

No. 709,657.

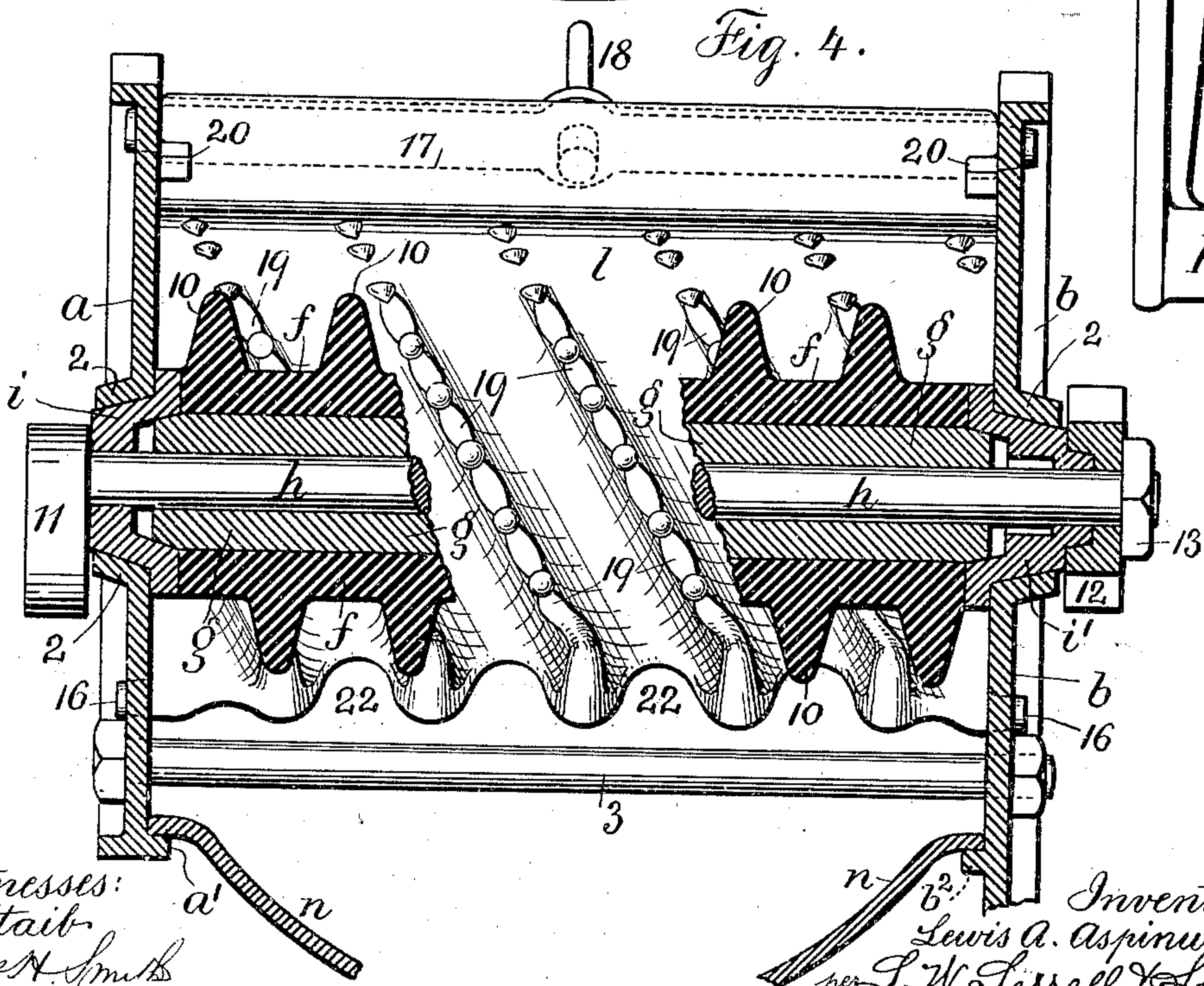
