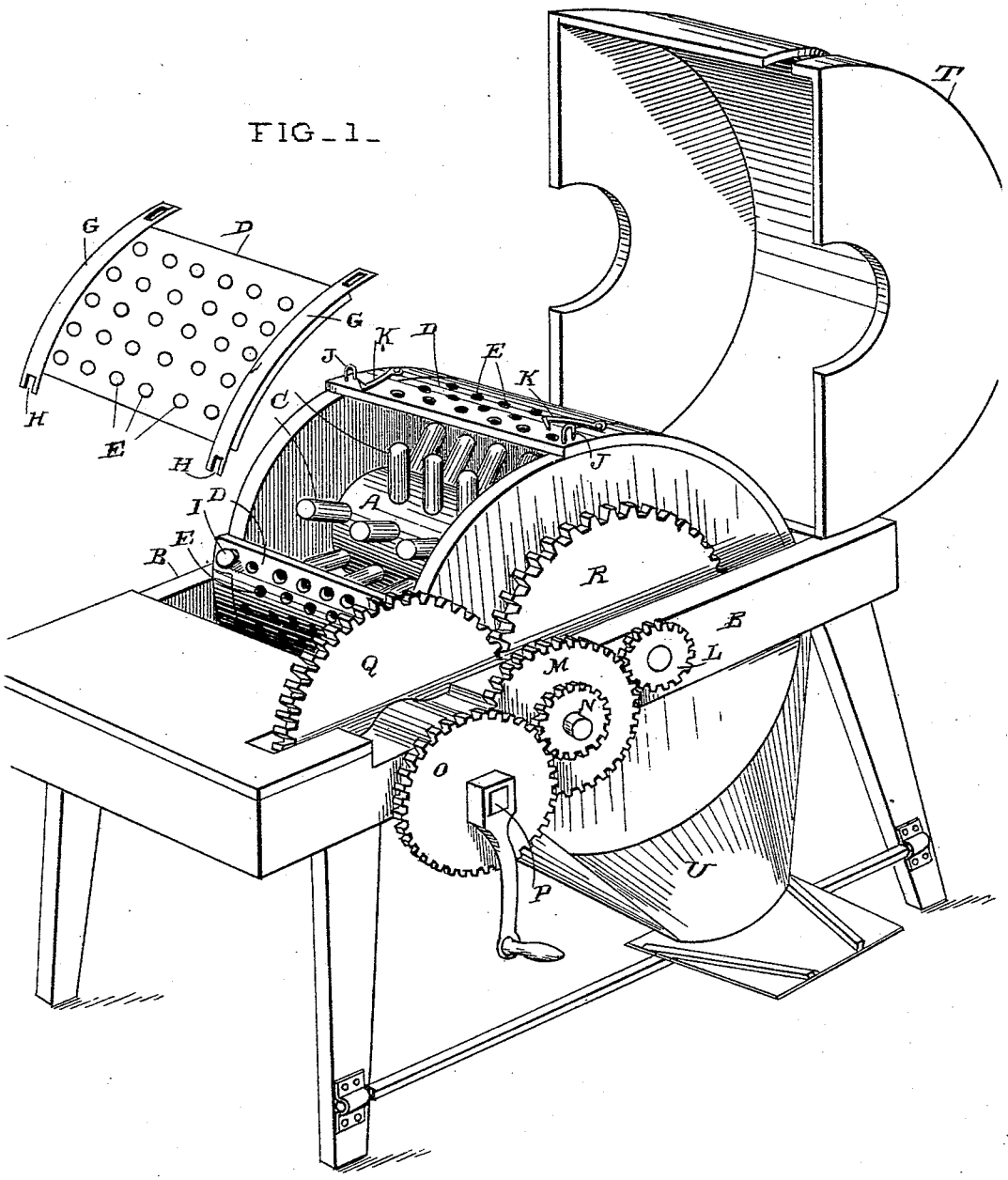
(No Model.) 2 Sheets—Sheet 1.

E. C. MOULTON.

PEA SHELLER.

No. 457,538. Patented Aug. 11, 1891.

FIG. 1.



