

No. 639,614.

Patented Dec. 19, 1899.

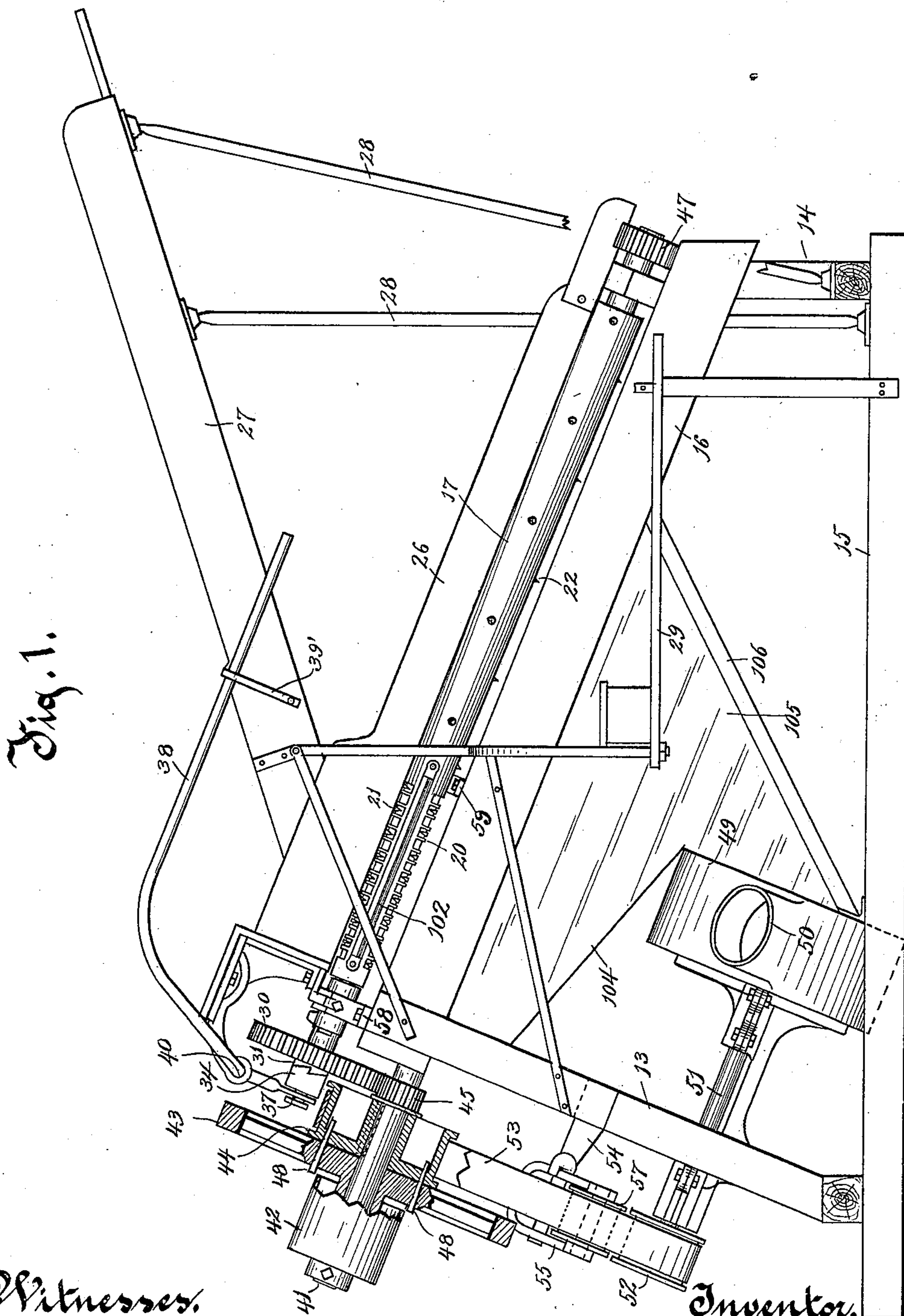
A. ROSENTHAL.

COMBINED CORN HUSKER AND FODDER SHREDDER.

(Application filed June 24, 1898.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses.

C. W. Keeney
Anna V. Faust.

Inventor.

August Rosenthal
By Benedict and Morsell-
Attorneys.

No. 639,614.

Patented Dec. 19, 1899.

A. ROSENTHAL.

COMBINED CORN HUSKER AND FODDER SHREDDER.

(Application filed June 24, 1898.)

3 Sheets—Sheet 2.

(No Model.)

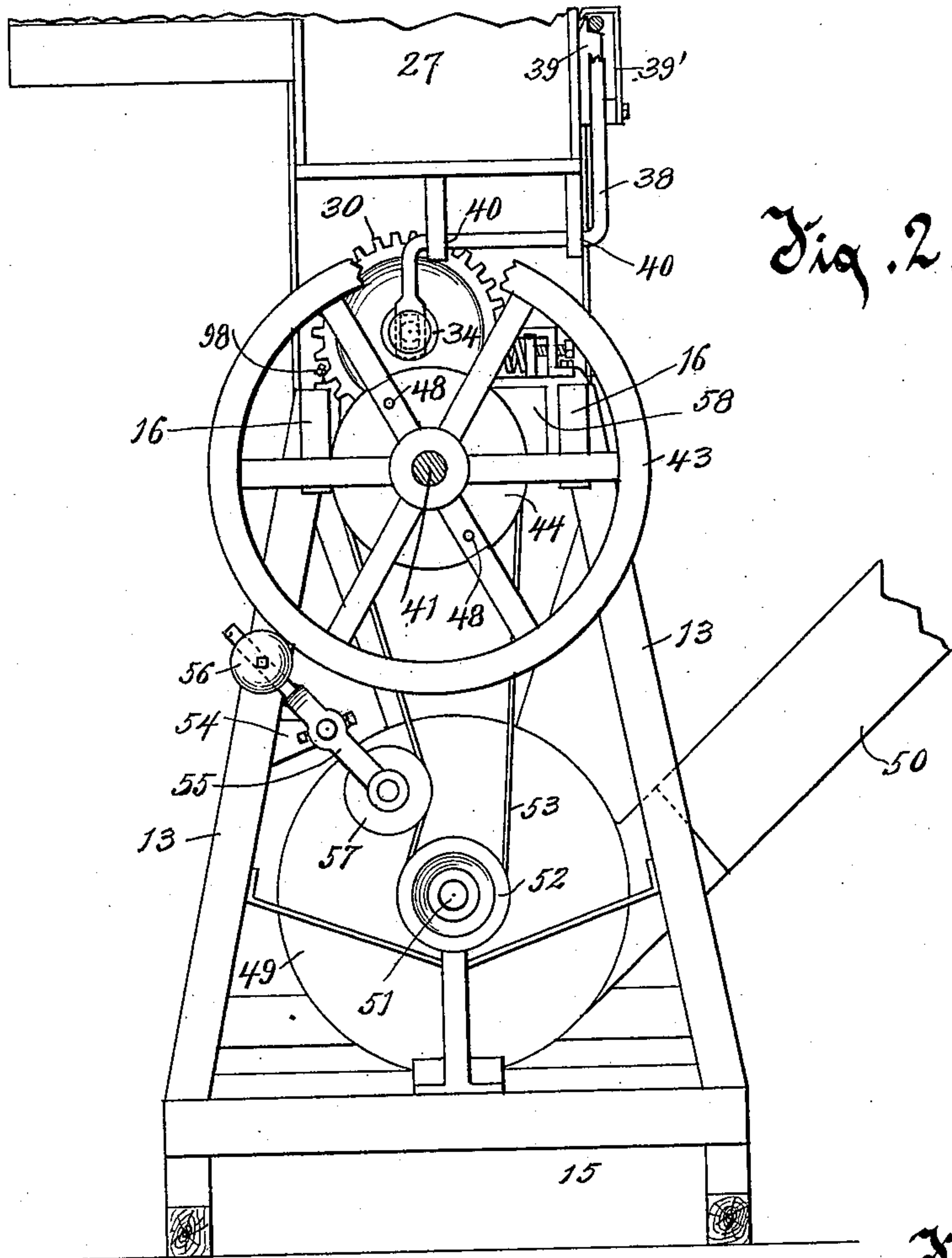


Fig. 2.

