

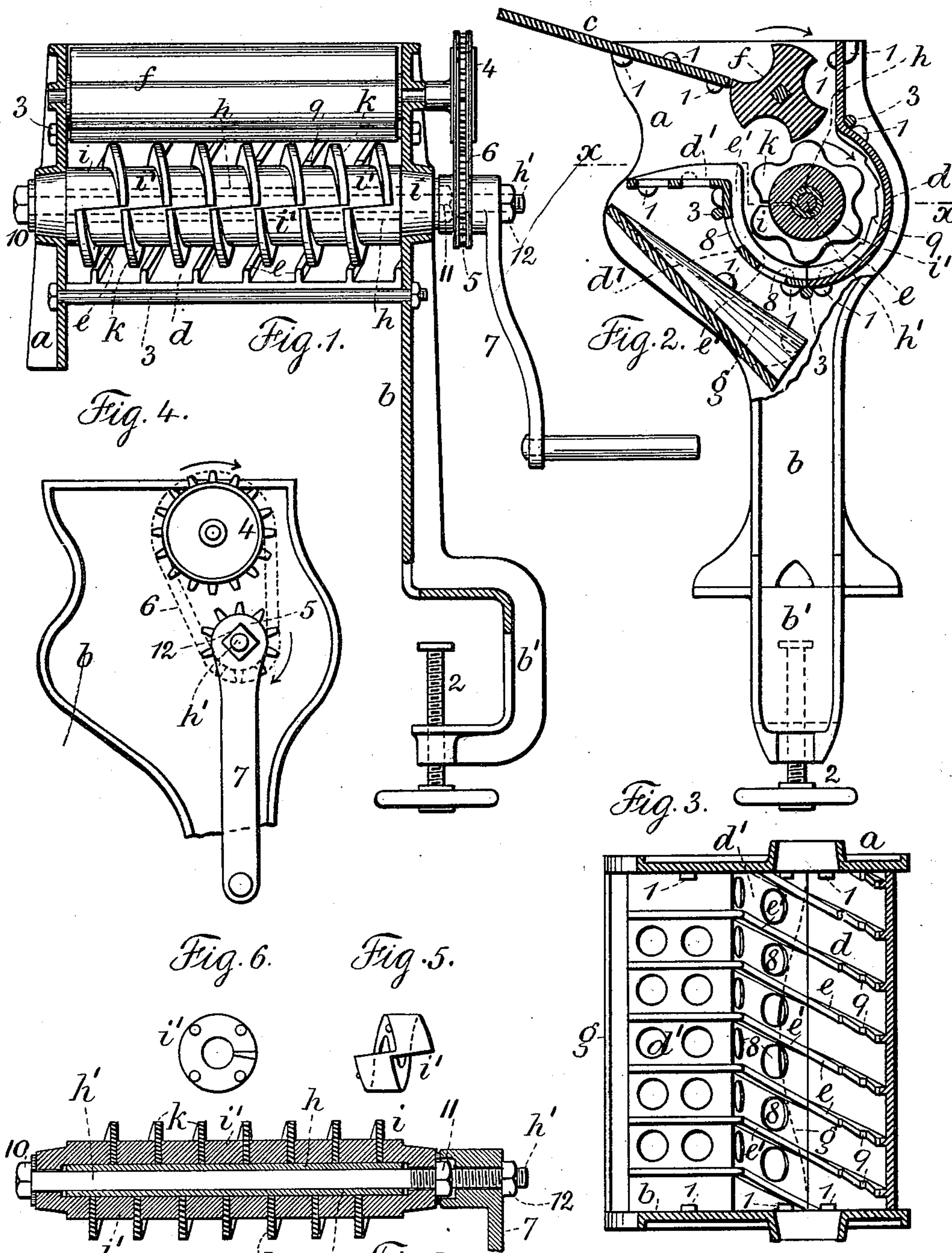
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Patented Sept. 25, 1900.

L. A. ASPINWALL.
PEA SHELLER.

(Application filed Dec. 16, 1899.)

