

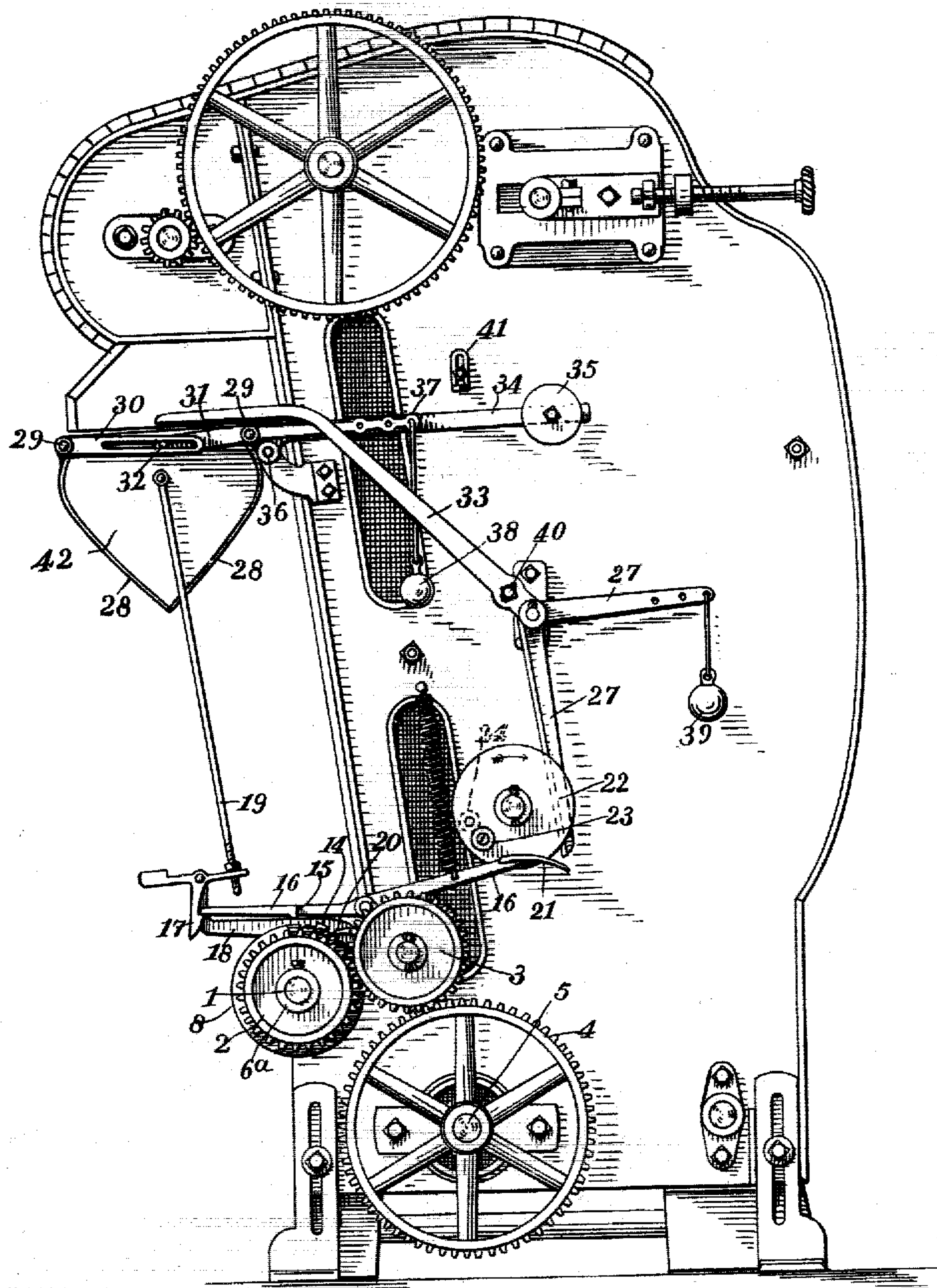
No. 864,933.

PATENTED SEPT. 3, 1907.

