

June 8, 1954

G. A. GIBSON, JR
ARTICLE FEEDER

2,680,614

Filed July 29, 1950

5 Sheets—Sheet 1

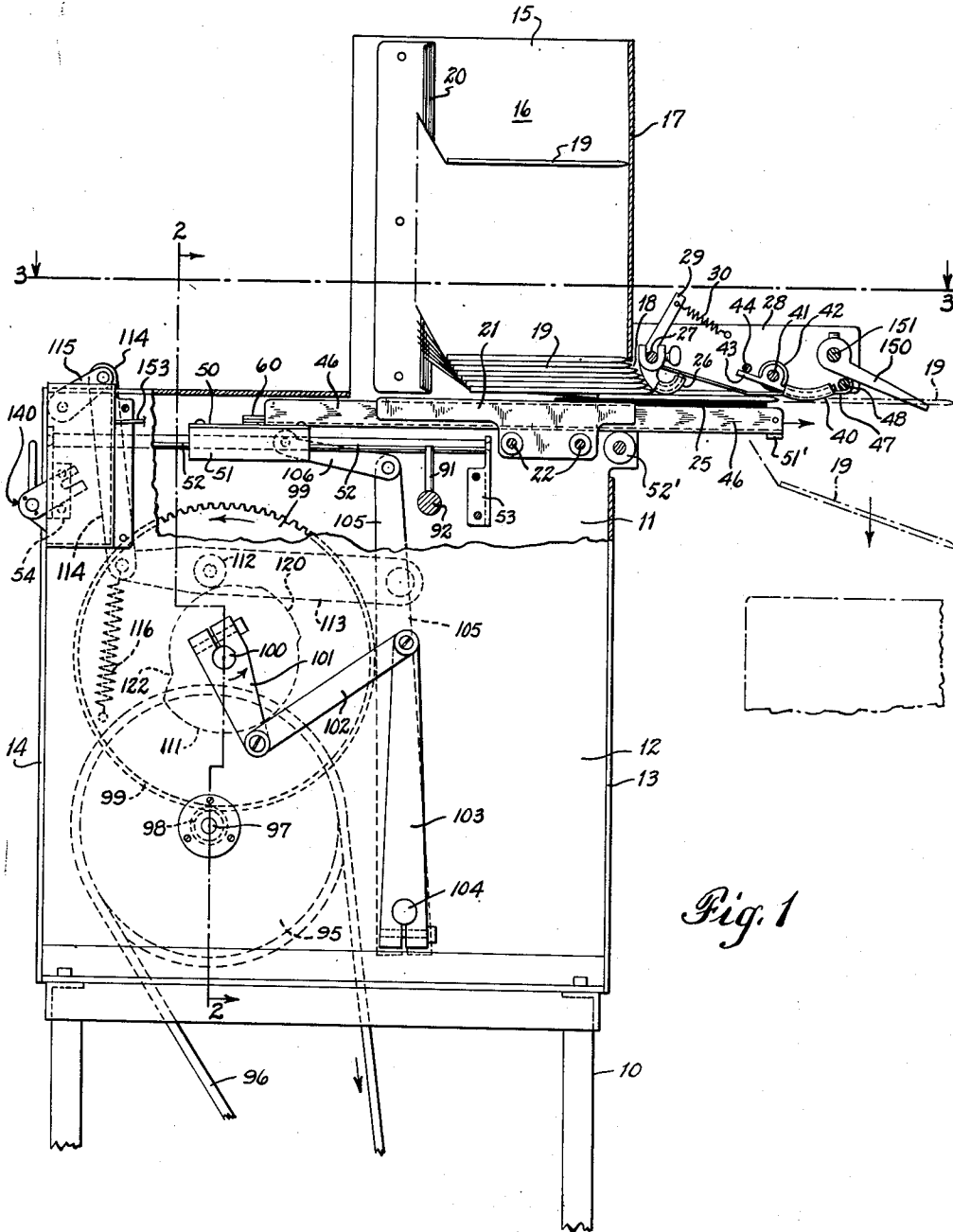


