

(No Model.)

L. A. PECKHAM.

FEEDING MECHANISM FOR CARDING ENGINES.

No. 415,684.

Patented Nov. 19, 1889.

Fig. 1.

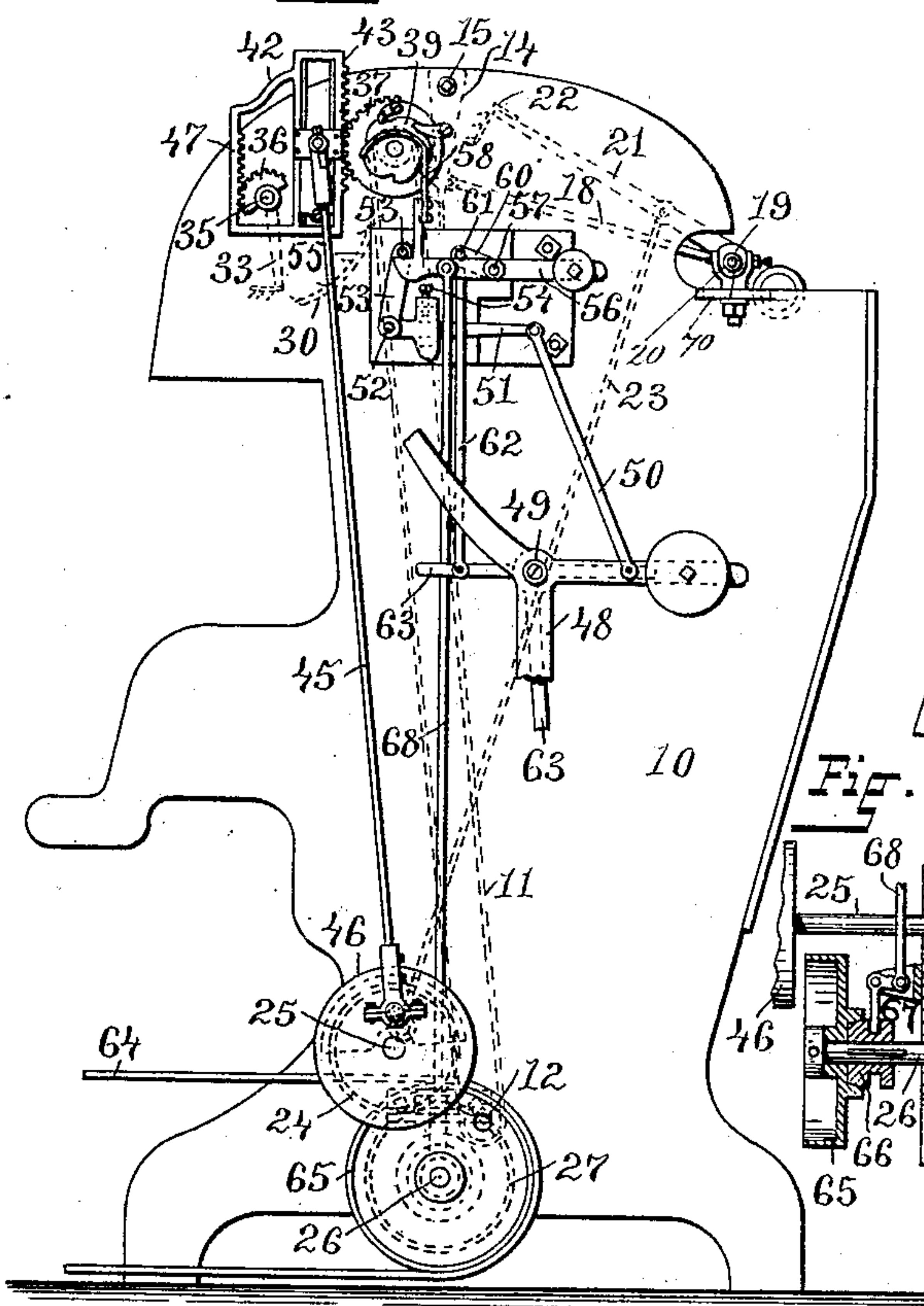


Fig. 2.