J. STEWART.
FEEDER FOR CARDING MACHINES.

APPLICATION FILED DEC. 7, 1905.

2 SHEETS—SHEET 1.



Inventor

Witnesses

Palmer Jones.
Georgiana Chace

Fig. 1.

James Stewart

By Luther V. Moulton
Attorney

No. 864,933.

PATENTED SEPT. 3, 1907.

J. STEWART.
FEEDER FOR CARDING MACHINES.
APPLICATION FILED DEC. 7, 1905.

2 SHEETS—SHEET 2.

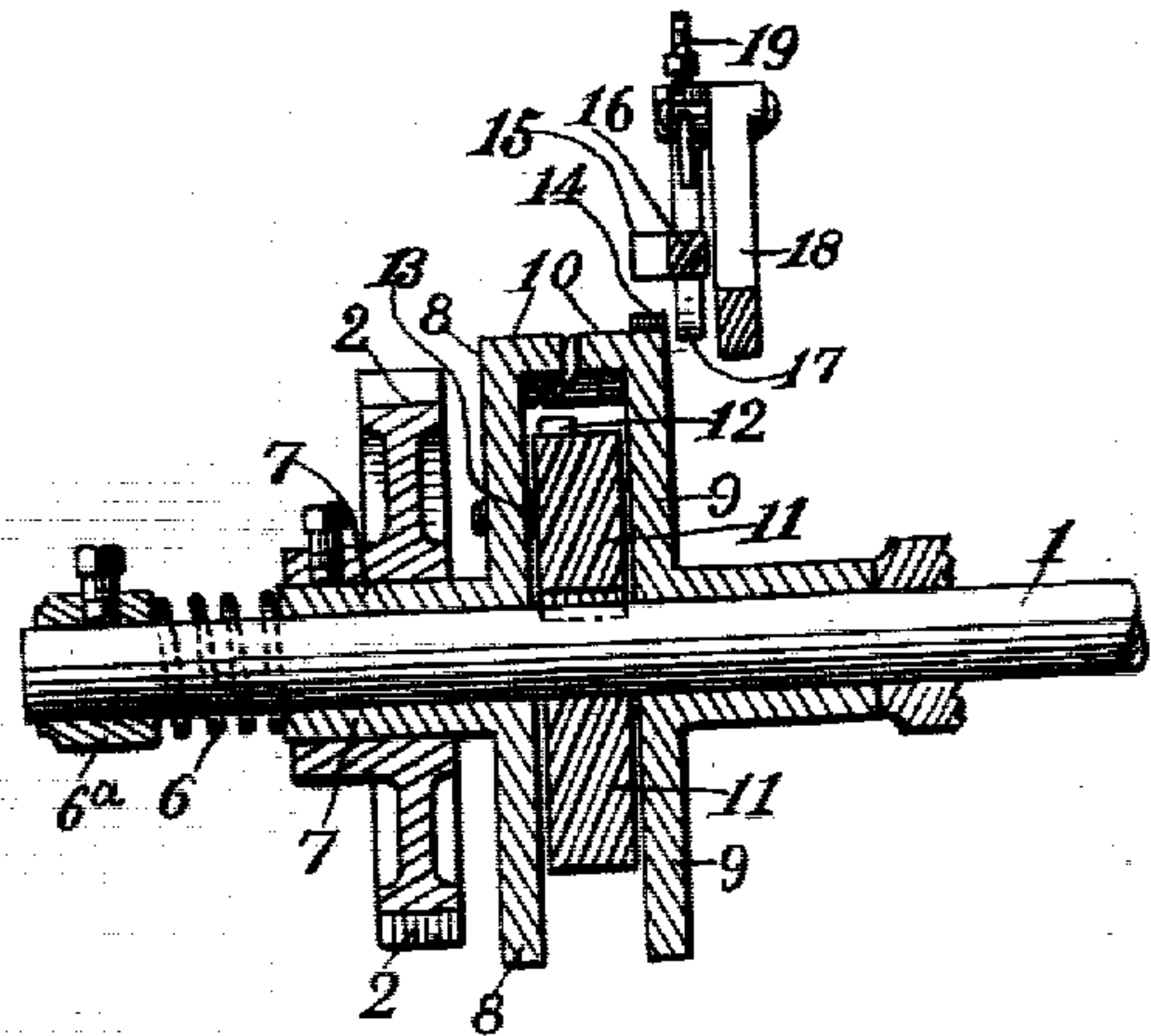


Fig. 4.

