

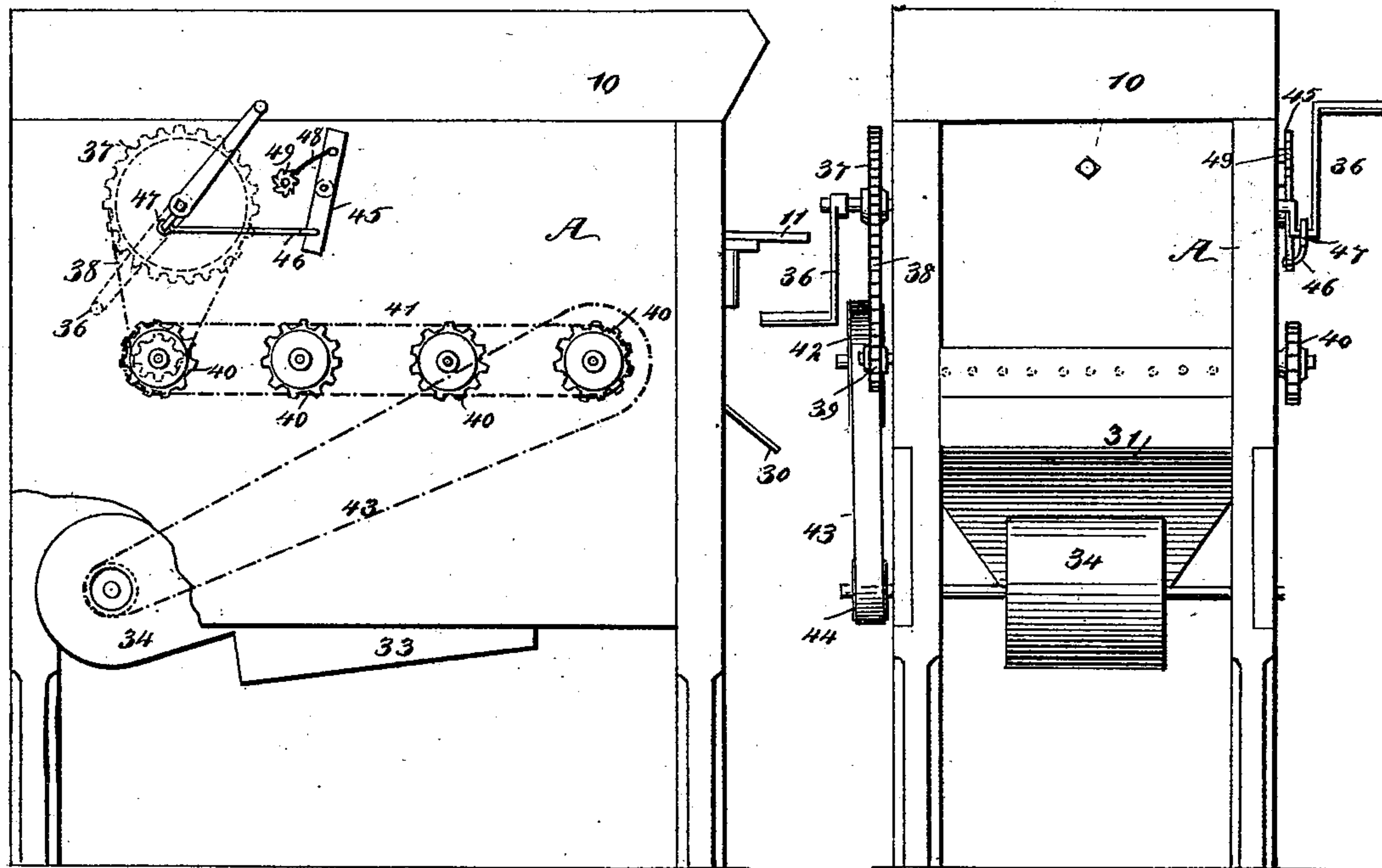
(No Model.)

