

(No Model.)

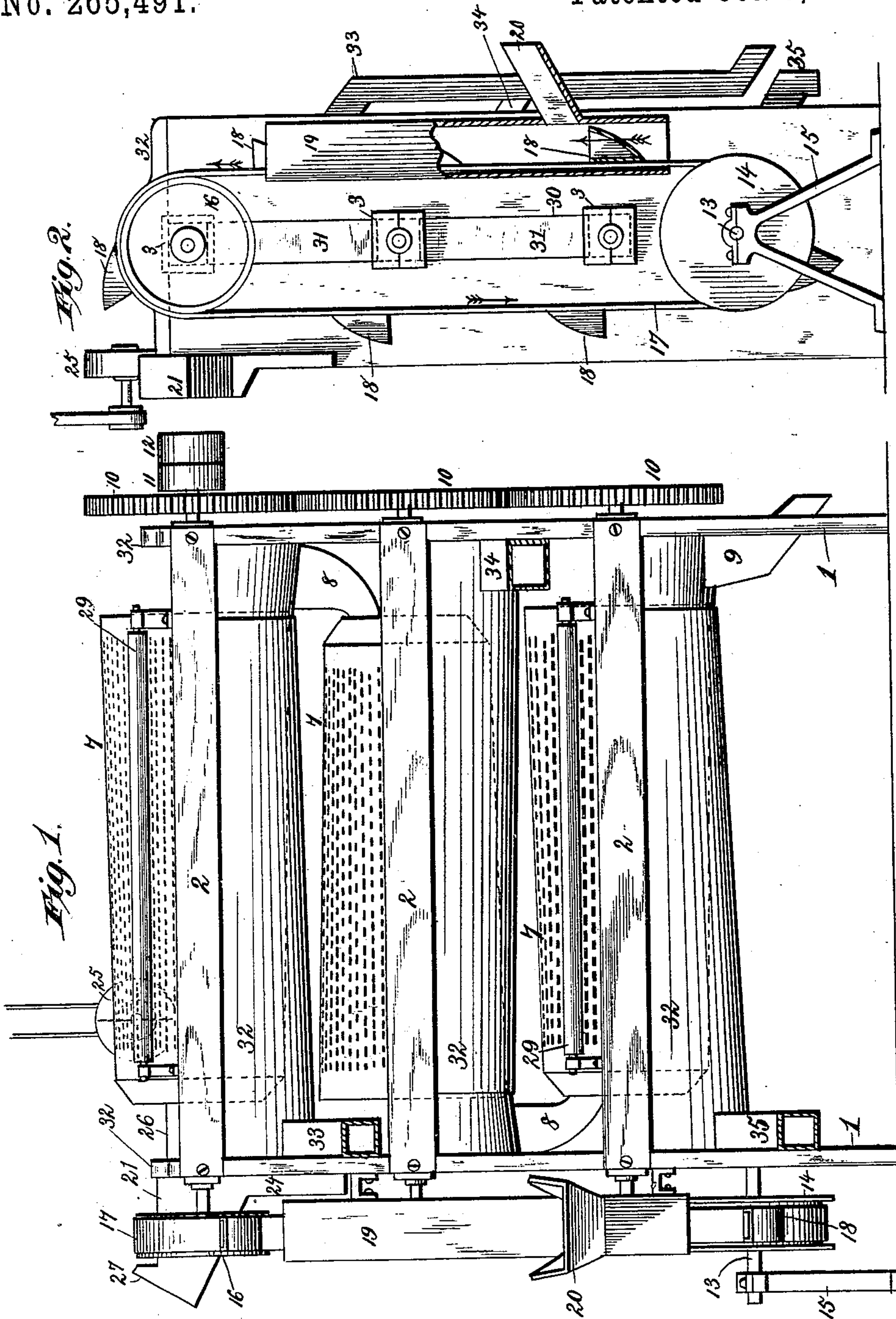
2 Sheets—Sheet 1.

W. H. FELTHOUSEN.

MACHINE FOR CLEANING AND GRADING PEAS.