Fig. 1

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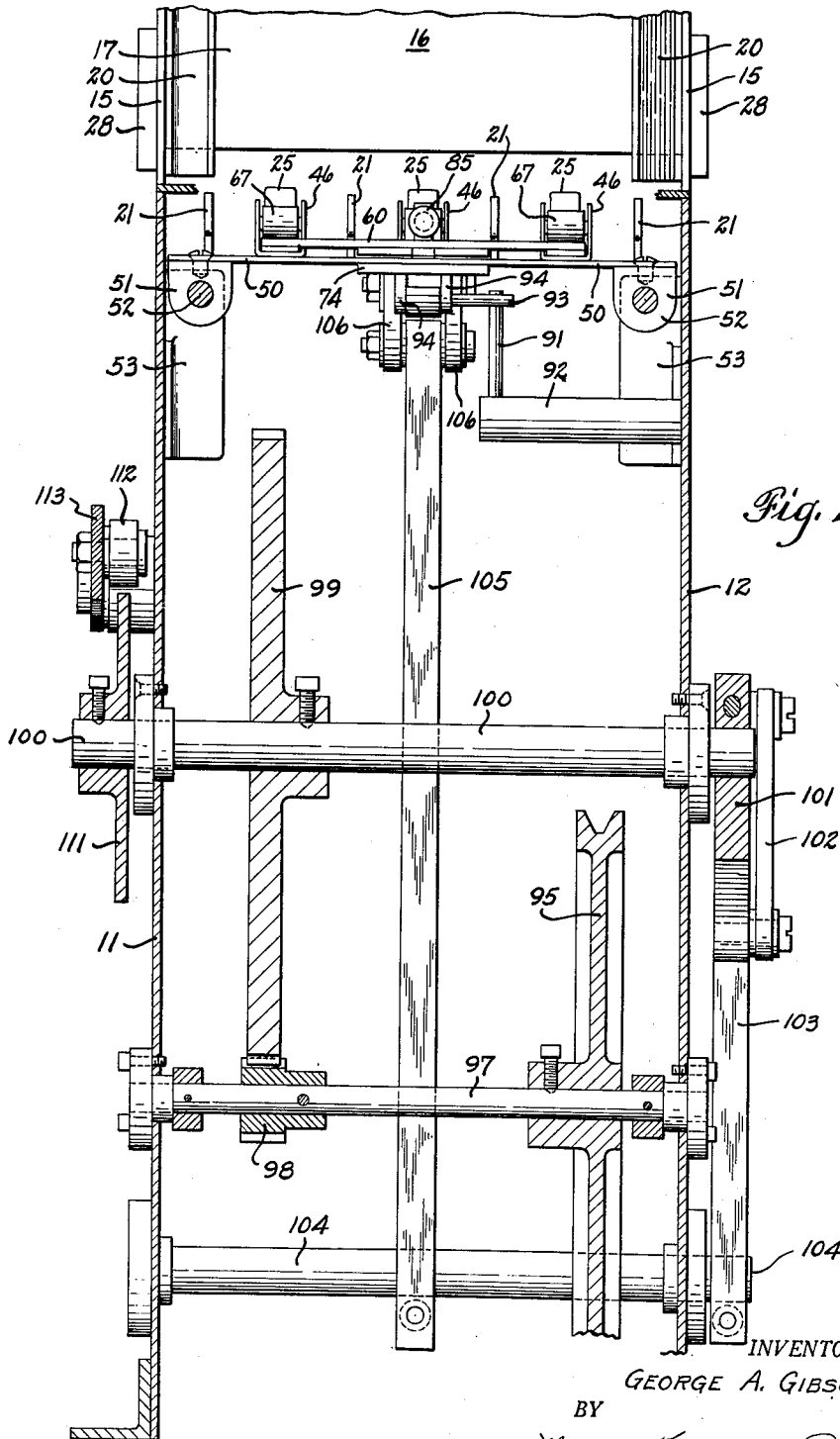


