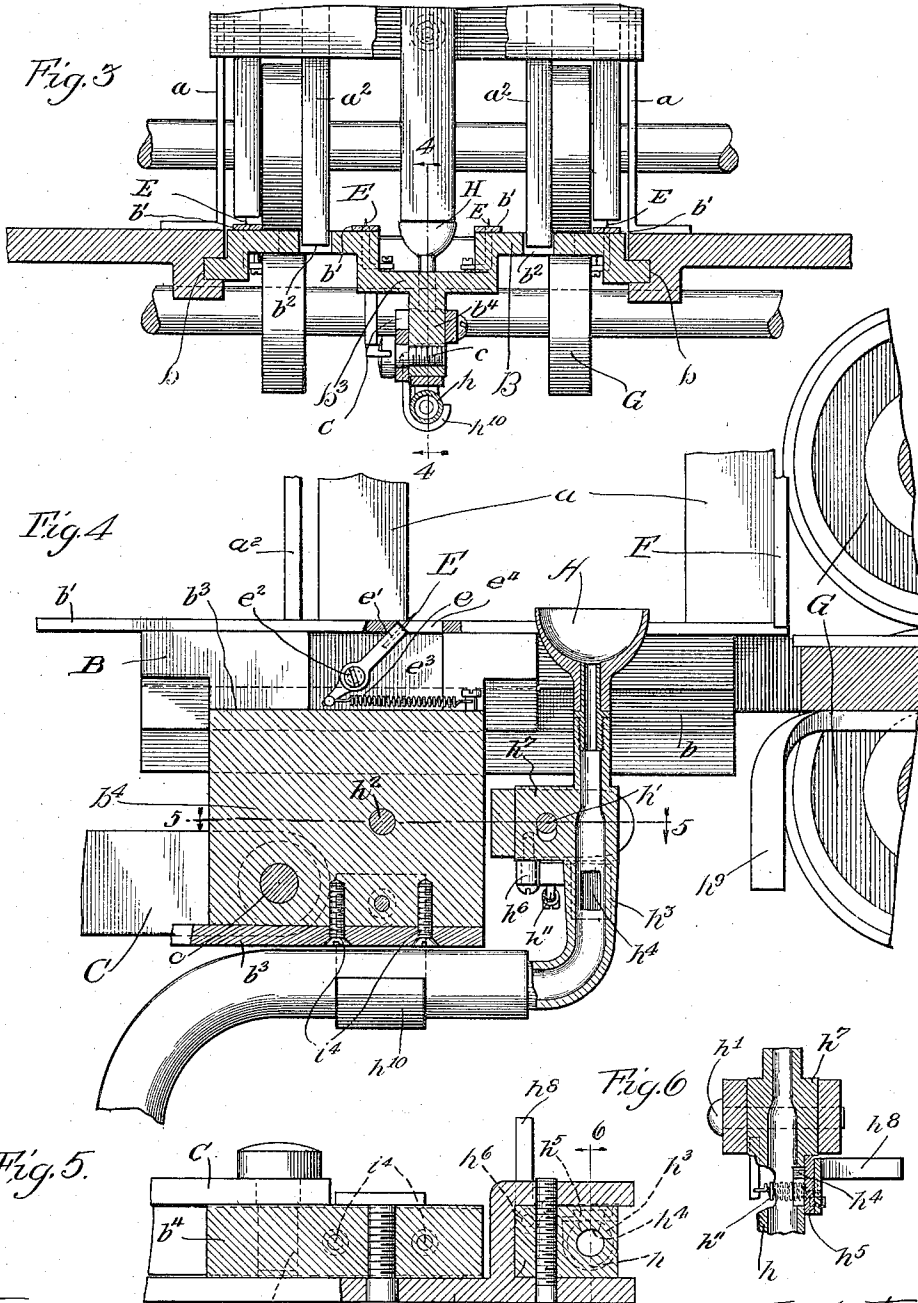
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Atty.

F. V. MOORE.
 FEED MECHANISM FOR MAILING OR OTHER MACHINES.
 APPLICATION FILED APR. 13, 1914.

1,155,503.

Patented Oct. 5, 1915.

2 SHEETS—SHEET 2.



Witnesses:
 Arthur H. Carlson
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UNITED STATES PATENT OFFICE.