2 Sheets—Sheet 1.

D. A. GAITHER.  
PEA SHELLING MACHINE.

No. 513,911. *Fig. 1.*

Patented Jan. 30, 1894. *Fig. 2.*



WITNESSES:

*Paul Johst*  
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INVENTOR

*D. A. Gaither*

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ATTORNEYS.

(No Model.)

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Fig 3.

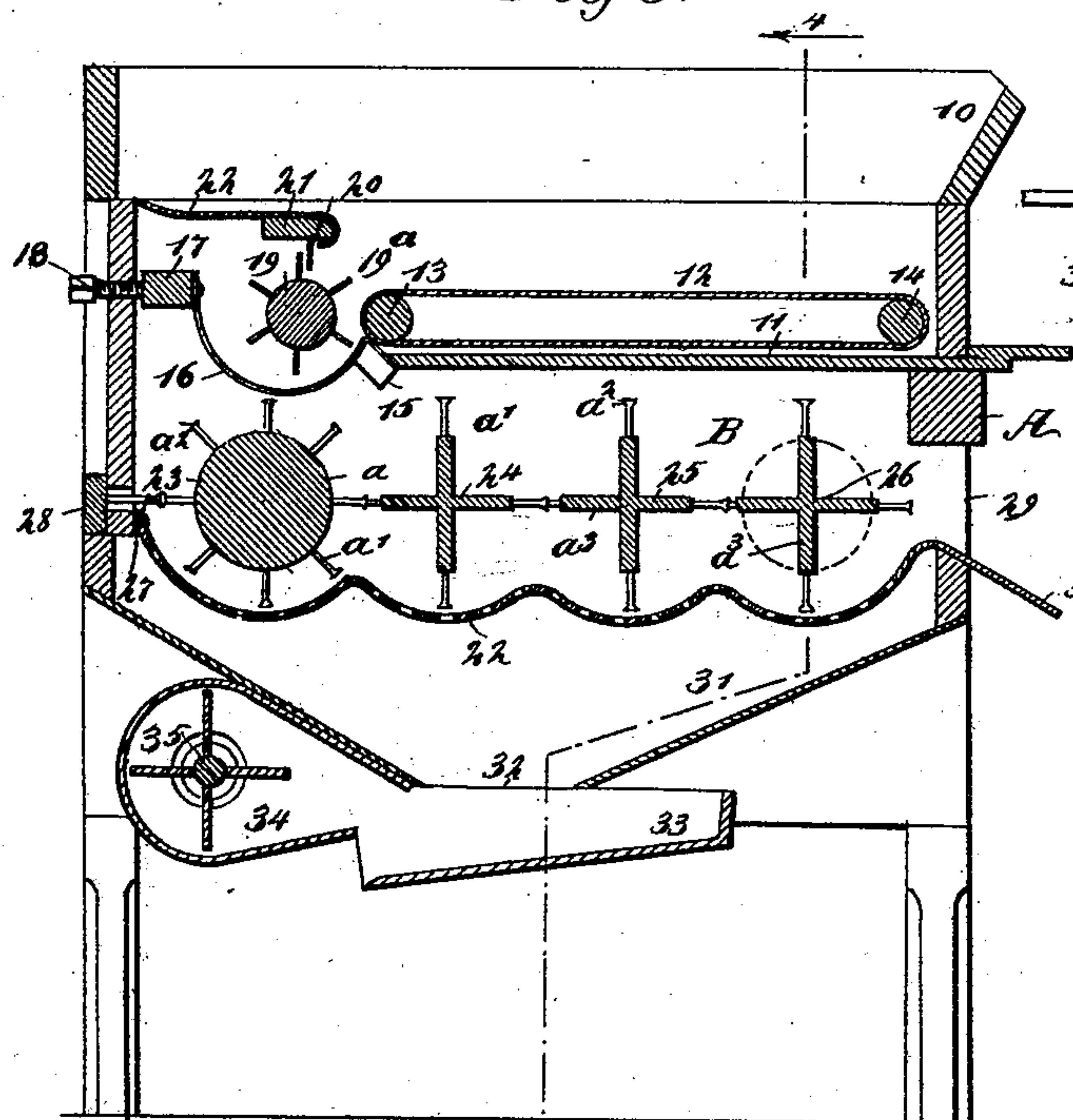


Fig 4.