Fig. 2

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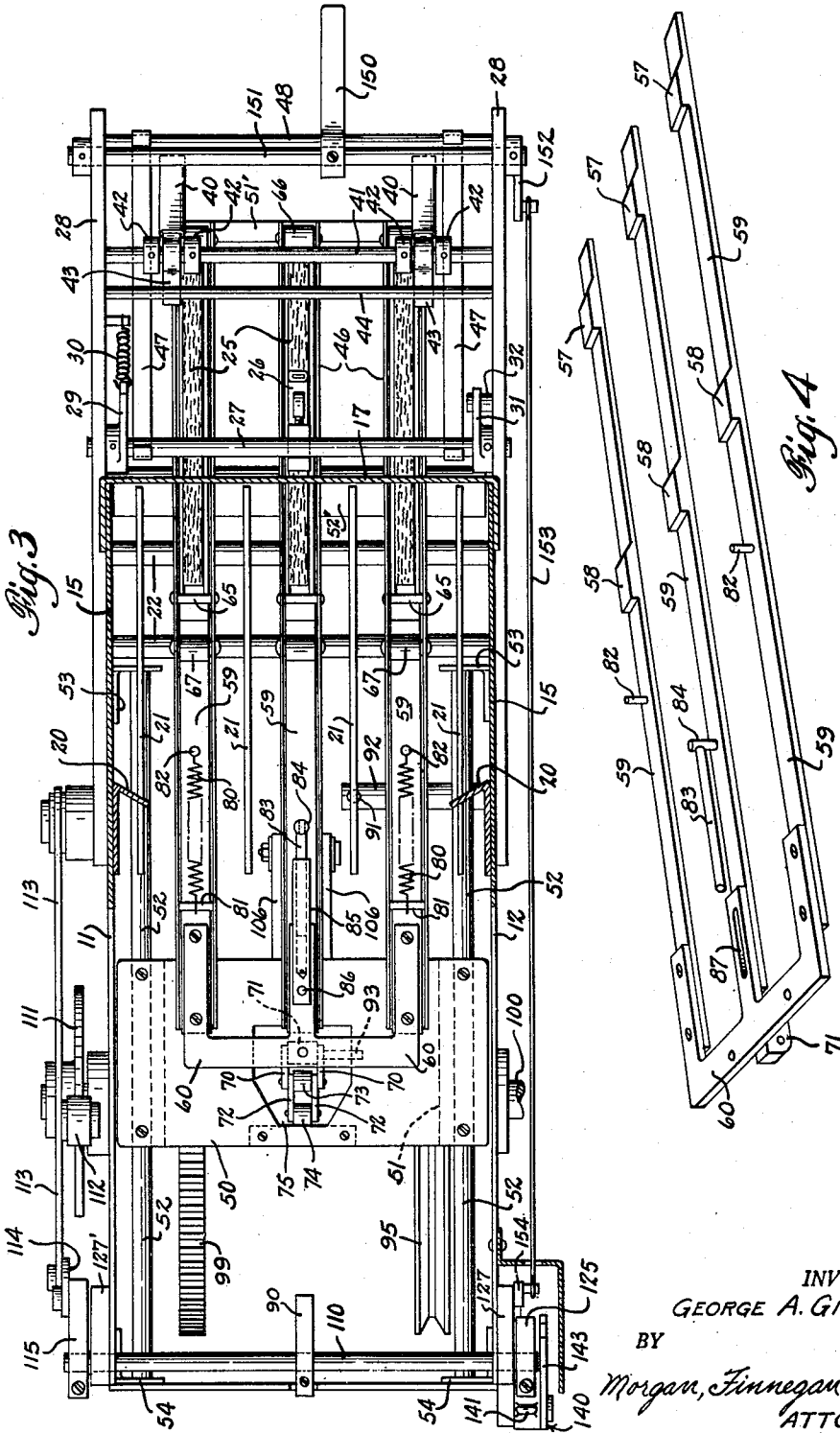
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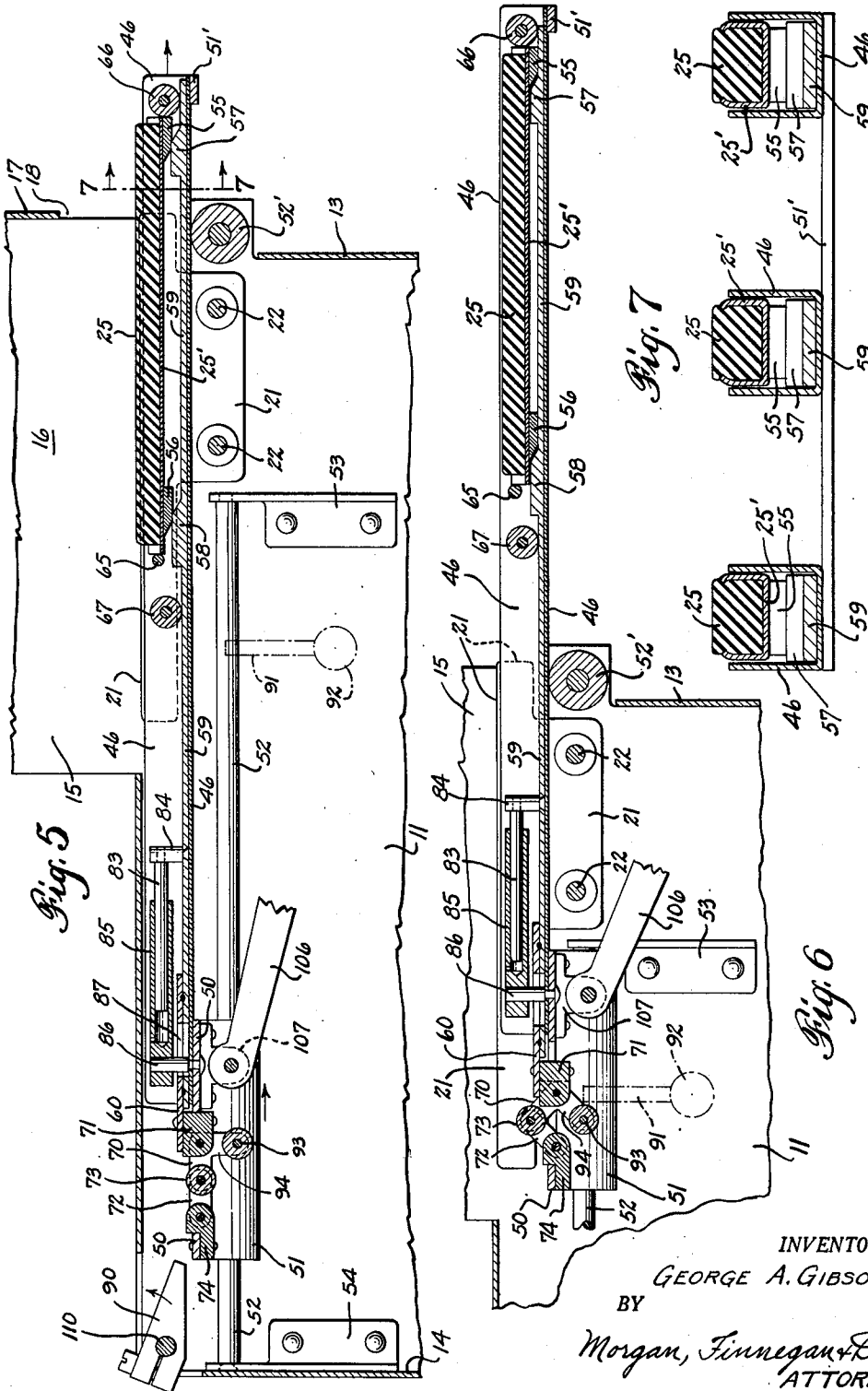
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ARTICLE FEEDER

