

J. S. SLOSSON.
BAG SEPARATING AND FEEDING APPLIANCE.
APPLICATION FILED MAR. 6, 1913.

1,081,705.

Patented Dec. 16, 1913.

5 SHEETS—SHEET 1.

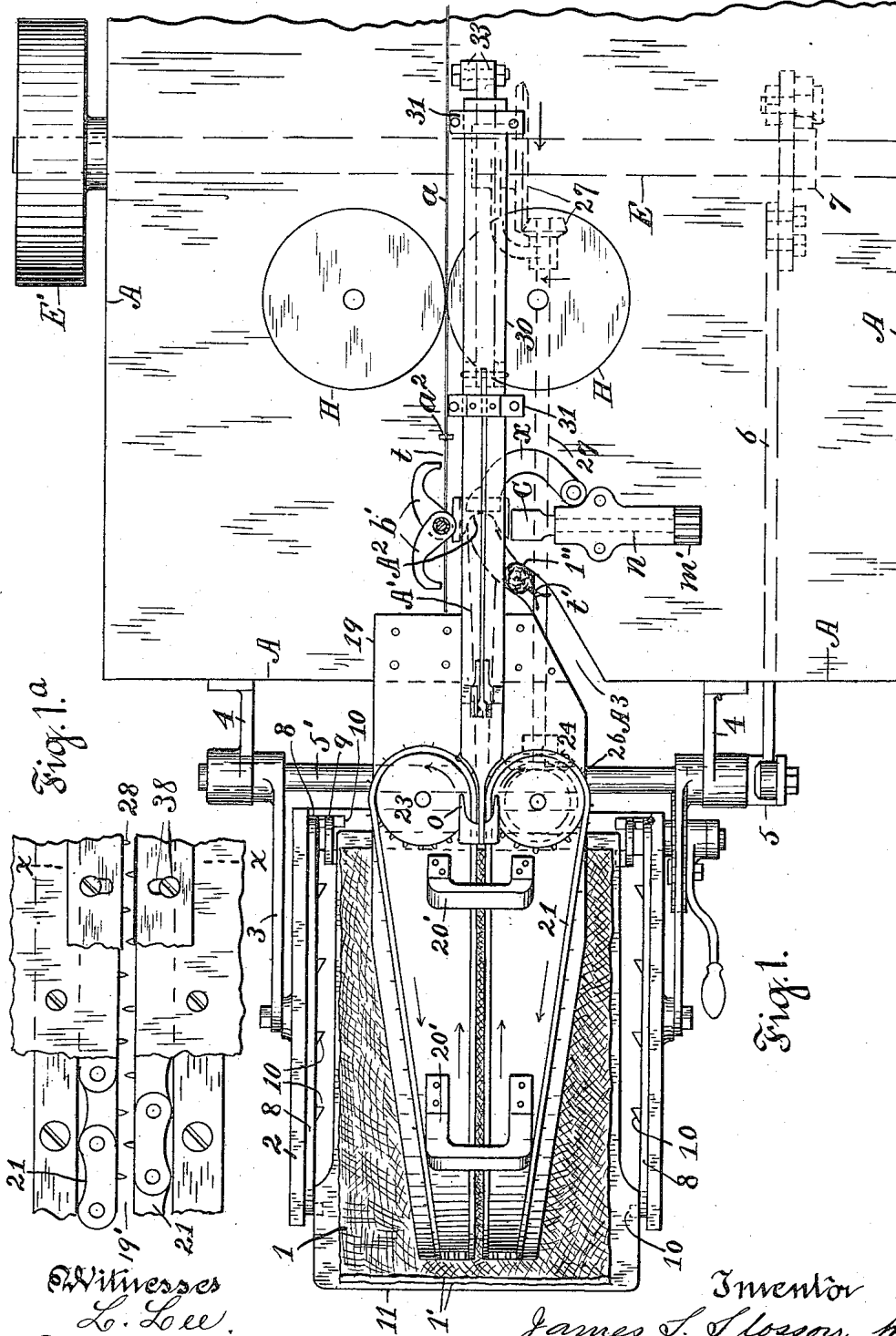


Fig. 1a.

Fig. 1.

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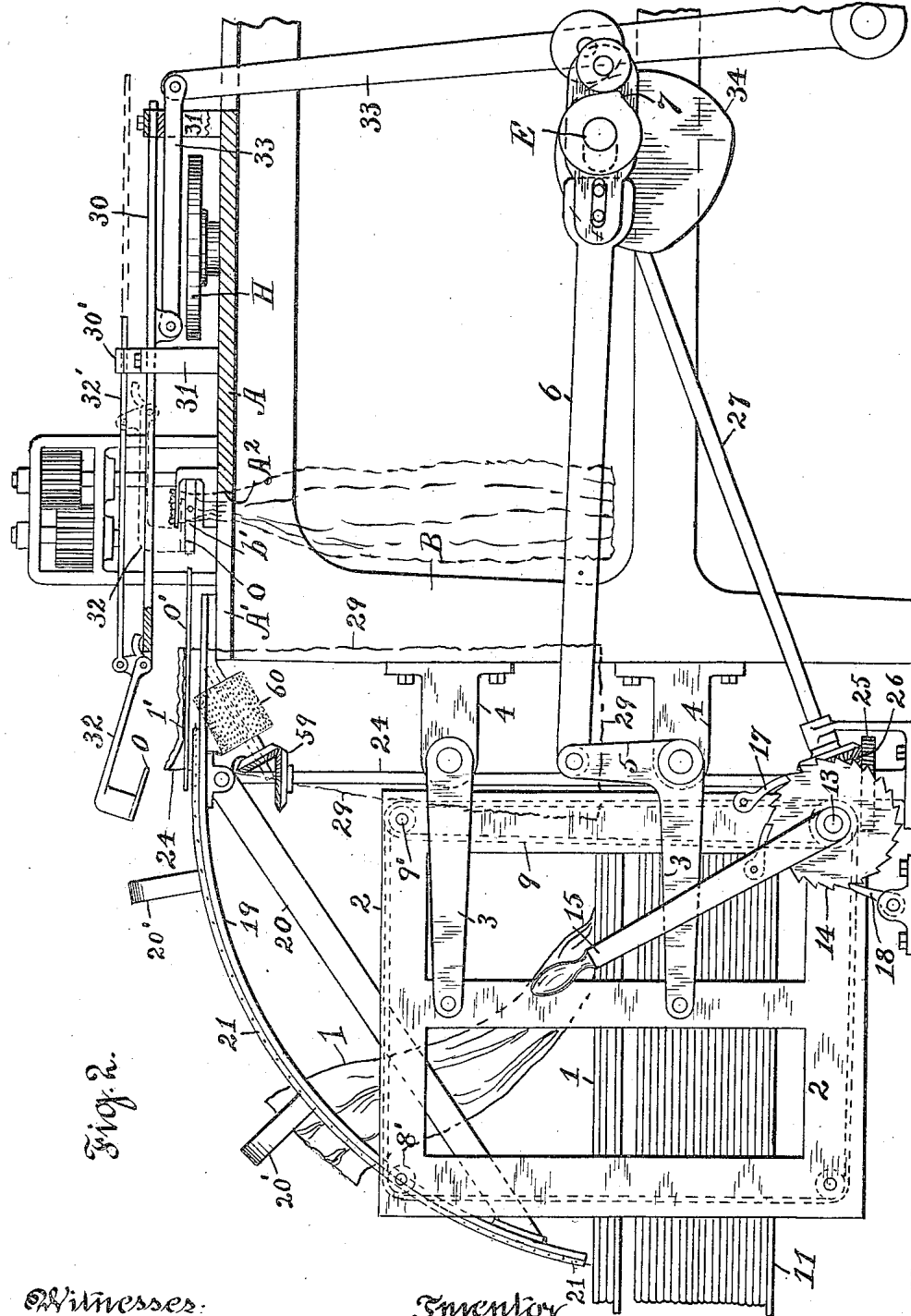