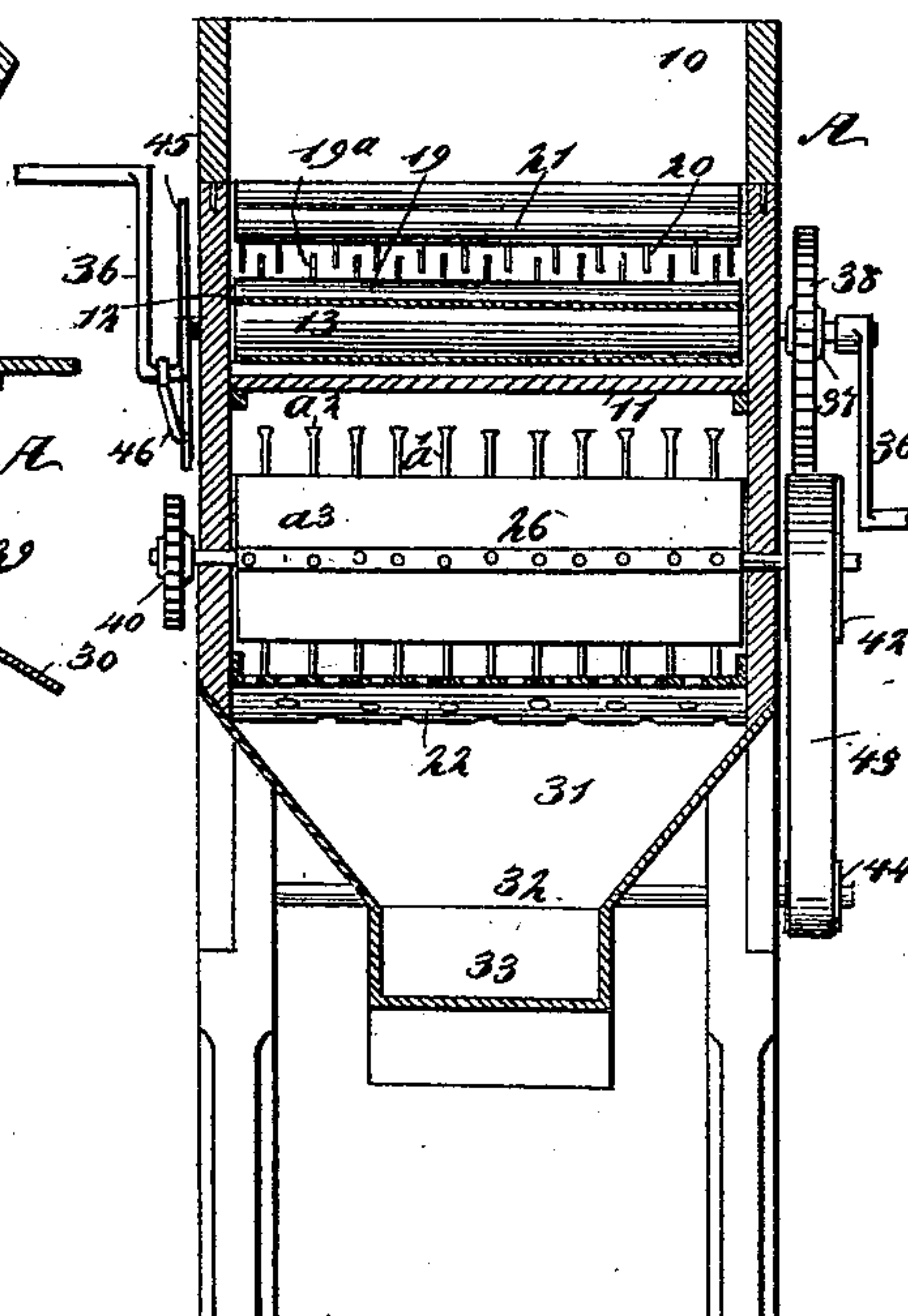