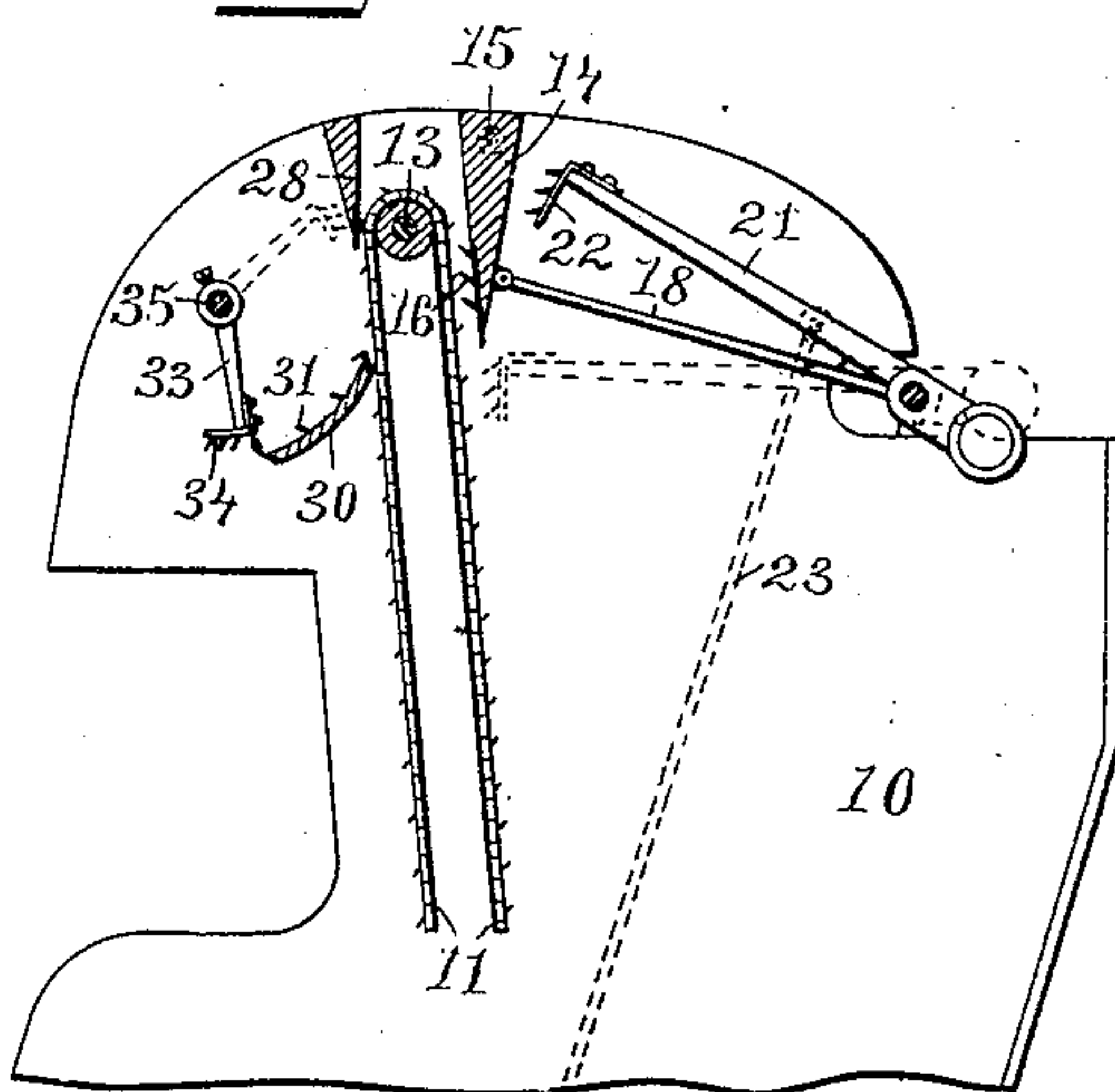


Fig. 3.