Fig. 2.

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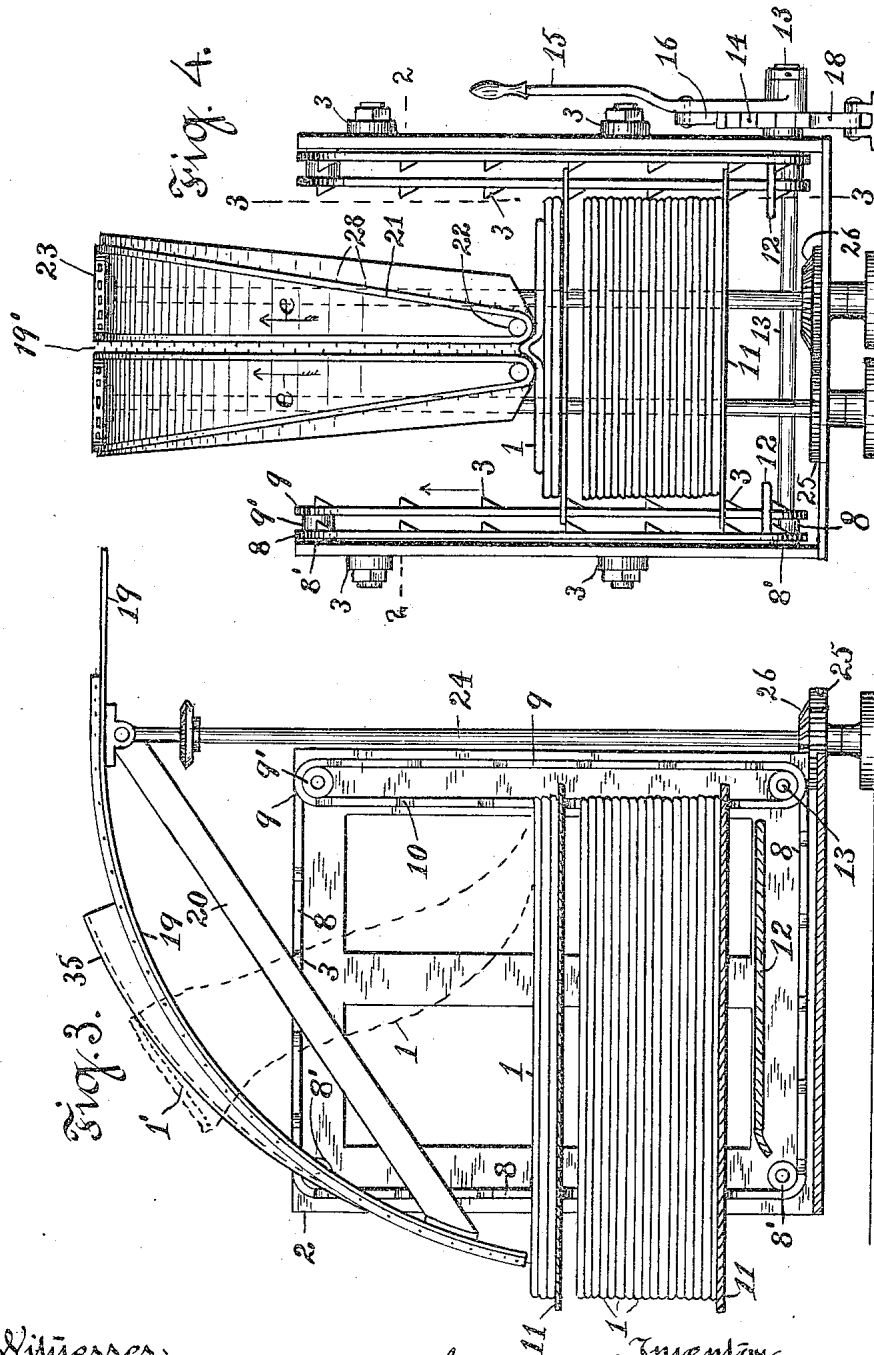
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5 SHEETS—SHEET 3.