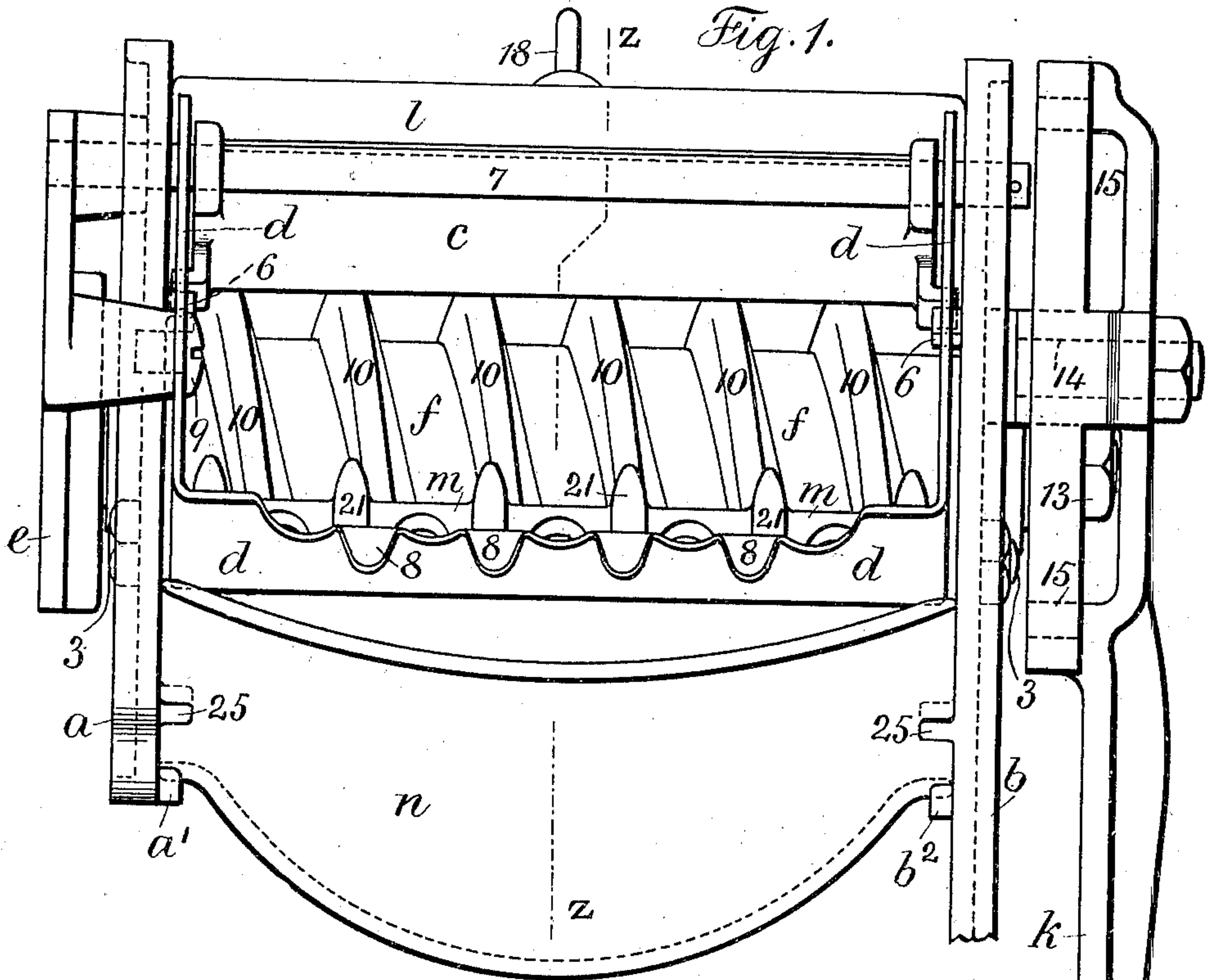
L. A. ASPINWALL.
PEA SHELLER.

