

(No Model.)

L. A. PECKHAM.
FEEDING MECHANISM FOR CARDING ENGINES.

No. 415,651.

Patented Nov. 19, 1889.

Fig. 1.

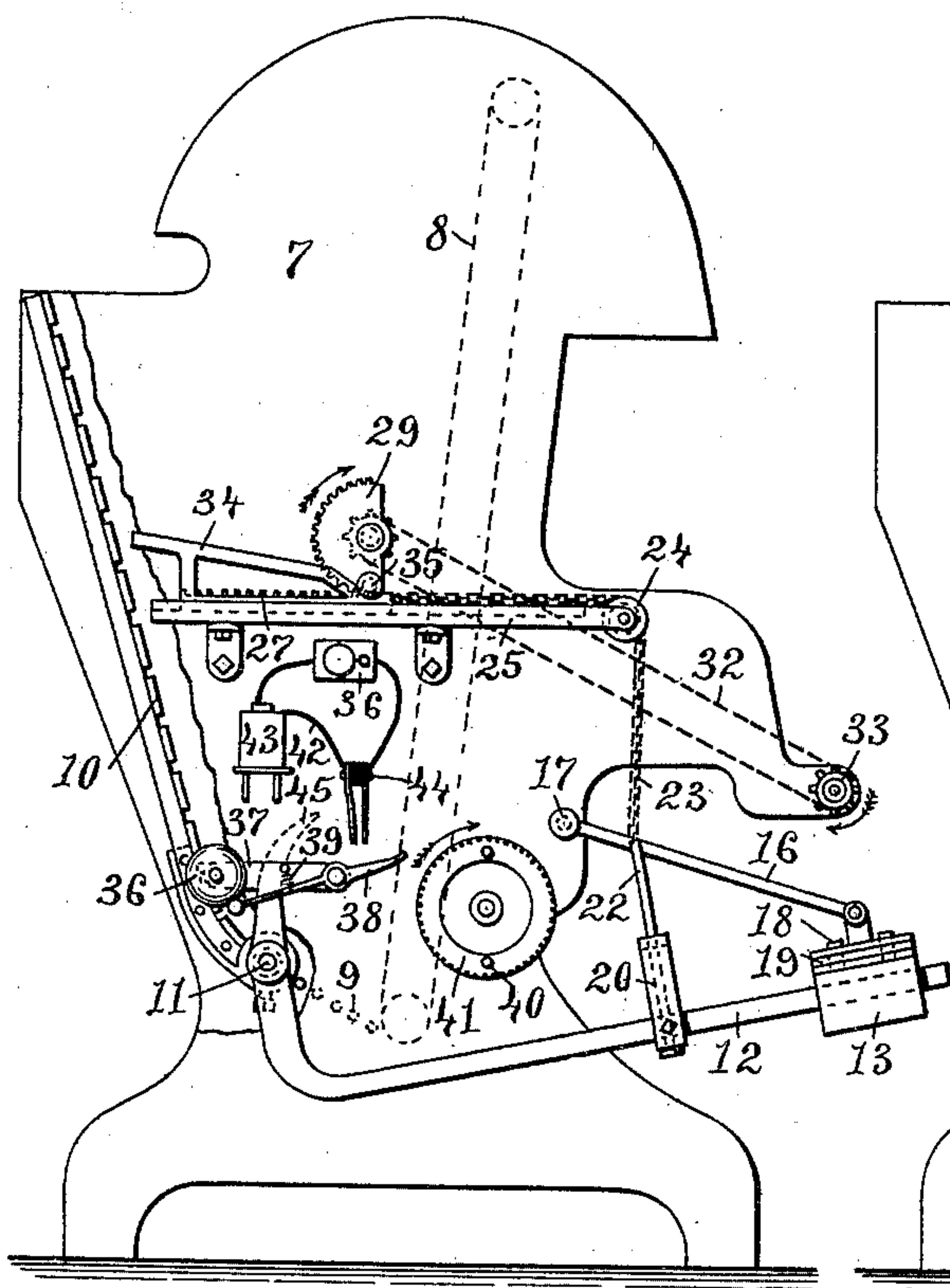


Fig. 2.