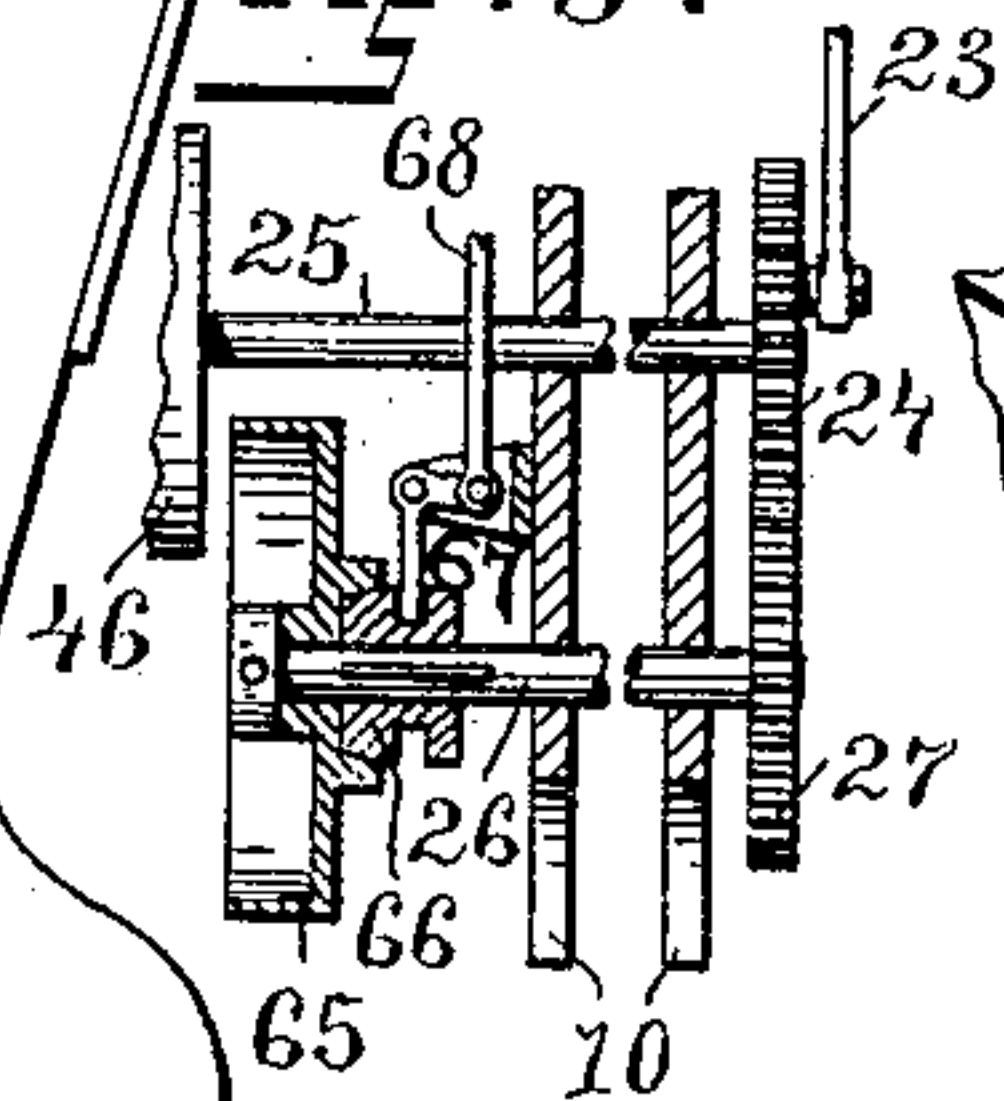


Fig. 4.

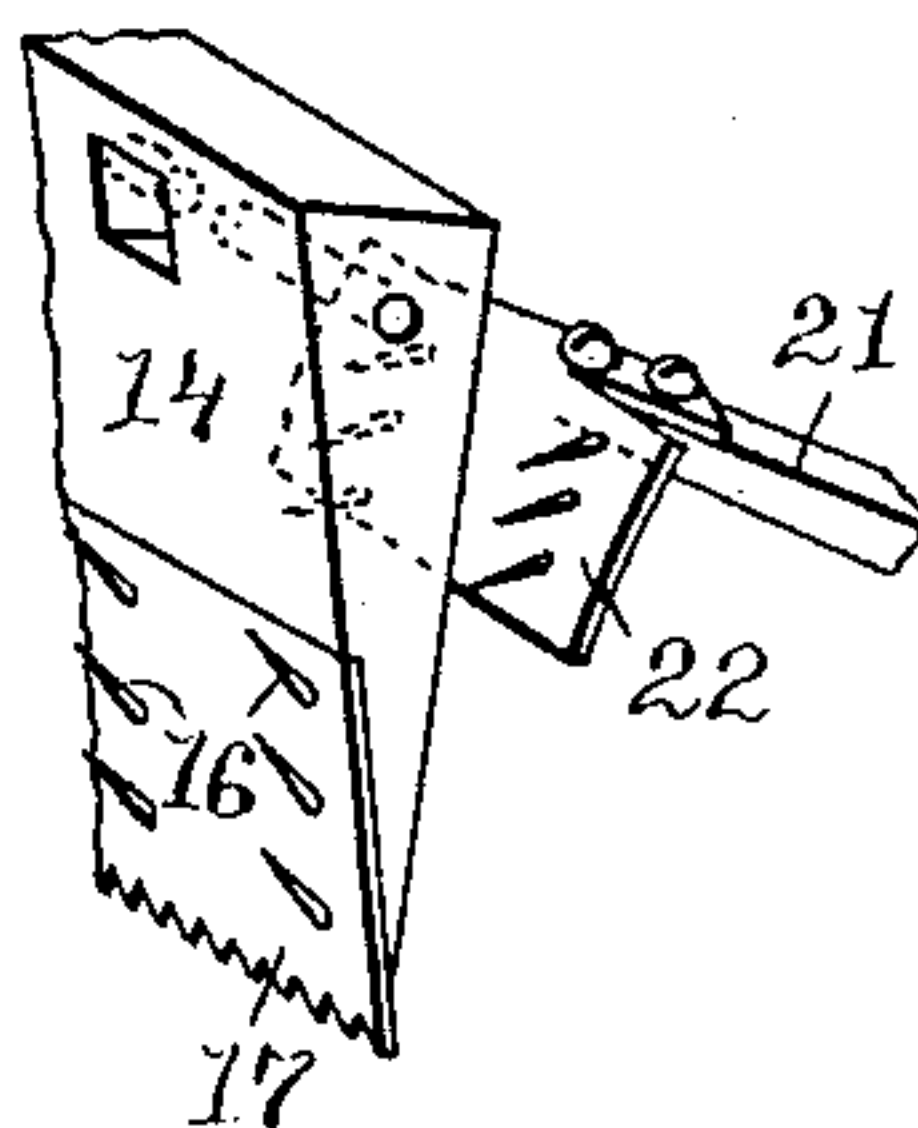


Fig. 5.