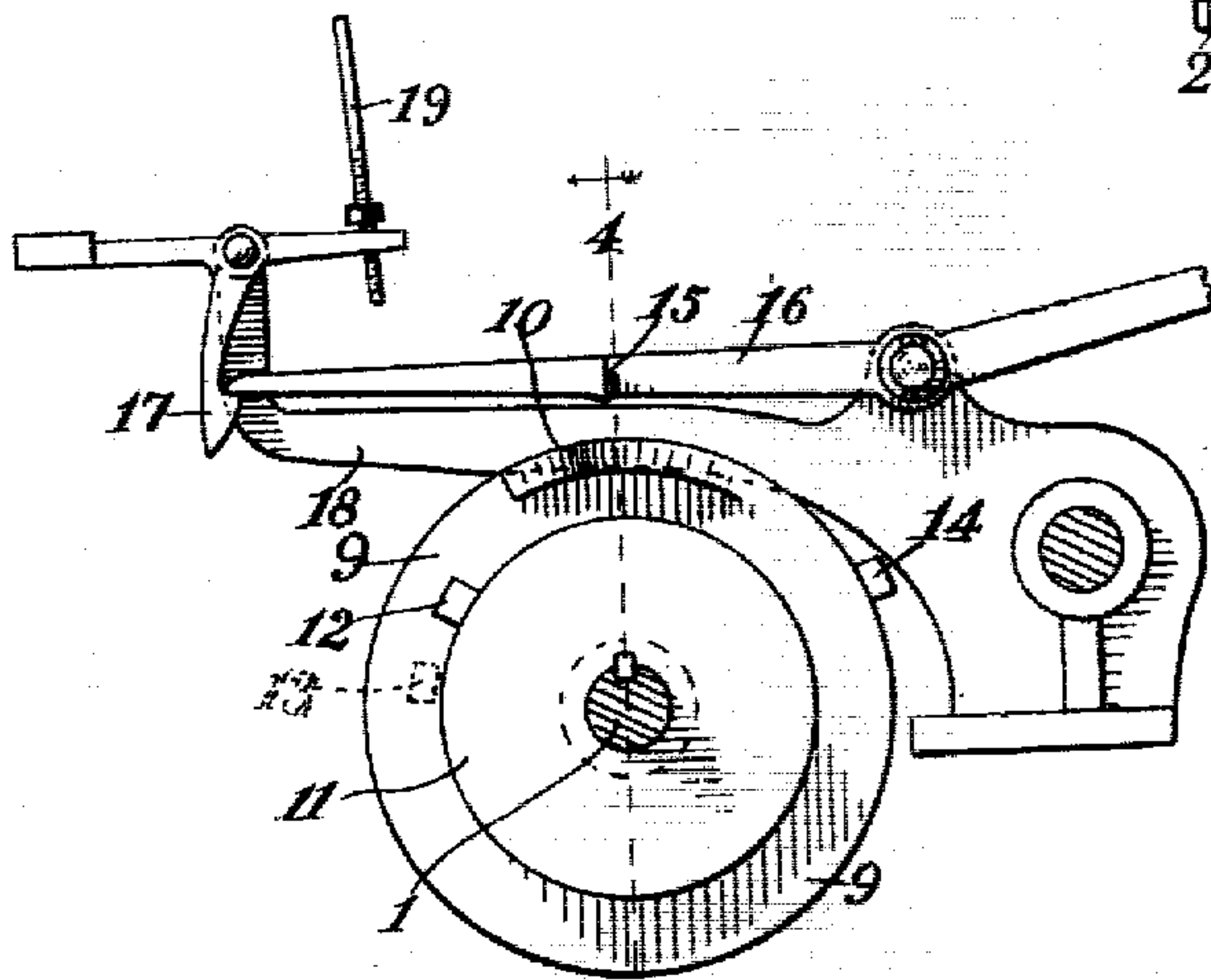


Fig. 3.