Fig. 12.

Fig. 3.

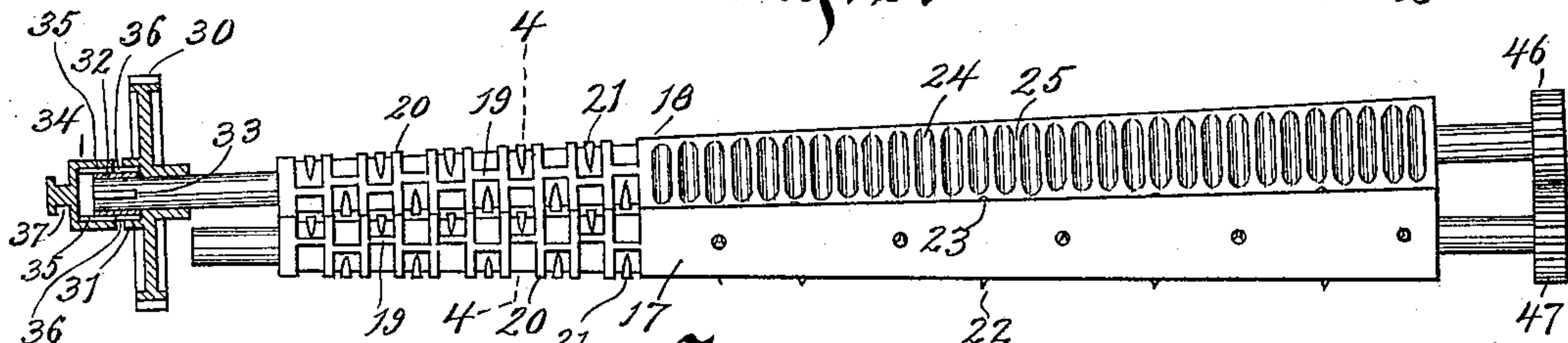
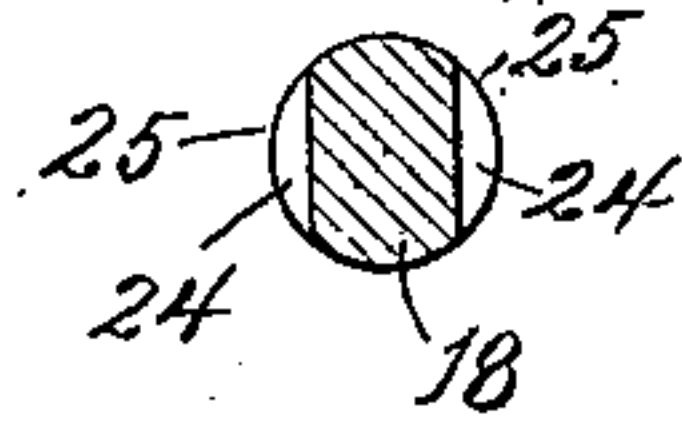
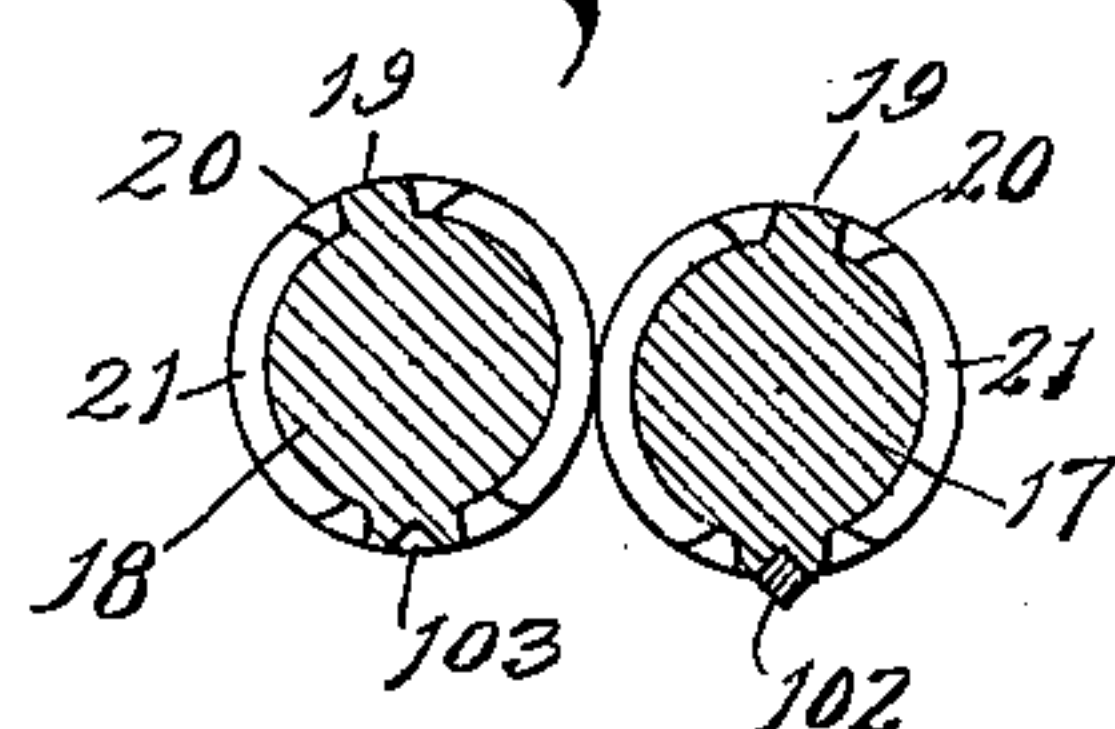


Fig. 4.



Witnesses.

W. H. Keeney.

Anna B. Faust.

Inventor.

August Rosenthal.

By Benedict and Morrell.

Attorneys.

A. ROSENTHAL.

COMBINED CORN HUSKER AND FODDER SHREDDER.

(Application filed June 24, 1898.)

(No Model.)

3 Sheets—Sheet 3.

Fig. 5.