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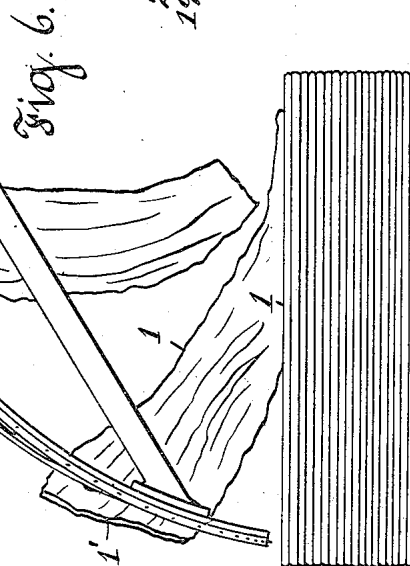
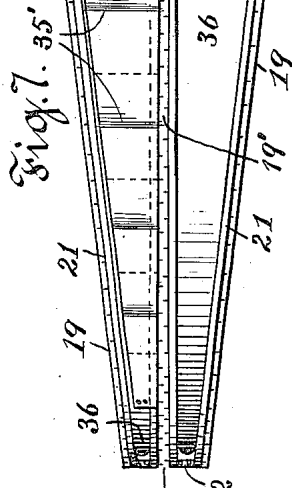
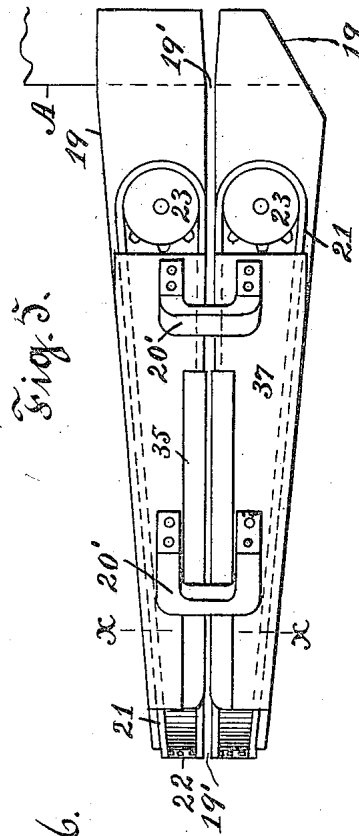
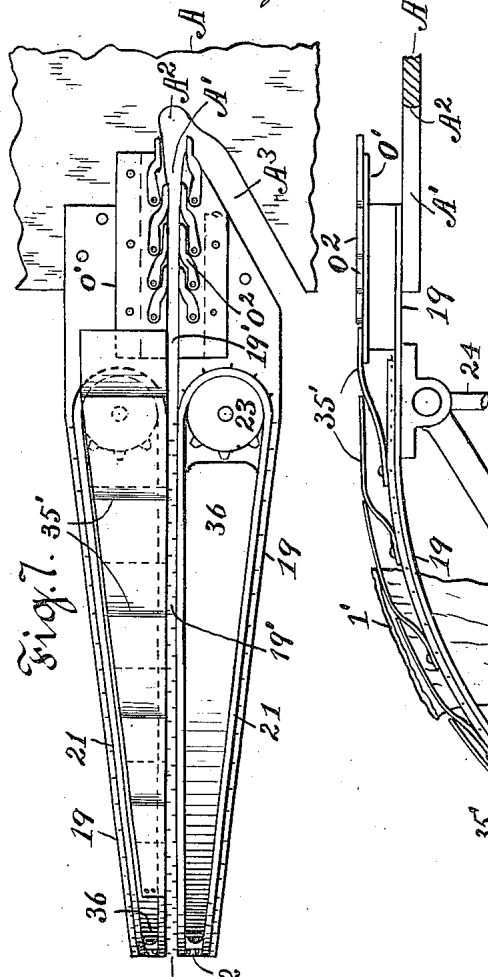
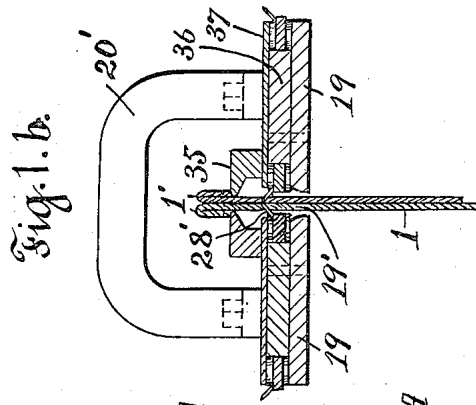
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5 SHEETS—SHEET 4.