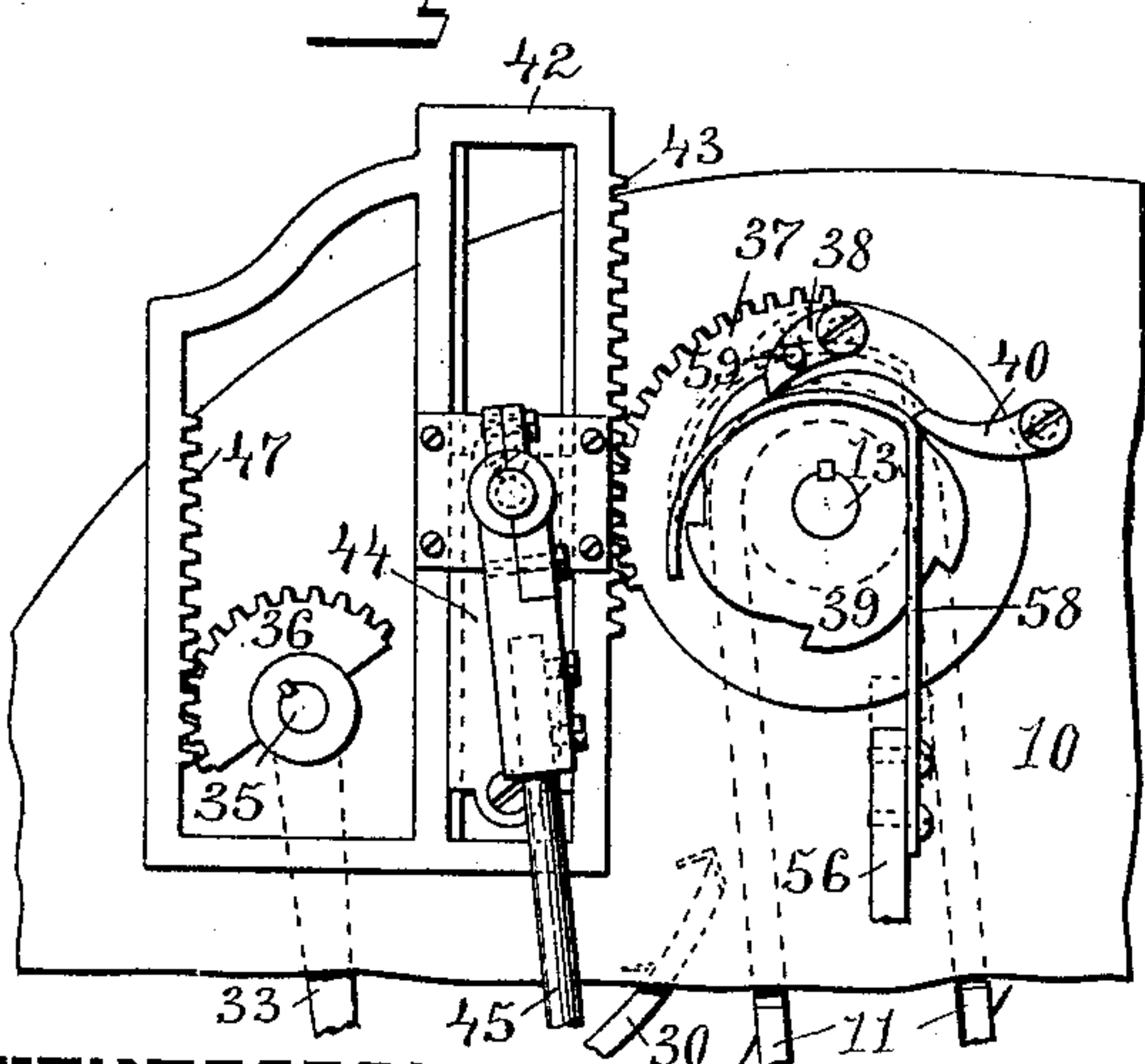


Fig. 6.