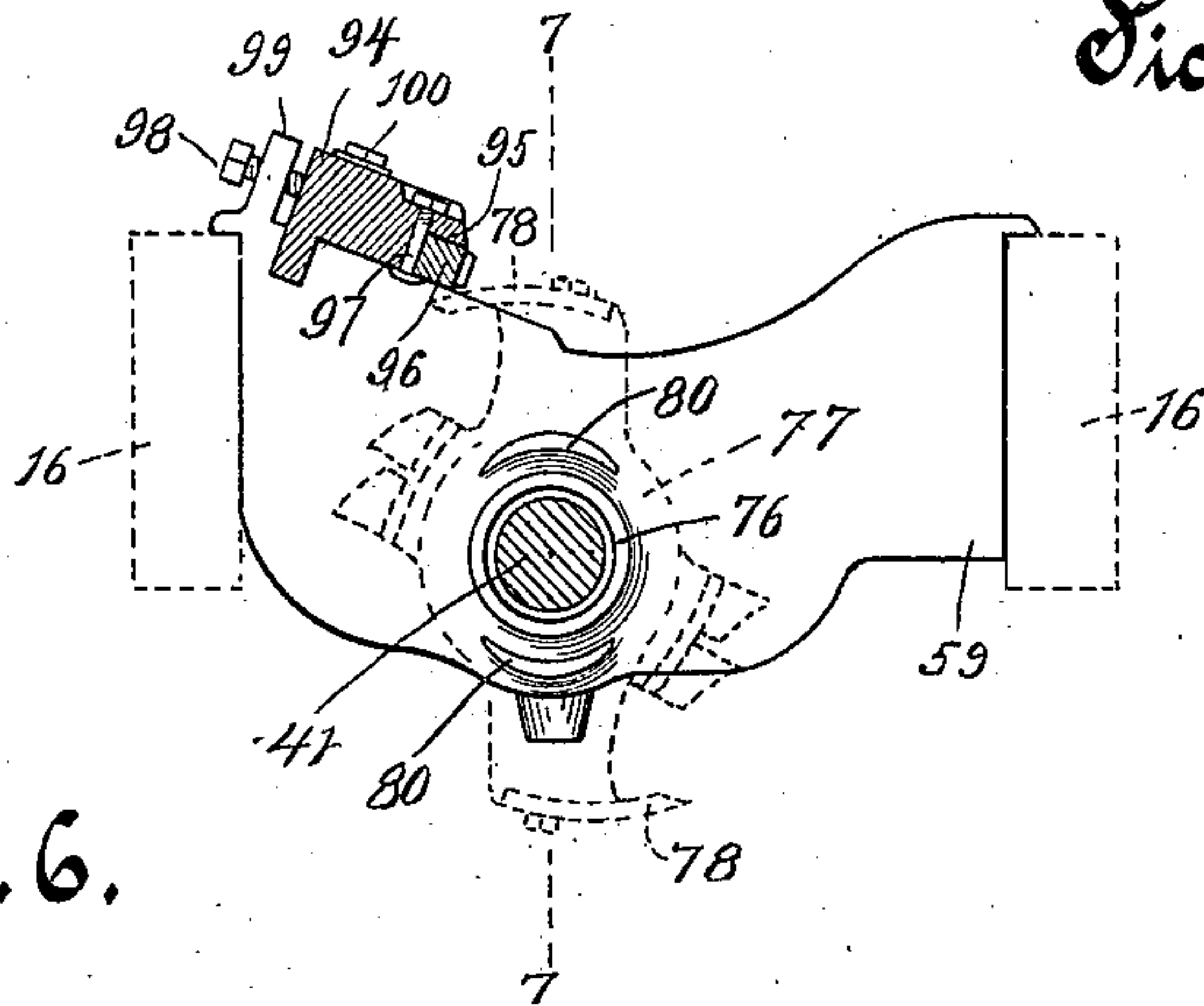


Fig. 6.

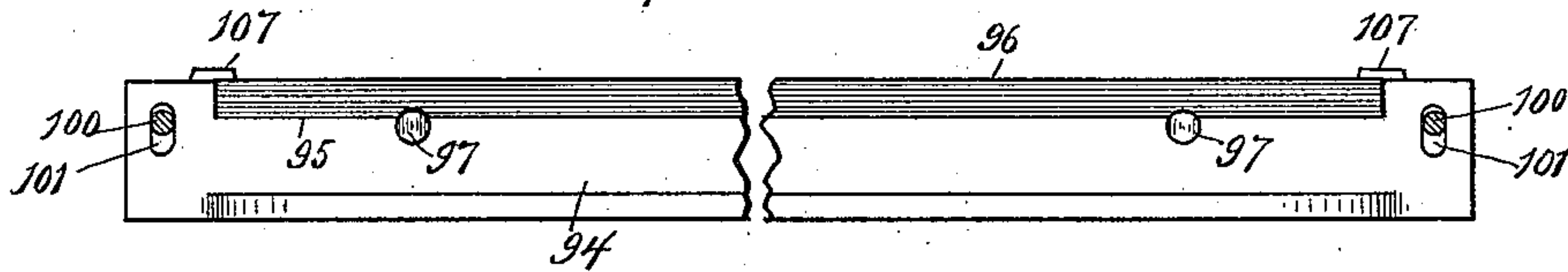


Fig. 8.

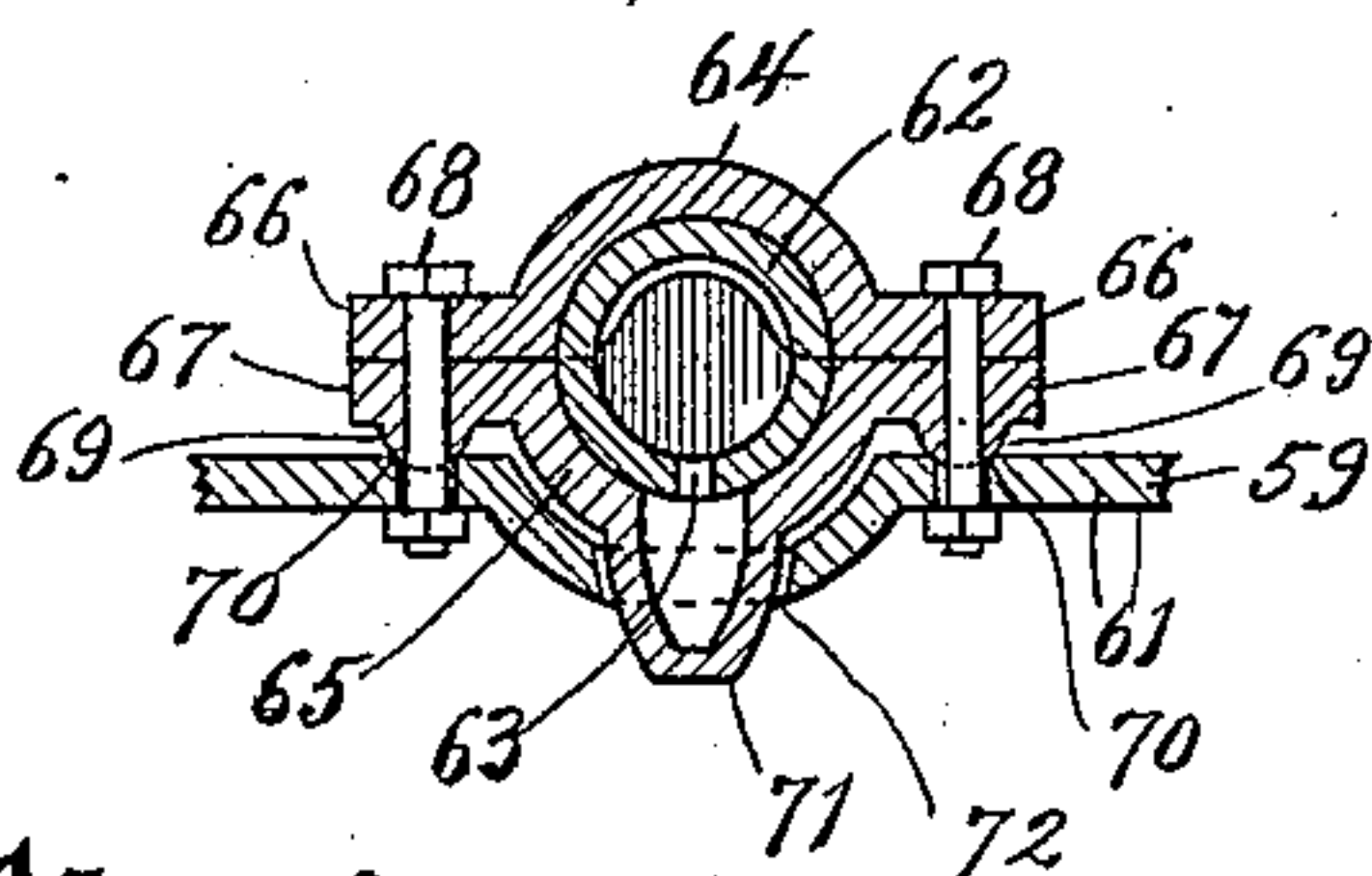


Fig. 7.

