

No. 844,842.

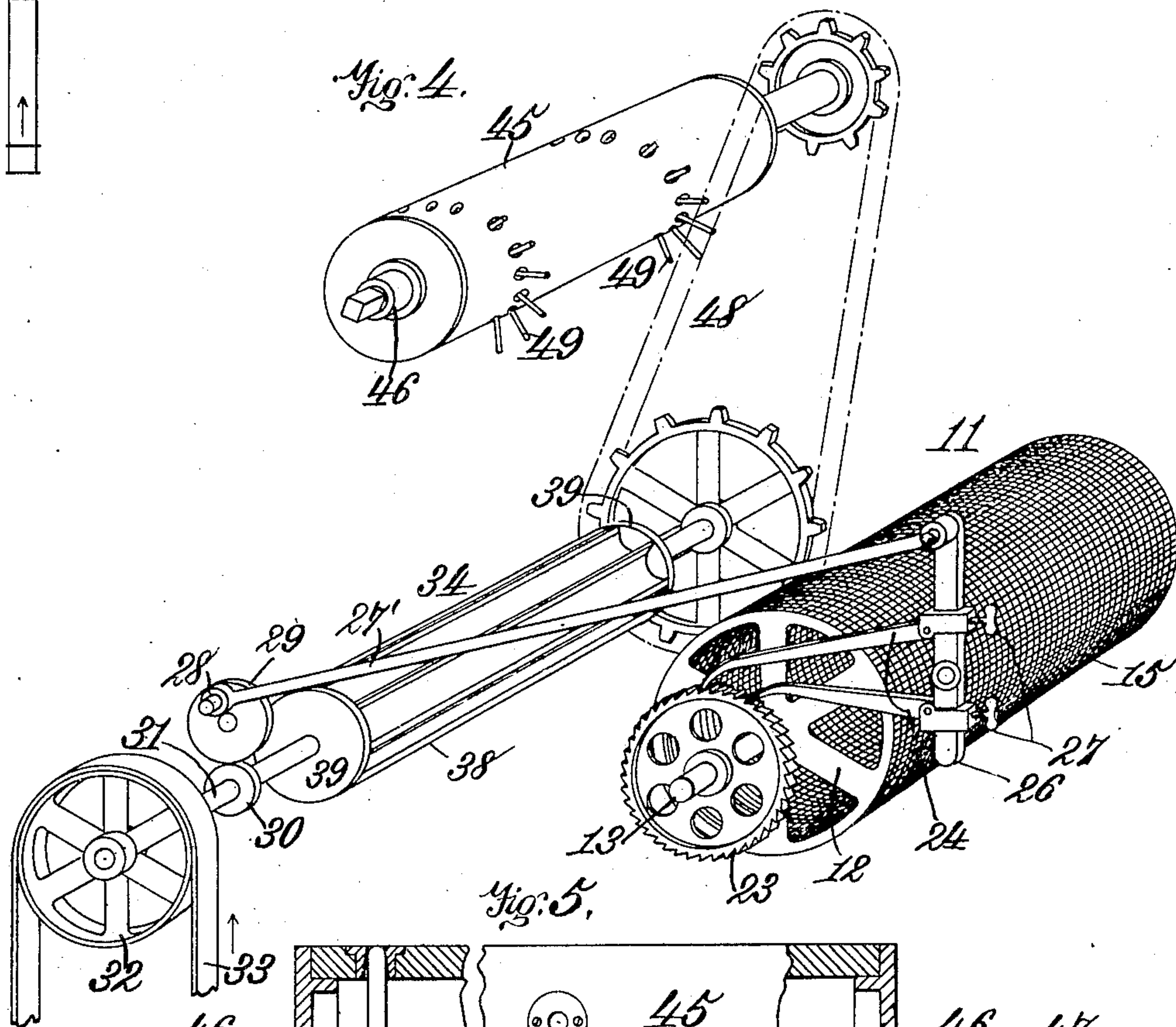