Witnesses
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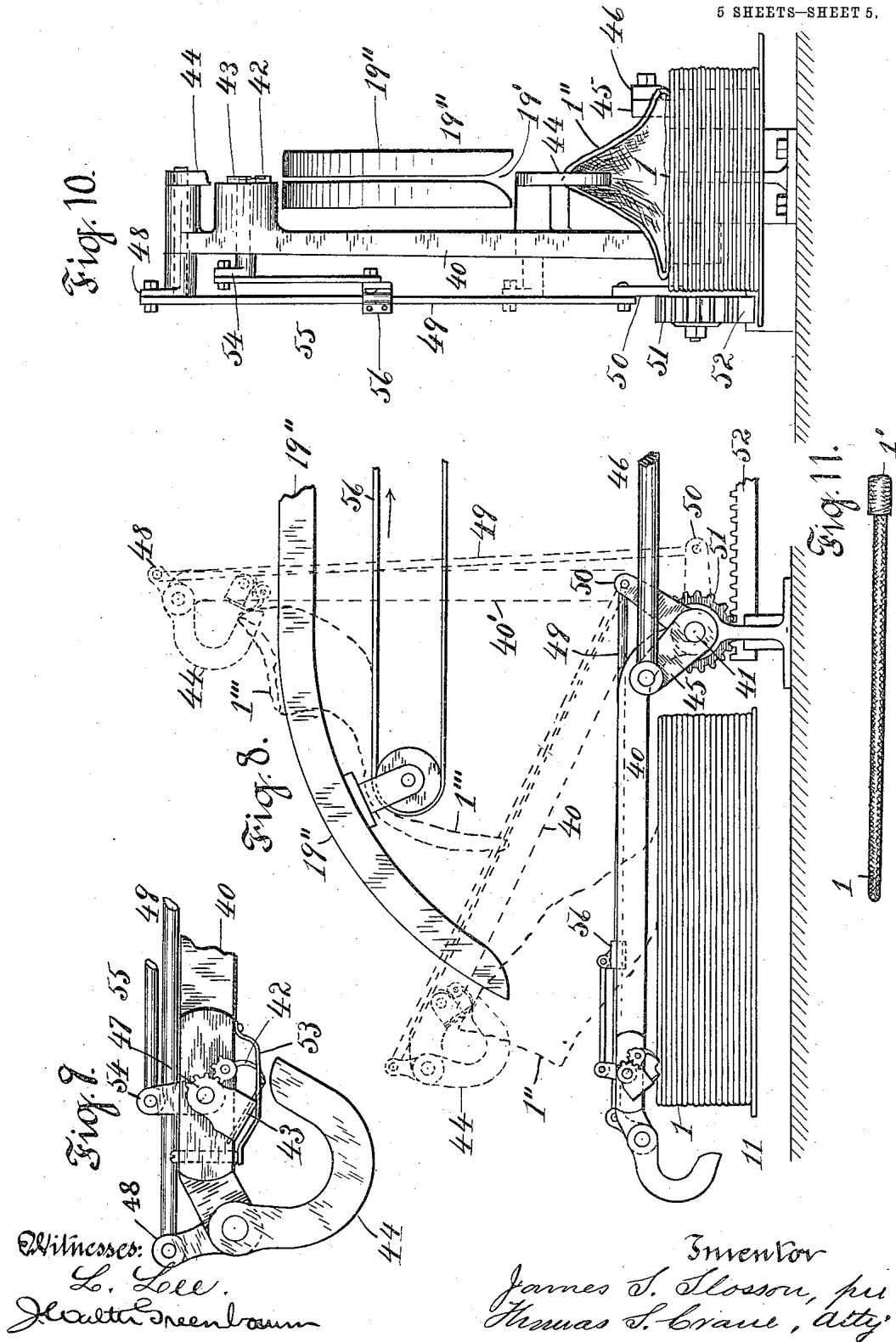
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5 SHEETS—SHEET 5.



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UNITED STATES PATENT OFFICE.

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BAG SEPARATING AND FEEDING APPLIANCE.

1,081,705.

Specification of Letters Patent.

Patented Dec. 16, 1913.

Application filed March 6, 1913. Serial No. 752,315.

To all whom it may concern:

Be it known that I, JAMES S. SLOSSON, a citizen of the United States, residing at 287 Tompkins avenue, New Brighton, borough
5 of Richmond, and State of New York, have invented certain new and useful Improvements in Bag Separating and Feeding Appliances, fully described and represented in the following specification and the accom-
10 panying drawings, forming a part of the same.

The present invention relates to means for handling bags, especially woven sacks, by which their filling, weighing, tying or other-
15 wise fastening may be facilitated. Such bags are sold in bales, and are frequently made with a filling aperture and flap in the bottom so that the neck can be tied before they are filled; and the object of the inven-
20 tion is to furnish an effective device for separating a single bag from a group or pile of bags and delivering such single bag to a chute, passageway or conveyer by which it may be delivered to apparatus for some spe-
25 cial treatment.

The mechanism is adapted when a bale of bags is untied and laid flat upon a suitable support, to pick up the bags successively and deliver each to the desired point; and the
30 means for picking up a single bag from a group or pile of the bags will, for convenience, be termed a "separator."

It is immaterial in what position a group of the bags be supported for separating
35 them successively, but it is evident that the group of bags is diminished in height or thickness as bags are removed therefrom, and means is therefore provided to move the separator and the supporter of the bags in
40 relation to one another after the separation of each bag. Such means is preferably formed to support a pile of the bags in a horizontal position, and the support is preferably mounted upon a carrier which is re-
45 ciprocated vertically a short distance at each actuation of the separator, to engage a bag therewith, and also possesses means for gradually lifting the bag-support within the carrier to compensate for the diminution in
50 the height of the pile.

Where bags are to be tied with a wire or cord, it is very desirable to furnish means for setting the hem of each bag a certain uniform distance above the chute to which it
55 is delivered; and as the bags in a bale or pile

vary somewhat in their positions, they cannot be grasped by the separator at a uniform distance from the hem at their mouth, and means is therefore provided upon a chute
60 for shifting the hems of all the bags to the same level, so as to deliver them all in a uniform relation to the tying device. A feeder or pusher may grasp the bag when thus adjusted to set it in a tying-socket.

Where the bags are to be suspended dur-
65 ing their subsequent handling, it is necessary that the separator should lift the bag from a horizontal to a vertical position, and this may be effected by sliding the bag over a bag-holder of quadrantal form having a
70 narrow chute or channel for the passage of the bag-neck; or it may be effected by an arm hinged to pick up the bag in a horizontal position and lift it to a vertical position, and there deliver it to a bag-holder, chute,
75 conveyer, or other means of shifting it for further treatment.

Pneumatic apparatus has been successfully used to practise the present invention, by mounting a vacuum pad upon the end of
80 such a vibrating arm; but a separator provided with small pins to directly engage the fabric of the bag is more positive in its operation and is therefore illustrated herein.

The invention is illustrated herein in con-
85 nection with a machine for making and applying wire-ties to the necks of bags, as shown in my pending application No. 747,831 filed February 12, 1913, only such parts of such tying machine being shown as are
90 necessary to an understanding of the present invention.