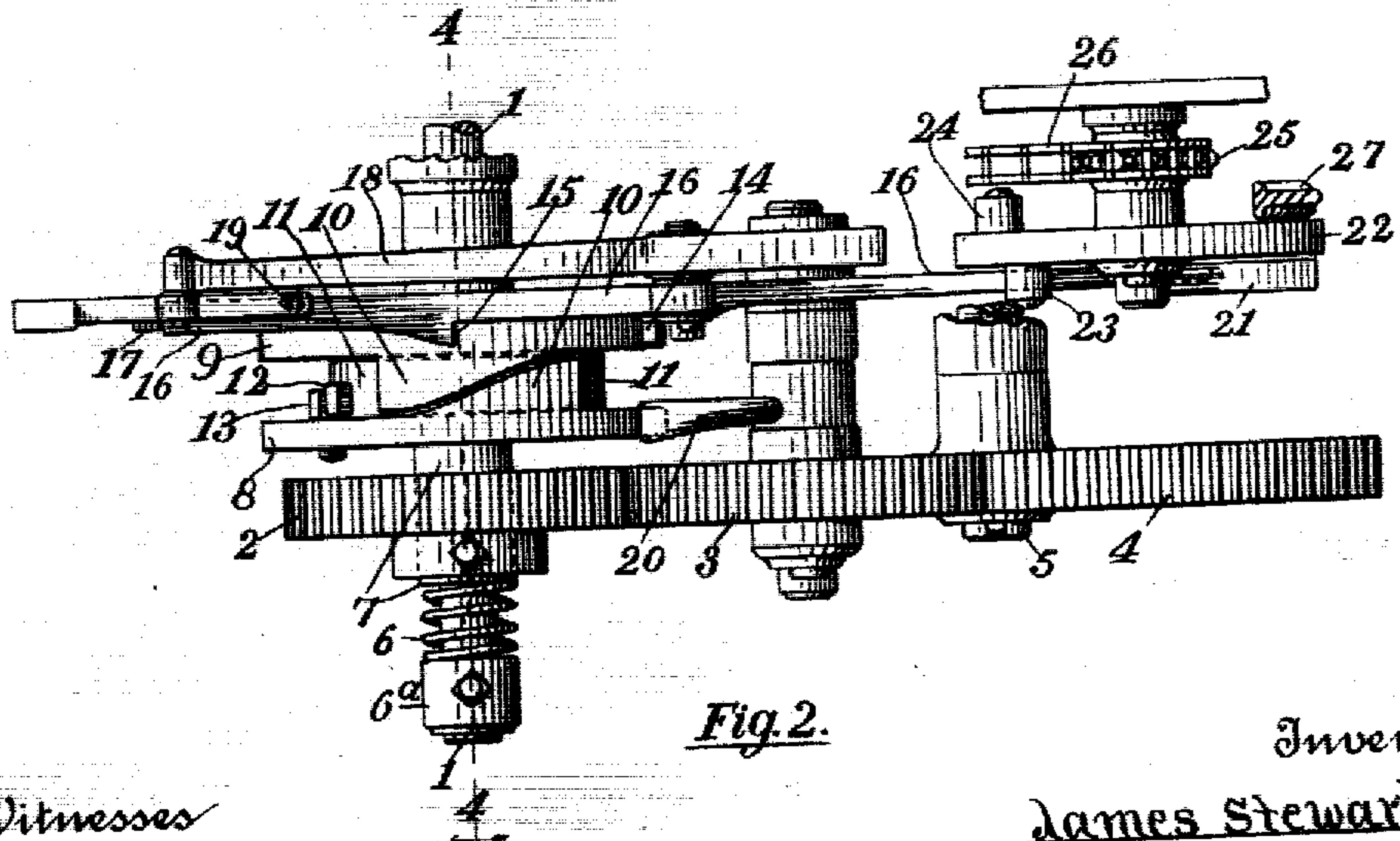


Fig. 2.

