

M. T. FREEMAN.
PEA HULLER AND SEPARATING MACHINE.
APPLICATION FILED JAN. 12, 1909.

924,447.

Patented June 8, 1909.
2 SHEETS—SHEET 1.

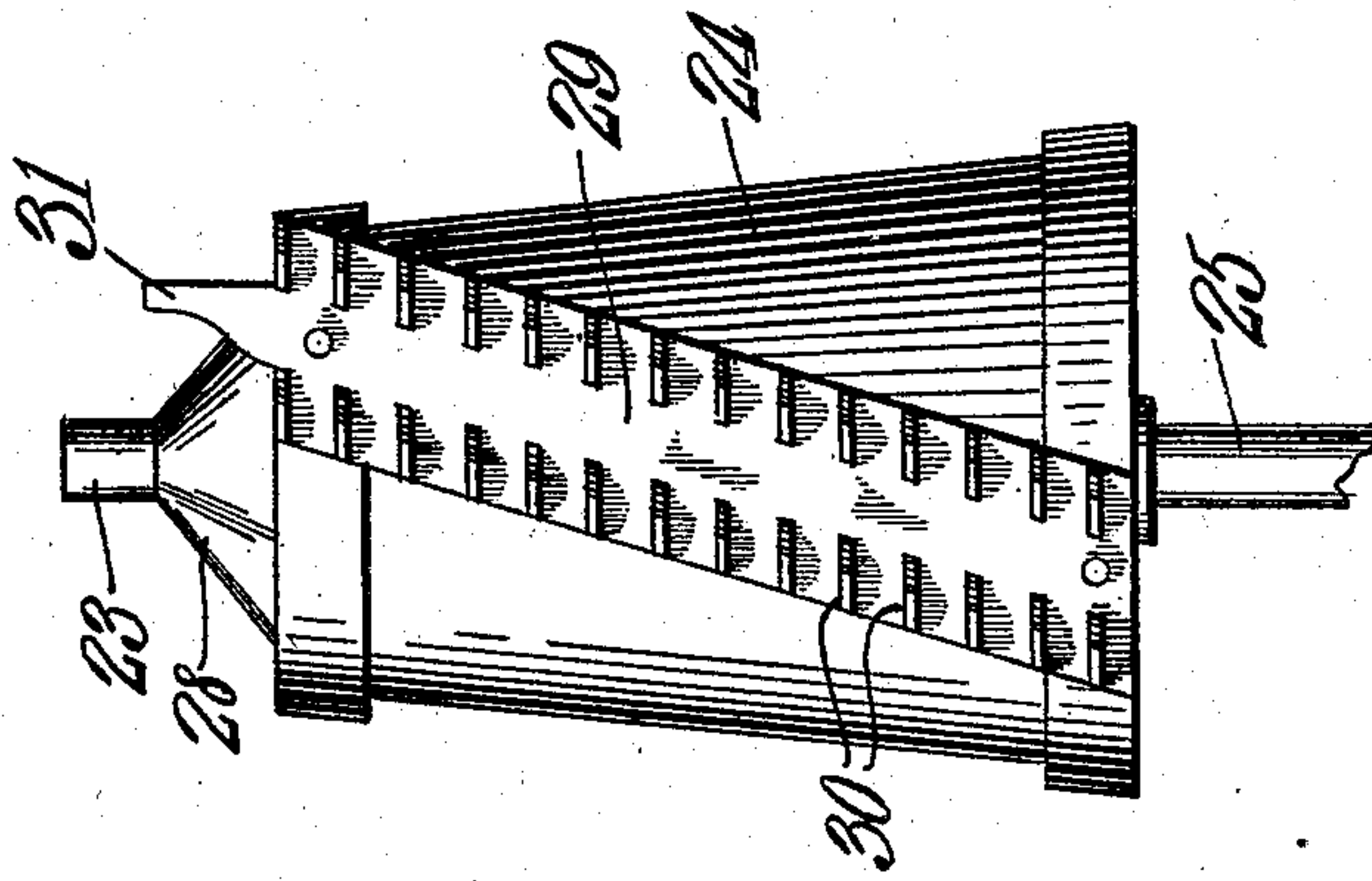


Fig. 3.