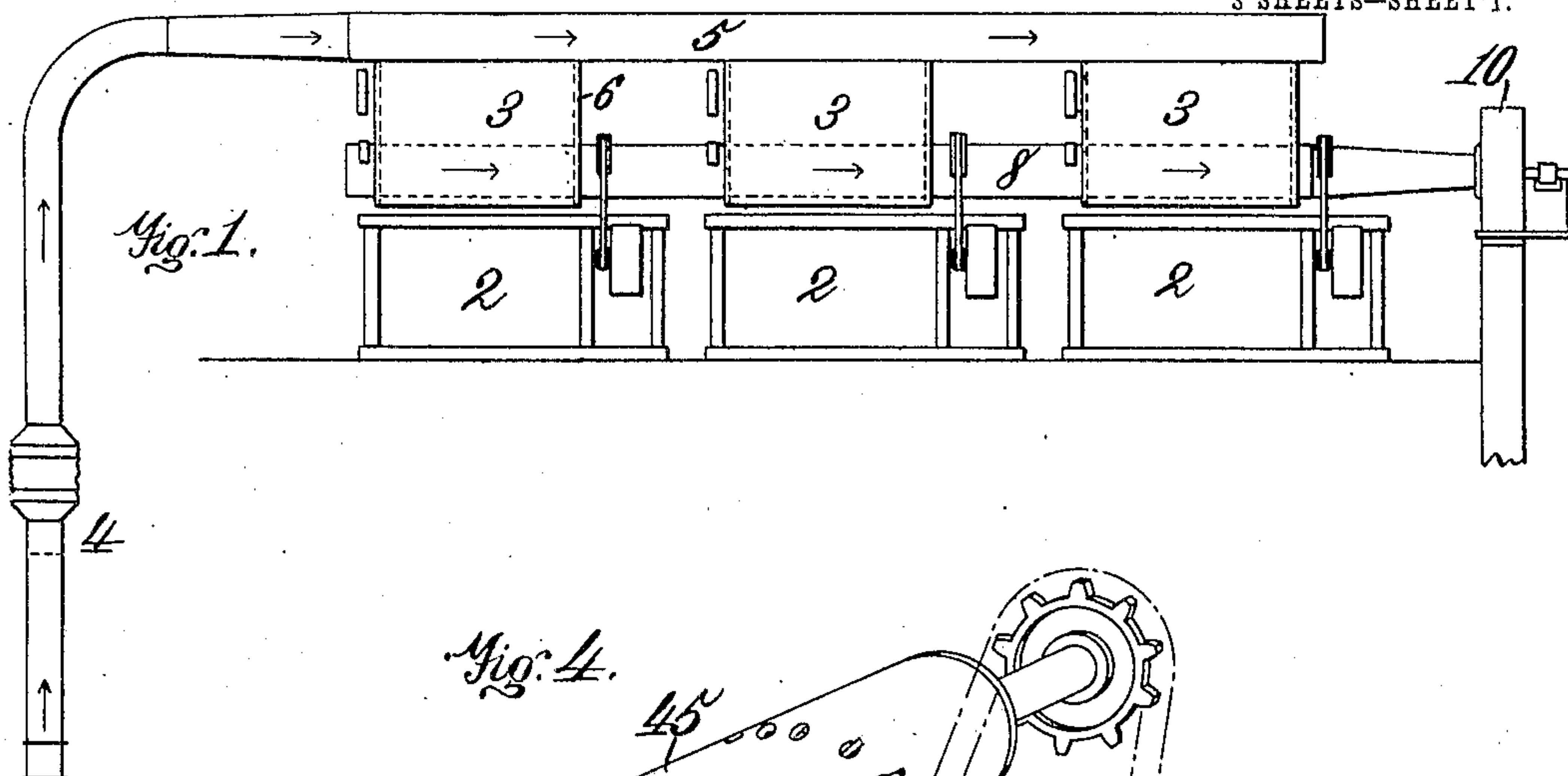
PATENTED FEB. 19, 1907.