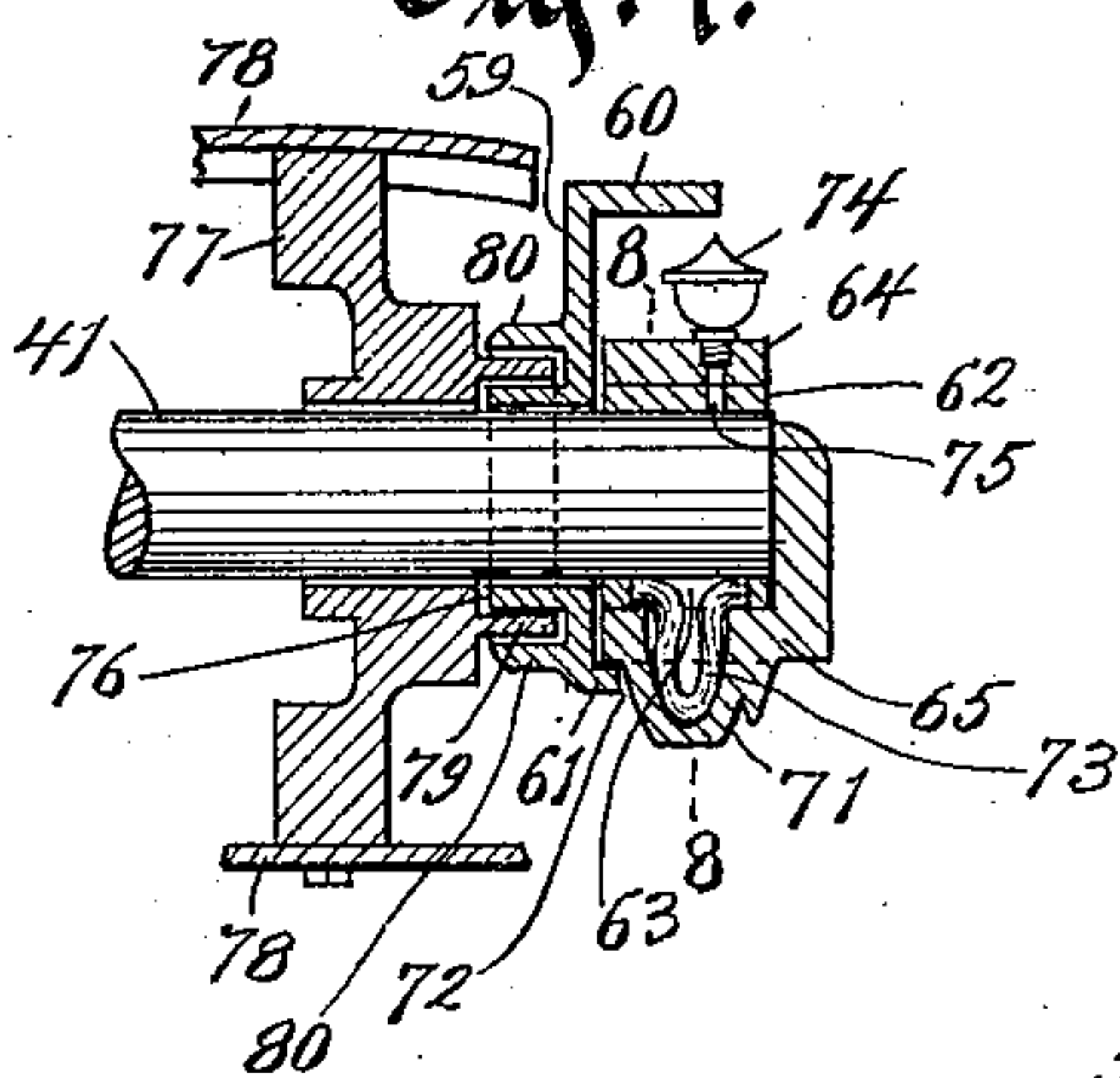


Fig. 11.

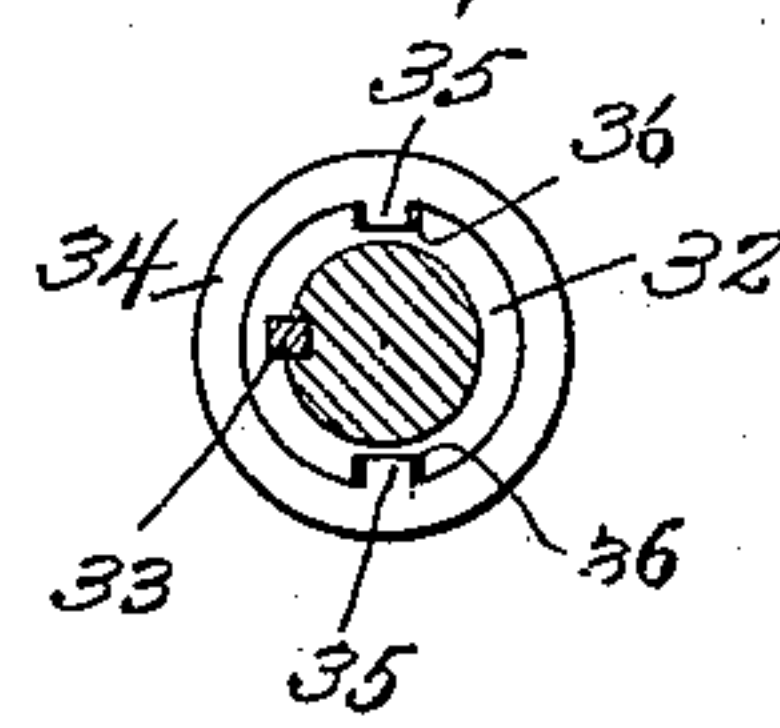


Fig. 9.