Witnesses

Palmer A. Jones.
Georgiana Chase

Inventor

James Stewart

By *Luther V. Moulton*
Attorney

UNITED STATES PATENT OFFICE.

JAMES STEWART, OF GRAND RAPIDS, MICHIGAN.

FEEDER FOR CARDING-MACHINES.

No. 864,933.

Specification of Letters Patent.

Patented Sept. 3, 1907.

Application filed December 7, 1905. Serial No. 290,786.

To all whom it may concern:

Be it known that I, JAMES STEWART, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Feeders for Carding-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

10 My invention relates to improvements in feeders for carding machines; and its object is to provide improved means for stopping and starting the feeding mechanism, and dumping the weighing mechanism of such machines; to simplify the construction and to provide the device with various new and useful features hereinafter more fully described and particularly pointed out in the claims.

My invention consists essentially of the combination and arrangement of the means for disconnecting the mechanism that operates the feeding apron and co-acting parts, from the driving shaft when the required amount of material has been deposited in the weighing mechanism; mechanism for automatically discharging the contents of the weighing device and restoring the connection between the driving shaft and the feeding means and in the various features, combinations and arrangement of parts, as will more fully appear by reference to the accompanying drawings, in which:

Figure 1. is an end elevation of a feeder for carding machines having my device attached thereto; Fig. 2. an enlarged plan view of a portion of my improved device; Fig. 3. an elevation of a part of the mechanism shown in Fig. 2; and, Fig. 4. a vertical section of the same on the line 4-4 of Figs. 2 and 3.

35 Like numbers refer to like parts in all of the figures.

1 represents the main driving shaft; 2 is a gear which drives (through an idler 3 and a gear 4) the shaft 5 which operates the apron and feeding mechanism of the machine, which latter are of the usual construction, and do not require to be further shown.

6 is a spring surrounding the shaft 1 and between a collar 6* fixed on the shaft and a sleeve 7, which sleeve is both rotative and longitudinally movable on the shaft, and on which sleeve the gear 2 is fixed and driven thereby. 8 is a cam wheel also fixed on the sleeve 7 to drive the same, and longitudinally movable therewith. 9 is a corresponding cam wheel freely rotative on the shaft 1 but not longitudinally movable thereon. These wheels 8 and 9 are spaced apart and therebetween is a driving wheel 11 keyed to the shaft 1 and rotative therewith. On the wheels 8 and 9 are opposing face cams 10 having opposing surfaces inclined to the axis of the wheels which cams when rotated relatively move the wheels 2 and 8 toward the end of the shaft compressing the spring 6 and releasing the clutch for connecting the wheel 8 to the wheel 11, which clutch

preferably consists of a stud 12 on the wheel 11 and a stud 13 on the wheel 8, which latter stud is in the path of the stud 12 when the cams are out of engagement, and removed from said path when the wheels 8 and 9 are forced apart by engagement of the cams. The wheel 9 being freely rotative on the shaft, the cams will not act unless the wheel 9 is held from rotation. For this purpose a projection 14 on the rim of the wheel 9 is engaged by a shoulder 15 on a pivoted lever 16, which lever is held out of the path of the projection 14 by means of a hook 17 pivotally supported upon an arm 18 and normally engaging the end of the lever 16. A rod 19 is pivotally connected to the weighing receptacle 42 and the hook 17, so that whenever the receptacle is caused to descend by the weight of its contents the hook releases the lever 16. When so released, the lever drops and brings the shoulder 15 in the path of the projection 14 and stops the rotation of the wheel 9. The cam on this wheel engaging the cam on the wheel 8, moves the latter longitudinally of the shaft, releasing the clutch as heretofore described, and thus stops the action of the feeding mechanism until the lever is again raised to release the wheel 9. When so released, the weight of the cam 10, the friction of the shaft and the inclined surfaces of the cams actuated by the spring turns the wheel 9 forward and the spring 6 slides the sleeve on the shaft thus reengaging the clutch which again restores the operation of the feeding mechanism.