Witnesses,
J. Stowe
J. A. Bayless

Inventor,
Edward C. Moulton
by Dewey & Co.
attys.

(No Model.) 2 Sheets—Sheet 2.

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PEA SHELLER.

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FIG. 2.

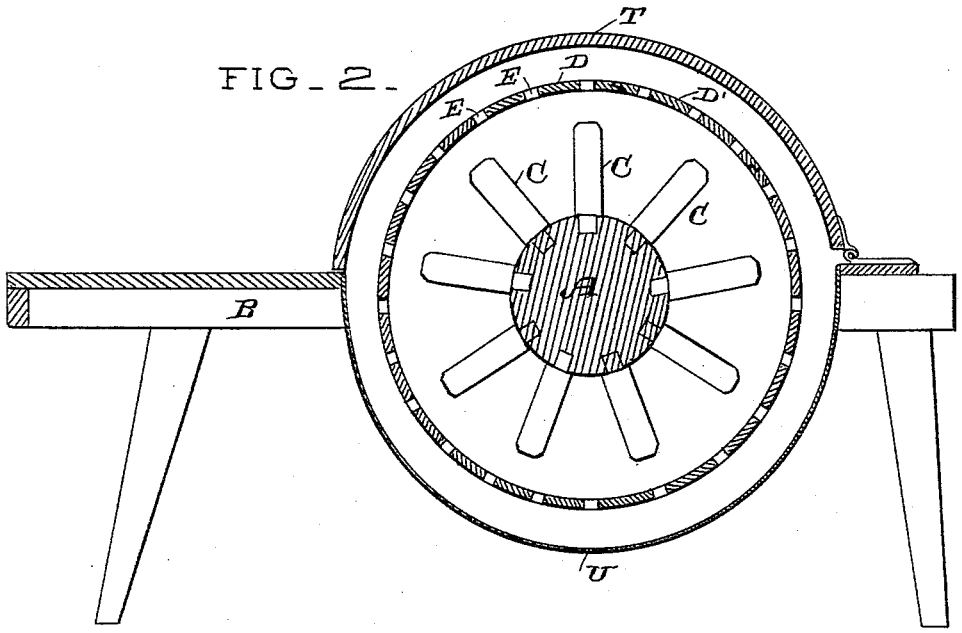
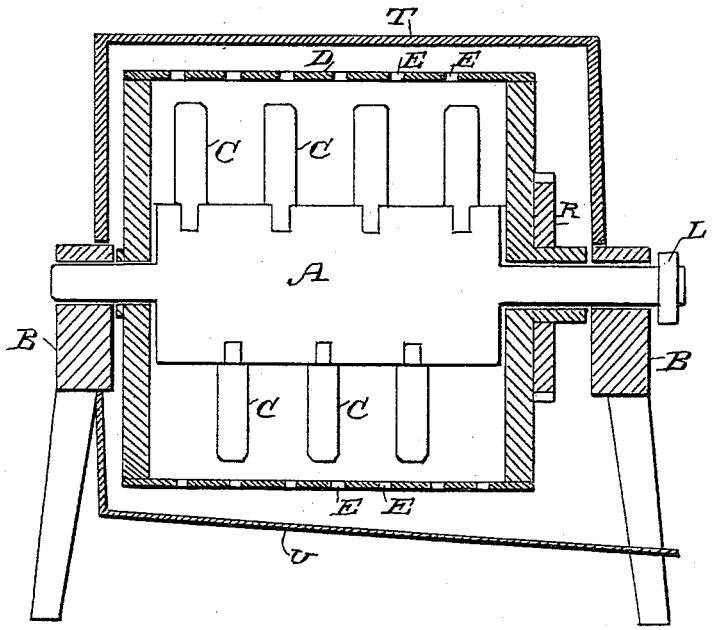


FIG. 3.



Witnesses,
L. Stowe
J. A. Bayless

Inventor,
Edward C. Moulton
By Dewey & Co
Attys

UNITED STATES PATENT OFFICE.

EDWARD C. MOULTON, OF SAN FRANCISCO, CALIFORNIA.