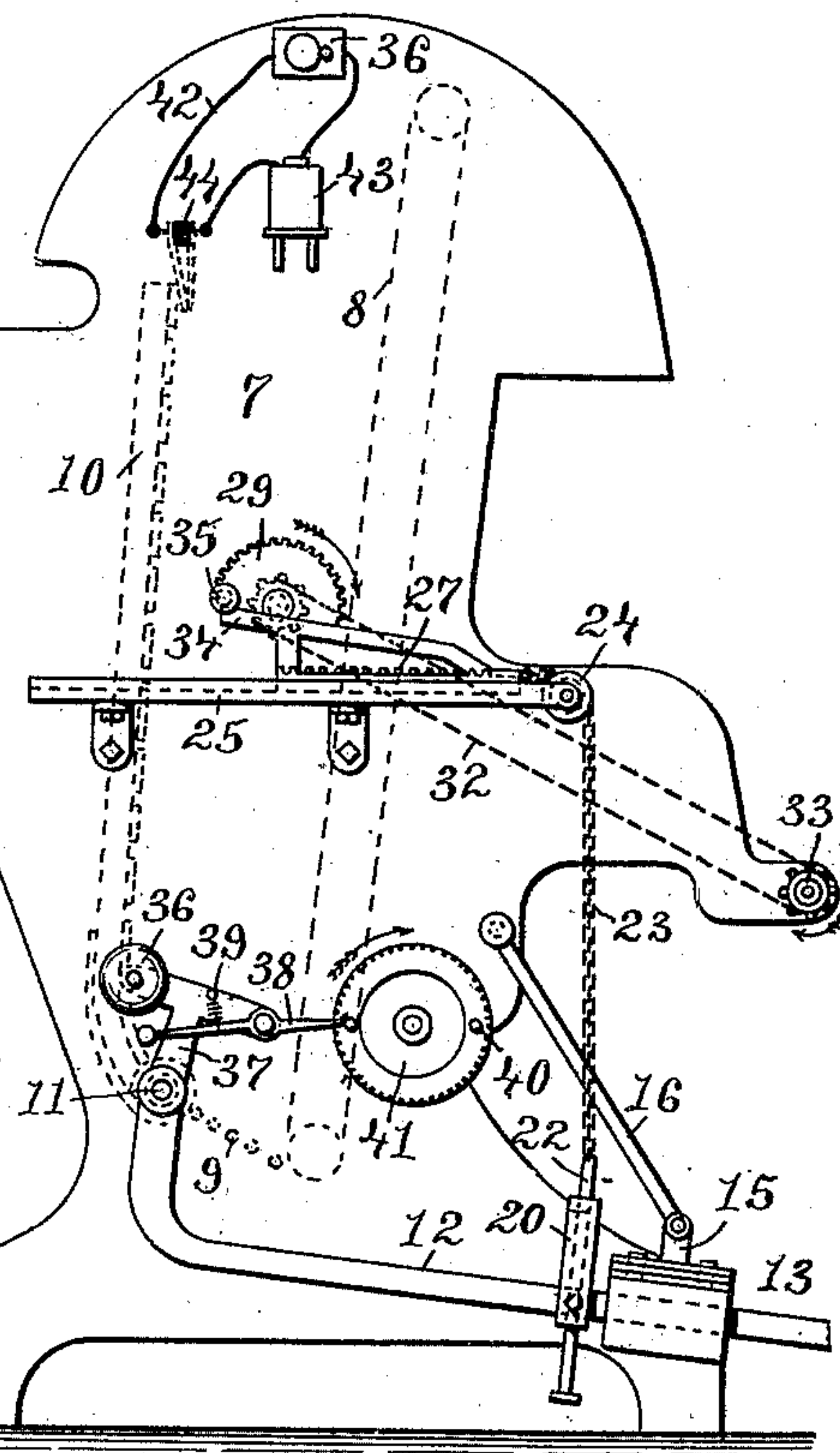


Fig. 3.