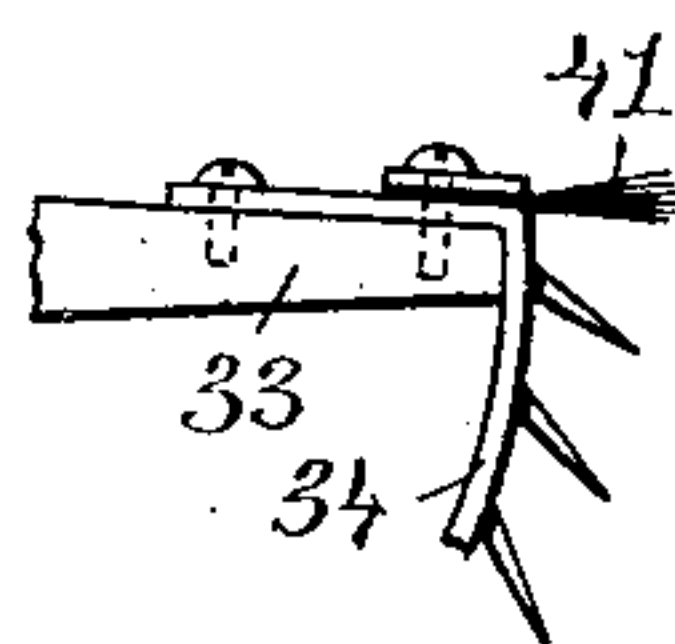
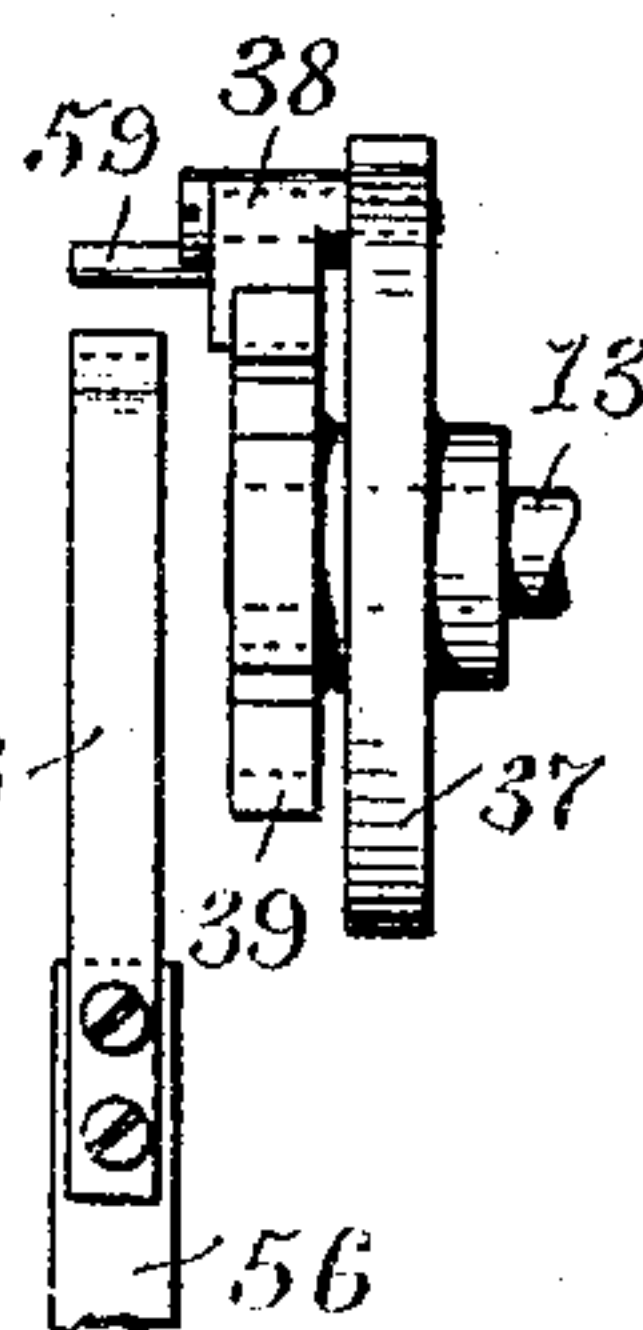


Fig. 7.



WITNESSES:

Chas. H. Lutton Jr.  
Willis Fowler.

INVENTOR:

Luther A. Peckham  
by Joseph A. Miller & Co  
Attys



# UNITED STATES PATENT OFFICE.

LUTHER A. PECKHAM, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR OF  
ONE-HALF TO CHARLES FLETCHER, OF SAME PLACE.

## FEEDING MECHANISM FOR CARDING-ENGINES.

SPECIFICATION forming part of Letters Patent No. 415,684, dated November 19, 1889.

Application filed July 19, 1887. Serial No. 244,697. (No model.)

*To all whom it may concern:*

Be it known that I, LUTHER A. PECKHAM, of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Feeding Mechanisms for Carding-Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to apparatus for supplying stock to carding machines or engines.

The objects of my invention are to improve the uniformity of the feed and to render the mechanism more efficient and perfect in its operations.

The invention is especially applicable to the character of machine patented to W. C. Bramwell, June 10, 1879, No. 216,373, and reference is herewith made to said patent in connection with this specification.

My invention consists, principally, in the intermittent-motion lifting-apron, irrespective of the stop-motion effected by the scale-operating devices, the stop-motion effected by the scale-operating devices, thereby rendering inoperative the intermittent-motion mechanism of the lifting-apron, the clutch on the main shaft, and which is operated by means of the scale-operating devices so as to connect and disconnect the driving-power and thereby start and stop the lifting-apron and vibrating stripper, the vibrating stripper and evenner operated upon opposite sides of the apron, the toothed catch-shelf for receiving the stock delivered by the apron, the adjustable toothed equalizing device located across the path of the apron upon the lifting side thereof, and the fixed guard situated near the upper part of the apron to the discharge side thereof; and the invention further consists in other constructional details of the various parts of the mechanism.

In order that my invention may be fully understood, I have illustrated in the accompanying drawings and will proceed to describe the best forms thereof so far as devised by me, with the knowledge, however, that such forms may be variously modified without making a substantial departure from the spirit of my invention.

In the accompanying drawings, Figure 1 is a side view of a card-feeding mechanism hav-

ing my improvements attached and with the weighing-scales and the greater part of the operating devices therefor omitted, since they may be found in the aforesaid patent. Fig. 2 is a vertical sectional view of the upper portion of the apparatus shown in Fig. 1. Fig. 3 is a detached detail view taken in vertical section at right angles to the view in Fig. 2, and shows the main shaft with its clutch and a second shaft driven by the main shaft, the shafts being shown broken away and the walls of case as brought near together. Fig. 4 represents enlarged detail perspective views of portions of the guard, the equalizer and evenner, and the catch-shelf, respectively. Fig. 5 is an enlarged view of a portion of the apparatus shown in Fig. 1, showing the intermittent-motion mechanism and the means for vibrating the stripper; also, the arm for disengaging the feed-pawl. Fig. 6 is an enlarged view of a portion of the vibrating stripper. Fig. 7 is an edge view of the loose cog-wheel and feed-pawl and the fast ratchet-wheel; also, the disengaging-arm for the feed-pawl.