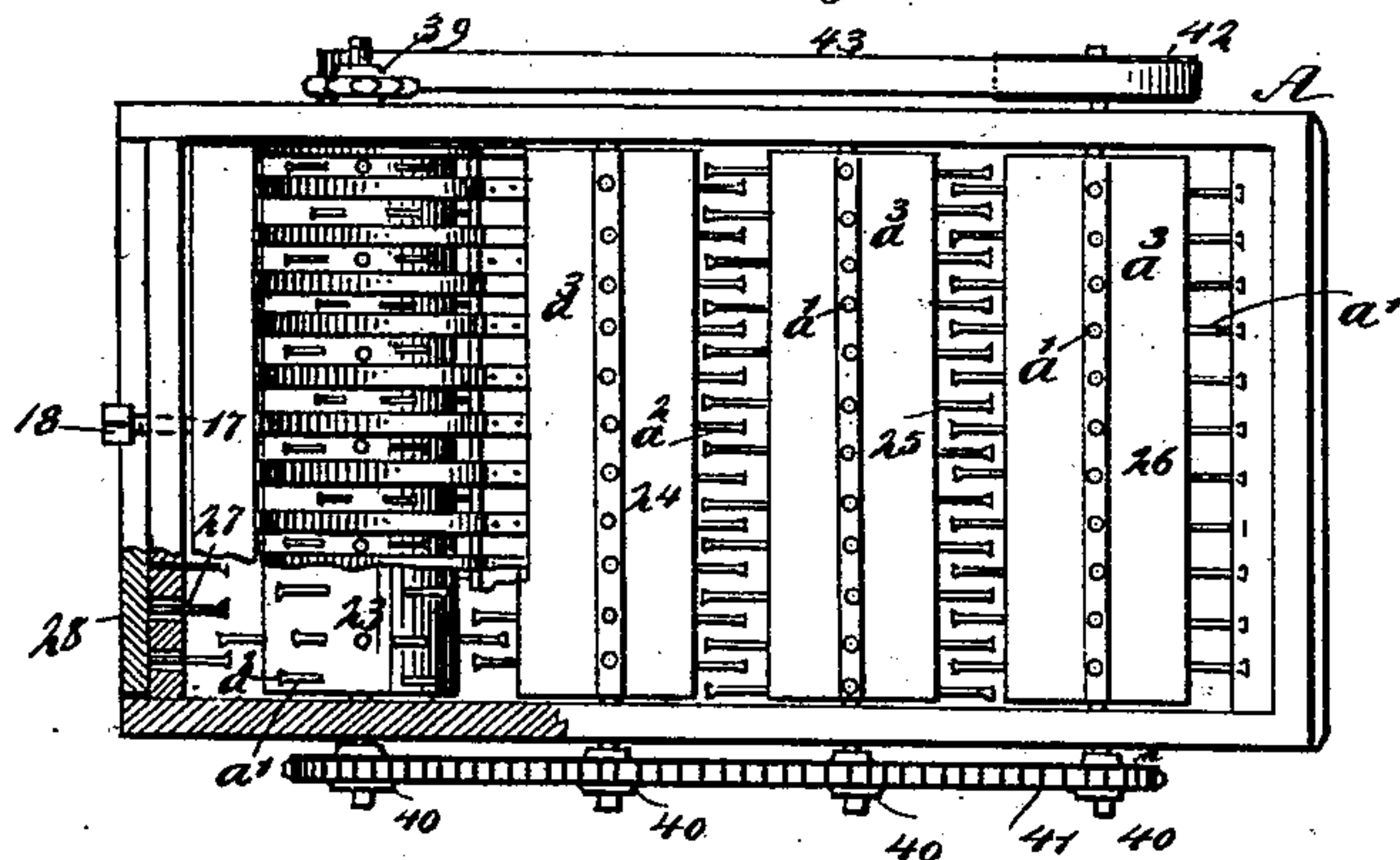