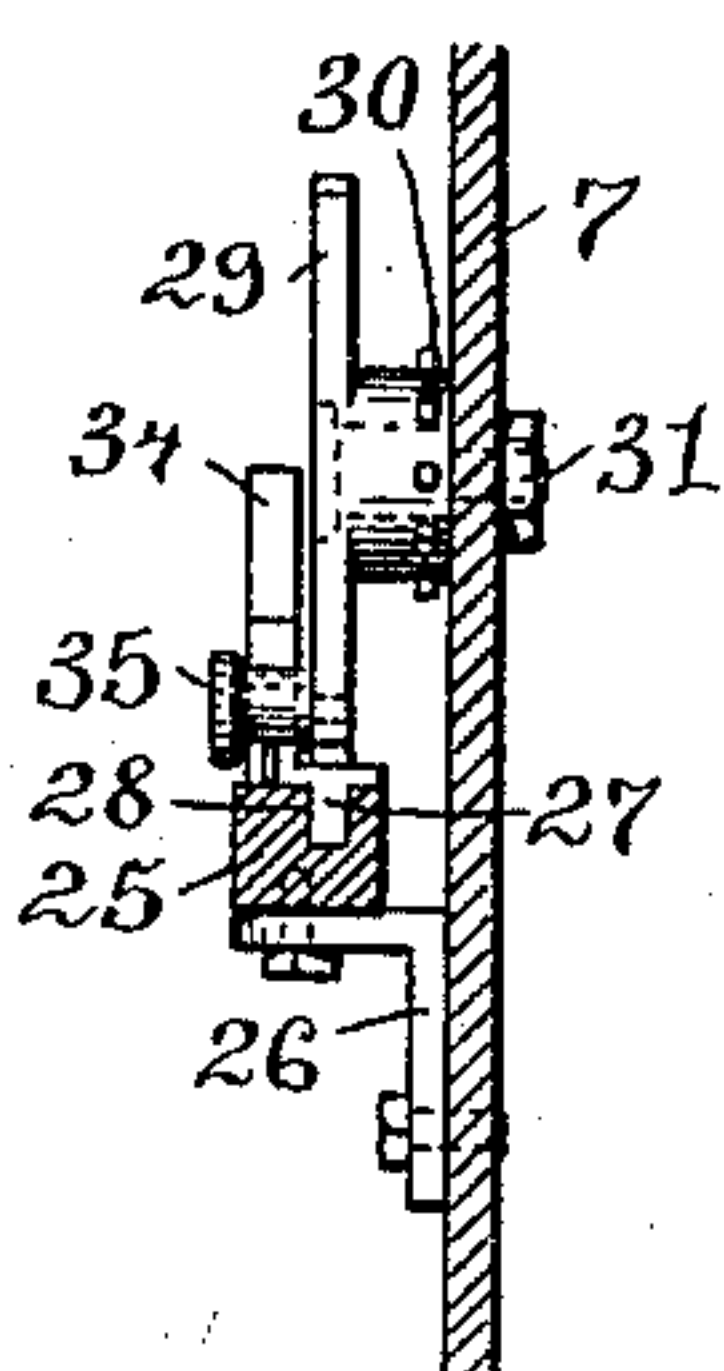


Fig. 4.