E. B. ANDERSON.

COMBINED FEEDING, CLEANING, AND ELEVATING APPARATUS.

APPLICATION FILED NOV. 4, 1905.

3 SHEETS—SHEET 1.



Witnesses:

James L. Norris, Jr.
Albert Court,

Inventor:

49 Ellis B. Anderson.
by James L. Norris
Attorneys.

No. 844,842.

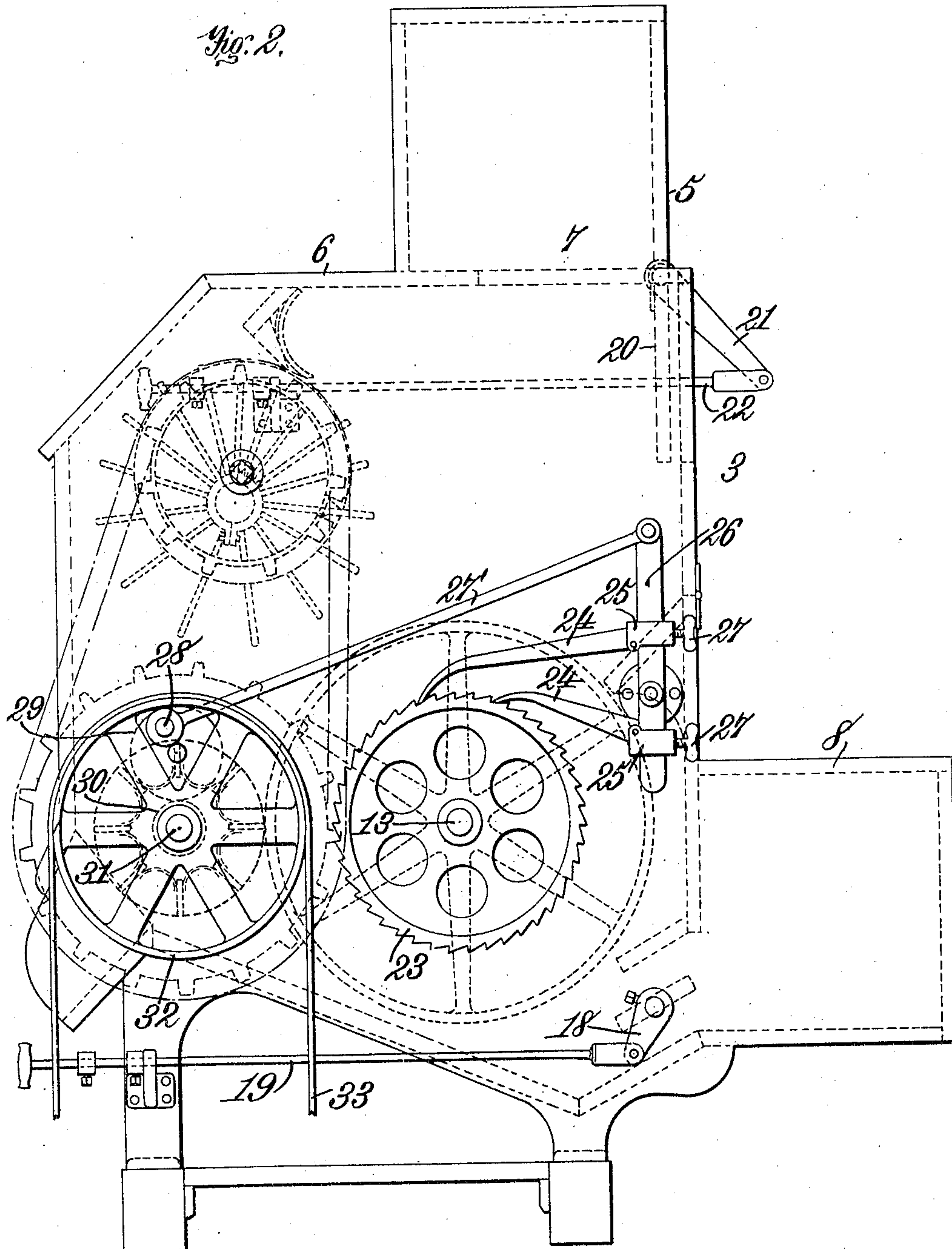
PATENTED FEB. 19, 1907.