Fig 5.



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# UNITED STATES PATENT OFFICE.

DAVID A. GAITHER, OF WILLISTON, TENNESSEE.

## PEA-SHELLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 513,911, dated January 30, 1894.

Application filed May 24, 1893. Serial No. 475,313. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID A. GAITHER, of Williston, in the county of Fayette and State of Tennessee, have invented a new and Improved Pea-Shelling Machine, of which the following is a full, clear, and exact description.

My invention relates to an improvement in pea-shelling machines, and it has for its object to provide a machine of exceedingly simple and durable construction, through the medium of which the peas as gathered from the vines may be poured into a hopper and fed to thrashing or hulling cylinders, the cylinders being so grouped and sustaining such relation to each other, that the pods will be broken, the peas thrashed out, and the pods delivered from one portion of the machine after having been separated from the peas, and whereby also the peas will be delivered to an off-take chute or compartment in which they will be treated to an air blast, the said blast freeing them from all foreign particles that may be delivered with them to this cleaning chamber.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth and pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the machine. Fig. 2 is a front elevation thereof. Fig. 3 is a central longitudinal section taken through the machine. Fig. 4 is a transverse section taken practically on the line 4—4 of Fig. 3; and Fig. 5 is a bottom plan view of the thrashing cylinders, the separating screen and receiving chutes having been removed.

In carrying out the invention a box-like body A, is preferably provided with a hopper-like mouth 10 and likewise with a partition 11, located ordinarily beneath the central portion of the hopper, which partition extends from the rear end of the machine to within a predetermined distance of the front. The partition 11, is generally made removable in order that the thrashing cylinders to be hereinafter described and which are located beneath the partition, may be rendered

visible. Immediately over the partition 11 an endless belt or apron 12, is located, the said belt or apron passing over drums 13 and 14 located respectively one near the end wall of the box and the other over the inner end of the partition 11. The inner end of the partition 11, is made to rest upon a cross bar 15, and a series of slats 16, which are made of an elastic material so as to admit of being flexed, is secured to the cross bar 15, and the cross bar is of such length that it extends from side to side of the box. The slats 16, are upwardly curved, producing thereby a semi-circular inner face and forming also a grating presenting a concaved surface to the hopper. The upper ends of the slats are attached to a second cross bar 17, located near the front end of the machine and at a point higher than the cross bar 15, the two bars constituting practically the frame of the grating, and the upper cross bar is capable of horizontal movement within the box, toward and from the cross bar 15 and is supported and adjusted by means of a set screw 18, or the equivalent thereof, in order that the grating may be carried closer to or farther from a primary thrashing cylinder 19, journaled in the side of the box above and practically within the said grating.

It will be understood that any suitable means may be employed for moving the grating 15 toward or from the primary thrashing cylinder 19.

The cylinder 19, consists preferably of a cylindrical body and teeth 19<sup>a</sup>, which radiate from the body, the teeth being arranged in any manner that may be found desirable, and any number of teeth may be employed. The teeth of the primary or upper thrashing cylinder 19 act in conjunction with a series of teeth 20, which are projected downward from a cross bar 21, extending from side to side of the box, and the said cross bar is connected with a spring plate 22, which plate is ordinarily detachably attached to the box at its forward end in any approved manner. Thus the teeth 20, have practically a yielding support, and said teeth 20, are so arranged that when the cylinder 19, is revolved its teeth will pass between the upper row, as the teeth 20, are located immediately above the cylinder.