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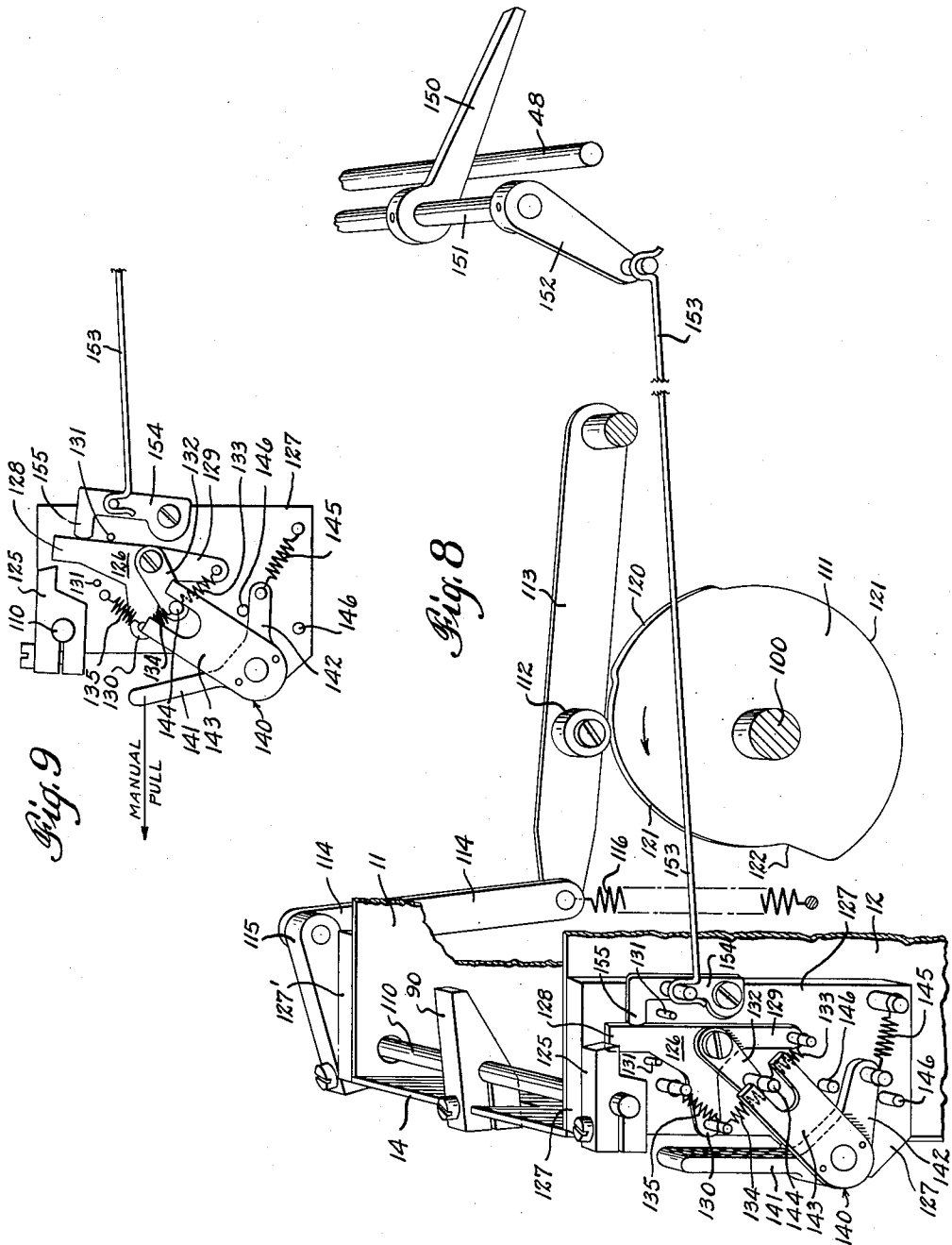
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ARTICLE FEEDER

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5 Sheets-Sheet 5



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UNITED STATES PATENT OFFICE

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ARTICLE FEEDER

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Application July 29, 1950, Serial No. 176,697

8 Claims. (Cl. 271-44)

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The present invention relates to an article feeding device and more particularly to such a device adapted to individually feed relatively flat articles such as sheets or groups of sheets, envelopes, whether empty or filled, and the like from a stack of such articles.

Objects and advantages of the invention will be set forth in part hereinafter and in part will be obvious herefrom, or may be learned by practice with the invention, the same being realized and attained by means of the instrumentalities and combinations pointed out in the appended claims.

The invention consists in the novel parts, constructions, arrangements, combinations and improvements herein shown and described.

The accompanying drawings, referred to herein and constituting a part hereof, illustrate an embodiment of the invention, and together with the description, serve to explain the principles of the invention.

Of the drawings:

Fig. 1 is a side elevation of a typical and illustrative embodiment of the invention, certain parts being broken away and other obscured parts being shown in broken lines for greater clarity;

Fig. 2 is a transverse cross-sectional view taken along line 2-2 of Fig. 1;

Fig. 3 is a top plan and cross-sectional view taken along line 3-3 of Fig. 1;

Fig. 4 is a detail perspective view of an element of the article feeding device shown in the foregoing figures;

Fig. 5 is a longitudinal cross-sectional view of the reciprocating carrier and associated parts of the feeding device shown in the foregoing figures shown at one point in its travel;

Fig. 6 is a view similar to Fig. 5 showing the carrier at another position in its path of travel;

Fig. 7 is a transverse cross-sectional view taken along line 7-7 of Fig. 5;

Fig. 8 is a perspective view of certain of the manual and automatic control means for the embodiment of the invention as shown in the foregoing figures; and,

Fig. 9 is a side elevation of certain parts of the control means shown in Fig. 8 disclosed in a different position.

The invention has for an object the provision of an improved article feeding device adapted particularly for use with relatively flat articles such as sheets or groups of sheets, envelopes, and the like, the device being capable of automatically feeding such articles individually from a stack of

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the articles. Another object is the provision of such a feeding device which may be utilized both with relatively thin or relatively thick articles, that is, to feed individual sheets or groups of sheets such as signatures, or envelopes in their flat condition or after they have been filled with mailing material. Still another object is the provision of a feeding device which may be utilized to feed articles of uneven thickness which do not stack evenly or well such as, for instance, envelopes which are filled with mailing material, or magazine and book signatures which may have a fold or be clipped together at one edge. The invention further provides a device which is designed for certainty of operation in the feeding of individual articles, and is conveniently designed for continuous operation, automatic feeding taking place from the bottom of a vertical stack of articles which may be continuously replenished by the operator. Still another object is the provision of manual and automatic control means for an article feeding mechanism of the characteristics mentioned.