E. B. ANDERSON.

COMBINED FEEDING, CLEANING, AND ELEVATING APPARATUS.

APPLICATION FILED NOV. 4, 1905.

3 SHEETS—SHEET 2.



Witnesses:

James L. Norris, Jr.
Robert Everett,

Inventor:

Ellis B. Anderson.
by James L. Norris,
Attorneys.

No. 844,842.

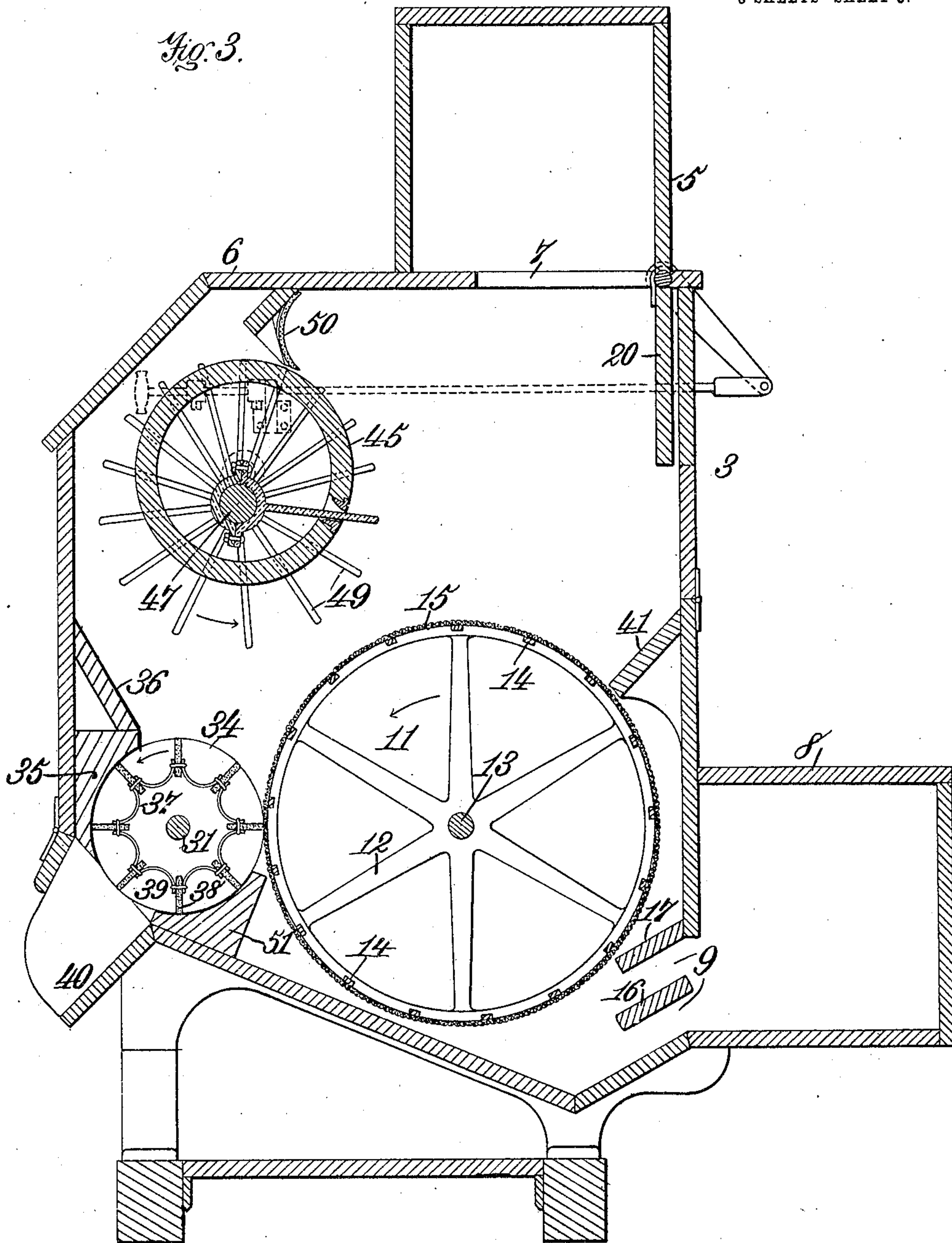
PATENTED FEB. 19, 1907.