No. 265,491.

Patented Oct. 3, 1882.



Witnesses.

Robert Corbett.
J. A. Rutherford

Inventor.

Wm H. Felthousen.
By James L. Norris.
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Fig. 3.

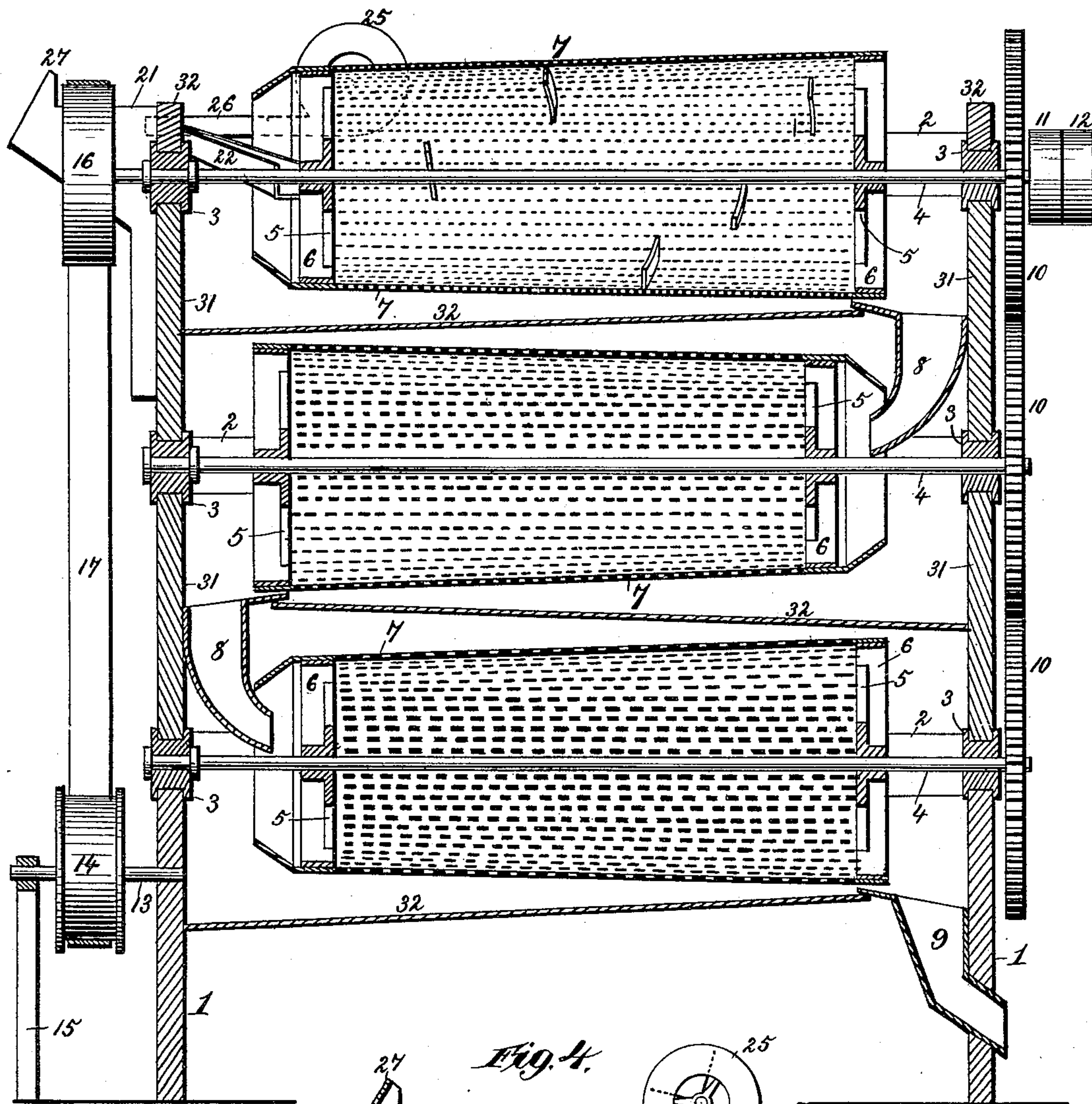
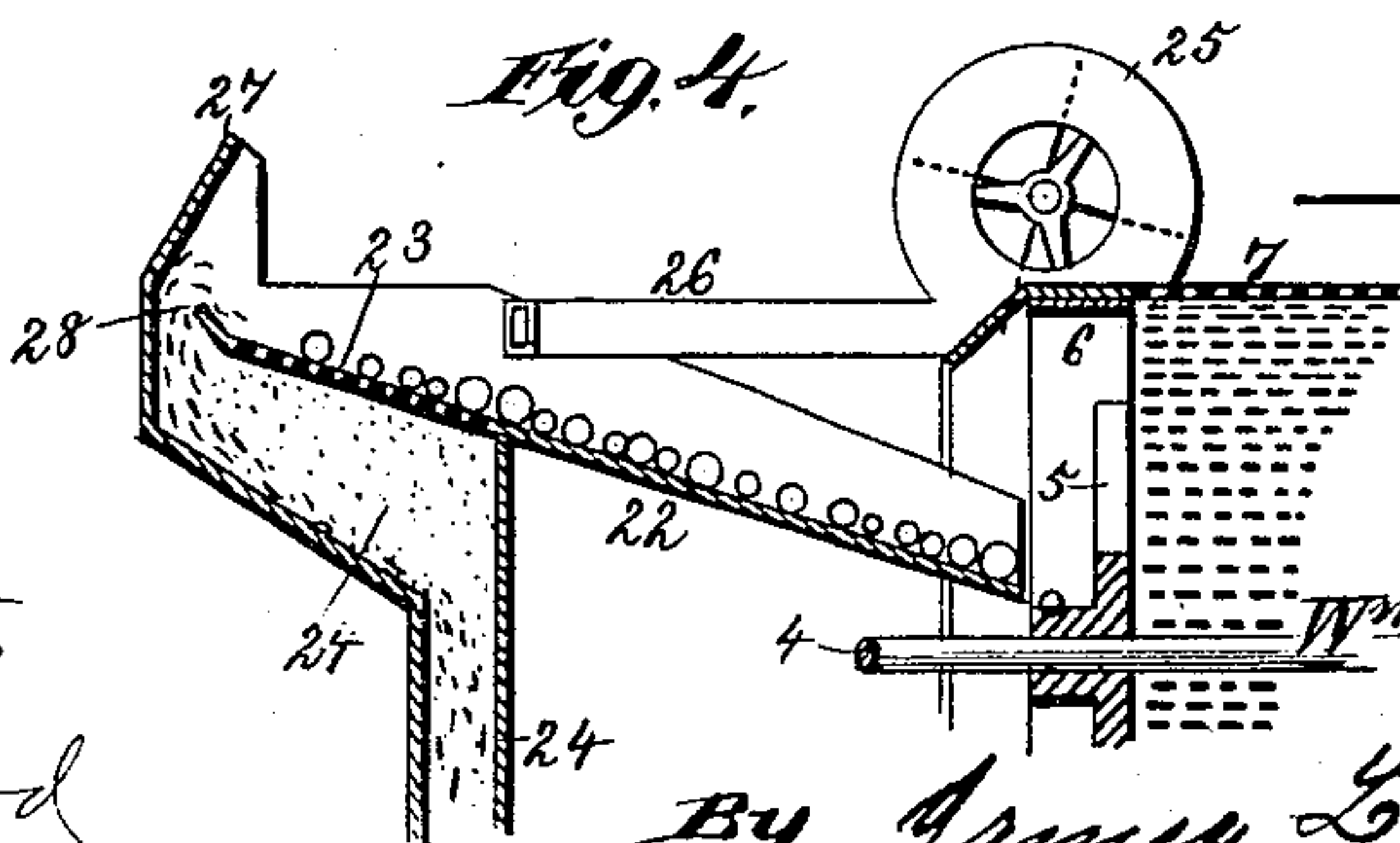


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM H. FELTHOUSEN, OF BALTIMORE, MARYLAND.