With the above and other objects in view the illustrative embodiment of the invention as herein shown and described comprises an automatic feeding device which might be used for the feeding of envelopes filled, for instance, with dress patterns, from a vertical stack to a weighing machine station for postage weighing prior to final closure and dispatch of the envelopes. The device comprises a vertically arranged chute or hopper to hold articles to be fed in a generally vertical stack, the top being open for the manual or other introduction of articles, and the bottom being open for the individual feeding of articles from the bottom of the stack. Such feeding is effected by means of a reciprocating carriage having frictional elements adapted to lie in one position of carriage travel beneath the hopper or chute to engage the lowermost article in the stack, and movable with the carriage from beneath the hopper to deliver the said article. The lowermost article in the stack, and the stacked articles above, are supported upon rails beneath the hopper, and the frictional elements on the carriage are mounted for relative vertical movement with respect to the carriage and with respect to said rails, so that said elements may be raised to above said rails for engagement with the lowermost article when the elements are beneath the stack, the carriage and elements advanced to deliver said article from under the stack, and the elements returned again to their lower position and returned by the carriage to beneath the stack,

the frictional elements in their lower position being lower than said rails so as to be out of engagement with articles in the stack. Means are provided for driving the carriage and frictional elements in reciprocating motion as described, and for changing the vertical position of the frictional elements, moving them upwardly at a position beneath the stack of articles and downwardly at their position to deliver the articles. Control means are also provided for manual adjustment so that the frictional elements may be made to remain in their lower position and the reciprocating carriage feed no articles in its travel, and automatic means are combined therewith so that upon failure of an article to reach delivery position, which may occur by reason of exhaust of the stack or jamming of the machine, the frictional elements will likewise be rendered inoperative to feed further articles.

It will be understood that the foregoing general description and the following detailed description as well are exemplary and explanatory of the invention but are not restrictive thereof.

Referring now in detail to the illustrative embodiment of the invention shown in the accompanying drawings, the article feeding device comprises suitable base framework indicated generally by the numeral 10 serving to support the machine framework, which comprises the side panels 11 and 12 and front and rear panels 13 and 14 respectively, said panels being relatively strong and rigid so as to retain their positions and support the various elements of the device. The sides 11 and 12 are projected upwardly in extensions 15 which form the sides of the article holding hopper or chute indicated generally as 16. As best shown in Figs. 1 and 3, said hopper is provided with a front wall 17 terminating short of the horizontal bed of the machine to provide an opening 18 from which stacked articles may be fed. The device is shown as adapted for the feeding of filled envelopes such as 19 shown in Fig. 1, and turned guide bars 20 are positioned at either side of the open rear side of the hopper 16 to engage the sealing flaps of the envelopes and force the stack against the front wall 17 for a general alignment or positioning of the envelopes. The stack of articles in hopper 16 is normally supported by a plurality of rail members 21, supported as shown (Fig. 3) upon cross rods 22 extending between the side panels 15.

The delivery of the article in hopper 16 is effected by means of a carriage hereinafter completely described, having a plurality of frictional resistance pieces such as rubber strips 25 carried thereby, adapted to be raised while positioned beneath hopper 16 to a position above the upper edges of rails 21 whereby the upper surfaces of said strips engaged the article, and the carriage and rubber strips are then driven forwardly to remove the article through opening 18 at the front of the hopper. Delivery of more than one article is prevented by means of curved fingers 26 preferably covered with frictional material, which are adjustably mounted on a cross rod 27 journaled in the side frames 28 at the front of the machine, said fingers being positioned at the hopper opening 18 as best shown in Fig. 1. An arm 29 secured to said rod 27 is connected by means of a coiled spring 30 to a side frame 23 whereby said fingers 26 are spring biased against articles tending to be withdrawn from hopper 16, and an arm 31 is provided at the other end of rod 27 to engage a stop 32 and limit the rotation of the rod and fingers when articles may not be present in the hopper.

Removal of articles 19 from the carriage and strips 25 is effected by means of curved scuffers 40 also preferably covered with frictional material, mounted for rotary motion on a rod 41 extending between the side frames 28 and positioned thereon by means of stop members 42 at either side thereof on said rod, said members being axially adjustable with respect to the rod so that the scuffers may be positioned for articles of various sizes. The scuffers 40 tend to engage the upper surface of an article 19 on the carriage by gravity, and rear arm portions 43 thereof are adapted to engage the rod 44 extending between side frames 28 serving as a stop for downward travel of the scuffers when no article is beneath them. As the carriage and rubber strips 25 reach the forward point of their reciprocating movement travel, the strips are dropped to a lower position disengaging the under surface of the article 19, which then rests on longitudinally extending channels 46 of the carriage, and the scuffers 40 engaged with the upper surface of the article remove it for delivery, as indicated in broken lines in Fig. 1, as the carriage is withdrawn to its position again beneath hopper 16. A plurality of guiding strips 47 are provided supported by their turned ends as shown in Fig. 3 on rod 27 and another cross rod 48 toward the front of side frames 28, serving to hold down the edges of articles 19 as they are forwarded and delivered.

Referring now to the detailed construction of the reciprocating carriage carrying the strips 25 and channels 46 already mentioned, such construction comprises a head member 50 having a pair of elongated bearing members 51 suitably secured to the under surface thereof mounted for free sliding movement on respective rods 52, which are suitably supported by brackets 53 and 54 on the side panels 11, 12, and the rear panel 14, respectively, of the machine framework. The longitudinally extending channels 46 are suitably secured to said head member 50 adjacent their rear edges, and at their forward edges are secured to and interconnected by a cross member 51', the channels being forwardly supported by a roller 52' for their reciprocating motion. A rubber strip 25, with its reinforcing channel 25' is positioned in each of the channels 46 toward the forward end thereof, and each said strip is provided with front and rear inclined cam members 55 and 56 secured to the under surface of its channel 25'. Said cam members 55 and 56 are adapted to cooperate with front and rear cam portions 57 and 58 respectively mounted on flat bars 59, as best shown in Fig. 4, said bars being positioned for slidable motion in respective ones of the carriage channels 46, and being interconnected at their rear ends by a yoke member 60. The bars 59 are movable between positions illustrated in Figs. 5 and 6 of the drawings, wherein the bars are shown in a rearward position in Fig. 6 with the top surfaces of strips 25 positioned below the upper edges both of channels 46 and rails 21, and in Fig. 5 the bars are shown in a forward position, the cam members and portions 55, 56 and 57, 58 having cooperated to raise the strips 25 to slightly above the edges of members 46 and 21. The strips 25 are positioned in channels 46 by means of stops 65 in the channels at one end, and rollers 66 at their forward ends, said rollers, together with rollers 67, serving to position the flat bars 59 as well.