E. B. ANDERSON.

COMBINED FEEDING, CLEANING, AND ELEVATING APPARATUS.

APPLICATION FILED NOV. 4, 1905.

3 SHEETS—SHEET 3.



Witnesses:

James L. Norris, Jr.
Robert Smith,

Inventor:

Ellis B. Anderson,
by James L. Norris,
Attorneys.

UNITED STATES PATENT OFFICE.

ELLIS B. ANDERSON, OF DEMOPOLIS, ALABAMA.

COMBINED FEEDING, CLEANING, AND ELEVATING APPARATUS.

No. 844,842.

Specification of Letters Patent.

Patented Feb. 19, 1907.

Application filed November 4, 1905. Serial No. 285,935.

To all whom it may concern:

Be it known that I, ELLIS B. ANDERSON, a citizen of the United States, residing at Demopolis, in the county of Marengo and State of Alabama, have invented new and useful Improvements in Combined Feeding, Cleaning, and Elevating Apparatus, of which the following is a specification.

This invention relates to a combined feeding, cleaning, and elevating apparatus.

The device can be used with advantage in many different connections—for example, in handling seed-cotton from wagons to gins. It may be employed, however, in a cotton-mill for handling lint-cotton and in an oil-mill for separating the meats from the hulls of seed.

An apparatus involving my invention is simple in construction and effective in operation, it serving to rapidly and uniformly supply clean cotton to a gin.

In the drawings accompanying and forming a part of this specification, I illustrate a simple form of embodiment of the invention which, to enable those skilled in the art to practice said invention, I will set forth in detail in the following description, while the novelty of said invention will be included in the claims succeeding said description.

In the drawings, Figure 1 is an elevation of a feeding and elevating apparatus including the invention. Fig. 2 is a side elevation of a feeder, and Fig. 3 is a vertical sectional elevation of the same. Fig. 4 is a perspective view of feeding and cleaning mechanism and certain adjunctive devices, hereinafter more fully described. Fig. 5 is a sectional elevation, with parts removed, of a feed device, hereinafter more particularly described.

Like reference numerals indicate corresponding parts throughout the several views.

In Fig. 1 I have shown a combined feeding and elevating apparatus in full and a battery of gins in connection with said apparatus. The battery is three in number, each of the gins being denoted by 2. Over each gin is arranged a feeder, and I will denote each feeder in a general way by 3. In Figs. 2 and 3 I have shown in detail one of the feeders.

A pneumatic elevating conduit is shown at 4, the lower end of said conduit being adapted to dip into a wagon-box to draw the cotton from said wagon-box upwardly and to supply it to a conduit 5, shown as horizontally disposed and constituting really a continuation or part of the elevator. The con-