In the said drawings like numbers of reference designate corresponding parts throughout.

Referring to the drawings, the number 10 designates the case for holding the stock—such as wool—and forms a framing, in which are mounted the various parts of the mechanism. The endless lifting-apron 11 passes about the roller 12 at the bottom, and receives its motion from the drive-shaft 13, the apron traveling up the right-hand side and down the left of the several views. To equalize the wool lifted by the apron, so as to maintain something of a uniform delivery by the apron, I provide the equalizer 14, which is wedge shape in cross-section, and is mounted upon the bearings 15, so that it may be swung thereon, as on a pivot. The inner face of the equalizer is provided with the teeth 16, and the lower edge is furnished with the serrated blade 17. This equalizer is adjustable on its bearings relatively to the apron by means of the pivoted link 18, which is also pivoted to the evenner-shaft 19, the support 20 of which is vertically sustained in a slot of the horizontal flange 70, and thus may be slid to the right or the left, and accordingly adjust the equalizer farther from or nearer to



the apron, as shown in the aforesaid Bramwell patent.

The evener 21 is provided with the comb 22, and is mounted on the shaft 19. Connected with the evener is the rod 23, the other end of which is pivoted eccentrically to the gear-wheel 24, secured upon the shaft 25, which is rotated by the main shaft 26 through an intermediate gear 27. The comb of the evener extends across the path of the apron, and when vibrated it moves from the full line to the dotted position and return, so as to sweep over the back of the equalizer and over a portion of the apron near thereto. Near the upper end of the apron, upon the delivery side thereof, is mounted the guard 28, which runs across the case, and is formed tapering, and is provided upon the lower edge with the serrated blade 29. The lower end of the guard extends down and leaves a narrow passage-way between itself and the apron. Below the guard and close to the apron is located the catch-shelf 30, which is slightly curved, with the concave face lying upward, and upon which are placed the comb-teeth 31. Upon each longitudinal edge of the shelf is disposed a toothed blade 32.

The vibrating stripper 33 is provided with the comb 34 lying across the path of the apron, and the stripper is mounted upon the rocking shaft 35, which is rocked by means of the sector-gear 36, secured thereto, which gear receives an oscillating motion by reciprocating mechanism, hereinafter described. This stripper is also provided with the brush 41, Fig. 6, and vibrates through the arc from the full to the dotted line position in Fig. 2, and sweeps over the back of the guard 28 and over a portion of the apron, and across the catch-shelf 30. The vibrating stripper 33 and evener 21 are located upon the opposite sides of the apron, and are operated simultaneously and in opposite ways.

An intermittent motion is imparted to the apron 11 by means of the following mechanism. Upon the drive-shaft 13 is mounted the loose cog-wheel 37, provided with the gravity feed-pawl 38, and near thereto upon the shaft is keyed fast the ratchet-wheel 39, the teeth of which are engaged by the stationary retaining-pawl 40, pivoted to the side of the case 10. The oscillations of the cog-wheel 37 on its shaft will serve to impart to the shaft an intermittent motion in an obvious manner, the retaining-pawl acting to hold the ratchet, and accordingly the shaft, in the position it may be fed to by the feed-pawl, while the latter is run back over the ratchet by means of the cog-wheel. The cog-wheel is oscillated by the reciprocating means, consisting in the frame 42, which is provided with the rack 43, and reciprocates vertically on the track 44, secured upon the side of the case, and the frame receives its motion through means of the connecting-rod 45, which is pivoted by the upper end to the frame and by the lower end to the crank-disk 46, which is fast upon

the shaft 25, and through these devices the frame receives its motion from the main shaft 26. The reciprocating frame 42 is also provided with a rack 47, which moves in mesh with the sector-gear 36 upon the shaft 35 before described, and thereby rocks the stripper-shaft 35 to vibrate the stripper 33. Besides the intermittent motion for the apron, I have provided a stop-motion therefor, which is operated indirectly by the scale-operating devices, and which renders the intermittent motion mechanism inoperative by disengaging the feed-pawl 38.

The scale-discharging lever 48, which is here shown in part only, it being fully described and shown in the above-referred-to patent, is pivoted at 49, and to it is pivoted the link 50, which is connected by the other end to the lever 51, which is pivoted on the axle 52, upon which rocks the L-shaped rocker-lever 53, the lower end of which is recessed on the face opposite the view in Fig. 1, and the set-screw 54, mounted in the lever, is designed to project across the recess in which the lever 51 vibrates vertically, so as to push upon the end of the set-screw 54 at its upper limit of movement, and thereby rock the rock-lever 53, the purpose of the set-screw being to regulate the time when the lever 51 in its upward movement will serve to rock the rock-lever. The upper end of rock-lever 53 is provided with a latch-stud 55, which engages with the latch-lip at the end of the weighted tilting lever 56, which is pivoted on the bolt 57, and to an upright extension of which lever is fixed rigidly the disengaging-arm 58, which acts to push upwardly upon the pin 59, located on the feed-pawl 38, thereby disengaging the said pawl whenever the latch-stud 55 is moved out of engagement with the weighted tilting lever 56, the weighted end of which then descends and elevates the disengaging-arm. The tilting lever 56 is drawn back into its normally-locked position by means of the short link 60, pivoted on the bolt 57 beside the tilting lever 56, and which is provided with a lug 61, which engages the lever 56 when the short link moves downwardly and forces the lever into normal position, the short link 60 being depressed by means of the connected rod 62, which is attached by the other end to the vibrating lever 63, which is pivoted at 49, and is operated as described in the hereinbefore-alluded-to patent.