Patented Sept. 23, 1902.

(Application filed Sept. 28, 1901.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses:
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Chas. H. Smith

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per L. W. Serrell & Son

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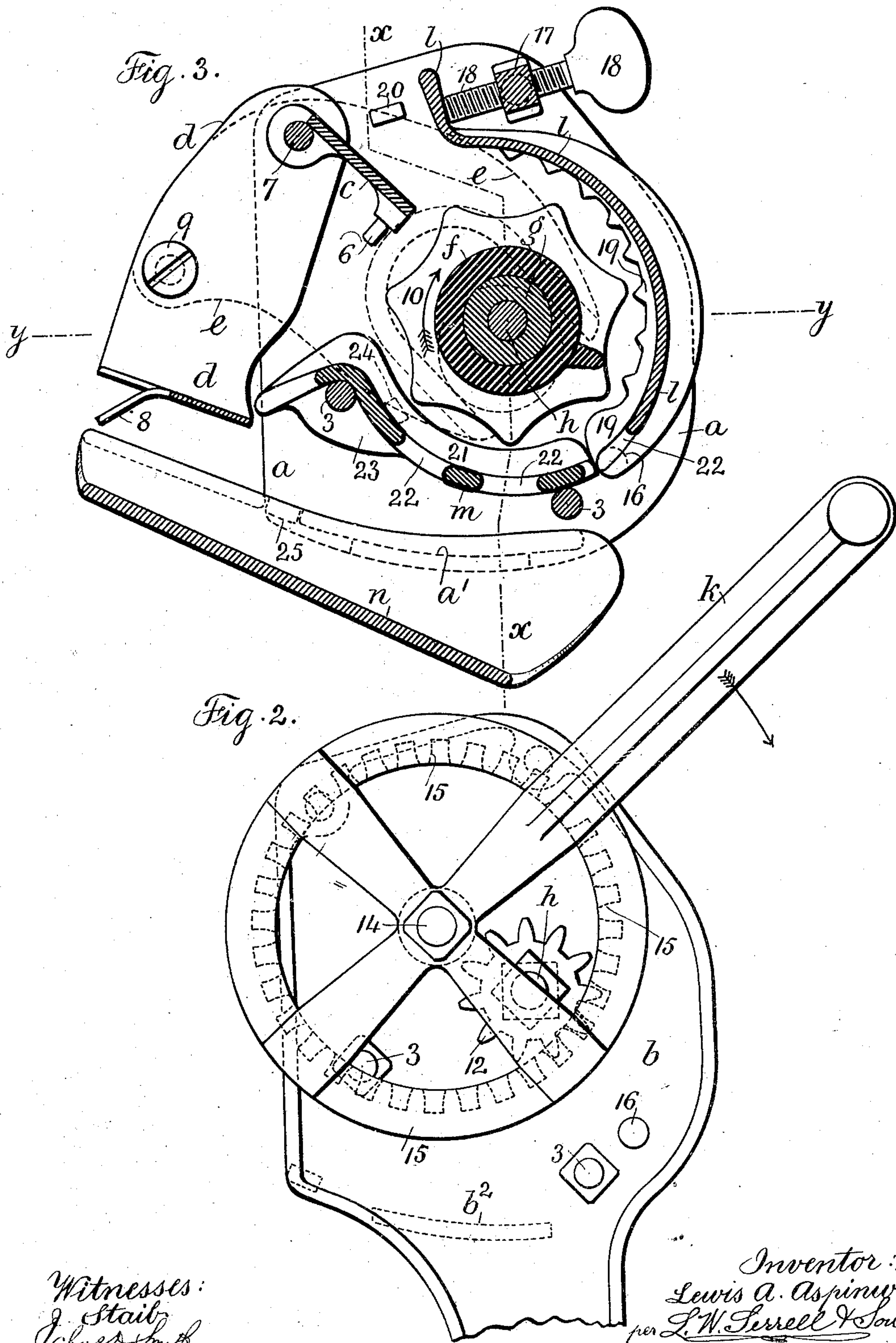
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