The bars 59 through yoke 60 are interconnected with other parts of the carriage by means of a toggle connection comprising the links 70 pivot-

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ally connected to a bracket 71 on yoke 60, and to other links 72, with a roller 73 at the pivotal interconnection of the links. The links 72 are pivotally connected to a bracket 74 secured to the head member 50 of the carriage, an aperture 75 being provided therein to accommodate the several elements of the toggle linkage described. Coiled springs 80 connected between horizontal pins 81 of channels 46 and pins 82 of bars 59 tend to hold the bars in the retracted position of Fig. 6 and cooperate with the toggle linkage to give a snap action to the relative movement of strips 25 in channels 46, said action being dampened somewhat by the dash pot arrangement comprising piston rod 83 secured by pin 84 to the central bar 59, and cylinder 85 secured by pin 86 to head member 50 of the carriage, said pin passing through aperture 87 in yoke 60 to allow relative movement of the parts. The toggle linkage 70-72 is straightened at the rear point of travel of the carriage by depressor detent 90 when it is properly positioned as hereinafter more fully described to raise the strips 25, and is collapsed at a forward point of travel of the carriage by means of a vertically arranged pin 91 on a supporting bar 92 which is arranged in the path of travel of the toggle, to engage a stud 93 secured to downwardly extending arm portions 94 of links 70.

The means for driving the carriage members 50, 46 in reciprocating motion so as to alternately position the strips 25 beneath hopper 16 and forwardly thereof, comprise a pulley 95 driven by belt 96 from a suitable power means such as an electric motor (not shown), said pulley being mounted on shaft 97 journaled in the side panels 11 and 12 of the machine framework. Gear 98 fixed to shaft 97 drives gear 99 on shaft 100 which is also journaled in panels 11 and 12, said shaft carrying at one end the crank 101 rotating therewith connected by link 102 to arm 103 fixed to shaft 104 to impart reciprocating rotary motion thereto. Shaft 104 centrally of the machine has fixed thereto the arm 105, the upper end of which carries the pivotally connected link 106 which is also pivotally mounted on a bracket 107 secured to the under surface of head member 50 of the carriage, whereby the latter is driven in the reciprocating path described.

Control means are provided whereby, through the positioning of depressor detent 90, the toggle linkage 70-72 may be actuated on each rearward travel of the carriage to raise the strips 25 for article feeding, or the toggle linkage may remain unaffected by said detent in which case no articles are fed although the carriage continues in motion, and said control is effected both manually for starting and stopping the feed of articles as desired by the operator, and automatically upon the failure of an article to reach delivery position from the carriage. As embodied the control means comprise a depressor detent shaft 110 journaled in side plates 127 and 127' mounted on the side panels 11 and 12 of the machine, and detent 90 is adjustably secured thereto for rocking motion therewith. Said rocking motion for the shaft 110 is imparted thereto from shaft 100 which, as has been described, is continuously driven from the machine power means. Cam 111 is fixed to shaft 100 for rotation therewith outside panel 11 of the framework, and cam follower wheel 112 is mounted on arm 113 which is pivotally mounted on panel 11 of the framework. A link 114 is pivotally connected to the arm 113 and at its other end to crank arm 115, which is adjustably secured adjacent an end of

the detent shaft 110. A relatively strong coiled spring 116 is connected to the crank system at the pivotal interconnection of arm 113 and link 114 and to panel 11, exerting a continuous pressure toward maintaining the follower 112 on the peripheral surface of cam 111 and rotating depressor detent 90 downwardly to a position where it will engage the toggle linkage 70-72 in its collapsed form to straighten it. The cam 111 is provided with a high surface 120, intermediate surfaces as indicated at 121, and a low point with sudden drop-off thereto at 122. Said cam is so positioned on the shaft 100 that the low point 122 will be under follower 112 at about the time that carriage 50-46 is at the rearmost point of its reciprocating travel, while high surface 120 is under the follower at the forward point of its travel. It will thus be seen that as the follower 112 is allowed to fall suddenly at point 122, the detent 90 will be brought suddenly downwardly to engage and straighten the toggle linkage 70-72, in the event that it is in collapsed condition at the time, and the strips 25 will be raised for article feeding.

The manual and automatic control of the feeding of the device is effected through the positioning of detent 90, permitting or prohibiting its fall coincident with low point 122 of cam 111 to raise strips 25 as described. Means for so controlling detent 90 comprise mechanism best shown in Fig. 8 of the drawings, including a second detent finger 125 adjustably secured to shaft 110 for rotary motion therewith, and a locking lever 126 pivotally mounted on a control plate 127 fixed to panel 12 of the framework. The locking lever 126 comprises an upwardly extending arm 128, a downwardly extending arm 129, and an intermediate angularly extending arm 130. The locking lever is so mounted to pivot between the limits of stops 131 that at the limit of its counterclockwise motion arm 128 engages under the detent 125 to prevent clockwise motion thereof, preventing lowering of detent 90 for engagement with toggle linkage 70-72 (Fig. 8). At the clockwise limit of the rotation of lock lever 126 the arm 128 is out from under detent 125, and operation of shaft 110 and detents 90 and 125 is unrestricted (Fig. 9). The high surface 120 of cam 111 is sufficient to raise the detent 125 so that arm 128 may engage under it, while intermediate and lower surfaces and point 121 and 122 do not raise detent 125 sufficiently high for such engagement.

The control means further comprises a lever 132 independent of lock lever 126 but pivotally mounted on the same axis, which is interconnected with the arms 129 and 130 by means of springs 133 and 134 respectively, the tension of said springs being such as to normally center lever 132 between said arms, and to resiliently transmit motion thereto. The position of lock lever 126 is normally determined by spring 135 connecting arm 130 and stationary plate 127 urging the lock lever in a clockwise direction, and the tension of said springs are arranged to normally position lock lever 126 so that arm 128 is just out from under detent 125 prohibiting engagement therewith.