By virtue of the stop-motion just described the apron is stopped when the scale is filled and until it is discharged, but the vibrating stripper 33 continues vibrating. In working short-staple wool this may be permitted without any appreciable bad results, since the amount of short staple which the stripper might take from the standing apron would be small. However, when using long-staple wool it is desirable to stop the vibrating stripper whenever the apron is stopped by the scale-operating devices. To accomplish this,



I stop the main shaft 26 by disconnecting the driving-power from the shaft. The driving-belt 64 (shown in portion) passes over the band-pulley 65 on the main shaft, and this pulley is provided with an ordinary clutch 66, which is operated by the crank 67 and the rod 68, the upper end of the rod being pivoted to the tilting weighted lever 56, so that when the lever 56 is tilted out of normal position the main shaft 26 will be stopped in an obvious manner, thereby stopping the apron and stripper, and likewise the vibrating eveners.

From the foregoing the following description of the operation of the mechanism will be readily understood. As the wool is lifted by the traveling apron 11 from the case 10 and approaches the equalizer 14 the vibrating eveners 21 sweeps down over it and combs and evens it off, so that it may be properly fed under the equalizer 14, and as the eveners moves upwardly the serrated edge 17 of the equalizer serves to clean any wool from the comb 22. The equalizer permits a uniform amount of the wool to pass between it and the apron, and by means of the teeth prevents the wool from dropping back into the case. As the wool is passed to the delivery side of the apron it is met by the guard 28, which prevents it from whipping off therefrom and passing under the guard. The wool is then stripped by the comb and brush of the vibrating stripper 33, and being swept across the catch-shelf 30 is carried off the same by the motion of the stripper. After leaving the shelf 30 the wool falls into the scales, which are not shown.

The apron is operated with an intermittent motion while the stripper is continually vibrating, and in this way the wool is completely stripped from the delivery side of the apron by the stripper.

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

1. The combination, as hereinbefore set forth, with a traveling lifting-apron of a card-feeder, of an equalizer mounted across the path of the apron, upon the lifting side thereof and near thereto, and provided with a toothed or serrated edge, and a vibrating eveners provided with teeth and sweeping over the said edge of the equalizer, substantially as and for the purpose herein described.

2. The combination, as hereinbefore set forth, with a traveling lifting-apron of a card-feeder, of an adjustable stationary equalizer mounted near the apron and having means for adjusting it relatively thereto, in order to properly equalize stock of different staple as the same is raised by the apron, substantially as and for the purpose herein described.

3. The combination, as hereinbefore set forth, with a traveling lifting-apron of a card-feeder and an equalizer mounted near the apron, upon the lifting side thereof, for equalizing the lifted stock, of a vibrating eveners sweeping over the back of the equalizer and

a portion of the apron contiguous to the same and acting to even the lifted stock as it is introduced to the equalizer, substantially as and for the purpose herein described.

4. The combination, as hereinbefore set forth, with a traveling lifting-apron of a card-feeder, of a guard mounted across the apron, near the upper end thereof and upon the delivery side of the apron, to prevent the stock from whipping out from the apron, substantially as and for the purpose herein described.

5. The combination, as hereinbefore set forth, with a traveling lifting-apron of a card-feeder and a guard mounted across the path of the apron, upon the delivery side thereof, of a vibrating toothed stripper sweeping over the outside of the guard and over the adjacent portion of the apron to strip the stock therefrom, substantially as and for the purpose herein described.

6. The combination, as hereinbefore set forth, with a traveling lifting-apron of a card-feeder, of a pivoted equalizer mounted near the apron, upon the lifting side thereof, a vibrating eveners mounted behind the equalizer and sweeping over the back of the equalizer and part of the apron, a shaft, means for adjusting said shaft horizontally, and a link intermediate the equalizer and the shaft of the eveners, substantially as described.

7. The combination, as hereinbefore set forth, with the intermittent-motion lifting-apron and its drive-shaft, having the ratchet-wheel and the cog-wheel provided with the feed-pawl mounted on said drive-shaft, and the operating-frame and its rack for imparting to the apron an intermittent motion, of the scale-discharging lever, the pivoted rocker-lever, the link intermediate the scale-discharging lever and the rocker-lever, and the weighted tilting lever intermediate said devices and the intermittent-motion mechanism, whereby the apron may be run with an intermittent motion and then be checked at a predetermined time by the scale-operating devices, substantially as and for the purpose herein described.

8. The combination, as hereinbefore set forth, with the lifting-apron and its drive-shaft, the loose cog-wheel and the fast ratchet-wheel mounted upon the shaft, the reciprocating means for oscillating the cog-wheel, a feed-pawl located on the cog-wheel and engaging and actuating the ratchet to feed the same forward, and a stationary retaining-pawl for holding the ratchet, of the scale devices provided with an arm and connections intermediate the said arm and pawl for disengaging the feed-pawl from the ratchet to stop the motion of the apron, substantially as and for the purpose herein described.