The peas in their pods are fed by the belt or



apron 12 to the thrashing cylinder 19, and the pods are more or less broken by the teeth of the cylinder and the upper teeth 20 of the box, as the pods are carried forward between the teeth and delivered upon the upper surface of the grating. When delivered on the grating the pods are more or less broken and certain of the peas will have been liberated. These peas will pass downward through the openings in the grating very freely, while the pods will be forced through the openings by the action of the cylinder teeth 19<sup>a</sup> as the cylinder revolves.

Below the grating and the removable partition 11, a thrashing chamber B, is formed by extending from front to rear and from side to side of the body a perforated or sieve like partition 22. This partition is corrugated or formed in a series of transversely located and connected arc-shaped sections; that is, the sections are semi-circular in cross section, as shown in Fig. 3. Within this thrashing chamber a number of thrashing cylinders are located, the number corresponding to the number of depressions or curved sections in the partition 22. The cylinders are respectively designated the forward one as 23, the next as 24 and the remaining two as 25 and 26 respectively, as four cylinders are shown in the drawings. The first cylinder 23, preferably consists of a circular body  $\alpha$  and a series of pins  $\alpha'$  radiating from the body, the pins terminating in heads  $\alpha^2$ , and the heads of the pins are preferably shaped somewhat as a spike head, but I desire it to be understood that any suitable shape may be given to the heads. The cylinder 23 is considerably larger than the upper primary cylinder 19, and the lower cylinder 23, is located immediately beneath the grating 16. The teeth of the first cylinder 23, operate in conjunction with a series of horizontally-located teeth 27, which are attached to a cross bar 28, the cross bar being located upon the front exterior portion of the machine, and the teeth extend within the thrashing chamber B, through suitable openings made in the front end of the box. The remaining thrashing cylinders 24, 25 and 26, are of like construction, and preferably consist of a series of blades  $\alpha^3$ , connected at their centers and radiating from a central point. Any desired number of blades may be employed in the construction of the thrashing cylinders, and the blades are preferably made to extend unbroken from end to end. Each of the blades carries headed pins similar to those described in connection with the first cylinder. The pins on all of the thrashing cylinders are so arranged that they will pass between the pins upon the cylinder at each side. At the rear of the box a discharge opening 29, is formed, and at the bottom of the opening a downwardly-inclined chute 30, is located, and the hulls pass out through the opening 29 after the peas have been entirely freed from them.

A delivery chute 31, is located beneath the

perforated partition 22, and the chute is inclined from its sides and ends in direction of its center, at which point there is an outlet opening 32; and beneath this opening and in communication with it a receiving pan or box 33, is located, having an outlet at one end. The bottom of this receiving pan is preferably downwardly inclined, and the upper portion of the pan at its delivery end is in communication with a casing 34, in which a fan 35, of any approved construction is located.

The driving mechanism is as follows: A crank handle 36, is secured to one or both ends of the primary thrashing cylinder 19; and upon the shaft at one end of the upper thrashing cylinder 19 a sprocket wheel 37, is located, which sprocket wheel is connected by a chain 38, with a smaller sprocket wheel 39, located upon one of the trunnions of the first lower thrashing cylinder 23, the said cylinder having its opposite trunnion likewise provided with a sprocket wheel 40. The sprocket wheel 39, for example, is upon the left-hand side of the machine, while the sprocket wheel 40, is upon the right-hand side and each of the lower thrashing cylinders is provided with a sprocket wheel at the right-hand side of the machine, of like size and character to the sprocket wheel 40 of the first cylinder, as shown in Fig. 1, and all of these sprocket wheels are connected and driven by a chain 41, and preferably at the left-hand side of the machine the left-hand trunnion of the last of the lower thrashing cylinders is provided with a pulley 42, and this pulley is connected by a belt 43 with the pulley 44 upon the fan shaft. The feed that is employed is preferably what is known as a gin feed, and as shown in the drawings consists of a lever 45, pivoted at its center upon the exterior of the box, and the lower end of the lever is connected by a link 46 with a crank shaft 47 upon one of the trunnions of the upper thrashing cylinder. The upper end of the lever carries a dog 48, which meshes with a ratchet wheel 49, located upon a trunnion of one of the drums of the carrying belt 12.