duit 5 is supported upon the tops of the casings 6 of the several feeders, as indicated clearly in Figs. 1, 2, and 3, said tops having openings, as 7. Extending across the rear lower sides of the feeder-casings 6 is a suction-conduit, as 8, communicating with the interiors of the several casings by means of openings, as 9, in said casings. (See Figs. 2 and 3.) In practice a suction fan or blower, as 10, (see Fig. 1,) is connected with one end of the conduit 8 for drawing air therethrough through the feeder-casings 6, conduit 5, and elevating-conduit 4, so that when the lower end of said conduit 4 is contiguous to a supply of cotton such cotton will be drawn into the conduit 4 upward therethrough and along the conduit 5, from which it can drop through the openings into the casings 6 onto cleaning-cylinders, as 11. When one feeder 3 receives its full supply of cotton, the next adjacent feeder is supplied with cotton, and so on. The suction is continuous, so as to maintain a constant supply of cotton. The cleaning-cylinders 11 are located practically directly under the respective supply-openings 7, so that the cotton can fall directly from the conduit 5 to said cylinders. Each cylinder 11 consists of complementary end spiders 12, fastened in some suitable way to a shaft, as 13. The rims of the spiders are connected by narrow strips, as 14, surrounded by the circular reticulated portions 15, which extend from one spider to the other. The spiders are located adjacent to the side walls of the respective casings 6, by reason of which each reticulated cylindrical cleaner extends entirely across the interior of its casing. The several cleaners 11 are in the path of the air-currents traveling from the respective openings 7 to the respective openings 9. It therefore follows that when the cotton falls onto the cleaners air-currents are drawn through the mass of cotton through the cleaners, openings 9, and into the exhaust or dust conduit 8. The cleaners 11 are rotated positively in the present case, by reason of which fresh portions of their peripheries are brought into the path of the falling cotton. Air-currents enter each cleaner 11 at or near the top thereof and leave the same at substantially diametrically opposite points, thereby removing any fiber from the surface of said cleaner or cylinder that may have caught on the same at the top or at the place where the cotton falls thereupon. As the surfaces of the cleaners are at all times kept

thoroughly clean, it is evident that less power will be required to elevate cotton from a wagon than if the said surfaces were not clean.

5 A valve is shown at 16 in each casing 6, by closing which the feeder having the same is thrown out of action. The valves when shut close against inclined boards, as 17, in the respective casings in proximity to the
10 openings 9. The valves 16 are mounted for swinging motion, and one of each of their pivots extends through its casing 6 and is provided with a crank, as 18, connected to a suitably mounted and guided bar 19. By
15 the manipulation of the bars 19 valves may be opened or closed. On reference to Figs. 3 and 2, it will be seen that there is located in the casing 6 a flat valve 20, pivoted to one side of the opening. In both of said figures
20 the valve 20 is shown as being open, the valve 20 at this time standing vertically and hanging downward. To close the opening 7, the valve 20 will be swung upward until it covers said opening. To a pivot of the valve
25 20 is fastened a crank-arm 21, to which is joined one end of a bar, as 22, suitably mounted and guided upon the casing 6. By moving this bar endwise the valve to which it is connected may be opened or closed to
30 throw into action or out of action the feeder with which said valve is directly associated.

I will now describe in detail a convenient means for operating each cleaner 11, and in this connection reference may be had particularly to Figs. 2, 3, and 4. One end of the
35 cleaning-shaft 13 extends beyond the casing 6 and rigidly carries a ratchet-wheel, as 23, with which two pawls, each denoted by 24, are coöperative, the pawls being pivoted to
40 slides, each designated by 25. The slides 25 are carried by and longitudinally adjustable on a rocker, as 26, fulcrumed upon one side of the casing 6. The slides are located at opposite sides of the center of motion of the
45 rocker, and by adjusting them the stroke of the pawls can be regulated, by reason of which I can govern the speed of the cleaner 11. The slides will be maintained in their adjusted positions by means of set-screws, as
50 27, carried thereby and adapted to engage the rocker. I have shown as connected with the upper end of the rocker a rod 27', the opposite end of said rod being connected to the wrist-pin 28 upon the gear 29, driven by the
55 gear 30 upon the main shaft 31. When, therefore, the main shaft is in operation, the gear 30 will be operated, so as to through the intermediate mechanism oscillate the rocker 26 and cause through the pawl-and-ratchet
60 mechanism hereinbefore described the positive motion of the cleaner 11.