FRANK V. MOORE, OF CHICAGO, ILLINOIS, ASSIGNOR TO WOMAN'S WORLD MAGAZINE COMPANY INCORPORATED, OF CHICAGO, ILLINOIS, A CORPORATION OF VIRGINIA.

FEED MECHANISM FOR MAILING OR OTHER MACHINES.

1,155,503.

Specification of Letters Patent.

Patented Oct. 5, 1915.

Application filed April 13, 1914. Serial No. 831,451.

To all whom it may concern:

Be it known that I, FRANK V. MOORE, a citizen of the United States of America, and resident of Chicago, Cook county, Illinois, have invented a certain new and useful Improvement in Feed Mechanism for Mailing or other Machines, of which the following is a specification.

My invention relates to devices for feeding envelopes or other articles to a conveyer or other means.

Generally stated, the object of my invention is to provide a novel and efficient construction and arrangement whereby the envelopes or other flat articles can be supported in a stack and fed forward one by one from the bottom of the stack to the receiving end of a conveyer or other similar means.

A special object is to provide an improved construction and arrangement whereby the envelopes can be fed from the bottom of the stack in this manner without causing them to be injured or disfigured by an undesirable buckling or bending of each envelop while leaving the bottom of the stack.

It is also an object to provide certain details and combinations tending to increase general efficiency and serviceability of a feed mechanism of this particular character.

To the foregoing and other useful ends my invention consists in matters hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 is a plan of a feed mechanism embodying the principles of my invention. Fig. 2 is a section on line 2—2 in Fig. 1. Fig. 3 is a section on line 3—3 in Fig. 2. Fig. 4 is an enlarged section on line 4—4 in Fig. 3. Fig. 5 is an enlarged section on line 5—5 in Fig. 4. Fig. 6 is a detail section on line 6—6 in Fig. 5.

As thus illustrated, my invention comprises a stationary table A upon which is mounted a rectangular hopper composed of the flat upright a and the horizontal connecting pieces a^1 , whereby the envelopes are held in a vertical stack. The reciprocating slide B moves back and forth in the guide-ways b and is provided with parallel and longitudinally arranged supporting strips b^1 which engage the bottom of the stack of envelopes to form a support therefor. This slide has slots b^2 which are engaged by the

uprights a^2 of the hopper, whereby the backward motion of the slide is limited by the lower ends of these uprights. It will also be seen that this slide B has a central depression b^3 disposed immediately below the center of the lowermost envelop, whereby said envelop may sag or bend downward throughout its central portion without becoming creased or buckled in an undesirable manner. During the operation of the machine, the slide B is reciprocated by an arm C which is pivoted to the depending portion b^4 of the slide at c , and which has a projection or roller c^1 that engages the cam groove c^2 of the rotary cam D, said groove being shaped or formed in the manner shown. (See Fig. 2.) Needles E are pivoted upon the slide B, and are held in normal position by springs e , whereby these needles engage and push the lowermost envelop forward, when the slide moves to the right in Figs. 2 and 4, and whereby said needles are then free to tilt downward when the slide moves in the opposite direction. Each needle or sharp pin E is carried on an arm e^1 which is pivoted at e^2 on the slide B, the latter having a recess e^3 for each said arm. The strips b^1 , which serve as skids for the lowermost envelop, are provided with slots e^4 for said needles, each needle working up and down in its allotted slot. A gage F is secured to the hopper and is provided with a fastening screw f , whereby the gage can be raised and lowered to prevent the envelopes from being fed faster than one at a time, it being observed that the lower end of said gage is disposed in position to make it necessary for the forward edge of the envelop to be deflected downward before it can reach the conveyer G, which latter can be of any suitable character. Thus, and when the slide is reciprocated back and forth the needles E will feed the envelopes from the bottom of the stack to the said conveyer.