The invention will be understood by reference to the annexed drawing, in which—

Figure 1 is a plan of the separating and
95 feeding appliance with part of the bed and attachments of the bag-tying machine; Fig. 1^a is a plan of the chain, guide and bag-adjuster; Fig. 1^b is a cross section of the same on line *x—x* in Fig. 1^a and line *x—x*
100 in Fig. 5; Fig. 2 is a side elevation of the same with brushes for adjusting the bag-hem, and the bed of the tying machine in section at the center line of the bag-socket; Fig. 3 shows the bag-separating and feeding
105 appliance on line 3—3 in Fig. 4 and having a sloping adjuster for setting the bag-hem; Fig. 4 is an elevation of the same parts viewed in the direction of the arrow 4 in Fig. 3 with the adjuster omitted; Fig. 5 is
110

a plan of the bag-holder of Figs. 3 and 4, in connection with the adjuster; Fig. 6 is a side elevation of a bag-holder with a series of graduated springs to adjust the hem of the bag, and spring-jaws to crimp the bag-neck; Fig. 7 is a plan of the same with the adjusting-springs omitted from one side of the chute in the bag-holder; Figs. 8 to 10 show a vibrating arm with automatic nipper to raise each bag from the group; Fig. 8 being a side elevation of the apparatus, Fig. 9 an enlarged view of the fixtures upon the end of the arm, and Fig. 10 a front elevation of the apparatus; Fig. 11 is an edge view of a cloth sack with a hem at the top.

In Figs. 1 and 2, one end of a bag-tying machine is shown with the parts lettered the same as in my application No. 747,831, the drawing showing a table A upon a frame B, with a necking socket A² and a channel A' leading to the same from the edge of the table next the bag-feeding appliance; also a delivery channel A³ for discharging the tied bags from the socket A².

The drawing shows wheels H for feeding a wire *a* at one side of the necking socket A² and in front of bending-arms *b'*, where a suitable portion *t* of the wire is severed by a cutter *a*². A twister-spindle *n* is shown carrying a twisting-head C adjacent to the socket A², and a pinion *m'* is shown at the rear end of the spindle for rotating the same. An ejector *x* is shown for moving the tied bag-necks from the socket A² into the discharge-outlet A³. A driving-shaft E is shown with pulley E' for driving the same.

Supporting and feeding sacks.—A pile or group of sacks 1 is shown adjacent to the tying machine, supported within a carrier having side-plates or walls 2 which are linked by arms 3 to a shaft 5' in bearings 4 upon the frame B. One of the arms 3 has a bell-crank 5 shown connected by a rod 6 with a cam 7 upon the shaft E. Chains 8 and 9 are mounted to move upon chain-wheels 8' and 9' journaled within the corners of each wall. Upon the same shafts as the chain-wheels 9', idle-wheels are also mounted to carry the chain 8, which lies next the inner wall of the carrier as shown in Fig. 4. The chain 8 is thus carried over four wheels within the corners of the carrier, while the chain 9 moves vertically upon two wheels in the rear corner only. The chains are furnished with brackets 10 adapted to engage the edges of trays or removable shelves 11, which may thus be loaded with any desired number of sacks, and set upon cleats 12 projected inward from each side of the walls 2 near the bottom, as shown in Figs. 3 and 4. When thus set upon the cleats, the brackets upon the chains 8 and 9 engage the under side of the tray and lift it gradually upward. A shaft 13 connects

all the chain-wheels in the rear bottom corner of the carrier and is provided outside of the carrier with a ratchet-wheel 14. A hand-lever 15 carrying a pawl 16, is journaled upon the shaft to move the chains by hand, and a detent 17 is provided upon the carrier to hold wheel 14 when rotated. A self-acting dog 18 is so mounted below one edge of the ratchet-wheel 14 as to engage the teeth thereon, so that the downward movement of the ratchet-wheel presses upon the dog and turns the ratchet-wheel around.

Separator and receiving chute.—The separator may be combined with the bag-holder which has the receiving chute in which the separator deposits the bags successively; or it may operate independently of the bag-holder and operate to lift the bags from the pile and place them in the chute. The prior construction will first be described. Figs. 1 to 4, show a bag-holder consisting of two plates 19 curved in quadrantal form and attached at the upper ends to the edge of the table. The plates are disposed with a passageway or chute 19' between their adjacent edges, in alinement with the inlet-channel A' of the tying machine, and their upper ends are horizontal while their lower ends are projected downwardly. The curved plates are held by braces 20 in a suitable position within the carrier to engage the upper surface of the group of sacks, and are tied together above the line of the chute by arched ties 20. The separator, for lifting the sacks serially from the group, consists of two endless chains 21 mounted upon pulleys 22 at the lower end of the holder 19 and upon driving-chain-wheels 23 near the upper end of the holder; the shafts 24 of such driving-wheels being extended downward to the floor where they are provided with connecting gears 25. One of the shafts is provided with a bevel-wheel 26 which is connected by an intermediate shaft and gears 27 to the driving-shaft E. The chains are thus continuously moved in the direction of the arrows *c* in Fig. 4, and their outer edges are provided with a series of short pins 28 adapted when in contact with the soft substance of the sacks, to penetrate and grip the same and draw the intermediate portion into the chute 19'. As the chains traverse both ends of the chute, the pins operate to draw the bags, when thus lifted, from a horizontal to a vertical position, shown by the dotted lines 29 in Fig. 2.

Guiding the separate bags to tying device.—When the bag passes beyond the action of the chains it is in line with the chute A' of the tying machine and can be pushed therein and necked in the socket A² by a pusher arranged to reciprocate from the vicinity of the wheels 23 to the socket. Such a pusher is shown in Figs. 1 and 2 formed as a slide 30 mounted in bearings 31 upon

the table A above the channel A', and having an arm 32 hinged upon its free end and provided with a finger *o* adapted to drop behind the outer edge of the bag (marked 5 24' in Fig. 2) and to push the bag forwardly into the socket A² when the slide 30 is reciprocated. This is effected by link and lever-connections 33 to a cam 34 upon the shaft E. To lift the arm 32 with the 10 fingers *o* clear of the bag, a crank is attached to the base of the arm and a rod 32' extended therefrom through a friction-clamp 30', which pulls the crank backwardly and holds it in the position shown in Fig. 2 15 during the forward motion of the slide 30. A stop 31' is attached to the arm 32 to limit its lifting movement. The first reverse movement of the slide, by the resistance of the friction-clamp 30, throws the arm 32 20 downward to engage the fingers with the bag, and holds it in its lowest position until it is over the necking socket A². The clamp 30' is adjustable to produce only the desired amount of friction. A guide *o'* is shown in 25 Figs. 2, 6 and 7 extended from the chain-wheels 23 toward the socket A², and consists of two plates sustained above the channel A' and provided with spring-jaws *o''*, to exert a pressure upon the sides of the bag as 30 it is pushed toward the socket, but adapted to yield as the pusher crimps or crumples up the neck of the bag as it reaches the said socket. The finger *o* is notched upon its operative sides, as shown in Fig. 1, so that 35 when it pushes the bag into the notch A² it is completely necked, in position to be tied.