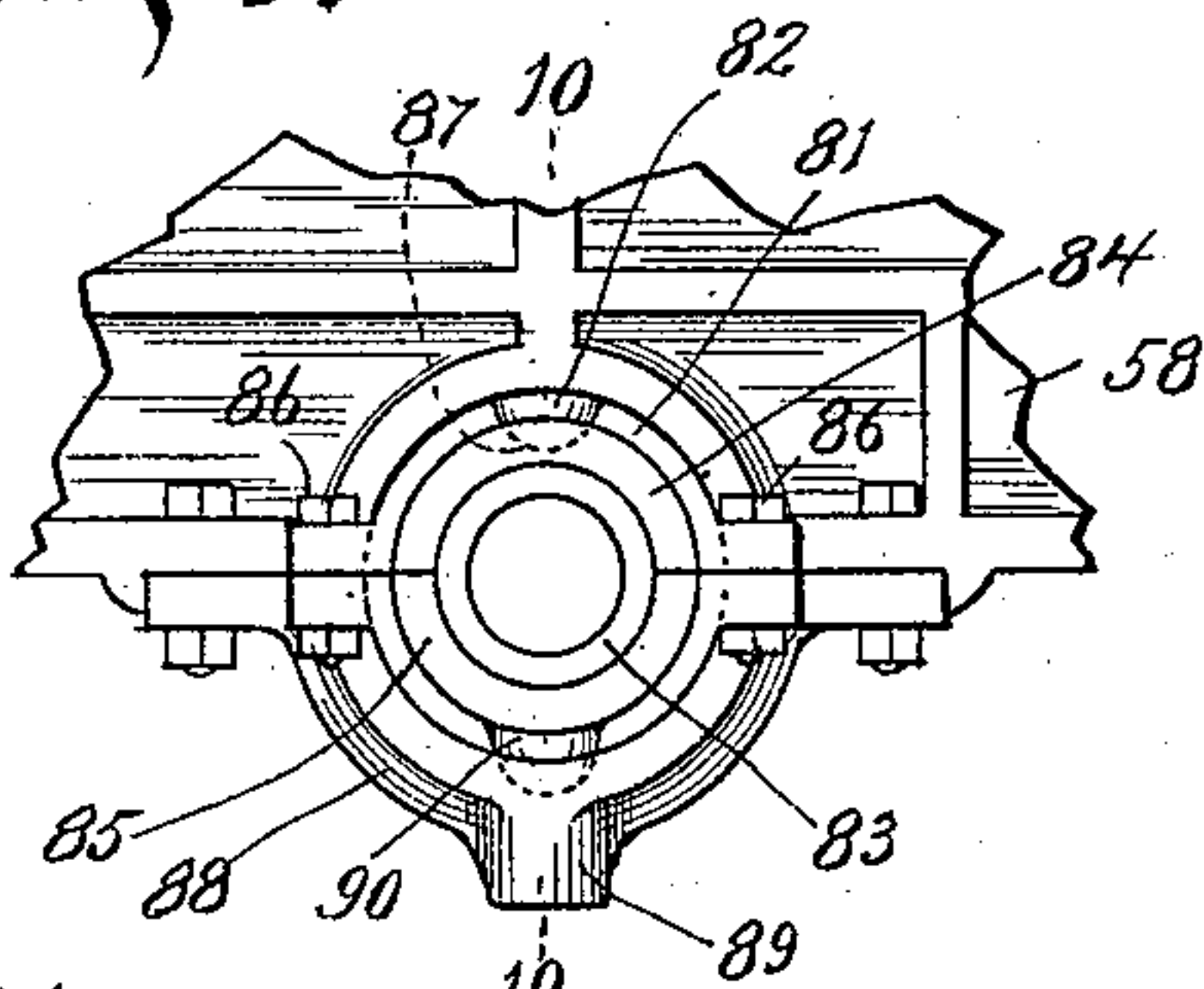
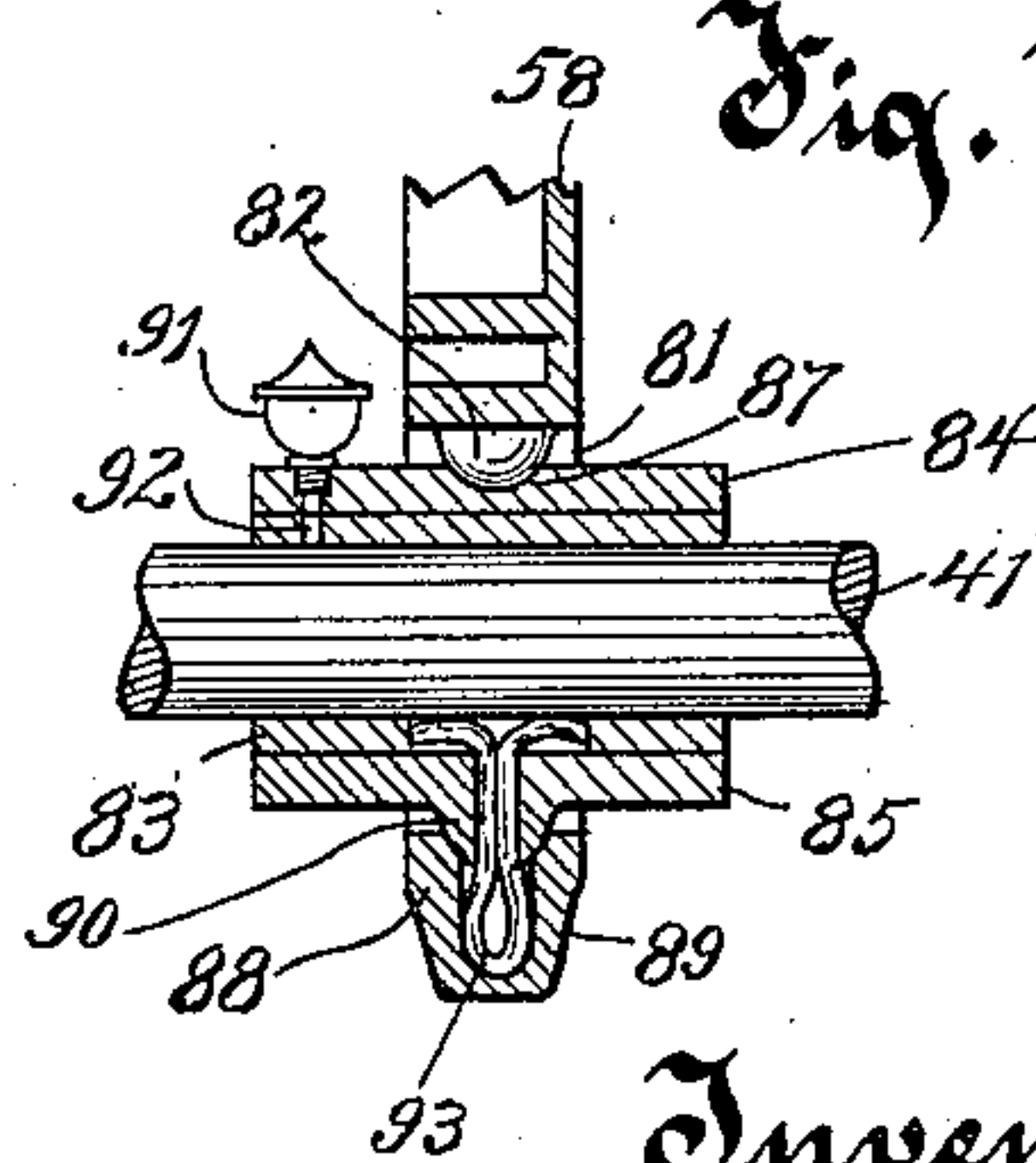


Fig. 10.



Witnesses.

W. Keeney
Anna C. Faust.

Inventor.

August Rosenthal
By Benedict and Morsell
Attorneys.

UNITED STATES PATENT OFFICE.

AUGUST ROSENTHAL, OF MILWAUKEE, WISCONSIN, ASSIGNOR TO THE
ROSENTHAL CORN HUSKING MACHINE COMPANY, OF SAME PLACE.

COMBINED CORN-HUSKER AND FODDER-SHREDDER.

SPECIFICATION forming part of Letters Patent No. 639,614, dated December 19, 1899.

Application filed June 24, 1898. Serial No. 684,356. (No model.)

To all whom it may concern:

Be it known that I, AUGUST ROSENTHAL, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and useful Improvement in a Combined Corn-Husker and Fodder-Shredder, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention has relation to improvements in combined corn-huskers and fodder-shredders.

Among the objects of the invention are, first, to provide an improved construction of rollers having as one feature a novel construction at the separating ends of the rollers for readily drawing the stalks in between said rollers and also for preventing the ears from being carried between the rollers and at the same time providing for the ears being separated from the stalks, and as an additional feature an improved construction of the husking portions of the rollers, whereby provision is made for breaking off the points of the ears without otherwise impairing the efficiency of the rollers; second, an improved construction for preventing injury to the person feeding to the machine should he through accident fall onto the surfaces of the rapidly-revolving rollers, and, third, to provide a machine which is simple in construction and wherein it is only necessary, in order to secure effective results, to run it at the rate of but seven hundred to eight hundred revolutions per minute, no matter what condition the corn-fodder may be in, thereby reducing the power to the minimum and at the same time tending to prolong the lifetime of the machine.

With the above primary and other incidental objects in view the invention consists of the devices and parts or their equivalents, as hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a side elevation of the complete machine with parts broken away. Fig. 2 is an end elevation, parts broken away. Fig. 3 is a detail view of the rollers. Fig. 4 is a cross-section on the line 4 4 of Fig. 3. Fig. 5 is a cross-section on a plane just in front of the rear transverse bearing-plate 59, the rotatable cutting mechanism in front of the rear transverse

bearing-plate being shown in dotted lines. Fig. 6 is an under view of the stationary cutting mechanism. Fig. 7 is a cross-section on the line 7 7 of Fig. 5. Fig. 8 is a cross-section on the line 8 8 of Fig. 7. Fig. 9 is an elevation of the front end bearing for the main shaft, the oil-cup being removed. Fig. 10 is a cross-section on the line 10 10 of Fig. 9 and showing the oil-cup. Fig. 11 is a cross-section through the clutch mechanism, and Fig. 12 is a cross-section through the husking portion of one of the rollers.

Referring to the drawings, the numeral 13 indicates the front uprights or legs, and 14 the rear uprights or legs, which support the frame of the machine, said front and rear legs extending upwardly from a suitable base 15. The front uprights are considerably higher than the rear uprights and are slanted rearwardly, so that the frame has a gradual declination from the front to the rear.