Upon one end of the shaft 31 I have shown a driven member, such as a pulley 32, operated by a belt 33 from the ginning mechanism. The shaft 31 extends entirely across

the casing 6 and rotatively carries a feeder, as that denoted in a general way by 34. The feeder 34 rotates in contact with the cleaner 11 and also in contact with a concaved strip, as 35, fastened to the casing adjacent the
70 said feeder at a point opposite the cleaner 11. Located above the concaved strip 35 is an inclined board 36, which prevents the accumulation of cotton on the top of said concaved strip. This inclined board directs cotton
75 onto the feeder. The concaved strip 35, as will be understood, has an air-tight fit against the feeder. The feeder has a longitudinally-corrugated core, as 37, to the corrugations of which are fastened strips, as 38,
80 constituting blades, of some suitable flexible material. The strips or blades 38 extend between the heads 39 of the feeder, the core, heads, and strips being connected together in any desirable way. The feeder, as will be
85 understood, is carried upon the main shaft 31 and has a continuous movement, the spaces between its blades presenting pockets in which cotton can fall. When the pockets are inverted, the cotton in them will gravi-
90 tate into a spout, as 40, extending from the casing 6 and to the ginning mechanism. Said feeder 34 is shown as rotative in contiguity to the cleaning-cylinder 11, by virtue of which said feed device or feeder 34 aids in cleaning
95 the cotton, in that it carries the cotton in scrubbing contact with the cleaning-cylinder.

At a point above the board 17 and upon that wall of the casing to which said board is attached I fasten an inclined board, as 41,
100 which prevents cotton passing between the cleaner 11 and the said wall.

In connection with each cleaner 11 I provide means for loosening the cotton up while
105 on said feeder, whereby air can pass freely through the cotton and remove effectually and thoroughly all moisture and dirt from the cotton. In addition to this, said means turns the cotton up in a continuous roll and in a direction opposite to that in which said
110 cleaner is turning and at the same time distributes the cotton evenly the whole length of the coöperating feeder 34. I will now set forth the means illustrated for securing these novel functions.
115

Within the casing 6 is a hollow rotative drum 45, having journals or gudgeons, as 46,
120 at its opposite ends supported by bearings in or upon the side walls of the casing. Supported by the gudgeons 46 is a non-rotative shaft, as 47. The drum 45 is rotated by sprocket-gearing denoted in a general way by 48 and connected with the shaft 31. The offset portion of the shaft 47 is provided with a multiplicity of radial arms, as 49, adapted
125 to work through perforations in the body of the drum 45, said arms being loosely connected with said offset portion. That part of the shaft 47 or the offset portion thereof which carries the arms 49 is, as will be under-
130

stood, eccentric to the drum 45. By reason of the relative mounting of the shaft and drum the arms will be drawn into and projected from the drum as the latter is turned.

5 The parts are so related that the arms will project their maximum from the drum at a point directly opposite the cleaning device 11. When this point is passed, the direction of rotation of the drum being indicated in Fig. 3, the arms or spikes will be drawn back into the drum, the outer ends of the arms or spikes being substantially flush with the periphery of the drum when said arms assume a vertical position. Beyond this position the
15 spikes or arms are gradually projected outward. One end of the offset shaft 47 may be squared to fit a correspondingly-shaped opening in the framework to prevent rotation of said shaft. As the spikes or arms are drawn
20 into the drum it will be obvious that cotton cannot be carried around with the drum, the spikes being cleaned free of cotton as they are drawn into the drum.

In proximity to the top of the drum, as
25 shown clearly in Figs. 2 and 3, there is a flexible vertically-disposed scraper or cleaner, as 50, which acts against the periphery of the drum 45 to clean the same, any dirt that may be detached therefrom falling against the
30 cleaning device 11 and being drawn through the same by suction produced in the conduit 8. In the casing 6 and complementary to the concaved strip 35 is a concaved strip 51. The two packing-strips 35 and 51 separate
35 in an air-tight manner the spout 40 from the interior of the casing 6, so that when cotton enters the spout it cannot be drawn therefrom by suction within the casing.

In Fig. 1 I have shown the apparatus involving three feeders. This is not essential, for one feeder only might be employed, or I can use more than three, the number of them being of minor importance. The cleaners 11 are within the feeder-casing 6, and they constitute part of the feeding device and part of
45 the elevating device.