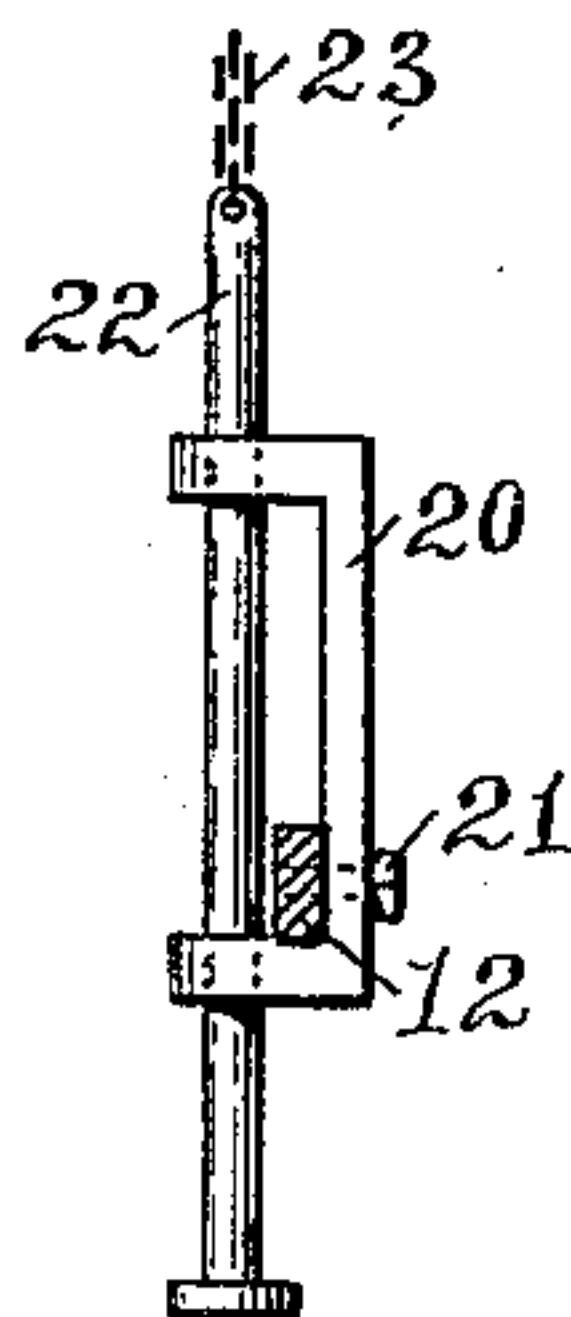
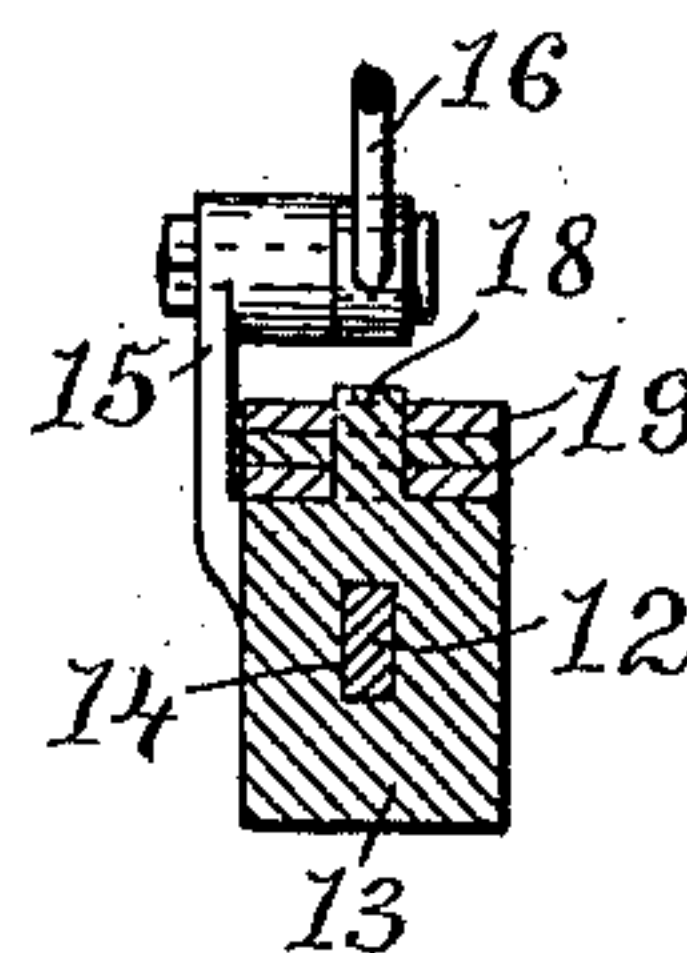


Fig. 5.



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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. 415,651, dated November 19, 1889.

Application filed June 8, 1887. Serial No. 240,582. (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 Mechanism for Carding-Engines, 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 mechanism for feeding fibrous material—for instance, wool—to carding or other engines for working the same.

There is in common use a feeding mechanism for carding-engines for which a patent was granted to W. C. Bramwell June 10, 1879, No. 216,373, and to which reference is hereby made in connection with this specification.