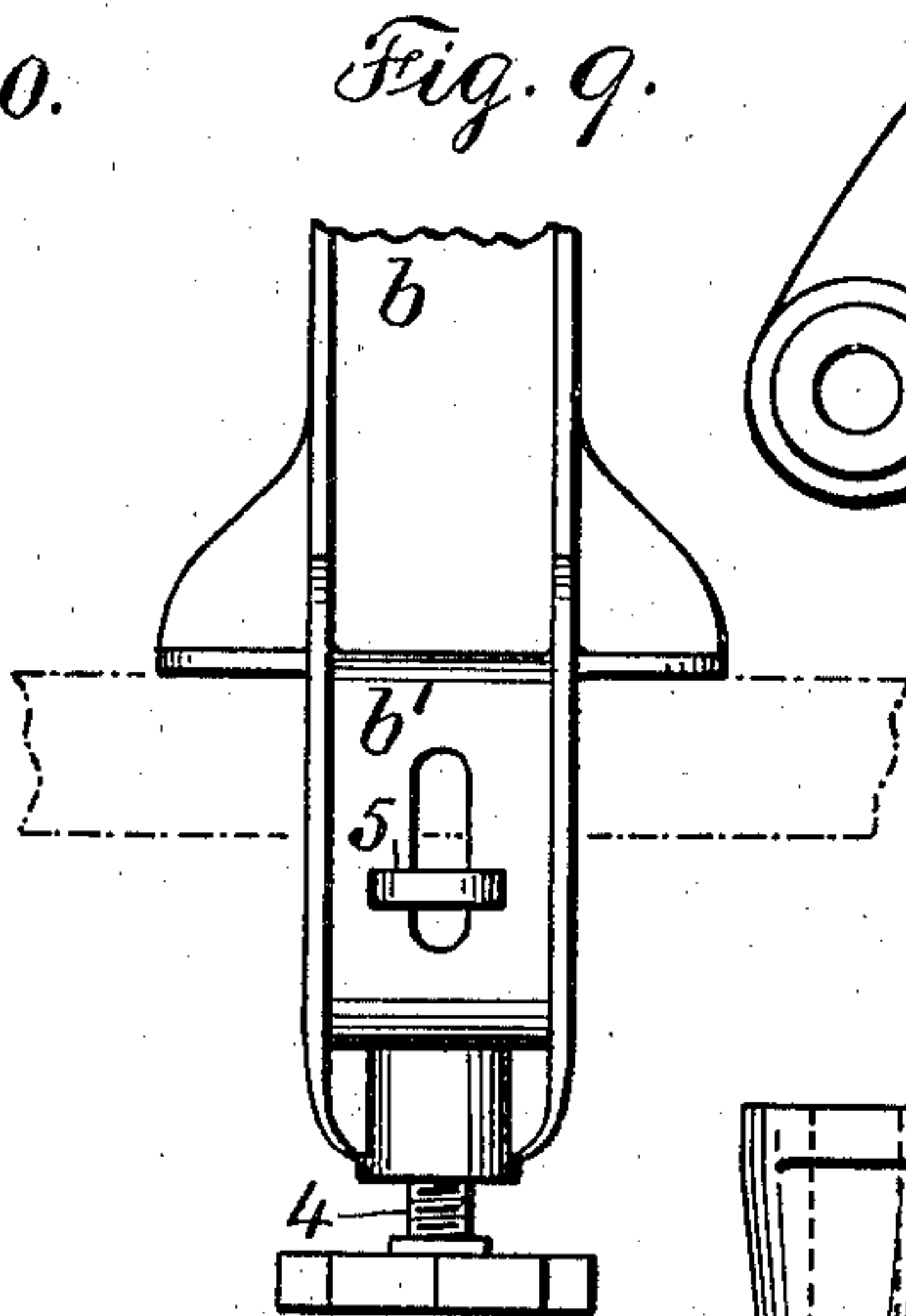
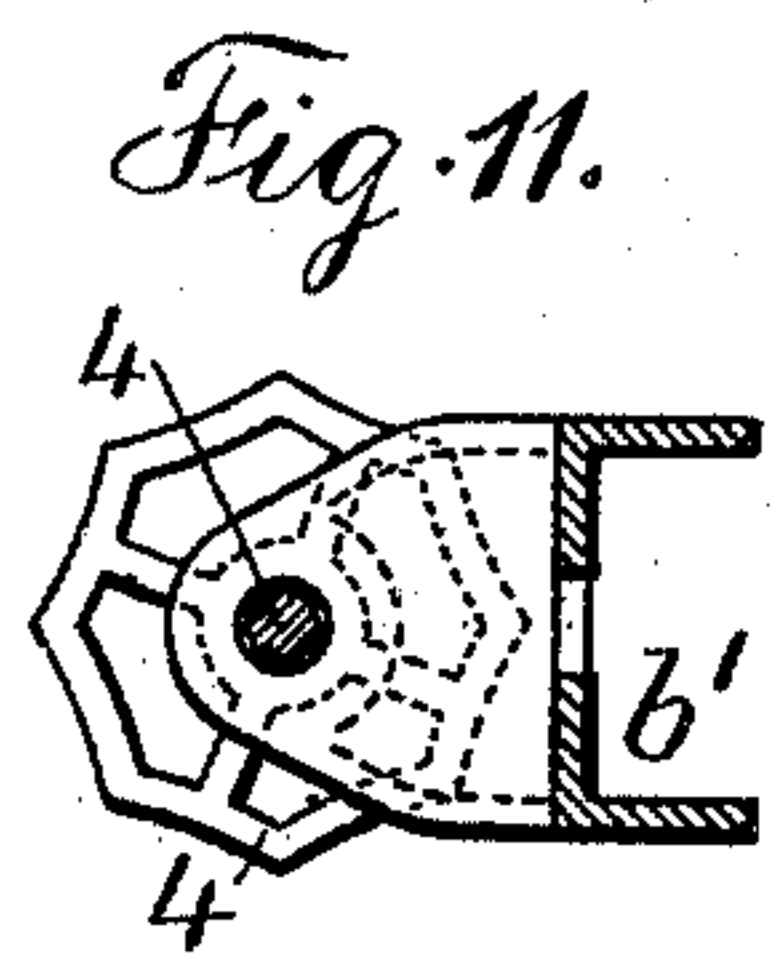
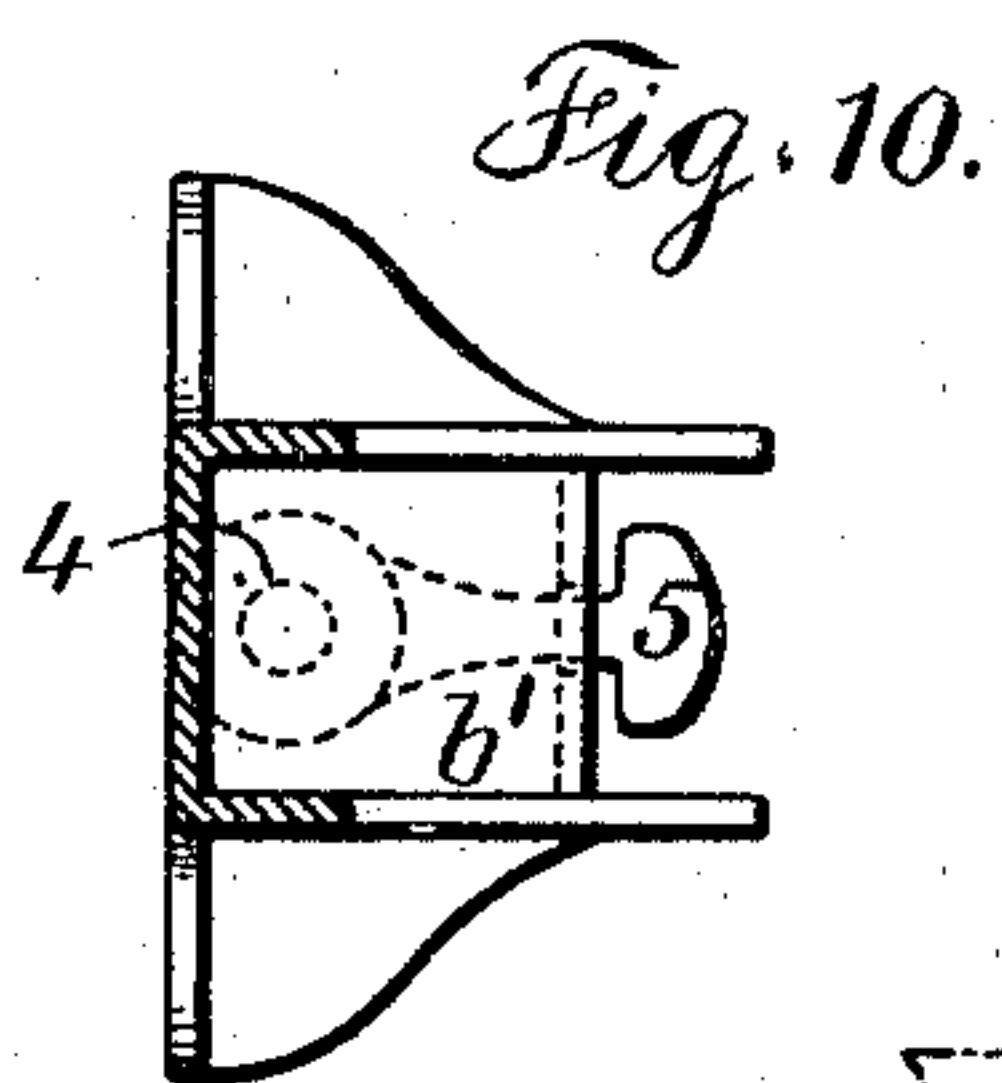