In operation, the peas in their hulls are poured into the hopper of the box, whereupon they fall upon the carrying and feed belt 12, and are delivered to the upper thrashing cylinder, and in passing that cylinder the pods are broken and sundry of the peas released, and when the peas fall upon the grating 16, they are forced downward through the grating and are caught by the first lower thrashing cylinder 23, and the pods pass from one cylinder to the other until when they reach the last cylinder all the peas will have been extracted from the pods and will have passed down through the openings in the lower partition 22, and have entered the receiving pan 33, and while dropping into the pan the peas will be freed, through the action of the pan 35, from any shreds or parts of foreign material that may be mixed with the peas, while the pods will pass out through



the thrashing chamber through its exit opening 29.

It will be observed that as the partition 22, is curved beneath each lower thrashing cylinder, and that further, as the pin of the cylinder revolve quite close to the partition, the openings in the partition will not become clogged by the pods, as the pods will be kept constantly on the move in direction of the outlet opening 29. Furthermore the construction of the rear thrashing cylinders in the thrashing chamber permits of a circulation of the pods when passing from one cylinder to the other, but will enable the peas to roll out after the pods have been acted upon by one cylinder and before they are acted upon by another. This action could not be obtained if all of the cylinders were circular, or were constructed as is the first cylinder 23.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a pea-shelling machine, the combination, with the primary thrashing cylinder and means for feeding the pods with the peas thereto, of a grating located beneath said cylinder, the grating being adjustable toward and from the cylinder, a series of lower thrashing cylinders arranged consecutively, and separate exits for the peas and the pods, substantially as described.

2. In a pea-shelling machine, the combination, with the primary thrashing cylinder, a set of stationary pins located above the cylinder and acting in conjunction therewith, and means for feeding the pods with the peas to the cylinder, of a grating located beneath the cylinder, a series of aligning thrashing cylinders arranged beneath the said grating, and a perforated partition located beneath the said aligning cylinders and operating in conjunction therewith to separate the peas from the pods, as and for the purpose set forth.

3. In a pea-shelling machine, the combination, with a curved movable grating, an upper pin-carrying thrashing cylinder located above the grating, and arranged eccentrically thereto a series of pins located above the pins of the cylinder and acting in conjunc-

tion with them, and a feed mechanism communicating with the said thrashing cylinder, of a series of lower thrashing cylinders consecutively arranged, each cylinder carrying a series of pins, a perforated or sieve-like partition located beneath the lower set of cylinders, the partition being provided with segmental cylindrical surfaces beneath each cylinder and having an outlet formed above one of its ends, a pea receptacle located beneath the partition, a fan in communication with the said receptacle, and a driving mechanism for the fan, the thrashing cylinders and the feed device, as and for the purpose set forth.

4. In a pea-shelling machine, the combination, with a lower set of thrashing cylinders, and a perforated or reticulated partition located beneath the said cylinders, of an upper partition extending over a portion of the lower cylinders, a grating located over the remaining portion of the lower cylinders, said grating being provided with a concaved upper face, a thrashing cylinder located above the grating and practically within it, a series of teeth located above the upper cylinder and acting in conjunction with said cylinder, and a feed mechanism having its delivery end in front of and adjacent to the upper thrashing cylinder, as and for the purpose set forth.

5. The combination, with a thrashing chamber and a set of thrashing cylinders located therein, the bottom of the thrashing chamber being perforated or sieve-like, of a grating located above one of the cylinders in the thrashing chamber, the grating constituting a portion of the upper wall of said chamber, a thrashing cylinder located above the grating, revolving near the same, a set of spring-controlled separating pins located above the upper thrashing cylinder and acting in conjunction therewith, and a feed device having its delivery end adjacent to the upper cylinder and likewise adjacent to the grating, substantially as and for the purpose specified.

DAVID A. GAITHER.

Witnesses:

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J. H. KING.