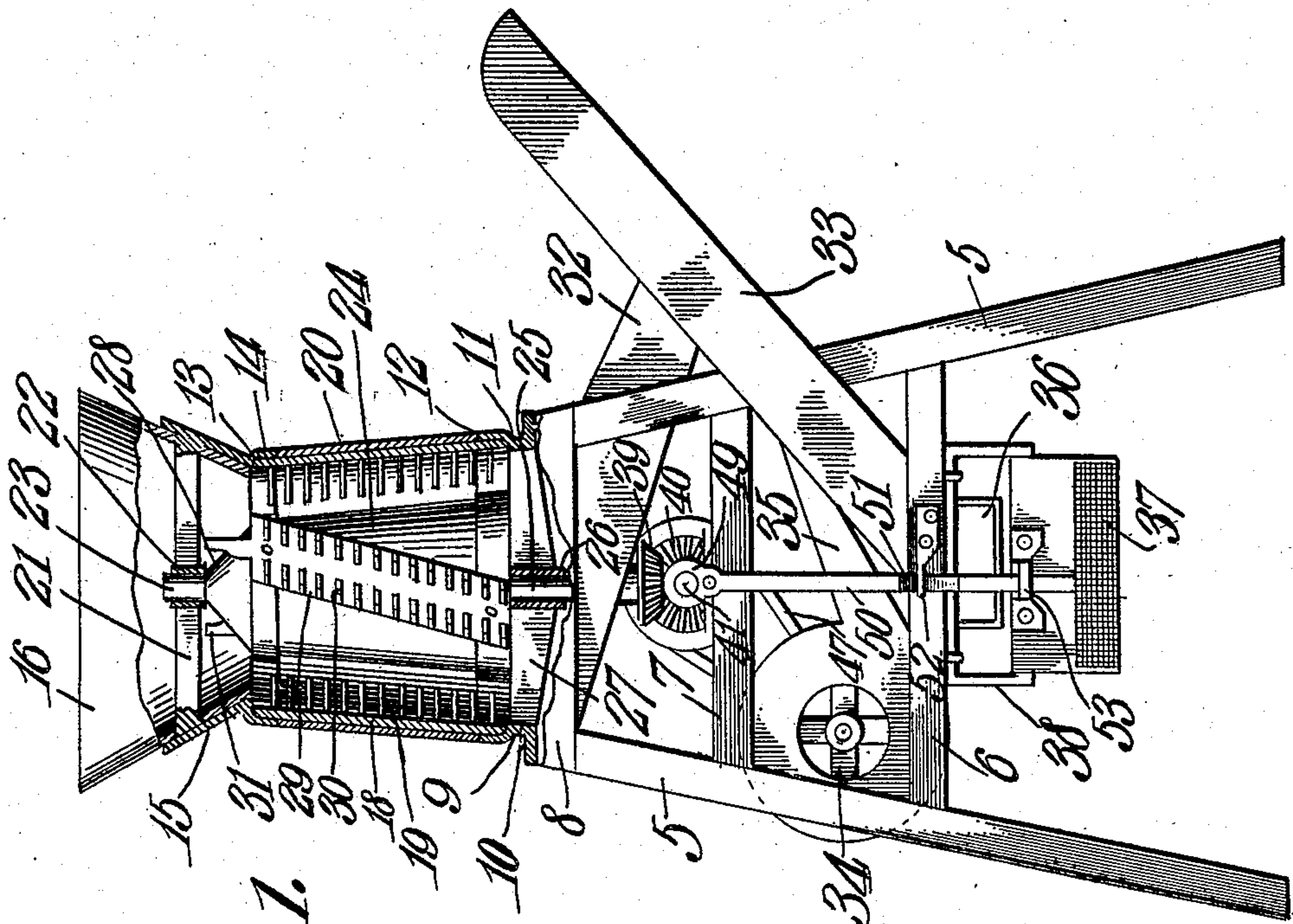


Fig. 1.