In the Bramwell machine, as well as in many other feeding mechanisms, the wool rests against the inclined lifting-apron with merely its own weight, and the wool therefore is not held sufficiently well in contact with the moving apron to insure a constant feed to the same. Moreover, the old constructions are objectionable in that "balling" of the wool at the foot of the apron often occurs.

The objects of my invention are to insure a positive and constant feeding of the wool to the lifting-apron and to prevent the balling of the wool.

Another object of my invention is to provide an alarm device which will be thrown into operation and sounded when the wool becomes nearly exhausted from the receptacle.

To the above purposes my invention consists, essentially, in the movable presser-frame placed at the back of the receptacle and hinged by its base and capable of being tilted toward and away from the inclined lifting-apron so as to press the interposed wool into close contact with the moving apron, in the means for moving the presser-frame, and in the alarm-bell, all constructed and arranged in the novel and peculiar manner as pointed out in the claims at the close of this specification.

In order that my invention may be fully understood, I have illustrated it in the ac-

companying drawings and will proceed to describe the best forms thereof, so far as devised by me, with the knowledge that the same may be variously modified without, however, making a substantial departure from the spirit of the invention.

In the accompanying drawings, Figure 1 is a side view of the receptacle or case into which the wool is placed, and from which it is raised by the inclined or nearly-vertical lifting-apron, which is shown in broken lines. The back edge of the receptacle is broken away in order to give an edge view of my improved movable presser-frame, which is operated by the attached devices, so as to move toward and away from the lifting-apron. The alarm-bell and its tap and the trip device are also shown in this view. Fig. 2 is a similar view to that shown in Fig. 1, with the presser-frame moved to its inward limit and the operating devices accordingly changed in their relative positions. Fig. 3 is an enlarged view of the sector-gear, the cam, and the toothed rack and the track, the case or receptacle and the track being shown in section. Fig. 4 is an enlarged view of the bracket and reciprocating pin and the tilting lever upon which the bracket is mounted, the lever being shown in section. Fig. 5 is an enlarged sectional view of the sliding weight-carrier which travels on the tilting lever. A set of removable weights is shown in section as placed on the carrier, and a portion of the link connected with the carrier, is also shown.

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

Referring to the drawings, the number 7 designates the ordinary case or receptacle in which is located the endless lifting-apron 8, which is kept in continual motion and extends across the interior of the receptacle, which is provided at the bottom with the grids 9. In machines having a fixed back, which is disposed in the position of my movable presser-frame 10, as shown in Fig. 1, the wool is kept in contact with the apron 8 merely by the weight of the wool itself, and this contact is not sufficient to insure the wool being caught by the apron, the result

being that the apron does not lift the desired and uniform quantity of wool. When the wool becomes low in the receptacle, instead of the apron catching and lifting it, as it should do, it balls the wool up and keeps rolling it about at the bottom of the receptacle and catches little or none of it. These defects are due to the wool not being pressed against the lifting-apron with the pressure necessary to compel the apron to catch the same. I overcome these defects by virtue of the movable presser-frame 10, which consists in a broad frame about the width of the lifting-apron and extending across the back of the receptacle, so as to act as a movable back therefor. The presser-frame is hinged along the lower edge at 11, so that it may be rocked in an arc on its hinge toward and away from the apron 8. To the foot of the presser-frame 10 is secured the tilting lever 12, the rise and fall of which serves to move the connected presser-frame out and in. The weight-carrier 13 is formed with a perforation 14, through which the tilting lever 12 passes, so that the carrier may slide to and fro on the lever. To the arm 15, projecting from the carrier, is pivoted the link 16, which is pivoted by its other end to the frame 7 at the point 17. From the top of the weight-carrier 13 extend two posts 18, which are designed to receive the flat removable weights 19, which are formed each with two eyes spaced similarly to the posts which pass through them. The weight-carrier 13 acts as an over weight or balance and tends to depress the lever, so as to press the presser-frame 10 toward the lifting-apron. As the lever 12 descends the weight-carrier is caused to move in along the same by means of the connected link 16, thereby decreasing the leverage, and consequently decreasing the force with which the frame 10 is moved in. By the use of the set of removable weights 19 the pressure of the presser-frame upon the wool can be varied at will.