PEA-SHELLER.

SPECIFICATION forming part of Letters Patent No. 457,538, dated August 11, 1891.

Application filed April 6, 1891. Serial No. 387,880. (No model.)

To all whom it may concern:

Be it known that I, EDWARD C. MOULTON, a citizen of the United States, residing in the city and county of San Francisco, State of California, have invented an Improvement in Pea-Shellers; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an improved apparatus for shelling peas, which is especially designed for use in families and for operating upon small quantities.

It consists, essentially, of a central shaft or cylinder, having radially-projecting pins or spokes fixed therein, an exterior concentric inclosing drum journaled upon the projecting ends of the shaft and having its surface perforated with holes for the escape of the peas, a stationary exterior inclosing case or cover, in conjunction with a chute inclosing the lower portion of the drum by which the peas are received and discharged, and a combination of gearing whereby the interior hub and pins are rotated in the opposite direction from the inclosing perforated drum, and in certain details of construction, all of which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a perspective view showing the cover open and section of the revoluble casing removed. Fig. 2 is a section transversely across the casing and drum. Fig. 3 is a longitudinal section.

A is a cylinder having projecting shaft-journals of smaller diameter at each end, which turn in boxes upon a frame B, by which the the apparatus and operating mechanism are supported. The cylinder A has radially-projecting pins C fixed in it, these pins extending in lines from end to end of the shaft, and each line of pins is fixed in the cylinder so as to stand intermediate or between those of each adjacent line in the direction of the circumference of the cylinder. These pins are preferably five-eighths of an inch in diameter and situated about two inches apart from center to center along the line of the cylinder, and in the planes of their rotation the sides of the pins are five-sixteenths of an inch apart.

D is an exterior drum or case having its periphery perforated with holes E of sufficient diameter to allow the peas to escape without allowing the hulls to pass out. The ends of the drum are closed, and the journals of the cylinder A pass through these ends, so that the drum is supported upon the projecting journals of the cylinder A and may be rotated thereon. The interior diameter of this drum is such that a space of about three-fourths of an inch is left between the outer ends of the pins C and the interior of the drum. The diameter of the pins and the distance between their planes of rotation and between their ends and the interior of the drum have been proved by experiment to be necessary for the perfect shelling of the peas without breaking them or grinding up the hulls, which smaller pins or a shorter distance between their ends and the interior of the drum will always cause. A segment D′ of the outside of the drum is provided with curved metallic straps G upon each end. At one end these straps have open slots H made in them, so that they will slip beneath the enlarged heads of the screws I. Upon the opposite side of the opening from the screws I are fixed the staples or loops J, and the corresponding ends of the straps upon the movable section are slotted to fit over these eyes. Hooks K are pivoted upon the drum, and when the movable section is in place these hooks pass through the eyes outside of the straps, thus holding one end firmly while the other is held by the slotted ends and the screws before described. The projecting ends of the straps abut against the continuous straps, which are secured around the outside at each end of the drum, so that when the movable section is in place the outside of the drum and the straps will be continuous.

Upon one end of the journal-shaft of the cylinder A, where it projects beyond the supporting-frame, is fixed a pinion L. This is engaged by a gear M, which has a pinion N cast with it. This gear and pinion turn upon a pin or shaft fixed in the side of the frame, and the pinion is engaged by gear-wheel O upon the crank-shaft P, so that by means of these gears and pinions the interior cylinder, with its radial pins, is rotated. The crank-

shaft is fixed to turn in a journal-box upon the frame, and upon its inner end inside the frame is a gear-wheel Q. Upon the end of the drum is fixed a corresponding gear-wheel R, and the gear-wheel Q meshes directly with the gear-wheel R, these two being of approximately equal size and sufficiently large to meet and mesh together. Through these two gears the drum will be caused to rotate in the opposite direction from the movement of the crank; but by reason of the intermediate gear and pinion, which engage the gear upon the interior shaft and upon the crank-shaft, it will be seen that the interior cylinder will be rotated in the same direction as the crank and therefore in an opposite direction from the exterior drum. By reason of the difference in the sizes of the gears it will also be manifest that the interior cylinder and pins or spokes will revolve at a considerably greater speed than the outer drum.