Milton T. Freeman.
Inventor

Witnesses
E. J. Stewart
L. P. Acker

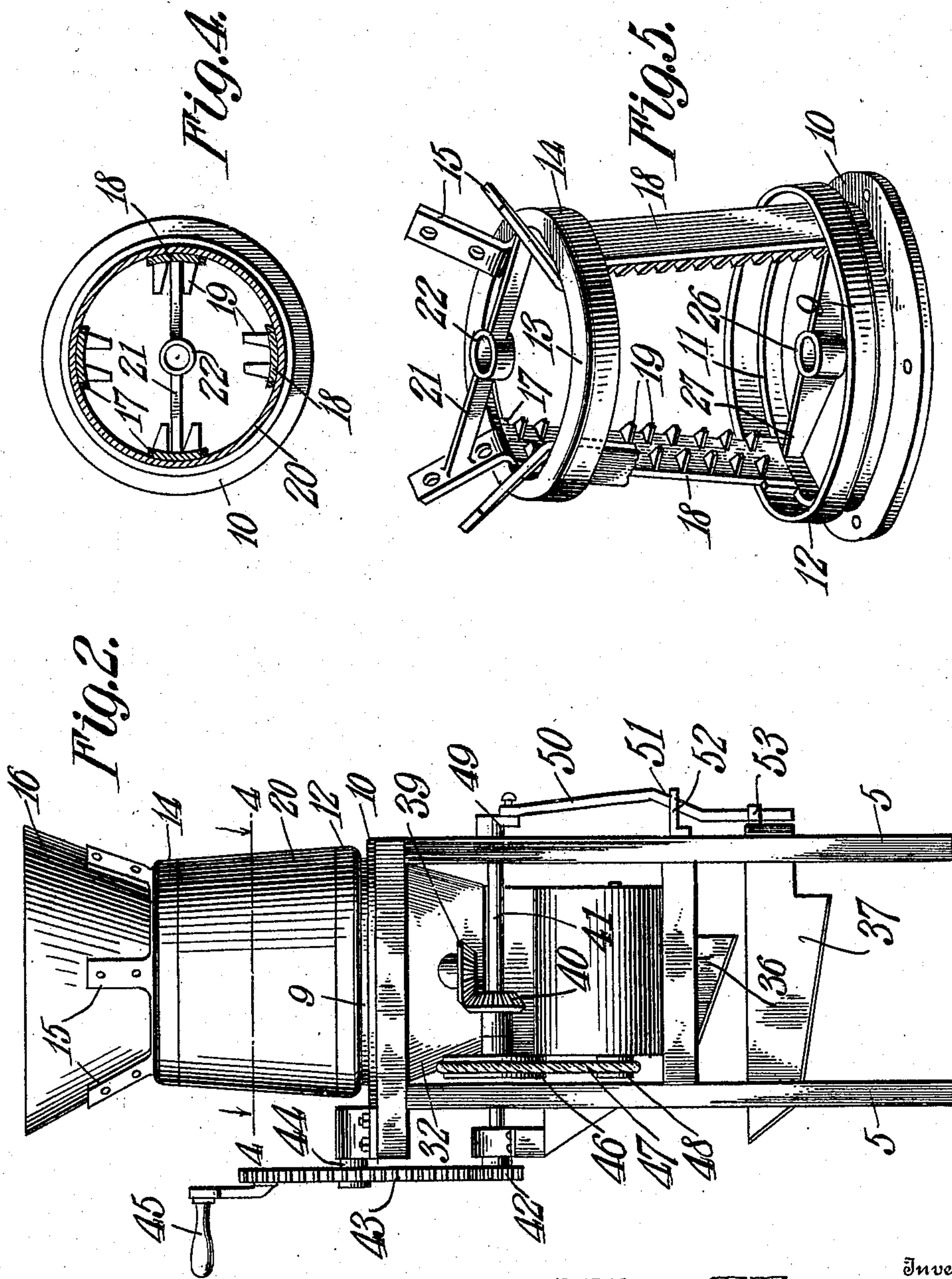
By C. A. Snow & Co.
Attorneys

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Witnesses
C. J. Stewart
L. P. Parker

Inventor
Milton T. Freeman,
334
C. A. Snow & Co.
Attorneys

UNITED STATES PATENT OFFICE.

MILTON T. FREEMAN, OF CHATTANOOGA, TENNESSEE.

PEA HULLER AND SEPARATING MACHINE.

No. 924,447.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, MILTON T. FREEMAN, a citizen of the United States, residing at Chattanooga, in the county of Hamilton and State of Tennessee, have invented a new and useful Pea Huller and Separating Machine, of which the following is a specification.

This invention relates to pea hulling and separating machines and has for its object to provide a strong, durable and thoroughly efficient machine of this character by means of which peas may be readily separated from their hulls or pods and the latter discharged from the machine through a suitable spout by the action of a blast of air.