The tilting lever is controlled in its movements by means of the following devices: The bracket 20 is attached to the lever 12 by the bolt 21, and the upper and lower ends are provided with sockets, through which reciprocates the pin 22, to which is attached the chain 23, which passes over a sheave 24, secured at the end of the track 25, which is set upon the supports 26, which are bolted to the side of the case or receptacle 7. The rack 27 is provided with teeth upon its upper side, and the rack is adapted to slide endwise in the groove 28, formed in the upper face of the track 25. The chain 23 is attached to one end of the rack 27, and the to-and-fro movement of the rack will obviously vibrate the tilting lever 12. The rack is moved in the direction to raise the connected lever 12 by means of the sector-gear 29, which is a half-cogged gear provided with a hub having the sprockets

or pins 30 projecting therefrom, and this gear is journaled on the pin 31, set in the side of the case 7. The sector-gear 29 is rotated in direction of the arrow by means of the chain 32, which passes about the hub of the gear and over the sprockets and receives its motion from the roll 33, which is one of the feed-apron rolls, as will be readily understood by referring to the aforesaid patent. At each revolution of the sector-gear the teeth thereof will pass in mesh with the toothed rack 27, thereby sliding the same along the track and raising the tilting lever, to the movements of which latter the presser-frame will respond. The rack is prevented from immediately being run in the opposite direction when the sector-gear is out of mesh therewith by the following construction: By the side of the rack is secured the inclined-plane-like cam 34, which extends about the length of the rack and also slides with the rack on the track 25. Upon the outer face of the sector-gear 29 is fixed a cam-stud 35, which is arranged to engage the upper face of the cam 34 after the sector-gear moves out of mesh with the rack. As the rotation of the sector-gear raises the cam-stud the cam 34 is permitted to gradually slide under the same, while the stud is rotated from the position in Fig. 1 into the position in Fig. 2, and in this manner the tilting lever is lowered. It will now be readily seen that the rotation of the sector-gear having the cam-stud will effect the vertical vibration of the tilting lever, and thereby rock the presser-frame 10.

The presser-frame 10 is designed to operate in such a manner that it cannot move to the inner limit, as shown in Fig. 2, until the wool is nearly exhausted from the receptacle. When this occurs, the receptacle should be refilled with wool; and in order to know when refilling is necessary I have provided an alarm-signal, which will be operated under the aforesaid condition. The alarm-signal consists in a bell or gong 36, mounted upon the T-shaped extension 37 of the tilting lever 12, and a bell-tap 38, also pivoted upon the extension 37 and provided with the spring 39, which is secured between the extension and the bell-tap and normally retracts the latter. This bell and its tap are so adjusted that when the tilting lever has moved the presser-frame into the inner limit one end of the tap will be moved into the path of the trip-pins 40, which are fixed upon the gear-wheel 41, which may be driven from the main shaft, as shown in the above-referred-to patent. The tripping of the bell-tap by the pins on the gear 41 will ring the alarm-bell 36 when desired.

From the foregoing description the operations of the mechanism will be readily understood. The receptacle being filled with wool, the over weight or balance is adjusted by increasing or decreasing the value of the

weights on the weight-carrier 13. At each revolution of the sector-gear 29 the rack and cam will move over the same distance, and accordingly the connected reciprocating pin 22 will be reciprocated each time the same distance; but the tilting lever will not have the same limit of vibration, because the more stock or wool there is in the receptacle the more resistance is offered to the inward movement of the presser-frame 10. Accordingly the presser-frame will increase in the amplitude of its vibrations as the stock decreases in the receptacle. Though the pin 22 will have the same traverse at each revolution of the sector-gear, the tilting lever need not necessarily have the same traverse, but will be influenced by the amount of stock in the receptacle. When the wool gets low down in the receptacle, the rocking of the presser-frame 10 against it will prevent the objectionable balling of the wool, so that the lifting-apron will at all times be enabled to catch and lift a considerable quantity of the wool, thereby affording a more perfect feed.