Connecting the upper ends of the uprights and extending longitudinally of the frame from front to rear are side boards 16. Mounted above the side boards, in suitable front and rear bearings, are the journals of rollers 17 and 18, which rollers extend longitudinally of the frame and are advisably of a gradually-tapering form, the diameter being smallest at the front ends and gradually decreasing toward the rear ends. The bearings for the journals of these rollers are advisably yielding, so as to permit said rollers to spread apart in order to provide for the passage therebetween of the cornstalks. The front portions of both the rollers are formed with short ribs 19, which extend in the direction of the length of the rollers and are arranged in a series of longitudinal lines, each longitudinal line composed of separate ribs, preferably alternating in longitudinal alinement. These ribs serve to grasp the cornstalks and pull said stalks between the rollers as the rollers are rotated toward each other. The ends of these short ribs 19 join other ribs 20 arranged at right angles thereto or extending around the rollers. The ribs 20 form shoulders against which the ears of corn contact after the stalks have been drawn between the rollers. These ribs 20 therefore serve to prevent the ears from being also pulled be-

tween the rollers or from being carried a limited extent between the rollers, and thereby broken. These ribs 20 are such a distance apart as to correspond to the average width of the butts of ears of corn, thereby insuring contact of the butts of the ears therewith. In the spaces between the ribs 20 the rollers are formed or provided with lugs 21, disposed circumferentially therearound, which take hold of the stocks and greatly assist in drawing them between the rollers. These lugs are arranged in series, the lugs in one circumferential series alternating in position with the lugs of the adjacent circumferential series. Only the front ends of the rollers are constructed as just described, this particular construction extending from the front extremities of the rollers rearwardly for a desired distance, preferably for approximately one-third of the length of the rollers, and these portions of the rollers constitute the separating portions thereof. The remaining portions of the rollers constitute the husking parts. Roller 17 is provided with a series of projecting husking-pins 22, and roller 18 with a series of recesses 23, which register with said pins and receive the same therein as the rollers revolve toward each other. These pins serve to engage and thereby strip the husks from the ear of corn, said husks being then carried between the rollers. Roller 18 is formed at one portion of its surface with a line of transversely-elongated recesses, the said line of recesses extending longitudinally of the husking portion of the roller, and also at a diametrically opposite point with a similar line of recesses. These recesses are indicated by the numerals 24. (See particularly Figs. 3 and 12.) The said recesses form therebetween series of raised surfaces or ribs 25.

Inasmuch as the ears of corn do not always arrange themselves lengthwise on the husking portions of the rollers, oftentimes working around to such position that their points are caught between the rollers, it is necessary, to a thoroughly successful machine, that some provision should be made for breaking off the points of the ears, and thereby permitting said ears to arrange themselves lengthwise on the rollers. In United States Letters Patent issued to me under date of March 5, 1895, No. 535,025, for a combined feed-cutter and corn-husker, I made provision for breaking off the points of the ears by providing a single longitudinal line of transversely-elongated recesses, forming the ribs therebetween, said ribs acting to split the points of the ears, so that when the ungrooved parts of the rollers came together said points were readily broken off, and thereby instead of the ears of corn wedging in between the rollers they were again permitted to assume a lengthwise position thereon. This construction was found in practice to be open to objection, owing to the unbalancing of the roller caused by but a single line of transversely-elongated re-

cesses—that is to say, the ungrooved portion of the roller being necessarily made heavier than the grooved portion thereof. To obviate this disadvantage, I have shown in the present application two lines of these transversely-elongated grooves arranged at diametrically opposite points, so that an overbalancing of weight at one point is obviated.

Above the rollers and having their lower edges almost in contact therewith are longitudinal side pieces 26 26, which serve to prevent the cornstalks fed to the rollers from working laterally off the top surfaces of said rollers. Leading down to the space between the side pieces 26 and at the forward end of said space, so as to have its discharge end above the separating portions of the rollers, is an inclined trough 27, which is supported by suitable legs 28. On one or both sides of the framework may be provided a platform 29, upon which a person stands and feeds the cornstalks horizontally into the trough, with the butt-ends toward the front end of the machine.

The forward end journal of the roller 18 is extended somewhat, and on this extended journal is mounted loosely a gear-wheel 30. The outer face of this gear-wheel is provided with a projecting clutch member 31. On the outer extremity of this extended journal is mounted a collar 32, said collar being held fast to the shaft by means of a feather 33. Surrounding the collar is another clutch member 34, which is provided with inwardly-projecting feathers or lugs 35 35, engaging grooves 36 36 in the exterior surface of the collar. (See particularly Fig. 11.) It is deemed preferable to provide the collar 32 feathered on the shaft and the clutch member in turn feathered to the collar rather than to have the clutch member feathered directly on the shaft, as not only does the construction shown provide for simplicity in workmanship, but the collar, furthermore, acts as a shoulder on one side of the wheel 30, and thereby holds the wheel against longitudinal movement toward the outer end of the shaft, the collar entering the recess formed by the projecting clutch member 31 of the wheel and bearing directly against the face of the wheel. (See Fig. 3.) The hub projecting from the inner face of the wheel 30 bears directly against the bearing of the journal of the roller.

The outer end of the clutch member 34 is formed with a reduced portion 37, which reduced portion passes through an elongated slot in the end of a pivoted lever 38. The straight portion of this lever is parallel with the side of the frame and at its forward end is bent at right angles and passes through suitable bearings 40 40, and is then bent downwardly, the downwardly-bent portion being provided with the elongated slot through which the reduced portion of the clutch member 34 extends. The free end of the lever is supported by a shoulder formed at the upper end of a block 39, which block is secured to

one of the side pieces of the trough. In order to prevent the lever normally from disengaging with the shoulder of the block, a spring-arm 39' is secured at its lower end to the side piece of the trough, and the upper free end of this spring-arm is bent inwardly above the block and the lever and thence downwardly at its extremity to form a short catch which engages back of a projection extending upwardly from the block. When the spring-arm is thus in engagement, the space between said arm and the outer side of the block is not sufficient to admit of the falling of the lever therein, and consequently said lever is normally held supported by the shoulder. The lever just described is designed to act as a safety device, its function being to prevent an accident to a person standing on the platform 29 due to slipping or stumbling and falling over the side piece 26 onto the surface of the rollers. If no means were provided, a person so falling onto the rapidly-revolving rollers would be dragged in between the rollers, and thereby seriously injured or maimed, if not killed. By the provision of the lever and the clutch mechanism, however, the danger above alluded to is entirely obviated. It will be understood that the clutch member 34 is normally in engagement with the clutch member 31 of the wheel 30, so that the rotation imparted to said wheel is transmitted, through the meshing clutches, to the rollers, as will hereinafter more fully appear. If, therefore, a person should fall in the manner hereinbefore referred to, he would necessarily fall first onto the lever. The weight of the person would force the lever off the shoulder of the block 39, said shoulder being slightly beveled, and also force out the spring-arm 39' laterally. The lever would therefore be turned on its pivot, and this would necessarily cause a movement of the clutch member 34 outwardly, so as to disengage its teeth from the teeth of the clutch member 31. The wheel 30 would therefore be revolved without any revolution whatever being imparted to the journal of the roller 18. The rotation of the rollers would consequently be at once stopped and no harm could then ensue to the attendant.

The numeral 41 indicates the main shaft, upon which is mounted a pulley 42, and fast to the pulley a fly-wheel 43. Next to the fly-wheel a flanged pulley 44 is keyed to the shaft, and fast to the hub of the pulley 44 is a pinion 45. Pulley 42 is rotated by means of a belt (not shown) leading from any suitable source of power, and this rotation of the belt is of course transmitted to the fly-wheel, flanged pulley, shaft 41, and pinion 45. As the pinion 45 is in mesh with gear-wheel 30, said gear-wheel is rotated, and when the clutch 31 of said gear-wheel is in engagement with the clutch member 34 the roller 18 is also necessarily rotated. Mounted on the rear journal of said roller 18 is a gear-wheel 46, and this gear-wheel meshes with a similar

gear-wheel 47 on the rear journal of roller 17, whereby the rotation of roller 18 is imparted to roller 17.