A still further object of the invention is generally to improve this class of devices so as to increase their utility, durability and efficiency.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

In the accompanying drawings forming a part of this specification: Figure 1 is a side elevation partly in section of a pea hulling and separating machine constructed in accordance with my invention. Fig. 2 is an end view of the same. Fig. 3 is a side elevation of the rotating cylinder detached. Fig. 4 is a transverse sectional view taken on the line 4—4 of Fig. 2. Fig. 5 is a perspective view of the spaced supporting members or rings showing the manner of securing the concaves in position thereon.

Similar numerals of reference indicate corresponding parts in all of the figures of the drawings.

The improved machine forming the subject matter of the present invention includes a substantially triangular supporting frame consisting of spaced converging uprights 5 connected by transverse braces 6, 7 and 8. Secured to the top of the supporting frame is an annular member 9 having its lower end provided with a laterally extending flange 10 for engagement with the frame and its upper end off set at 11 to form a vertically disposed supporting rim or flange 12.

Spaced from the lower member 9 is an upper member 13 also provided with an off set portion 14 and having a plurality of spaced laterally extending arms 15, which latter are

riveted or otherwise rigidly secured to a hopper 16.

Extending laterally from the supporting members or rings 9 and 13 is a plurality of pairs of spaced lugs 17 between which are seated longitudinal plates 18 having a series of teeth or blades 19. The opposite ends of the plates 18 are interposed between and bear against the off set portions 11 and 14 of the members 9 and 13 whereby when the several parts are assembled the plates 18 are locked against accidental displacement.

Interposed between the flanges 12 and 13' is a casing 20 which surrounds the plates 18 and forms a housing for the same.

Extending transversely across the hopper 16 and preferably formed integral with two of the inclined arms 15 is a brace 21 having a central bearing 22 formed therein in which is journaled the upper trunnion 23 of a cylinder 24, the lower trunnion 25 of the cylinder being journaled in a similar bearing 26 in a transverse brace 27 preferably formed integral with the lower supporting member 9. The cylinder 24 is preferably tapered in the direction of the hopper 16 and is provided with a conical portion 28 to assist in feeding the peas to the teeth or blades 19 of the concaves 18.

Secured to the exterior walls of the cylinder 24 are diagonally disposed plates 29 provided with a plurality of spaced blades or teeth 30 similar in construction to the teeth 19 and which intermesh with the same when the cylinder is rotated thereby to crush the hulls or pods and separate the peas from the latter. One end of each plate 29 is extended vertically above the cylinder 24 at the conical portion thereof to form a reduced finger 31 which serves to agitate the peas in the hopper so that the latter may be uniformly distributed to the intermeshing teeth or blades.

Extending laterally from the base of the cylinder 24 is a spout 32 through which the peas and hulls are delivered to the discharge spout 33.

Mounted for rotation on the frame beneath the spout 32 is a fan 34 the casing of which is extended to form a spout 35 which communicates with the discharge spout 33 so as to maintain a constant blast of air within the spout 32 when the machine is in operation.

The lower end 36 of the spout 33 discharges

into a screen or riddle 37 mounted for reciprocation in suitable hangers 38 depending from the lower transverse beam 6 of the supporting frame.

5 Secured to the lower end of the shaft 25 is a beveled gear 39 which meshes with a similar beveled gear 40 on a stub shaft 41, the latter being provided with a terminal pinion 42 which meshes with a master gear 43 mounted
10 on a stub shaft 44 journaled in the top of the frame, said master gear being provided with an operating handle 45 so that by rotating the handle motion may be imparted to the cylinder 24. The shaft 41 is provided with a
15 wheel or pulley 46 which is connected through the medium of a belt 47 with a similar pulley 48 on the fan shaft, and secured to the shaft 41 is a terminal crank arm 49 to which is pivotally connected a pitman having its intermediate portion off set at 51 and extended
20 through an eye or keeper 52 secured to the supporting frame. The lower end of the pitman 50 extends through an eye or keeper 53 carried by the screen or riddle 37 so that
25 when the shaft 41 is rotated a reciprocating motion will be imparted to the screen or riddle 37.

In operation the peas or beans are introduced in the hopper 16 and the handle 45 rotated which revolves the cylinder 24 and
30 causes the fingers 31 to feed the peas downwardly between the teeth or blades of the plates 18 and 29 thus breaking the pods or hulls and permitting the latter together with
35 the peas to drop by gravity into the spout 32 from whence they pass into the discharge spout 33. The pods or hulls coming in contact with the air blast from the fan 24 will be discharged upwardly through the spout 33
40 while the peas will pass downwardly through the lower end 36 of the discharge spout into the riddle or screen 37, as will be readily understood.