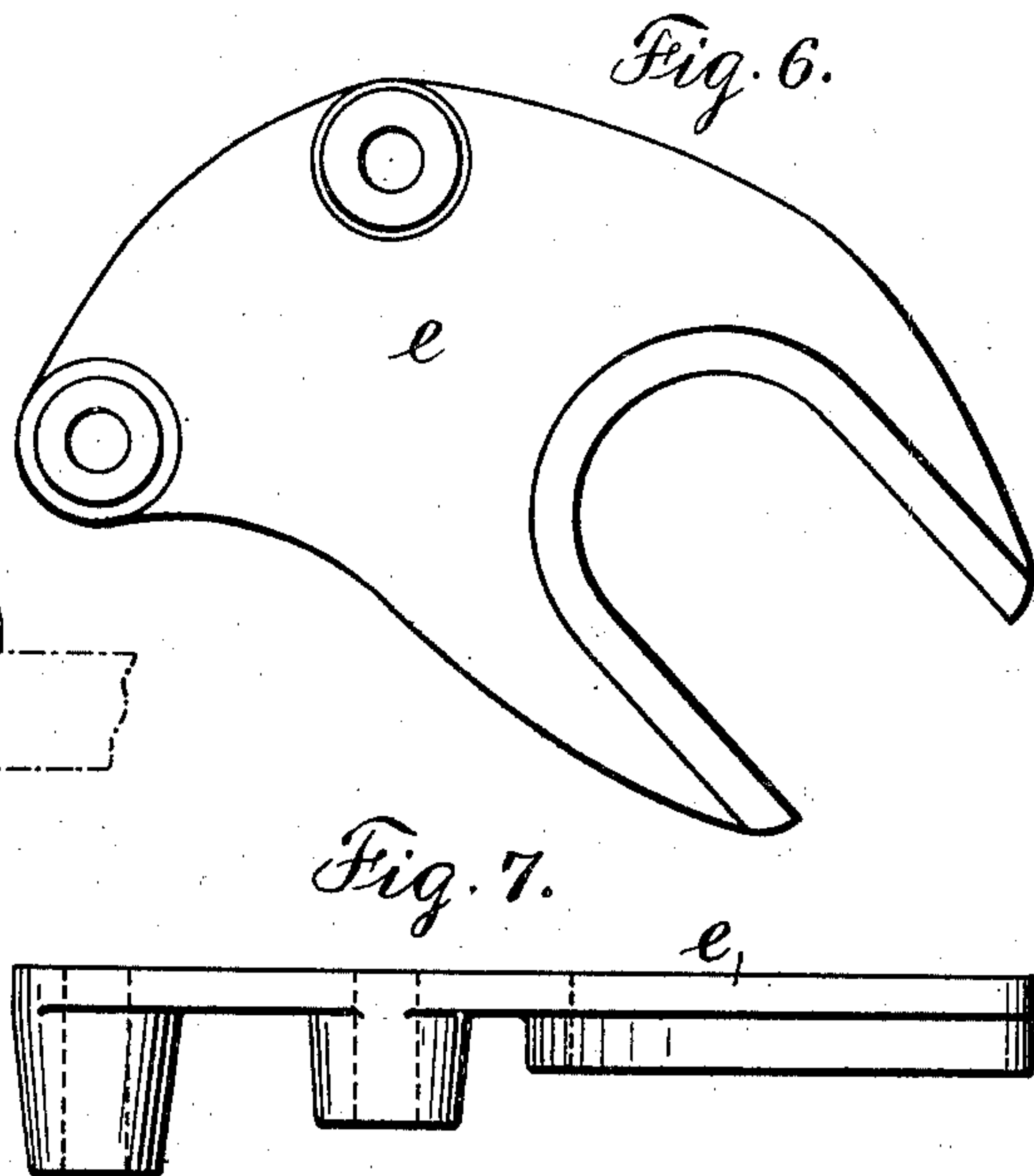
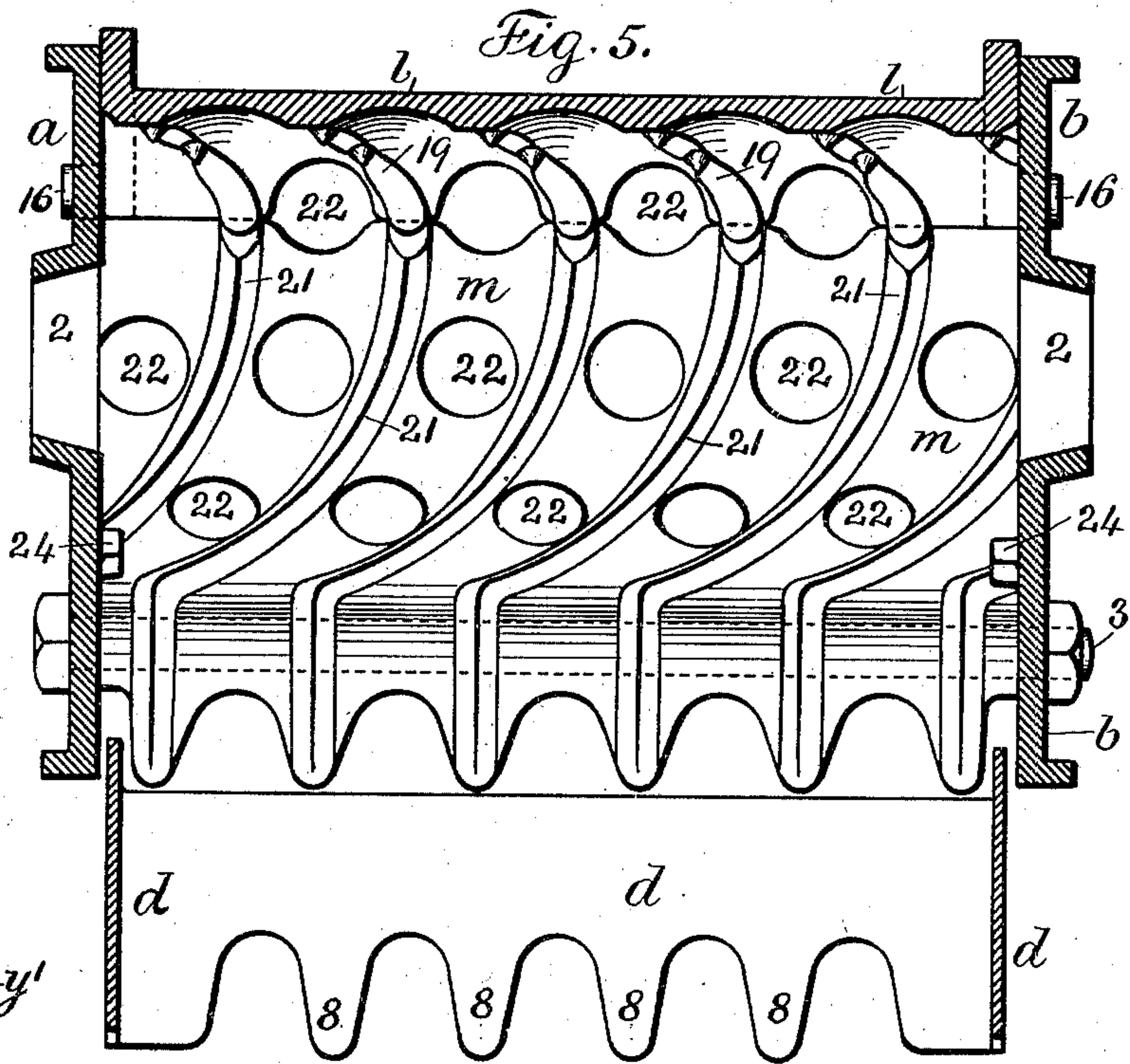
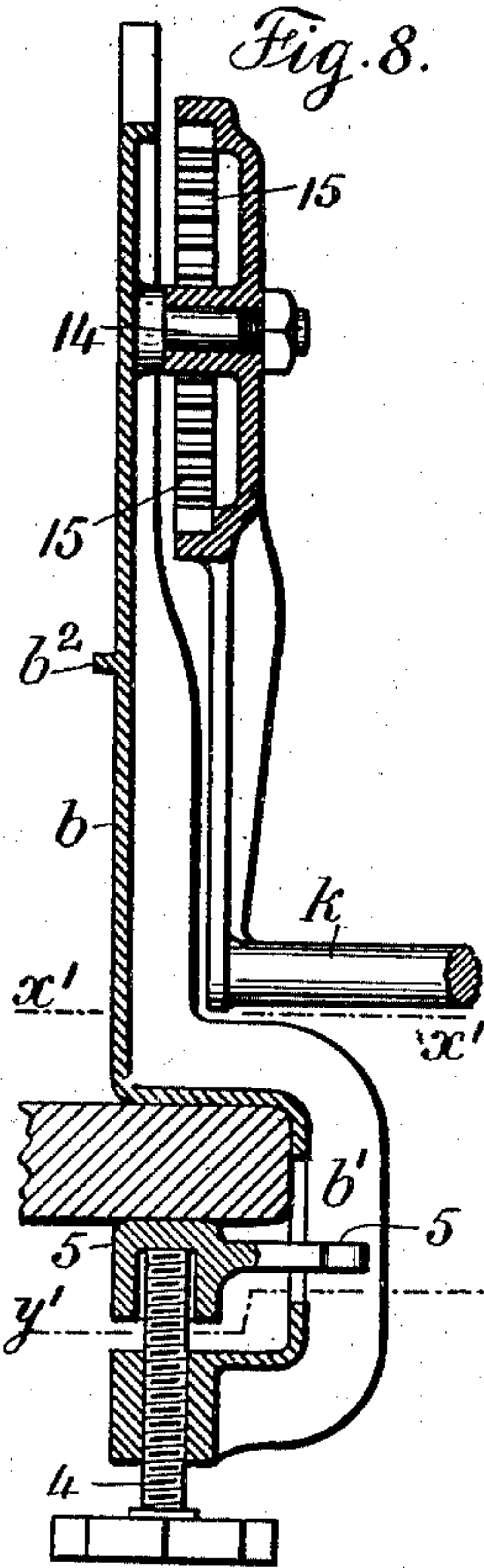