In this class of machines it frequently happens that obstructions or hard substances get in between the rollers, oftentimes resulting in breakage of the parts. In order to provide against this contingency, I arrange the flat inner side of the fly-wheel against the opposed flat face of the flanged pulley 44 and connect said fly-wheel and pulley by means of pins 48, preferably of hickory wood. By this arrangement in case of any obstructions or unyielding hard foreign substances getting in between the rollers the two opposed flat faces of the fly-wheel and the flanged pulley, respectively, will act to effect a shear cut, and consequently cut the pins in two, thereby disconnecting the two wheels. As the fly-wheel is rigid with or fast to the pulley 42, it necessarily follows that as said pulley and fly-wheel are now loose upon the shaft the rotation of the pulley 42 by the belt which runs from the source of power will not rotate the shaft, with the result that the rollers 17 and 18 cease rotating, and consequently no damage is caused to the parts.

The numeral 49 indicates a fan-casing, which casing has leading from the perimeter thereof a spout 50, which may extend to any suitable point of discharge. The inner end of a shaft 51 extends into this casing, and said inner end has mounted thereon, within the casing, a suitable fan. (Not shown.) The outer end of shaft 51 has mounted thereon a pulley 52, which pulley is connected to the flanged pulley 44 by means of a straight belt 53. This connection transfers the rotation of the main shaft to the fan-shaft. In the construction disclosed in an application for patent filed by me on November 15, 1897, Serial No. 658,535, for improvements in combined corn-huskers and fodder-shredders, the flanged pulley and the pulley on the end of the fan-shaft were shown as connected by means of a crossed belt. This construction has been found in practice to be objectionable, owing to the friction engendered by the constant rubbing of the belt at the point of crossing or intersection, which friction very soon causes the belt to wear out and to also get out of shape. A straight belt is therefore more desirable; but the use of a straight belt has been attended with difficulty—viz., the tendency of said belt to become loose or slack, especially when the fan is operating to elevate a heavy load of stock. In my present invention I have provided for the use of a straight belt, and at the same time have obviated the difficulty heretofore experienced in the use of such belt in this class of machine by the provision of an automatic tightener, which will now be described. Pivoted medially to a lug 54, projecting from one of the uprights 13, is an arm 55. The outer end of this arm has mounted adjustably thereon a weight 56, and the inner end of the arm carries a grooved pul-

ley 57, the groove of said pulley receiving the slack side of the belt. When, therefore, any slack occurs in the belt the adjustable weight will depress the outer end of the arm 55, and thereby cause an upward movement of the inner end of the arm, so as to cause the pulley 57 to act upwardly against the belt, and thereby automatically take up the slack.

The bearings for the main shaft 41 comprise two transverse plates extending from one side board 16 to the other. One of these bearings is arranged near the front end of the machine and the other a desired distance to the rear thereof. The front bearing is indicated by the numeral 58 and the rear bearing by the numeral 59. The rear bearing 59 is provided at its top and bottom edges with rearwardly-extending flanges, the upper flange being indicated by the numeral 60 and the lower flange by the numeral 61. Surrounding the rear extremity of the shaft 41, back of the plate 59, is a collar 62, composed of Babbitt metal or other suitable material. The lower portion of this collar is provided with a slot 63, which is elongated in the direction of the width of the collar. The collar is surrounded by a journal-box, which consists of two sections, the upper section being indicated by the numeral 64 and the lower section by the numeral 65. These sections are formed with opposed lateral flanges 66 66 and 67 67, respectively. Bolts 68 68 pass through these flanges and also through the lower rearwardly-extending flange 61 of the bearing-plate 59, nuts taking onto the lower threaded ends of the bolts in order to hold the parts together. The under surfaces of the flanges 67 are formed with rounded or convex projections 69 69, which projections fit in corresponding depressions or recesses 70 70 in the upper surface of the flange 61, which depressions or recesses are at the upper ends of the openings for the bolt 68. It will be understood that it would be no departure from my invention to form the convex projections on the upper surfaces of the flange 61 and the depressions or recesses in the under surfaces of the flanges 67. By this construction a pivotal connection is formed between the rear bearing-plate 59 and the rear journal-box for the shaft 41, thereby permitting said journal-box to turn in one direction. The lower section 65 of the journal-box is formed with a depending cup 71, the rearwardly-projecting lower flange 61 of the bearing-plate 59 being cut out or recessed, as indicated at 72, for the accommodation of this cup. Fitting within the cup 71 is a wick 73, the ends of said wick being extended upwardly and passing through the elongated slot 63 of the collar, so that said ends may be in contact with or in close proximity to the shaft. An oil-cup 74 is provided for the upper sections 64 of the journal-box, and this oil-cup leads to an opening 75 through the collar 62, so that oil from the oil-cup may be fed directly to the shaft. Any waste or surplus oil so fed will pass into the depending

cup 71, and which surplus oil will be taken up by the wick 73 and by capillary attraction drawn upwardly, and thereby fed to the shaft, so as to again act as a lubricant for the shaft.

Extending forwardly from the central opening of the bearing-plate 59 is an annulus or ring 76, said ring surrounding the shaft 41. Just in advance of this annulus or ring is located one end of the rotatable cutting mechanism, consisting of a wheel 77, mounted on the shaft 41 and having a series of radiating arms, to the outer ends of which are connected the rear ends of cutting-blades 78. The rear face of this wheel is provided with a projecting annular flange 79, which flange surrounds the annulus or ring 76 of the plate 59. The front face of the plate 59 is provided with upper and lower projecting crescent-shaped lugs 80 80, which overlap the annular flange 79. By the provision of the annulus or ring 76, annular flange 79, and lugs 80 80 an effective guard is provided against the binding-cord, shucks, or other matter which passes to the cutting mechanism reaching the shaft 41 and being wound around said shaft in its rotation. It will be understood that another wheel (not shown) similar to 77 is mounted upon the shaft 41 just to the rear of the front bearing-plate 58. This wheel is similar in all respects to wheel 77, excepting that it is not provided with an annular flange similar to 79. The front ends of the cutting-blades 78 are of course secured to the radiating arms of this wheel.

The front bearing-plate 58 is provided with an opening 81, through which the shaft 41 passes, said opening being of somewhat greater diameter than the diameter of said shaft. Extending from the upper bordering edge of the opening into said opening for a short distance is a convex projection 82. Passing through the opening 81 and surrounding the shaft is a collar 83, of Babbitt metal or other suitable material. Surrounding the collar in turn is a journal-box consisting of two sections, the upper section being indicated by the numeral 84 and the lower section by the numeral 85. These sections are provided with lateral flanges, which fit against each other and are held together by means of bolts 86. The upper section 84 of the journal-box is provided with a depression or recess 87, which is in line with and receives the convex projection 82. The lower portion of the opening 81 of the front bearing-plate is shown as being formed by a separate circular piece or extension 88, which is bolted or otherwise suitably secured to the bearing-plate. If desired, however, this extension of the bearing-plate may be formed as an integral part of said plate. From the lower portion of the extension 88 projects a depending cup 89. The upper end of the chamber of this cup is widened and concaved to receive a convex projection 90, extending from the lower section 85 of the journal-box. By the provision of the convex projections 82

and 90 and the recesses or depressions to receive the same a pivotal joint is also formed between the front plate 58 and the front journal-box for the shaft 41, thereby permitting said journal-box to turn in a direction opposite to the direction of turning of the rear journal-box in order to allow the shaft 41 to automatically aline itself to the machine, so that in case the frame of the machine should twist or get out of shape the bearings will readily adjust themselves thereto. In initially adjusting the shaft 41 to its journal-boxes after the shaft has adjusted itself to alinement with the frame the bolts 68 are adjusted to place and the nuts on the lower end thereof turned so as to tighten the bolts, and thereby bring the sections of the rear journal-box close to the shaft in order to hold said shaft to alined position. It is obvious that the bolts may be tightened so as to hold the end of shaft 41 in alined position, even after the machine has been put together. It will of course be understood that the projection 82 need not necessarily extend from the bearing-plate 58 and enter a recess in the upper section 84 of the journal-box, as the reverse construction would subserve a similar function, which reverse construction would consist in forming the recess in the plate 58 and having the projection extending upwardly from the upper section 84 of the journal-box; nor need the projection 90 extend from the lower section 85 of the journal-box and enter a recess therefor in the extension 88, as the recess could be provided in the lower section of the journal-box and the projection extend from the extension 88; or, again, both projections could extend from the plate 58 and its extension 88 and enter recesses in the respective sections of the journal-box, or vice versa, and in all of these arrangements the same function would be accomplished. The upper section 84 of the journal-box is provided with an oil-cup 91, and the collar 83 is provided with an opening 92 for the passage of the oil from the oil-cup to the shaft. Any surplus oil fed to the shaft is free to pass to the depending cup 89. In this depending cup is arranged a wick 93, the ends of said wick being carried up and passed through an opening extending through the lower section 85 of the box at the point where the convex projection 90 of said box is located, so that the end of said wick will be adjacent to the shaft. The wick takes up the oil which flows into the cup 89 and draws said oil upwardly by capillary attraction, so as to again be utilized for lubricating the shaft.