Attention is here called to the fact that by
45 removing the hopper 16 the plates or concaves 18 may be quickly withdrawn from engagement with the adjacent lugs 17 so as to permit the teeth of the latter to be readily repaired or replaced when the same become
50 broken or otherwise unfit for use. It will also be noted that the plates 18 and casing 20 are locked against accidental displacement by engagement with the spaced members or
55 rings 9 and 13 while the transverse braces 21 and 27 not only serve to reinforce and strengthen the spaced members but also form bearings for the opposite ends of the cylinder 24.

It will of course be understood that the
60 gearing may be connected with the upper end of the cylinder instead of the lower end thereof and that the machine may be operated either manually or from any suitable source of power.

Having thus described the invention what 65 is claimed is:

1. A machine of the class described including a supporting frame, a casing mounted on the frame and provided with a threshing surface, a cylinder mounted for rotation 70 within the casing and having a corresponding threshing surface, a beveled gear secured to the cylinder, a transverse shaft journaled in the frame and provided with a beveled gear meshing with the beveled gear on the 75 cylinder, a pinion secured to one end of the shaft, a stub shaft provided with a master gear meshing with the pinion, a crank arm secured to one end of the shaft, a discharge spout, a chute forming a source of communi- 80 cation between the casing and discharge spout, a fan for supplying a current of air to the discharge spout, a riddle disposed beneath the discharge spout, a pitman secured to the crank arm and having its intermediate 85 portion off set and its lower end operatively connected with the riddle and the keeper secured to the frame and embracing the pitman at the off set portion thereof.

2. A machine of the class described in- 90 cluding a supporting frame, spaced members mounted on the frame and each provided with an offset portion, a plurality of sets of lugs extending inwardly from the spaced members, plates interposed between said 95 lugs and resting on the offset portions of said members, said plates being each provided with a threshing surface, a hopper secured to one of the members, a casing interposed between the spaced members and bearing 100 against the off set portion thereof, a cylinder mounted for rotation within the casing and provided with diagonally disposed plates having similar threshing surfaces, and means for rotating the cylinder. 105

3. A machine of the class described including a supporting frame, spaced members secured to the frame and each provided with an offset portion, a transverse brace secured to each member and having a bearing formed 110 therein, a casing interposed between the members, and resting on the offset portion thereof, a plurality of sets of lugs extending inwardly from said members, plates interposed between each set of lugs and provided 115 with a series of teeth, a cylinder journaled in the bearings of the braces, diagonally disposed plates secured to the cylinder and provided with corresponding teeth, the upper ends of the plates being reduced to form ter- 120 minal fingers operating within the hopper, and means for rotating the cylinder.

4. A machine of the class described including spaced members each provided with an off set portion and having a plurality of sets 125 of spaced lugs extending inwardly therefrom, plates slidably mounted between the lugs of each set and each provided with a

threshing surface, a casing interposed between the members, arms extending vertically from one of said members, a hopper secured to said arms, a depending cylinder 5 mounted for rotation within the casing and provided with a conical terminal, diagonally disposed plates secured to the cylinder and provided with corresponding teeth, fingers carried by the cylinder and operating within 10 the hopper, and means for rotating the cylinder.

5. A machine of the class described including a supporting frame, a member having its lower portion provided with a laterally 15 extending flange for engagement with the supporting frame and its upper portion off set to form a vertical flange, an upper member provided with a corresponding off set portion and formed with spaced attaching arms, 20 a casing interposed between said members, a plurality of sets of lugs extending inwardly

from the members, plates seated between said lugs and each formed with a threshing surface, a brace extending transversely 25 across the lower member and provided with a central bearing, a similar brace connecting two of the attaching arms and provided with a corresponding bearing, a hopper secured to said arms, a cylinder mounted for rotation in the bearings and provided with diagonally 30 disposed plates having threshing surfaces co-acting with the threshing surfaces of the lug engaging plates, fingers carried by the cylinder and operating within the hopper, and means for rotating the cylinder. 35

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

MILTON T. FREEMAN.

Witnesses:

S. V. WEEKS,

HARRY J. ERWIN.