MACHINE FOR CLEANING AND GRADING PEAS.

SPECIFICATION forming part of Letters Patent No. 265,491, dated October 3, 1882.

Application filed August 23, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. FELTHOUSEN, a citizen of the United States, residing at Baltimore, Maryland, have invented new and useful Improvements in Machines for Cleaning and Grading Peas, of which the following is a specification.

This invention has for its object to provide an efficient machine for cleaning and separating peas into several grades or sizes. It is well known that the smaller peas are the most desirable and meet with a more ready sale in the market, for the reason that they are the most tender, due to their being young, and to clean and grade them from larger peas in a suitable machine is exceedingly desirable. This I accomplish by the construction of apparatus shown in the accompanying drawings, in which—

Figure 1 is a side elevation of a machine embodying my invention; Fig. 2, an end elevation of the same; Fig. 3, a vertical central sectional view taken longitudinally through the machine; and Fig. 4, a broken sectional view, showing the devices for cleaning the peas as they are delivered to the grading devices.

The supporting frame-work of the machine is composed of end standards, 1 1, connected and braced by longitudinal side bars, 2 2. In the end standards are provided journal-boxes 3, forming the bearings for revolving shafts 4, which are arranged in a series one above the other, three being represented in the present instance. On each shaft are rigidly secured spiders 5, provided with circular bands 6, to which the opposite end portions of perforated tapering cylinders 7 are firmly secured. The ends of the cylinders are open, and at opposite ends communicate in a series by curved chutes 8, so that the peas can pass from the end of one cylinder into the end of the cylinder immediately below. The lower cylinder discharges into a chute, 9, which extends through one of the standards. The shafts 4 are all geared together at one end of the machine by gear-wheels 10, and on the upper shaft is arranged a fast and a loose pulley, 11 and 12, for rotating the same, and thereby transmitting rotary motion to all the other shafts, and hence to all the cylinders. In the lower portion of one end standard is journaled one end

of a shaft, 13, carrying a flanged wheel, 14, the other end of the shaft being journaled in a similar support, 15.

To the end of the upper shaft 4, in line with wheel 14, is secured a pulley, 16, and around said wheel and pulley is arranged to travel an endless band, apron, or chain, 17, having secured to it at proper intervals buckets or receptacles 18, and such band or apron travels through a passage-way, 19, secured to one of the end standards, as shown in Figs. 1 and 2, such passage-way having a projecting chute or hopper, 20, for feeding the peas into the buckets on the traveling belt. The belt and buckets constitute an elevating mechanism for raising the peas and discharging them into a hopper, 21, at the top of the machine, which delivers them to the cylinder. This hopper 21 is constructed with an inclined bottom, 22, in the form of a trough, which is perforated at its outer portion, as at 23, and has its inner end arranged in the open small end of the upper tapering cylinder, a dirt-chamber and chute, 24, being arranged under the perforated end of the hopper-bottom to carry off dirt, &c.

To one of the side bars, 2, is secured a blast-fan, 25, having its trunk 26 located above and in proximity to the perforated end 23 of the hopper-bottom, the object of which is to blow off chaff and light foreign substances from the peas as they fall onto the hopper-bottom, as hereinafter explained, such chaff, &c., being caught by the hood 27 and directed through the channel 28 at the outer end of the hopper-bottom into the chute 24.

In brackets on the side bars, 2, are journaled longitudinal presser-rollers 29, one for each cylinder, such rollers bearing lightly against the outer surfaces of the cylinders, the object of which is to gently press back into the cylinders such peas as project through the perforations but are too large to freely pass through the same. These revolving presser-rollers must be of wood and with smooth plane peripheries or outer surfaces, so as to avoid catching and tearing or rupturing the tender skins of the peas, as such would be very objectionable.