Operation of this mechanism.—A tray of the sacks being placed in the bag-carrier, it 40 is caught by the upward moving brackets 10 and moved upward at the same rate that the bags are removed from the carrier by the separator. The cam 7 operates at each rotation of the shaft E to lift the carrier-frame slightly, to bring the group of bags 45 into contact with the separator, and drop the carrier and bags as soon as one has been lifted, thus bringing the dog 18 into operation to turn the ratchet-wheel 14 which moves 50 the chains sufficiently to bring the succeeding bag into the same position as the one just lifted. In placing the tray of bags in the carrier, the upper surface of the pile may be brought into the proper relation to 55 the separator, by moving the hand-lever 15 and thus moving the chains manually until the pile of bags is at a proper elevation. When thus adjusted, the ratchet-wheel is held by the detent 17, which also holds each 60 tooth of the detent as it is successively moved by the dog 18. When the bag is lifted, it is carried through the chute 19' from its horizontal position to the vertical position shown at 29 in Fig. 2, where it is 65 propelled by the chains within reach of the

pusher or shifter provided with the fingers *o*. The pusher is actuated by the shaft E synchronously with the bag separating and feeding appliance, and is held in readiness to engage the bag when one is delivered 70 to the guide *o'* by the chains 21. The pusher then carries the top of the bag into the channel A' and crimps it within such channel so as to finally neck it in the socket A², in which it is held during the tying operation. The tie-bending is effected by a simultaneous forward movement of the bending 75 arms *b'* toward the socket A². The ends of the arms are notched to engage the wire *t*, and operate to carry it around the neck of the bag where its ends are grasped by the 80 twister C and twisted together, thus tying the bag. The ejector *x* then operates to push the bag from the socket into the outlet channel A³, as shown at 1'' in Fig. 1 with the 85 wire-tie *t'* thereon. The bag is removed from the outlet by hand, or any suitable mechanism.

Adjuster for hemmed cloth sacks.—In Figs. 1 and 2, rotating brushes 60 are shown 90 applied to the bag beneath the bag-holder-plates 19 to draw the hem 1' downwardly in contact with a guide *o'*, into which the upper end of the bag is delivered by the separator-chains 21. The two brushes are rotated 95 by gears 59 upon the shaft 24. The separator is applied to the bags as shown in Fig. 2 at such a distance from the mouth of the bag or its hem 1' that the hem is carried by the chains above the guide *o'* and 100 the rotation of the brushes in contact with the opposite sides of the bag beneath the bag-holder operates to pull the hem downward uniformly in contact with the guide 105 from which it is then delivered in its adjusted position to the bag-tying device, which is thus enabled to tie them all at a uniform point.

Another means of adjusting the bag is shown in Fig. 3, where the adjustment is 110 effected by sloping opposed flanges 35 which are set at such a distance apart as to form a guide for the body 1 of the bag, but adapted to engage the under edge of the hem 1' 115 at which the fabric is thickened by folding, and to draw the bag gradually upward in the chute 19' so as to adjust the entire hem at the same level, and necessarily raising the hem of all the bags to the same 120 point.

Fig. 3 shows the pile of sacks so located beneath the separator that they are grasped at a certain distance from the end or mouth of the sack, which is provided with the hem 1' shown in Fig. 1; and the adjusting flanges 125 35 are set a little farther above the chute than such distance, so as to draw the bags upward a little and thus equalize their height perfectly. Such upward movement of the bags, which are held in the chute 19' 130

by the pins of the chains 21 during such adjusting operation, is facilitated by inclining the pins upwardly as shown at 28' in Fig. 1^b, which permits the bag to move upwardly, but holds it when elevated to its adjusted position.

In Fig. 1^a and Fig. 1^b, a packing-piece 36 is shown fixed upon the plates 19 between the upwardly and downwardly moving portions of the chains 21 and holds the chain parallel with the chute 19'; and cover-plates 37 are shown bolted over the same, and also in Fig. 5, and the adjusting flanges 35 secured adjustably thereon by screws and slots 38 shown in Fig. 1^a. By their detachable connection with the cover-plate 37, flanges 35 of any desired height may be provided to adjust the hem of the bag.

A modification of the flanges is shown in Figs. 6 and 7 where the adjuster is formed of a series of graduated flexible leaf-springs 35' attached at their lower ends to the plate 19 or packing-piece 36. The springs are shown removed at the lower side of the chute 19' in Fig. 7 exposing merely the packing-piece; but in practice they are applied at both sides of the chute and furnish a yielding surface upon which the hem of the bag is gradually drawn to a uniform level for delivery to the guide *o'* shown in the same figure.

Any suitable means may be employed to equalize the hem of the bag before delivery to the tying device.

Vibrating separator.—Figs. 8, 9, and 10 show a modification of the separator in which an arm 40 is hinged upon a shaft 41 and provided near its free end with grippers 42 and 43 and with a bag-lifting hook 44. A crank 45 and connecting rod 46 serve to vibrate the arm ninety degrees, as indicated by the dotted lines 40'. A curved bag-holder 19'' provided with a chute 19' is supported adjacent to the arm so that the fold of the bag lifted from the group may be drawn into the chute, as shown at 1'' in Fig. 8, and carried to the top of the bag-holder when the separator is drawn upwardly. The lifting-hook 44 is hinged on the end of the arm 40 and provided with a crank 48 which is connected by a rod 49 with a cam-actuated arm 50 and operated to enter the mouth of the sack when it is partially lifted from the pile. The arm 50 is attached to a cog-wheel 51 and journaled loosely upon the end of the shaft 41, and a rack 52 is connected in practice with a cam which moves the cog-wheel and actuates the arm 50 as desired. The grippers consist of pins attached to swinging-heads 47 which are geared together to turn in opposite directions, and one of them is connected by crank 54 and a rod 55 with a friction-clamp 56 fitted to elastically embrace the rod 49 of the hook 44. The gripper is thus opened

or closed by opposite movements of the rod 49 when first actuated in either direction, the clamp 56 slipping upon the rod 49 during its forward movement to actuate the bag-lifting hook. The gripping pins project at the under side of the vibrating arm when lowered to the pile of sacks 1', and extend slightly through a slotted guard-plate 53 so as to engage only one thickness of the bag-fabric.