In Figs. 1 and 2 I have shown the electric alarm-bell 36 as controlled by the electric circuit 42, supplied with power by battery 43, and in which circuit is situated the circuit-closer 44, which is designed to be closed by the action of the movable presser-frame 10 when the latter moves into the inward position, owing to the depletion or exhaustion of the wool from the receptacle. In Fig. 1 the electrical alarm-bell 36 is thrown into operation by means of the finger 45, fixed to the upper end of the tilting lever 12, so that when the back or presser frame 10 moves inward to a certain point the finger 45 will serve to push upon the circuit-closer 44 and close the same, thereby sounding the alarm. In Fig. 2 the electrical alarm-bell 36 is sounded by means of the upper end of the presser-frame 10 actuating the circuit-closer 44, which is located within the receptacle, whenever the frame moves inward to a given point.

By virtue of the three several ways I have of sounding the alarm-bell by means of the movable back or frame 10, I am enabled to adjust the bell mechanism so that the alarm may be given when the wool will be at any predetermined height in the receptacle. It is to be noted that only one alarm is to be used in a machine at the same time. The alarm may be used with advantage upon any of the feeding mechanisms wherein is employed a movable back, which may be used to sound an alarm when desired by means of the movable back, as I have shown. Of course a set of machines may be placed in circuit with a single alarm-bell. However, I prefer to use individual alarms with each machine.

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

1. The combination, with the stock-receptacle and the lifting-apron, of the vibrating presser-frame pivotally secured at its base, a

lever secured to the shaft forming the pivot for the presser-frame, the sliding weight automatically adjustable on the lever, a reciprocating rack connected with the lever by a flexible connection, and a sector-gear constructed to impart oscillating motion to the vibrating presser-frame through the rack and lever, as described.

2. The combination, as hereinbefore set forth, with a movable presser-frame and a tilting lever for operating the same, of an over balance or weight traveling on the lever and a link pivoted by its respective ends to a fixed point and to the traveling over weight or balance, substantially as and for the purpose herein described.

3. The combination, as hereinbefore set forth, with a movable presser-frame and a tilting lever for moving the same, of a bell and a bell-tap mounted on the tilting lever and acting to tap the bell when tripped, and a moving trip device adapted to trip the bell-tap when the latter is moved into its path, substantially as and for the purpose herein described.

4. The combination, as hereinbefore set forth, with a rocking presser-frame, a tilting lever, and a bracket mounted thereon and provided with a reciprocating pin, of a rotary sector-gear having driving means therefor and provided with a cam-stud, a toothed rack for the gear and a cam for the cam-stud, and a track for said rack and cam to slide on, and a connection intermediate the rack and the reciprocating pin in the bracket, substantially as and for the purpose herein described.

5. The combination, as hereinbefore set forth, of the rocking presser-frame and the tilting lever, the sliding toothed rack and cam secured together and provided with a track, a connection intermediate the rack and the tilting lever, a rotary sector-gear having driving means therefor and engaging the rack and moving the rack and cam in one direction, and a cam-stud fixed upon the sector-gear acting to engage the cam and to allow the cam and rack to be moved gradually in the other direction by the weight of the connected tilting lever, substantially as and for the purpose herein described.

6. The combination, as hereinbefore set forth, with the rocking presser-frame 10 and the tilting lever 12, of the weight-carrier 13, traveling thereon, and the link 16, pivoted by its respective ends to the weight-carrier and to a fixed point, substantially as and for the purpose herein described.

7. The combination, as hereinbefore set forth, with the rocking presser-frame 10 and the tilting lever 12, of the bracket 20, mounted upon the lever and provided with the reciprocating pin 22, the toothed rack 27, and the connected cam 34, provided with the track 25, and the chain 23, connecting the rack with the pin 22, the rotary sector-gear 29, provided with the cam-stud 35, and means for driving

the gear, substantially as and for the purpose herein described.

8. The combination, as hereinbefore set forth, with the movable presser-frame 10 and
5 the tilting lever 12, for moving the same, of the bell 36 and the spring-actuated bell-tap 38, pivoted upon the lever 12, and the rotary gear 41, provided with the trip-pins 40, for

tripping the bell-tap, substantially as and for the purpose herein described. 10

In witness whereof I have hereunto set my hand.

LUTHER A. PECKHAM.

Witnesses:

J. A. MILLER, Jr.,

M. F. BLIGH.