In order to insure a more certain operation of the mechanism, and in order to facilitate the downward deflection of the lowermost envelop, so that it may pass readily below the lower end of the gage F, it is desirable to provide a vacuum cup H which is suitably connected with a suction tube h , and which is pivotally mounted on the arm I, by means of a transverse screw h^1 , the said arm being arranged to extend at one

side of the portion b^4 , and being pivotally mounted thereon by means of a screw h^2 inserted therein; and it will be seen that one end of this arm is forked to embrace the cup connection. The other end of this arm is provided with a pair of rollers i and i^1 adapted to engage the rotary cam J, whereby the cup H not only moves forward and back with the slide B, but also moves up and down. A spring i^2 connects the arm I with the arm i^3 , whereby the cup H is held yieldingly against the bottom of the stack of envelops. The hollow portion h^3 which is connected with the vacuum cup is provided with an air inlet h^4 which is normally closed by the valve h^5 , said valve being pivoted at h^6 to the block-like portion h^7 through which the screw h^1 extends. The said valve has an arm h^8 which engages a stationary portion h^9 at a proper time for causing the vacuum cup to release the envelop. It will be understood that this is accomplished by the air which enters the opening h^4 , the vacuum in the cup being momentarily destroyed by the inrush of air through this opening. The arm i^3 is secured to the bottom of the lug b^4 by screws i^4 , and a hook h^{10} (secured to said lug) supports the tube h in position, it being understood that the connection is sufficiently flexible to permit the block h^7 to rise and fall slightly on the screw h^1 , this slight lost motion preventing the cup H from letting go of the envelop when the cup moves downward—that is to say, this provision tends to prevent a premature release of the envelop by the cup. The portion j of the cam J first strikes the roller i^1 , and then strikes the roller i , whereby the cup H is given the requisite downward movement. The spring h^{11} yieldingly holds the pivoted valve h^5 in closed position, it being understood that the valve swings open about a vertical axis provided by the screw h^6 when the arm h^8 strikes the projection h^9 , in the manner explained.

From the foregoing it will be seen that I provide reciprocating mechanism for feeding the envelops one by one from the bottom of the stack. The needles E, assisted by the cup H, seize and push the lowermost envelop forward until it is engaged by the conveyer. The supporting strips b^1 also partake of this forward movement whereby the supporting means is also a part of the feeding means. When the motion is reversed the said needles slide harmlessly back across the surface of the next envelop, and the cup H is entirely out of contact with this envelop, and does not come in contact therewith, in an operative manner, until the hollow portion j^1 of the cam J again comes in contact with the roller i , thereby allowing the cup to rise and engage said envelop. Thus the weight of the stack of envelops is utilized for feeding them downward to the

bottom of the stack, and no special means are necessary for bringing them one by one into position to be fed or moved edgewise to the conveyer.

I do not limit myself to the exact construction shown and described.

What I claim as my invention is:—

1. A feed mechanism comprising instrumentalities for holding in stationary position a stack of flat articles, devices for engaging the bottom of the stack, mechanism for causing said devices to have a back and forth movement for feeding the articles in succession from the bottom of the stack, and a stationary gage extending below the front edge of the lowermost article, said devices including suction means for pulling said front edge below said gage to permit the edgewise removal of the article from the bottom of the stack.

2. A feed mechanism comprising instrumentalities for holding in stationary position a stack of flat articles, devices for engaging the bottom of the stack, mechanism for causing said devices to have a back and forth movement for feeding the articles in succession from the bottom of the stack, and a stationary gage extending downward below the front edge of the lowermost article, said devices including suction means for pulling said front edge below said gage to permit the edgewise removal of the article from the bottom of the stack, and said instrumentalities including a plurality of parallel strips forming a support for the stack, said strips being movable endwise with said devices.

3. A feed mechanism comprising instrumentalities for holding a stack of flat articles, devices for engaging the bottom of the stack, mechanism for causing said devices to have a back and forth movement for feeding the articles in succession from the bottom of the stack, and a gage extending below the front edge of the lowermost article, said devices including suction means for pulling said front edge below said gage to permit the edgewise removal of the article from the bottom of the stack, and sharp points for engaging the lower surface of said article to feed the same forward.

4. A feed mechanism comprising instrumentalities for holding a stack of flat articles, devices for engaging the bottom of the stack, mechanism for causing said devices to have a back and forth movement for feeding the articles in succession from the bottom of the stack, and a gage extending below the front edge of the lowermost article, said devices including suction means for pulling said front edge below said gage to permit the edgewise removal of the article from the bottom of the stack, said instrumentalities including a plurality of parallel strips for supporting the stack, movable

endwise with said devices, and a sharp point for each strip, said points engaging the lower surface of said article to feed the same forward, and means permitting depression of said points during the return movement thereof below the next article.