A manual starting and stopping lever 140 is pivotally mounted on plate 127, having an arm 141 to be manipulated by the operator as indicated in Fig. 8 to start or stop feeding of articles, an arm 142, and a central arm 143 having a bifurcated end to accommodate the pin 144 at the end of lever 132. The lever 140 is normally held by means of spring 145 between arm 142 and plate

127 so that the bifurcated ends of arm 143 are spaced from pin 144. The lever 140 may be manually rotated between limits provided by the stops 146.

Means for automatically terminating further article feeding in the event that an article fails to reach delivery position upon forward movement of the carriage comprise the article feeler finger 150 secured to shaft 151 which is journaled in side frames 28 at the delivery end of the machine, said shaft carrying at one end crank arm 152 to which push-pull rod 153 is connected, the other end thereof being connected to a pusher lever 154 pivotally mounted on control plate 127 and engaging with its nose 155 the lock lever 126. The feeler finger 150 is positioned to be raised by an article positioned on the carriage at the forward point of its travel, and when so raised the rod 153 rotates pusher lever 154 in a clockwise direction allowing lock lever 126 to assume its normal position with arm 128 out from under detent 125, while the gravitational effect of finger 150 at any time that it is not engaged by an article on the carriage, rotates pusher lever 154 in a counterclockwise direction to engage lock lever 126 and push arm 128 under detent 125, a stationary bar 48 is positioned between side frames 28 to limit downward gravitational movement of finger 150.

In describing the operation of the feeding device described let it be assumed that articles 19 have been positioned in hopper 16 to be fed therefrom, the power means have been started to continuously drive shaft 97, whereby the carriage 50-46 is in continuous reciprocatory motion and cam 111 is in continuous rotation, and let it further be assumed that the strips 25 are in their lower positions on the carriage, as illustrated in Fig. 6, with the toggle linkage 70-72 collapsed as shown in said figure. In such operation the carriage will be continuously reciprocated without the feeding of articles, since no articles are forwarded to raise finger 150, which continuously remains down against stop rod 48, forcing arm 128 of lock lever 126 under detent 125, and hence follower 112 is prevented from falling into low point 122 of cam 111 at the rearward point of travel of the carriage, and detent 90 does not fall to straighten toggle linkage 70-72.

When the operator of the device then rotates manual starting lever 140 in a counterclockwise direction, the control parts are moved from the position of Fig. 8 to that of Fig. 9, arm 128 being moved from beneath detent 125 against the opposite force of push lever 154, and finger 150 is raised. With the parts in this position, with the next backward travel of the carriage, the detent 125 is unrestricted by arm 128, follower 112 may fall into low point 122 of cam 111, detent 90 falls suddenly under the influence of spring 116 to engage and straighten toggle linkage 70-72 to the position shown in Fig. 5, wherein the carriage is just beginning its forward travel thereafter. With the strips 25 thereby placed in their upper position, the lowermost article 19 will be carried forward with the carriage. At the point of forwardmost travel of the carriage, the toggle is collapsed by engagement with pin 91, as illustrated in Fig. 6, the strips 25 falling and the article being stripped off as the carriage returns, as already described. With an article in place at the forward point of travel of the carriage, the feeler finger 150 is raised, so that finger 126 may occupy its normal position out from under detent 125 uninfluenced by push lever 154. As the carriage begins its return to its backward position,

detent 125 is allowed to become slightly lowered when follower 112 rides off of high surface 120 of the cam 111, at which position arm 128 cannot move under the detent, so that when finger 150 falls with the delivery of the article, it cannot by pusher lever 154 force arm 128 into locking position. It will be apparent that to start operation for feeding articles it is only necessary to rotate the manual lever 140 as indicated at the time when the carriage is approaching its rearward point of travel and at said point, so that follower 112 may fall at low point 122 of the cam, the control thereafter automatically providing for raising of strips 25 at the rear point of carriage travel by the preceding lifting of finger 150 by the article when the carriage was at its forward point of travel.

When it is desired to manually stop the further feeding of articles, the manual lever 140 is rotated in a clockwise direction as indicated in Fig. 8, which tends to rotate lock lever 126 in a counterclockwise direction to engage arm 128 under detent 125. Such movement of arm 128 may take place when the detent is in its uppermost position with follower 112 on high surface 120 of cam 111 (at the point of forward travel of the carriage), and when the follower rides off said high surface detent 125 is positioned on arm 128 and detent 90 is prevented from falling at the time low cam point 122 is under follower 112. No further article feed will then take place until manual starting lever 140 is actuated, as finger 150 remains down at each forward travel of the carriage to continue the placement of arm 128 under detent 125.

It will be apparent that the operation of feeler finger 150 constitutes an automatic stopping of further feeding in the event that no article is on the carriage at the point of forwardmost travel thereof, as the pusher lever will in every instance position arm 128 under detent 125 when the same is up due to high surface 120 of the cam, unless, of course, manual force overcoming such action is being exerted at the time on lever 140 to start the feeding operation.

The invention in its broader aspects is not limited to the specific mechanisms shown and described but departures may be made therefrom, within the scope of the accompanying claims, without departing from the principles of the invention and without sacrificing its chief advantages.