When the guard-plate 53 is pressed upon the bag the gripping-pins are closed by a slight movement of the arm 50, which also moves the hook 44 a little toward the end of the bag pile. The arm 50 is then held in the same position while the arm 40 is raised, which approximates the crank 48 to the arm 50 and moves the hook against the gripper, which causes it to enter the mouth of the bag as shown at 1'' in Figs. 8 and 10; and holds the fabric securely against the gripper while dragging the bag through the chute 19'. The arm 50 moves from the position shown respectively in full and dotted lines in Fig. 8, while the arm 40 is moved to a vertical position, when the arm 50 is moved still farther to release the gripper and the hook from the bag. This leaves the bag suspended in the bag-holder 19'' from which it can be removed by a pusher, as shown in previous figures, or by a conveyer 56 as shown in Fig. 8, if the chute be cut away to permit the bag to drop freely thereon when released from the hook 44. With such a vibrating separator, the group of sacks would be fed upwardly by suitable means, the same as with the carrier shown in Fig. 1, so that the separator might have a uniform movement.

The term "bag" has been used herein in a generic sense to include all the receptacles of paper or woven fabrics which may be folded flat for packing and transportation when not in use; and the mechanism described is intended to operate upon any such forms of bags to which it is applicable, although it is especially adapted to operate upon sacks of woven material made of relatively thick fabric which can be readily grasped by the lifting devices shown upon the separators herein.

From the above description it will be seen that the invention is particularly adapted for separating single sacks successively from a group and gathering or crimping the neck of the same into a compact neck to which a string or wire-tie can be applied; and while the different features of the construction are designed to effect this object, it is obvious that some of them may be advantageously used in separating and manipulating bags and sacks for other purposes. For example, the separating means may be used for lifting and delivering single bags to a device for filling the same, and the means

for separating the bags successively from a pile or group are therefore claimed in connection with any suitable means for transferring them successively to a device for further treatment of the bag. The means for delivering the bags singly when thus separated constitute a feeding appliance for other mechanisms, as it feeds or supplies the bags to the device for further treatment of the bag.

Having thus set forth the nature of the invention what is claimed herein is:

1. In a bag separating and feeding appliance, the combination, with means for supporting a group of bags, of means for grasping the bags successively near the mouth and means for crowding the neck of the bag into a bag-holder.

2. In a bag separating and feeding appliance, the combination, with means for supporting a group of bags, of means for grasping each bag successively near the mouth and lifting it from the group, and a bag-holder having a chute to receive the bag when lifted.

3. In a bag separating and feeding appliance, the combination, with means for supporting a group of bags, of means for grasping each bag successively near the mouth and lifting it from the group, a bag-holder having a chute to receive the bag when lifted, and means for transferring the bag from the holder to a necking device.

4. In a bag separating and feeding appliance, the combination, with means for supporting a group of bags, of means for grasping each bag successively near the mouth and lifting it from the group, a bag-holder having a chute to receive the bag when lifted, means for transferring the bag from the holder to a necking device and means for necking and tying the bag.

5. In a bag separating and feeding appliance, the combination with means for supporting a group of bags, of means for grasping each bag successively near the mouth and lifting it from the group, a bag-holder having a chute to receive the bag when lifted and means for adjusting the mouth of the bag in the said chute.

6. In a bag separating and feeding appliance, the combination, with means for supporting a group of bags, of means for grasping each bag successively near the mouth and lifting it from the group, a bag-holder having a chute to receive the bag when lifted, means for adjusting the mouth of the bag, and means for guiding the adjusted bag to a tying device.

7. In a bag separating and feeding appliance, the combination, with means for supporting a group of bags, of means for grasping each bag successively near the mouth and lifting it from the group, a bag-holder having a chute to receive the bag

when lifted, a guide for transferring the bag from the holder to a tying device, and means for adjusting the hem of the bag in the holder to engage the said guide.

8. In a bag separating and feeding appliance, the combination, with a movable support for a group of bags and a separator for separating the bags successively from said group, of means for moving the bag-support and the separator in relation to one another to engage the separator successively with the bags.

9. In a bag separating and feeding appliance, the combination, with a movable support for a group of bags, and a separator for separating the bags successively from said group, of means for moving the bag-support and the separator in relation to one another to engage the separator successively with the bags, and means for moving the support progressively toward the separator as the group of bags is diminished.

10. In a bag separating and feeding appliance, the combination, with a carrier for sustaining bags during the separating operation, of means for reciprocating the carrier vertically, detachable trays each forming a support for a group of bags in the carrier, and means for moving the trays progressively upward in the carrier as the group is diminished.

11. In a bag separating and feeding appliance, the combination, with a carrier for sustaining bags during the separating operation, of means for reciprocating the carrier vertically, detachable trays for supporting each a group of bags in the carrier, chains movable vertically within the carrier, and means upon the chains for sustaining a plurality of trays.

12. In a bag separating and feeding appliance, the combination, with a carrier having side walls, of four chain-wheels within the corners of each wall, chains movable vertically upon the wheels at the front and rear corners of the walls and provided with brackets to receive a plurality of trays, and ledges upon the walls near the bottom to receive a tray in position for engagement by the chain-brackets.

13. In a bag separating and feeding appliance, the combination, with a carrier having side walls, of four chain-wheels within the corners of each wall, chains movable vertically upon the wheels at the front and rear corners of the walls and provided with brackets to receive a plurality of trays, a separator operating at a uniform level to engage the bags successively, a shaft connecting two chain-wheels upon the opposite walls, a ratchet-wheel upon the said shaft, means for vertically reciprocating the carrier to engage the bags with the separator, and a pawl having a stationary fulcrum and fitted to the ratchet-wheel to turn it at each

descent of the carrier, for feeding the chains progressively.