The stationary knife of the cutting mechanism is carried by a longitudinal beam 94, which beam extends from the front bearing-plate 58 to the rear bearing-plate 59, the upper flanges of said bearing-plates forming supports for the end of the beam and also forming surfaces to which the ends of the beam may be connected. The inner edge of this beam is provided with a recess 95 on its

under side, which is adapted to receive the stationary cutting-knife 96, said knife being preferably of square or rectangular form in cross-section. This cutting-knife is coextensive in length with the cutting-blades 78 of the rotatable portion of the cutting mechanism, and said blades of the rotatable cutting mechanism are adapted to just clear one corner or angle of the stationary cutting-knife as the rotatable cutting mechanism is revolved, and thereby effect a shear cut. From the fact that the stationary cutting-knife is square or rectangular in cross-section four different cutting edges are provided, so that in the event of one cutting edge becoming unduly worn another edge may be presented to working position. The cutting-knife 96 is held releasably in the recess by means of bolts 97 97, the heads of said bolts being on the under side of the beam 94 and overlapping the under side of the cutting-knife. The upper projecting ends of said bolts are threaded to receive locking-nuts, as clearly shown in Fig. 5. The longitudinal beam 94 is also adjustable closer to or farther away from the rotatable cutting mechanism in order to adjust the cut. In the present illustration I have shown set-screws 98 for accomplishing this purpose, said set-screws engaging threaded openings in lugs 99, projecting upwardly from the upper edges of the bearing-plates, the inner ends of said screws bearing against the outer edge or side of the beam. The beam is connected to the upper flanges of the plates 58 and 59 by means of bolts 100 100, which bolts pass through elongated slots 101 101 in the beam and enter the flanges of the bearing-plates. It is evident that these elongated slots permit the longitudinal beam to be moved by the set-screws 98, so as to bring the stationary cutting mechanism closer to or farther away from the revolving cutting mechanism. Small lugs 107 107 extend from the beam 94 for a short distance over the recess 95 and serve to retain the ends of the cutting-knife 96.

In the operation of my invention when the main drive-shaft 41 is rotated rotation is thereby imparted to the rollers, as hereinbefore described. The cornstalks are fed to the rollers in the manner previously explained, and as the ends of the stalk reach the separating portions of the rollers said stalks are grasped by the ribs 19 and the lugs 21 and are carried between the rollers, the ribs 20 forming shoulders to prevent the ears of corn from being pulled between the rollers, as previously pointed out. After the stalks have been pulled between the rollers the ears are severed from the stalks by means of a steel nipper 102, which is secured to and projects from one of the rollers—for instance, from roller 17—and is adapted to act in conjunction with a correspondingly-located recess 103 in the other roller. The cornstalks thus severed from the ears after passing from between the rollers are acted upon by the cutting mechanism and

are thereby cut up or crushed into short lengths or slivers. These short lengths or slivers are deposited upon an inclined flooring 104, forming a portion of the bottom of a frame 105, and this inclined flooring 104 leads to an oppositely-inclined flooring 106 of said frame, which latter flooring conducts the cut stalk to the fan-casing, from which fan-casing the stalk is forced up the conduit 50 by means of the rotating fan. The ears of corn of course slide down the rollers toward the rear of the machine and are acted upon by the husking-pins 22, and thereby stripped of their husks, said husks being carried between the rollers and after passing through the cutting mechanism are deposited upon the flooring 106 and likewise carried to the fan-casing.

What I claim as my invention is—

1. In a fodder-shredder, the combination, of rotatable rollers formed with longitudinal ribs arranged in series of longitudinal lines, each longitudinal line composed of a series of separate ribs arranged alternately in longitudinal alinement, said ribs adapted to grasp the cornstalks and carry the same between the rollers.

2. In a fodder-shredder, the combination, of rotatable rollers, each of said rollers formed with longitudinal ribs, and with other ribs extending circumferentially of the roller, and arranged a desired distance apart, the longitudinal ribs adapted to grasp the cornstalks and carry the same between the rollers, and the circumferential ribs forming shoulders against which the ears of corn contact, and are thereby prevented from being carried between the rollers.

3. In a fodder-shredder, the combination, of rotatable rollers, each of said rollers formed with longitudinal ribs, and with other ribs extending circumferentially of the roller, and arranged desired distances apart, and each of said rollers also provided with series of lugs arranged circumferentially therearound, the lugs in one circumferential series alternating in position with lugs of the adjacent circumferential series, the longitudinal ribs and circumferentially-arranged lugs adapted to grasp the cornstalks and carry the same between the rollers, and the circumferential ribs forming shoulders against which the ears of corn contact, and are thereby prevented from being carried between the rollers.

4. In a combined corn-husker and fodder-shredder, the combination, of rotatable rollers, the separating end of each of said rollers provided with longitudinal ribs and with other ribs extending circumferentially of the roller, and the husking portion of one of the rollers provided with projecting husking-pins and the husking portion of the other roller with recesses to receive said pins.

5. In a fodder-shredder, the combination, of rotatable rollers, each of said rollers formed with series of conically-shaped lugs arranged circumferentially, the lugs in one circumfer-

ential series alternating in position with the lugs of the adjacent circumferential series, and the points or apices of the lugs in one circumferential series pointing in an opposite direction to the points or apices of the lugs of the adjacent series.

6. The combination, of a frame, rollers mounted therein and geared to rotate together, the shaft or axis of one of said rollers having clutch members mounted thereon, one of said clutch members being loose on the shaft, and the other rotatable with the shaft but slidable thereon, a drive-wheel fast to one of the clutch members, a horizontally-pivoted lever engaging the slidable clutch member, and extending longitudinally of the frame above the rollers and longitudinally of said rollers in a position to be engaged by the operator, should the operator fall over toward the rollers, a catch normally holding said lever in a position to cause an engagement of the clutch members, and means for causing a release of the lever from the catch when force is applied downwardly on the end of the lever, as by contact of the body of the operator with the end of the lever, should the operator fall over toward the rollers, the lever when so released and forced downwardly being turned on its pivot, and the clutch members thereby disengaged.

7. The combination, of a frame, rollers mounted therein and geared together, the shaft or axis of one of said rollers having clutch members mounted thereon, one of said clutch members being loose on the shaft, and the other clutch member rotatable with the shaft but slidable thereon, a driving-wheel fast to one of the clutch members, a horizontally-pivoted lever engaging the slidable clutch member and extending longitudinally of the frame above the rollers, and longitudinally of said rollers, and in a position to be engaged by the body of the operator, should the operator fall over toward the rollers, a shouldered portion on which the free end of the lever rests, and a spring-arm having its free end extending over the lever and shouldered portion, the space between the spring-arm and the shouldered portion being less than the width of the lever, whereby the lever is normally held in engagement with the shouldered portion, but when force is applied downwardly on the lever, as by the body of the operator, should the operator fall over toward the roller, said spring-arm is forced outwardly, and the lever depressed and thereby turned on its pivot, whereby the movable clutch member is actuated and the clutch members disengaged, and the rotation of the rollers thereby stopped.

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

AUGUST ROSENTHAL.

Witnesses:

A. L. MORSELL,
ANNA V. FAUST.