5 5. A feed mechanism comprising instrumentalities for holding in stationary position a stack of flat articles, devices for engaging the bottom of the stack, mechanism for causing said devices to have a back and forth movement for feeding the articles in succession from the bottom of the stack, and a stationary gage extending downward below the front edge of the lowermost article, said devices including suction means for pulling said front edge below said gage to permit the edgewise removal of the article from the bottom of the stack, a valve for admitting air to release the article from said means, and a stationary element for automatically opening said valve.

6. A feed mechanism comprising instrumentalities for holding a stack of flat articles, devices for engaging the bottom of the stack, mechanism for causing said devices to have a back and forth movement for feeding the articles in succession from the bottom of the stack, and a gage extending below the front edge of the lowermost article, said devices including suction means for pulling said front edge below said gage to permit the edgewise removal of the article from the bottom of the stack, said devices including a plurality of sharp points for engaging the lower surface of the article to feed the same forward, said instrumentalities including parallel strips forming a support for the bottom of said stack, each said strip having an opening for one of said points, a slide upon which said strips are secured to move endwise therewith, and a support for said means on said slide, said mechanism operating said slide in a manner to prevent said devices from moving beyond the rear edge of the bottom of the stack.

7. A feed mechanism comprising instrumentalities for holding in stationary position a stack of flat articles, devices for engaging the bottom of the stack, mechanism for causing said devices to have a back and forth movement for feeding the articles in succession from the bottom of the stack, and a stationary gage extending downward below the front edge of the lowermost articles, said devices including suction means for pulling said front edge below said gage to permit the edgewise removal of the article from the bottom of the stack, said devices being held against movement beyond the rear edge of the bottom of the stack.

8. A feed mechanism comprising instrumentalities for holding a stack of flat articles, devices for engaging the bottom of the stack, mechanism for causing said de-

vices to have a back and forth movement for feeding the articles in succession from the bottom of the stack, and a gage extending below the front edge of the lowermost article, said devices including suction means for pulling said front edge below said gage to permit the edgewise removal of the article from the bottom of the stack, and said devices including a plurality of sharp points which are held against movement beyond the front and rear edges of the bottom of the stack.

9. A feed mechanism comprising instrumentalities for holding a stack of flat articles, devices for engaging the bottom of the stack, mechanism for causing said devices to have a back and forth movement for feeding the articles in succession from the bottom of the stack, and a gage extending below the front edge of the lowermost article, said devices including suction means for pulling said front edge below said gage to permit the edgewise removal of the article from the bottom of the stack, said instrumentalities including a support for the bottom of the stack, and said support having an opening through which said means pulls the article downward to enable the same to pass under said gage.

10. A feed mechanism comprising instrumentalities for holding a stack of flat articles, devices for engaging the bottom of the stack, mechanism for causing said devices to have a back and forth movement for feeding the articles in succession from the bottom of the stack, and a gage extending below the front edge of the lowermost article, said devices including suction means for pulling said front edge below said gage to permit the edgewise removal of the article from the bottom of the stack, said instrumentalities including a hopper provided with a bottom which slides back and forth with said devices, and said hopper bottom having a central opening for permitting said means to operate against the bottom of the stack in rear of said gage.

11. A feed mechanism comprising instrumentalities for holding a stack of flat articles, devices for engaging the bottom of the stack, mechanism for causing said devices to have a back and forth movement for feeding the articles in succession from the bottom of the stack, and a gage extending below the front edge of the lowermost article, said devices including suction means for pulling said front edge below said gage to permit the edgewise removal of the article from the bottom of the stack, said instrumentalities including a hopper having a bottom provided with an opening for permitting said means to operate against the bottom of the stack in rear of said gage.

12. A feed mechanism comprising instrumentalities for holding a stack of flat

articles, devices for engaging the bottom of
the stack, mechanism for causing said de-
vices to have a back and forth movement for
feeding the articles in succession from the
6 bottom of the stack, and a gage extending
below the front edge of the lowermost
article, said devices including suction means
for pulling said front edge below said gage
to permit the edgewise removal of the article
10 from the bottom of the stack, said instru-
mentalities including a slide forming a sup-

port for the stack, and said mechanism com-
prising a cam for operating said slide, a
lever for supporting said means, pivoted on
the slide, and a cam for operating said lever 15
to raise and lower said means.

Signed by me at Chicago, Illinois, this
7th day of April 1914.

FRANK V. MOORE.

Witnesses:

RACHEL J. RICHARDSON,
ROSE E. SEHNEM.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."