Having described the invention, what I claim is—

1. The combination of a casing having a
50 supply-opening therein, a reticulated cleaning-cylinder in said casing adapted to receive a mass of material from said opening, means for drawing air through the opening for carrying the mass against the cylinder and to
55 draw foreign substances in said mass through the cylinder, a pocketed feed device in scrubbing contact with said cylinder, concaved strips in the casing engaged by the pocketed feed device, and means for rotating said
60 cleaning-cylinder.

2. The combination of a casing having a supply-opening, a reticulated cleaning-cylinder in said casing adapted to receive a mass of material from said opening, means for
65 drawing air through the opening to carry the

mass against the cylinder and to draw foreign substances in the mass through the cylinder, a feed device adjacent the cylinder, concaved strips at opposite sides of the feed device engaged by the latter, a rotary drum
70 having peripheral perforations, and a non-rotative shaft in the drum having an offset portion provided with arms loosely connected therewith and to extend through the perforations in the drum, the offset portion of
75 the shaft being eccentric with respect to the drum.

3. The combination of a casing having a supply-opening, a reticulated cleaning-cylinder in said casing adapted to receive a mass
80 of material from said opening, means for drawing air through the opening to carry the mass against the cylinder and to draw foreign substances in the mass through the cylinder, a feed device adjacent the cylinder,
85 concaved strips at opposite sides of the feed device engaged by the latter, a rotary drum having peripheral perforations, and a non-rotative shaft in the drum having an offset portion provided with arms to extend through
90 the perforations in the drum, the offset portion of the shaft being eccentric with respect to the drum.

4. The combination of a casing having a supply-opening therein, a reticulated cleaning-cylinder in said casing adapted to receive
95 a mass of material from said opening, means for drawing air through the opening, to carry the mass against the cylinder and draw foreign substances in said mass through the cylinder, a feed device arranged in operative relation with said cylinder, the casing having a
100 spout to receive material from the feed device, packing devices engaged by the feed device to separate the spout from the interior
105 of the casing, means for rotating said cylinder, and a spiked drum rotative in a direction opposite to that of the cylinder, the spikes, as the drum rotates, serving to maintain a uniform supply of material to the feed de-
110 vice.

5. The combination of a casing having a cotton-supply inlet and an air-outlet, means for passing air-currents through the casing from said inlet to said outlet, a rotative, perforated cleaning-cylinder in the casing in the
115 path of the air and situated to permit air to enter the cylinder from one side thereof and to leave it at approximately a diametrically opposite point, and means exterior of the
120 cylinder for positively loosening up cotton thereon at substantially the point where it is received upon the cylinder.

6. The combination of a casing having a cotton-supply inlet and an air-outlet, means
125 for passing air-currents through the casing from said inlet to said outlet, a rotative, perforated cleaning-cylinder in the casing in the path of the air and situated to permit air to enter the cylinder from one side thereof and
130

to leave it at approximately a diametrically opposite point, a spiked drum in the casing arranged in proximity and rotative in a direction opposite to the direction of rotation of the cylinder, the spikes of the drum serving to loosen up the cotton on the cylinder at substantially the point where said cotton is received upon said cylinder.

7. The combination of a casing having a cotton-supply inlet and an air-outlet, means for passing air-currents through the casing from said inlet to said outlet, a rotative, perforated cleaning-cylinder in the casing in the path of the air and situated to permit air to enter the cylinder from one side thereof and to leave it at approximately a diametrically opposite point, a spiked drum in the casing arranged in proximity and rotative in a direction opposite to the direction of rotation of the cylinder, the spikes of the drum serving to loosen up the cotton on the cylinder at

substantially the point where said cotton is received upon said cylinder, and a feeder, the spiked drum serving to effect the distribution of the cotton in a uniform manner to the feeder.

8. The combination of a perforated cleaning-cylinder, a drum located in proximity to the cylinder, arms movable relatively to the drum across the periphery of the drum to present a spiked exterior, such spiked exterior serving to loosen up the cotton on said cylinder, and means for turning said drum to cause relative motion of the said arms with respect thereto.

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

ELLIS B. ANDERSON.

Witnesses:

ROBT. G. ARRINGTON,
S. H. ROBERTS.