What I claim is:

1. An article feeding device comprising, in combination, means for holding a plurality of articles in superposed relationship, means for successively and individually feeding the lowermost article in said holding means, said feeding means comprising a carriage base, means for driving said base in horizontal reciprocating movement from an article pick-up position beneath each said successively lowermost article in said holding means to an article delivery position horizontally spaced therefrom, frictional means carried by said base for horizontal, reciprocating movement therewith, said frictional means being mounted for relative vertical movement with respect to said base but held against relative horizontal movement with respect thereto, cam means also carried by said base for horizontal, reciprocating movement therewith, said cam means being relatively horizontally slidable with respect to said base and engageable with said frictional means to move said frictional means vertically relative to said base, and toggle means intercon-

necting the cam means and base, actuation whereof causes relative horizontal movement of said cam means with respect to said base, and means for actuating said toggle means including a driven cam and contacting means moved thereby adapted to engage and actuate said toggle means.

2. An article feeding device comprising, in combination, means for holding a plurality of articles in superposed relationship, means for successively and individually feeding the lowermost article in said holding means, said feeding means comprising a carriage member, means for driving said member in horizontal, reciprocating movement from an article pick-up position beneath each said successively lowermost article in said holding means to an article delivery position horizontally spaced therefrom, said carriage member comprising a carriage base, cam means horizontally slidable on said base and carried by said base in horizontal, reciprocating movement, frictional means carried by said base and moved in horizontal reciprocating movement therewith and engageable by said cam means for movement vertically thereby, and toggle means interconnecting said base and cam means, means for horizontally sliding said cam means on said base when said carriage is in pick-up position and in said delivery position, including actuating means for said toggle means, and control means manually actuated for selectively rendering operative and inoperative said actuating means for said toggle means when said carriage is in pick-up position.

3. An article feeding device comprising, in combination, means for holding a plurality of articles in superposed relationship, means for successively and individually feeding the lowermost article in said holding means, said feeding means comprising a carriage member, means for driving said member in horizontal, reciprocating movement from an article pick-up position beneath each said successively lowermost article in said holding means to an article delivery position horizontally spaced therefrom, said carriage member comprising a carriage base, cam means horizontally slidable on said base and carried by said base in horizontal, reciprocating movement, frictional means engageable by said cam means for movement vertically thereby, said frictional means carried by said base and moved in horizontal reciprocating movement therewith, and toggle means interconnecting said base and cam means, means for horizontally sliding said cam means on said base when said carriage is in pick-up position and in said delivery position by actuation of said toggle means, and control means manually actuated for selectively rendering operative and inoperative said means for horizontally sliding said cam means when said carriage is in pick-up position by selective actuation and non-actuation of said toggle means.

4. An article feeding device comprising, in combination, means for holding a plurality of articles in superposed relationship, means for successively and individually feeding the lowermost article in said holding means, said feeding means comprising a carriage member, means for driving said member in horizontal, reciprocating movement from an article pick-up position beneath each said successively lowermost article in said holding means to an article delivery position horizontally spaced therefrom, said carriage member comprising a carriage base, cam means horizontally slidable on said base and carried by said base in horizontal, reciprocating

movement, frictional means engageable by said cam means for movement vertically thereby, said frictional means carried by said base and moved in horizontal, reciprocating movement therewith, and toggle means interconnecting said base and cam means, means for horizontally sliding said cam means on said base when said carriage is in pick-up position and in said delivery position, actuating means engageable with said toggle means for moving said cam means relative to said carriage base, article sensing means adjacent the article delivery position, and connecting means between said sensing means and actuating means preventing engagement of said actuating means with said toggle means when said article sensing means does not sense an article.

5. An article feeding device comprising, in combination, means for holding a plurality of articles in superposed relationship, means for successively and individually feeding the lowermost article in said holding means, said feeding means comprising a carriage member, means for driving said member in horizontal, reciprocating movement from an article pick-up position beneath each said successively lowermost article in said holding means to an article delivery position horizontally spaced therefrom, said carriage member comprising a carriage base, frictional means carried by said base and moved in horizontal, reciprocating movement therewith and mounted for vertical movement thereon, cam means horizontally slidable on the base engageable with said frictional means and carried by said base in horizontal reciprocating movement, and toggle means interconnecting the cam means and base, means for automatically moving said frictional means upwardly when said carriage is in said pick-up position and downwardly when said carriage is in said delivery position, including a driven cam and contacting means connected thereto adapted to engage said toggle means, and control means including manually actuated means engageable with said toggle contacting means for selectively rendering operative and inoperative said means for moving said frictional means upwardly when said carriage is in pick-up position, and means for automatically rendering inoperative said means for moving said frictional means upwardly actuated when an article is not present on the carriage in said delivery position, said last means including an article sensing member adjacent said delivery position and connected to said control means.

6. An article feeding device comprising, in combination, a hopper for holding a plurality of articles in a substantially vertical stack, support members at the bottom of said hopper having surfaces for supporting articles therein and means for successively and individually feeding the lowermost article in said hopper, said means comprising a carriage member, means for driving said member in horizontal, reciprocating movement from an article pick-up position beneath said hopper to an article delivery position horizontally spaced therefrom, said carriage member comprising a carriage base, frictional means carried by said base and moved in horizontal, reciprocating movement therewith and mounted for vertical movement thereon, said frictional means having frictional surfaces to engage articles in said hopper, cam means horizontally slidable on the base engageable with said frictional means and carried by said base in horizontal, reciprocating movement, and toggle means

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interconnecting the cam means and base, and means for automatically moving said frictional means to move said surfaces thereof above said support surfaces in said pick-up position and below said support surfaces in said delivery position including a driven cam and contacting means connected thereto adapted to engage said toggle means.

7. An article feeding device as set forth in claim 1 wherein said control means further comprise a detent movable with said contacting means and manually operable stop means for said detent for engagement therewith to prevent engagement of said linkage by said contacting means under control of said driven cam.

8. An article feeding device as set forth in claim 7 wherein automatic feed controlling means are provided comprising a finger position to be engaged by an article on said carriage in said de-

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livery position and means interconnecting said finger and said stop means for selectively positioning and not positioning said stop means for engagement with said second detent.

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