(No Model.)



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UNITED STATES PATENT OFFICE.

LEWIS AUGUSTUS ASPINWALL, OF JACKSON, MICHIGAN, ASSIGNOR TO THE
ASPINWALL MANUFACTURING COMPANY, OF SAME PLACE.

PEA-SHELLER.

SPECIFICATION forming part of Letters Patent No. 658,561, dated September 25, 1900.

Application filed December 16, 1899. Serial No. 740,529. (No model.)

To all whom it may concern:

Be it known that I, LEWIS AUGUSTUS ASPINWALL, a citizen of the United States, residing at Jackson, in the county of Jackson, in the State of Michigan, have invented an Improvement in Pea-Shellers, of which the following is a specification.

The object of the present invention is to perform automatically and mechanically the operation of removing the green peas from their pods and the separate delivery of the peas and pods.

In carrying out my invention I employ a longitudinally-grooved feed-roller, to which the pea-pods are fed down an inclined feed-table. This feed-roller receives the pods sideways and delivers the same into concaves having spirally-arranged ribs, and in said concaves is a cylinder of sections upon a shaft with a yielding spirally-arranged rib or flange. This cylinder and the feed-roller are operated by a crank, sprocket-wheels, and a chain, so that they revolve together, the cylinder preferably turning faster than the feed-roller. The pods are carried over the ribs of the concaves by the yielding flange of the cylinder, which causes a rolling and crushing of the pods, bursting them open and releasing the peas, the pressing action having a further tendency to disconnect the peas from the pods. One of the concaves is perforated, and a delivery-incline is provided beneath the perforations, the peas as shelled from the pods passing through the perforations of the one concave and being delivered by the incline into a receptacle beneath the same provided for receiving the peas, while the pods are raised and delivered above the concave and are removed therefrom in any convenient manner.

I prefer to form the cylinder with a central shaft, a sleeve around the shaft, and sections around the sleeve, which are screw-segments fitting the one into the other, and the yielding flange around the cylinder is preferably of rubber and made as split rings, which fit between the screw-segments, and when so fitted and clamped the various rings form an approximately-continuous flange or thread around the cylinder.

In the drawings, Figure 1 is a vertical section and partial elevation representing my improvements. Fig. 2 is a cross-section and partial elevation of the same. Fig. 3 is a sectional plan at *xx* of Fig. 2. Fig. 4 is an end view showing the sprockets and the crank with the chain in dotted lines. Fig. 5 is an elevation; Fig. 6, an end view of one of the screw-segments, and Fig. 7 is a longitudinal section of the cylinder.

The pea-sheller is provided with an end head *a* and an end head *b*, the head *b* being deeper than the head *a* and at its lower end provided with a spanner *b'* to pass around the edge of a table, and a clamping-screw 2 is adjacent to the spanner end *b'* for securing the pea-sheller to the edge of a table or other support.

Between the heads *a b* I provide an inclined feed-table *c*, a concave *d* with one straight edge as an upright, and a concave *d'* with one straight horizontal edge, and the concave *d'* is perforated at intervals. I also provide a longitudinally-grooved feed-roller *f* and a delivery-incline *g*.

The feed-table *c*, the concaves *d d'*, and the delivery-incline *g* are between the heads *a b*, which heads are provided with projections 1 at intervals to receive the said parts between them, and the two frames are held firmly together by bolts 3. Said heads are provided with bearings for the roller *f* and for the cylinder *i*.

A sprocket 4 is on the shaft of the feed-roller *f* and a sprocket 5 on the shaft *h'* of the cylinder, and said sprockets are connected by a chain 6 and are driven by a crank 7. The concaves *d d'* are provided on their inner surfaces with spirally-arranged ribs *e e'*, which are in line when the concaves are brought together between the frames, as will be seen by reference to Fig. 3. The concave *d'* is provided with perforations 8, and the uppermost ends of the ribs *e* of the concaves are stepped off at 9 for the purpose hereinafter set forth.