To raise the lever 16, it is prolonged oppositely from its pivot and provided with a cam surface 21 on the end opposite that engaged by the hook 17, which surface is engaged by a roll 23 carried on a wheel 22, which roll periodically engages said surface and raises the lever 16 to reengage the hook 17 therewith. This wheel 22 is provided with means for rotating it, preferably consisting of a sprocket wheel 25 attached thereto and operated by a chain 26, which chain may be connected as preferred to a sprocket wheel on any constantly rotating part of the machine.

To discharge the contents of the receptacle 42, it is provided with sides 28 converging to a line at their lower edges, spaced apart at their upper edges, and pivotally supported on rock shafts 29, which shafts are connected to each other by a slotted lever 30 fixed on one shaft and an oppositely prolonged lever 31 fixed on the other shaft and provided with a pin 32 projecting through said slot and outward therefrom a sufficient distance to be engaged by an arm 33 mounted on a bell crank lever 27 and adjusted by a bolt 40 to properly engage the pin 32 when the downwardly projecting arm of the bell crank lever is engaged and moved by means of a roll 24 mounted on the wheel 22. These sides 28 are normally held closed by means of a weight 38 suspended from the end of the lever 37. The receptacle 42 is pivotally supported on arms 34 at its respective ends (one being shown in Fig. 1.) and counter-

balanced on pivots 36 by weights 35 adjustable on the arms 34 to determine the quantity of material that must accumulate in the receptacle to cause the same to descend and release the hook 17, and thus stop the further discharge of material into the receptacle. A pawl 20 is provided to engage ratchet teeth in the wheel 8 and thus prevent the apron from running backward when disconnected from the driving shaft and also to prevent back lash in the gears when the cams engage. A stop 41 limits the descent of the receptacle 42. The wheel 22 rotates in the direction of the arrow thereon and makes one revolution to each cycle of the operation of the machine and its speed is so adjusted that the receptacle 42 will descend and stop the feed before the wheel 15 revolves a sufficient distance to operate the bell crank 27 and discharge the contents thereof.

What is claimed is:—

1. In a feeder for carding machines, in combination with weighing mechanism a driving shaft, a clutch member 20 fixed on the shaft, a cam wheel at each side of the clutch member and having opposing cam surfaces adapted to force said wheels apart, one wheel being rotative on the shaft, and the other wheel being both rotative and longitudinally movable on the shaft, a spring on the shaft to move the 25 last named wheel toward the other wheels, a gear attached to said last named wheel and movable therewith, and means for temporarily holding the first named cam wheel, said means being operated by the weighing mechanism.

2. In a feeder for carding machines, in combination with weighing mechanism, a driving shaft, a gear, both 30 rotative and longitudinally movable on the shaft, a spring to slide the gear on the shaft, a cam wheel attached to the gear and movable therewith, a pawl engaging teeth in the cam wheel, a clutch to connect the cam wheel directly with the driving shaft, a second cam wheel freely rotative on 35 the driving shaft, a pivoted lever out of engagement with the wheel having a shoulder to engage a projection on the second cam wheel, a hook to engage and hold the lever, a rod connecting the hook with the weighing mechanism, and a wheel having a projection engaging the lever to re- 40 engage the hook with the same.

3. In a feeder for carding machines, in combination with weighing mechanism, a driving shaft, a clutch connecting the shaft with gearing to operate the feeding 45 mechanism, a freely rotative cam wheel to disengage the clutch, a pivoted lever having a shoulder to engage a projection on the cam wheel and hold the same, a hook to engage and hold the lever, a rod connecting the hook and the weighing mechanism to release the hook, a rotating 50 wheel having a roll to engage the lever and reengage the hook, a bell crank lever adapted to discharge the contents of the weighing mechanism, and a second roll on said rotating wheel to engage and operate the bell crank lever.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES STEWART.

Witnesses:

LUTHER V. MOULTON,
GEORGINA CHACE.