For the purpose of removing the cylinders to cleanse the same, I provide the end standards with vertical slots 30, in each of which is

arranged a series of removable strips, 31, which accurately fit the said slots. By removing the cap-plate 32 the upper journal-boxes and shaft and cylinder can be removed, and the series of strips 31 in each slot 30 can then be success-
 5 sively raised out of place, so that all the shafts and cylinders can be conveniently taken from the machine whenever required.

To the end standards are secured curved receptacles 32, one being arranged in an inclined position directly beneath each cylinder, for the purpose of catching such peas as pass through the cylinders and conducting them to the spouts 33, 34, and 35, one of said spouts being pro-
 10 vided for each receptacle 32.

I will now proceed to describe the operation of the machine.

The peas to be cleaned and graded are placed into the chute or hopper 20, which delivers them to the traveling buckets 18, by which they are carried upward, and as the buckets begin to travel around the pulley 16 the peas roll out into the hopper 21 and onto the perforated end 23 of the hopper-bottom or trough
 20 22. The dirt and other fine particles of foreign matter will pass through the perforations in the hopper-bottom, while the blast from the fan 25 will blow off the chaff and other light matter, which will be caught by the hood 27 and by it directed through the channel 28 into the chute 24. By this means the peas will be thoroughly cleaned of all foreign matters before being delivered to the upper perforated cylinder. It should here be stated that perforations in the cylinders are represented by
 25 black lines; but in practice such will of course be circular openings, and those of the several cylinders gradually increase in size from the upper to the lower cylinder. The peas being delivered to the upper rotating cylinder, such as are sufficiently small will pass through the perforations therein and fall onto the upper inclined and curved receptacle, from which this grade of peas will pass through a spout, 33, to
 30 a suitable receiver. The peas which are too large to pass through the perforations in the upper cylinder will roll toward and out of the larger end of the latter, and by the upper chute 8 will be delivered to the middle cylinder, in which the peas will be again graded by the smaller ones passing through the perforations onto the inclined receptacle, from which they will be discharged by the spout 34, the larger peas rolling out at the large end of the cylinder into the bottom cylinder through the lower
 35 chute 8, where the peas are again graded in the same manner as before stated, the final

products discharging at 9 and 35. In grading the peas many of them will be too large to freely pass through the perforations in the re-
 60 spective cylinders, but sufficiently small to permit them to project through the perforations and become wedged therein. When this occurs the presser-rollers 29, resting on the outer surfaces of the cylinders, will gently press the
 65 peas from the perforations back into the cylinder without liability of rupturing or injuring the skins.

Having thus described my invention, what I claim is—

1. An apparatus for cleaning and grading peas, combining in its structure a series of perforated cylinders arranged one above another, a hopper provided with a perforated hopper-bottom for cleaning the peas and delivering
 70 them to the upper perforated cylinder, and elevating mechanism for raising the peas and discharging them onto the perforated hopper-bottom, substantially as described.

2. The combination of a series of perforated pea-grading cylinders arranged one above another, a hopper having a perforated bottom for cleaning the peas and delivering them to the upper cylinder, an elevating mechanism arranged to raise the peas and deliver them
 75 80 onto the perforated hopper-bottom, and a blast-fan having its trunk arranged to discharge a blast of air on the peas in the hopper, substantially as described.

3. The combination, with the perforated cylinders arranged one above another, of the hopper for delivering the peas to the upper cylinder, said hopper having a hood, a chute, and inclined hopper-bottom perforated at its outer
 85 90 portion, and a channel at the outer end of the bottom, communicating with the chute, and a blast-fan for driving the light foreign matter into the hood, substantially as described.

4. The combination of a series of perforated pea-grading cylinders arranged one above another, a hopper having a perforated bottom for cleaning the peas and arranged to deliver them to the upper cylinder, a closed passage-way provided with a pea-receiving chute, and an
 95 100 elevating-band provided with buckets and arranged to travel through said passage-way, substantially as described.

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

WM. H. FELTHOUSEN.

Witnesses:

JOS. L. COOMBS,

ALBERT H. NORRIS.