The cylinder *i* is made up upon a shaft *h'* as a foundation, and around the shaft *h'* is a sleeve *h*. The shaft is threaded at one end, so as to provide for the nuts 11 and 12, and a nut 10 is at the other end. The parts of the

cylinder are clamped between the nuts 10 and 11 around the shaft h' , and the hub of the crank 7, that carries the sprocket 5, is recessed at the inner end to receive the nut 11, and the nut 12 holds the hub of the crank 7 in place upon the shaft, together with the sprocket-wheel 5. The cylinder is composed of screw-segments i' , (shown especially in Figs. 1, 5, and 6,) and the respective segments are of the same form. Split rings of yielding material, preferably rubber, are employed, and they are received between the respective screw-segments i' and when so received are caused to conform to the screw-segments, with their respective split ends adjacent to one another, so as to form the rubber flange k in the form of a screw-thread or helix around the segments, the surface of which is preferably corrugated; as shown especially in Fig. 2. The screw-segments upon the respective ends of the sleeve h and shaft h' are made conical to fit the openings in the heads a b , and thus form bearings for the cylinder. The ribs of the concaves are of a steeper pitch than the helical flange of the cylinder. These segments and the intervening split rings of rubber are compacted together longitudinally by the nuts 10 and 11, so that they turn as a unit when the crank 7 is turned by hand to revolve the parts.

In the operation of the machine the grooved feed-roller f is rotated in the direction of the arrow and the cylinder i turns in the same direction. The pods falling longitudinally in the grooves of the roller f are carried over by the roller and delivered upon the yielding flange k of the cylinder, and are thereby carried into the concaves d d' and against the ribs e e' upon the surface of the said concaves. It will be noticed from Fig. 2 that these ribs e are most distant from the flange k at the point where the pods come between said flange and the concave d and that this distance lessens in a downward direction, so that a progressive squeezing pressure and a rolling and crushing action are exerted upon the pods between the flange k and the ribs e to open the pods and to force the peas out. The stepped form of the ribs of the concave d serves to hold the pods and compel them to turn as acted upon by the flange k , which thereby obtains a better hold upon the pods. The movement of the rubber flange k advances the pods up the ribs e' on the concave d' , the peas passing out at the perforations 8 upon the delivery-incline g , down which they roll into a convenient receptacle placed beneath the lower edge of said incline. The pods continuing upward are delivered upon the horizontal portion of the concave d' and fall therefrom.

The sprocket 4 upon the axle of the feed-roller is larger than the sprocket 5 on the shaft of the cylinder, and consequently the feed-roller has a slower movement than the cylinder to insure the proper delivery of the pods, so that they are not delivered faster than the roller can efficiently and thoroughly

act thereon in shelling the peas from the pods and separating and delivering the peas and pods separately.

I claim as my invention—

1. In a pea-sheller, the combination with the frame, of feeding devices, concaves for receiving and advancing the pea-pods, a cylinder having a ribbed surface, ribs in the concaves acting in connection with the ribbed cylinder for causing a rolling and crushing of the pods to open the same and separate the peas from the pods, and means for delivering the peas and pods separately, substantially as set forth.

2. In a pea-sheller, the combination with the frame and an inclined feed-table, of a longitudinally-grooved feed-roller, a cylinder having a ribbed surface, and means for turning the cylinder and the feed-roller together in the same direction, concaves surrounding part of the cylinder and ribs in the concaves acting with the ribbed cylinder for imparting to the pods a rolling action and crushing pressure to open the same and separate the peas from the pods, and means for separately delivering the peas and an extension to one concave over which the pods are delivered, substantially as set forth.

3. The combination in a pea-sheller with the frame and the inclined feed-table, of a longitudinally-grooved feed-roller for receiving the pods sidewise, a cylinder below the feed-roller having a yielding spiral rib, concaves surrounding part of the cylinder and provided with ribs in the same general direction as the rib of the cylinder, means for rotating the feed-roller and the cylinder together and a delivery-incline for the peas, substantially as set forth.