9. The combination, as hereinbefore set forth, with the lifting-apron and its drive-shaft, a loose cog-wheel and a fast ratchet mounted upon the shaft, reciprocating means for oscillating the cog-wheel, a feed-pawl mounted upon the cog-wheel and engaging



and feeding one way the ratchet, and a stationary retaining-pawl engaging and holding the ratchet in the position to which the feed-pawl may advance it, of the pivoted scale-discharging lever and a pivoted rocker-lever provided with a stud, and a link intermediate the scale-discharging lever and the rocker-lever, and a tilting lever provided with a latchlip for latching the said stud and having an arm for disengaging the pawl from the ratchet to stop the apron when the scale-discharging lever is tilted by the scale, substantially as and for the purpose herein described.

10. The combination, as hereinbefore set forth, with the main shaft, the traveling lifting-apron and the actuating means therefor, the vibrating stripper provided with a shaft, and a gear-wheel, of the reciprocating frame provided with a track and having teeth thereon for engaging the gear-wheel, a shaft receiving its motion from the main shaft and provided with a crank-disk, a connecting-rod intermediate the crank-disk and the frame for effecting the vibration of the stripper, substantially as and for the purpose herein described.

11. The combination, as hereinbefore set forth, of the main shaft and a second shaft receiving its motion therefrom and provided with a wheel, the traveling lifting-apron and the actuating means therefor, the vibrating evenner located upon the lifting side of the apron and provided with a shaft upon which it vibrates, a rod connected with the evenner and eccentrically pivoted to the wheel on the said second shaft for vibrating the evenner, the vibrating stripper mounted on a rocking shaft to the discharge side of the apron, and means intermediate the main shaft and the rocking shaft for rocking the same to vibrate the stripper, whereby the stripper and the evenner may be vibrated simultaneously in opposite ways, substantially as and for the purpose herein described.

12. The combination, as hereinbefore set forth, with the lifting-apron, the main shaft, means for driving the apron from the shaft, and the scale-operating devices, of a clutch upon the main shaft for connecting and disconnecting the power, the weighted tilting lever, the short link for operating the same and connected with the scale-operating devices, and the rod connecting the tilting lever and the clutch to stop and start the main shaft, substantially as and for the purpose herein described.

13. The combination, as hereinbefore set forth, with the main shaft, the traveling lifting-apron and the actuating means therefor, and a clutch on the main shaft to stop and start the same, of the pivoted scale-discharging lever, the L-shaped rock-lever provided with a latch-stud and the pivoted lever acting therewith, the link between said latter lever and the scale-discharging lever, the tilting lever engaged by said latch-stud, and a rod and a connecting-crank for operating the said

clutch pivoted to the tilting lever, substantially as and for the purpose herein described.

14. The combination, as hereinbefore set forth, with the apron and the intermittent motion therefor, substantially as described, provided with a feed-pawl, of the tilting lever provided with the disengaging-arm for the pawl, the L-shaped rock-lever provided with a latch-stud engaging the tilting lever, the pivoted lever for actuating the rock-lever, and the link intermediate the said pivoted lever and the scale-discharging lever, the short link provided with a lug for returning the tilting lever into normal position, the vibrating scale-discharging lever and the link intermediate thereof, and the short link, substantially as and for the purpose herein described.

15. The combination, with the traveling lifting-apron 11, of the pivoted equalizer 14 and the shaft 19, provided with means for horizontal adjustment, and the rod 18 intermediate the said equalizer and shaft, substantially as and for the purpose herein described.

16. The combination, with the lifting-apron 11 and the drive-shaft 13 therefor, of the ratchet-wheel 39, fast on the shaft 13, and the cog-wheel 37, loose on said shaft and provided with the feed-pawl 38, and the retaining-pawl 40, the reciprocating rack 42, provided with the teeth 47 and with teeth 43 meshing with the cog-wheel 37, the vibrating stripper 33, having the shaft 35, provided with the sector-gear 36, meshing with the said teeth 47, the connecting-rod 45, connected to the said rack 42, and the rotary crank-disk 46, for driving the said rod, substantially as described.

17. The combination, as hereinbefore set forth, with the main shaft, the lifting-apron, and its driving-shaft, of a reciprocating rack, a connecting-rod connected with the rack and with a crank-pin projecting from a gear, the gear, and the gear on the end of the main shaft, a disk geared with the rack, and a pawl and ratchet constructed to impart intermittent motion to the lifting-apron, substantially as and for the purpose herein described.

18. The combination, as hereinbefore set forth, with the lifting-apron and its driving-shaft, of a ratchet-wheel secured to the driving-shaft, a stop-pawl, a disk geared with a reciprocating toothed rack, said disk carrying a pawl, the rack, a rod connecting the rack with a crank-pin, the gear provided with the crank-pin, the gear intermeshing with said gear, and the main shaft, all constructed to impart intermittent motion to the apron irrespective of the stop-motion of the apron effected by the weighing attachments, substantially as herein described.

In witness whereof I have hereunto set my hand.

LUTHER A. PECKHAM.

Witnesses:

J. A. MILLER, Jr.,  
M. F. BLIGH.