14. In a bag separating and feeding appliance, the combination, with a carrier having side walls, of four chain-wheels within the corners of each wall, chains movable vertically upon the walls at the front and rear corners of the walls and provided with brackets to receive a plurality of trays, a separator operating at a uniform level to engage the bags successively, a ratchet-wheel and connections for progressively moving the chains to raise the bags in the carrier, and a hand-lever and pawl connected with the ratchet-wheel for shifting the trays to engage the upper bag with the separator.

15. In a bag separating and feeding appliance, means for presenting the bags during the separating operation, consisting of a carrier having side walls, four chain-wheels within the corners of the said walls, chains movable vertically upon the wheels at the front and rear corners of the walls and provided with brackets adapted to receive a plurality of trays, trays fitted detachably to the said brackets and carrying separate groups of bags, and gearing for moving the chains slowly and elevating the trays as the group of bags upon each tray is diminished.

16. In a bag separating and feeding appliance, the means for sustaining the bags during the separating operation, consisting of a carrier having side walls, four chain-wheels within the corners of the said walls, chains movable vertically upon the wheels at the front and rear corners of the walls and provided with brackets adapted to receive a plurality of trays, trays fitted detachably to the said brackets and carrying separate groups of bags, means for temporarily raising the carrier to engage each bag with the separator, and gearing, with connections for rotating the same, to move the chains and trays slowly upward in the carrier.

17. In a bag separating and feeding appliance, the combination, with means for supporting a group of bags in a horizontal position, of a quadrantal bag-holder having a chute to receive the bag when lifted and curved upwardly from the group of bags to a horizontal position, and means for moving the bag from the chute in the holder.

18. In a bag separating and feeding appliance, the combination, with means for supporting a group of bags in a horizontal position, of a quadrantal bag-holder having a chute to receive the bag, and chains traveling at opposite sides of the chute and provided with means to engage the bags separately and draw them into the chute.

19. In a bag separating and feeding appliance, the combination, with means for supporting a group of bags, of means for

grasping each bag successively and lifting it from the group, a bag-holder to receive the bag when lifted, a guide with channel to receive the bags from the bag-holder and having a tying device at the end, and a reciprocating bag-pusher adapted to engage the top of the bag and move it from the holder through the channel to the tying device and in the reverse movement to be shifted clear of the bag before engaging the top of the same.

20. In a bag separating and feeding appliance, the combination, with means for supporting a group of bags in a horizontal position, of a quadrantal bag-holder having a chute to receive the bag, and chains traveling at opposite sides of the chute and provided with means to engage the bags separately and propel them through the chute, a guide having a channel to receive the bags from the chute, with a necking-socket and tying mechanism at the end of such guide, and a reciprocating pusher operated to push the bags through such channel to the tying mechanism.

21. In a bag separating and feeding appliance, the combination, with means for supporting a group of bags, of means for grasping each bag successively and lifting it from the group, and a bag-holder having a chute to receive the bag when lifted and provided at opposite edges with means for adjusting the hem of the bag.

22. In a bag separating and feeding appliance, the combination, with means for supporting a group of bags, of means for grasping each bag and lifting it from the group, and a bag-holder having a chute to receive the bag when lifted, and provided at opposite edges with inclined seats adapted to engage the hem of the bag and pull such hem upward to a uniform level.

23. In a bag separating and feeding appliance, the combination, with means for supporting a group of bags, of means for grasping each bag and lifting it from the group, a bag-holder having a chute to receive the bag when lifted, chains movable upon the bag-holder at the opposite edges of the chute and having upwardly inclined pins to engage and transport the bag, and a series of springs at opposite edges of the chute, forming inclined seats to engage the hem of the bag and pull such hem upward through the inclined pins to a uniform level.

24. The combination, with a machine for tying bag-necks, of a bag separating and feeding appliance having a bag-holder formed of quadrantal plates attached at one end to the said machine and having a chute between the same to receive the bag, with arches connecting the said plates above the said chute, and means for separating the bags successively from a group and drawing them into a chute.

25. In a bag separating and feeding appliance, the combination, with means for supporting a group of bags and means for lifting the bags successively from the group, 5 of a bag-holder formed of quadrantal plates having a chute between the same to receive the bag, chain-wheels at opposite ends of the chute with endless chains fitted to the same and provided with propelling pins, a 10 cover-plate over the chains and inclined adjuster-flanges mounted upon the said cover-plate and adapted to engage the hem of the bag and pull such hem to a uniform level.

26. In a bag separating and feeding appliance, the combination, with means for supporting a group of bags, of means for lifting the bags successively from the group, 15 a bag-holder having a chute to receive the bag when lifted and provided at opposite edges with means for adjusting the hem of the bag, and a guide upon a level with the 20 adjuster to receive the hem therefrom.

27. In a bag separating and feeding appliance, the combination, with means for supporting a group of bags, of means for lifting the bags successively from the group, 25 a bag-holder having a chute to receive the bag when lifted and provided at opposite edges with means for adjusting the hem of the bag, a guide upon a level with the 30 adjuster to receive the hem therefrom, and a

pusher for transferring the bag from the said guide.

28. In a bag-separating and feeding appliance, the combination, with means for 35 supporting a group of hemmed cloth sacks in a horizontal position, of means for separating sacks successively from the group and lifting them to a vertical position, 40 means for transporting them in that position successively to a device for further treatment of the sack, and mechanism connecting all such means.

29. In a bag-separating and feeding appliance, the combination, with means for sup- 45 porting a group of empty hemmed cloth sacks in a horizontal position, of means for separating sacks successively from the group and lifting them to a vertical position, and means for transporting them successively 50 when thus lifted to a device for crimping the neck of the bag, and a device for securely closing the neck of the bag while empty, and mechanism connecting all of 55 such means.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JAMES S. SLOSSON.

Witnesses:

L. LEE,

THOMAS S. CRANE.