The operation will then be as follows: A sufficient number of pods containing peas being introduced into the drum by the removal of the separable section D′, before described, the latter is replaced and fastened, and by turning the crank the cylinder will be rotated at a considerable speed in one direction while the outer drum will be rotated at a slower speed in the opposite direction. By this movement the drum lifts the pea-pods up on one side, while the pins meet them from the opposite direction, and the pods will be bent and folded across and between the pins by reason of their alternate arrangement upon the shaft, and will thus be cracked and split open without being otherwise broken or ground up, and the peas will escape and will fly out through the holes in the surface of the drum in all directions. In order to collect these peas and prevent their being thrown about the room, the upper half of the drum is inclosed by a hinged cover T, which shuts down over the drum and prevents the peas from flying upward and outward from this portion. Around the lower portion of the drum is fitted the inclosing chute U, which stands at an angle declining from one side of the drum-frame to the other, where it is also contracted so as to discharge all the peas which are received into it, and they may be collected in any suitable pan or receptacle. When the peas have all been shelled and thus discharged, the cover is thrown back, the removable section of the drum taken out, and by turning the opening downward and oscillating the drum once or twice the hulls of the peas will all be discharged and can be removed, leaving the drum ready for another charge.

No ribs or projections are needed upon the interior of the drum, there being a sufficient frictional lifting-power to hold the pods against the revolution of the interior pins or arms for the purpose of breaking the pods and shelling out the peas without otherwise destroying the pods or breaking and splitting the peas.

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

1. A pea-sheller consisting of an exterior rotary perforated drum having a smooth interior surface, a cylinder extending concentrically through said drum, so that the latter turns loosely upon the shaft of the cylinder, pins projecting radially from the cylinder within the drum and in alternate lines from end to end, a frame upon which the shaft is journaled, and gear-wheels whereby the drum is turned in one direction and the cylinder in the opposite direction and at an increased speed, substantially as herein described.

2. A pea-sheller consisting of the rotatable perforated drum, a cylinder concentric therewith having pins projecting radially and alternately in rows within the drum, a journaled shaft turning in boxes upon a stationary frame, said shaft passing through the ends of the drum which is supported and turns upon the shaft, a crank-shaft and gears, whereby the drum is turned in one direction, other gears deriving motion from the same shaft, whereby the interior cylinder is turned in the opposite direction from the drum and at an increased speed, a chute inclosing the lower part of the drum to receive the peas which discharge from the openings therein, and a cap or cover inclosing the upper part of the drum to prevent their escape in that direction, substantially as herein described.

3. In a pea-sheller, a shaft journaled upon a stationary frame and carrying a cylinder having pins projecting radially in lines from end to end, said lines of pins alternating with each other, a perforated cylindrical drum having a smooth interior, said drum turning loosely upon the projecting journals of the cylinder-shaft, a crank-shaft, and gears Q and R, by which the drum is rotated in one direction, other gears connecting the crank-shaft with the cylinder-shaft, whereby the latter is turned in the opposite direction from the drum, said gears being so proportioned that the interior cylinder is rotated at a greater speed than that of the drum, substantially as herein described.

4. In a pea-shelling machine, the interior cylinder having pins projecting radially from it in lines extending from end to end, and alternating with each other, an exterior drum perforated for the escape of the peas supported upon the journals of the hub-shaft, a gear mechanism whereby the drum and hub-shaft are turned in opposite directions and at different rates of speed, a segment of the perforated drum having metallic straps fixed upon each end and projecting as shown, slots

made in the straps at one end, and screws fixed in corresponding positions upon the drum to receive the slots and hold the straps by means of the screw-heads, eyes fixed upon the opposite side of the opening in the drum, and slots made in the corresponding ends of the straps upon the movable section to fit over said eyes with hooks, whereby they are locked in position when the movable section is in place, substantially as herein described.

In witness whereof I have hereunto set my hand.

EDWARD C. MOULTON.

Witnesses:
S. H. NOURSE,
J. A. BAYLESS.