4. In a pea-sheller, the combination with means for feeding the pea-pods, of the concaves d and d' , the concave d' being perforated, spirally-arranged ribs e e' upon the inner surfaces of said concaves, said ribs being stepped off or reduced at their forward higher portions, a cylinder between and within the limits of the concaves; a yielding rib arranged spirally upon said cylinder and adapted to act in connection with the ribs of the concaves longitudinally upon the pea-pods to roll, crush and open the same and separate the peas and deliver the peas and the pods separately, substantially as set forth.

5. In a pea-sheller, the combination with the heads and means for feeding the pea-pods sidewise, of the concave d imperforate and having a straight upright portion, the concave d' perforated and having a straight horizontal portion, the adjacent curved edges of the concaves meeting, spirally-arranged ribs on the inner surface of the concaves and extending upon the straight horizontal portion of the concave d' and between the perforations therein, the forward or advancing end of the said ribs being reduced or stepped off upon the concave d , supports for the concaves in the frames of the machine, a cylinder with-

in the space between the concaves and means substantially as set forth for acting upon the pea-pods to open the same and separate the peas from the pods, substantially as set forth.

5 6. In a pea-sheller, the combination with the heads and means for feeding the pea-pods sidewise, of the concave *d* imperforate and having a straight upright portion, the con-
 10 cave *d'* perforated and having a straight horizontal portion, the adjacent curved edges of the concave meeting, spirally-arranged ribs on the inner surface of the concaves and ex-
 15 tending upon the straight horizontal portion of the concave *d'* and between the perforations therein, the forward or advancing end of the said ribs being reduced or stepped off
 20 upon the concave *d*, supports for the concaves in the heads of the machine, a cylinder within the space between the concaves and means substantially as set forth and connected with
 25 the cylinder for acting upon the pea-pods to open the same and separate the peas from the pods, and a delivery-incline between the heads beneath the perforations of the con-
 cave *d'* for receiving the peas and directing the same into a receptacle, substantially as set forth.

7. In a pea-sheller, the combination with means for feeding the pea-pods sidewise and
 30 concaves for receiving the same as delivered, of a cylinder composed of a central shaft, screw-segments *i'* similar to one another and lapping into one another and mounted upon
 35 the said shaft, and a yielding flange fitted between the adjacent edges of the segments and forming a spiral rib around the cylinder, sub-
 stantially as set forth.

8. In a pea-sheller, the combination with means for feeding the pea-pods sidewise and

40 concaves for receiving the same as delivered, of a cylinder composed of a central shaft, a sleeve *h* around the shaft, screw-segments *i'* surrounding the sleeve and made alike, so
 45 that the parts of one lap the parts of each adjacent one, a rubber flange *k* formed of split rings placed between the adjacent faces of the re-
 spective screw-segments, means for holding the screw-segments and the said split rings
 50 together upon the sleeve *h* so as to compact and hold the parts together and form of the split rings the spiral rubber flange *k*, sub-
 stantially as set forth.

9. In a pea-sheller, the combination with means for feeding the pea-pods sidewise and
 55 concaves for receiving the same as delivered, of a cylinder composed of a central shaft, a sleeve *h* around the shaft, screw-segments *i'* surrounding the sleeve and made alike, so
 60 that the parts of one lap the parts of each adjacent one, a rubber flange *k* formed of split rings placed between the adjacent faces of
 the respective screw-segments, means for holding the screw-segments and the said split
 65 rings together upon the sleeve *h* so as to compact and hold the parts together and form of the split rings the spiral rubber flange *k*, the
 periphery of the said flange being corrugated and the end screw-segments forming the cyl-
 70 inder made as bearings for the journals in the frames of the pea-sheller, substantially
 as set forth.

Signed by me this 8th day of December, 1899.

LEWIS AUGUSTUS ASPINWALL.

Witnesses:

E. L. ROSE,
 DANIEL H. PERRY.