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UNITED STATES PATENT OFFICE.

LEWIS AUGUSTUS ASPINWALL, OF JACKSON, MICHIGAN, ASSIGNOR TO
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PEA-SHELLER.

SPECIFICATION forming part of Letters Patent No. 709,657, dated September 23, 1902.

Application filed September 28, 1901. Serial No. 76,823. (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 and State of Michigan, have invented an Improvement in Pea-Shellers, of which the following is a specification.

My present invention is designed as an improvement upon the devices shown and described in Letters Patent granted to me September 25, 1900, No. 658,561.

The objects of my present invention are to simplify the device, reduce the number of parts, and make more efficient the operation of the machine.

In my present invention the cylinder comprises a rubber roller and integral spiral rib within which is a cylindrical core. The ends of the cylinder are provided with journals or caps, and a rod passes through the said caps and the core, clamping the parts in position, and at the same time I provide a cam on one end of the rod and hold a pinion in place at the other end of the rod. I also provide concaves with inclined or spirally-arranged ribs, the same being of peculiar form, and I provide a shaking device operated by the rotation of the cylinder and the cam thereon for swinging a plate provided for the delivery of the pods. The machine also embraces improved means for clamping the same to a table or other support, an internal spur-gear acting in connection with the pinion for speeding up the cylinder, and details in the construction by which the parts are held between the heads or ends, all of which are hereinafter more particularly set forth.

In the drawings, Figure 1 is an elevation generally representing my improvement. Fig. 2 is an end view. Fig. 3 is a cross-section at $z z$ of Fig. 1. Fig. 4 is a vertical section approximately on the line $x x$ of Fig. 3, except that a portion of the lower concave has been removed. Fig. 5 is a sectional plan on the line $y y$ of Fig. 3. Fig. 6 is an elevation, and Fig. 7 an edge view, of a yoke-bar. Fig. 8 is a vertical section and partial elevation of one head or end and the devices employed for clamping the pea-sheller to a table or other support. Fig. 9 is an end elevation

of the lower portion of said parts and at right angles to Fig. 8. Fig. 10 is a sectional plan at $x' x'$ of Fig. 8, and Fig. 11 a sectional plan at $y' y'$ of Fig. 8.

The heads or ends $a b$ are preferably of cast metal, with edge flanges for stiffness, and they are each provided with a flanged center 2, which forms bearings for the end journals or caps of the cylinder. These heads or ends are at their lower edges provided with ribs $a' b'$, and the head b is provided with a spanner b' . The heads are connected together by bolts 3, which bolts also serve the purpose of holding the intermediate parts to the heads. At the lower end of the spanner b' (see Figs. 8 to 11, inclusive) I provide a clamping-screw 4 and in the spanner a recessed plate 5 to receive the upper end of the screw, and which plate is made with a fan-tailed end passing through a vertically-arranged mortise in the spanner b' . The end of this plate 5 is to be turned over vertically to pass through the mortise, after which it is turned over horizontally and upon the end of the clamp-screw 4, the plate coming against the table or means of support and forming a socket for the end of the screw, preventing the table being marked by the screw, and the fan-tailed end prevents the plate being accidentally separated from the spanner. On the heads I provide stops 6, and a rod 7 passes across the machine through the heads $a b$, and the feed-plate c is pivotally supported by this rod 7 between the heads $a b$, and the free edge of the plate c rests upon the stops 6. I provide an elongated U-shaped plate d , pivotally connected to the rod 7 between the heads, the horizontal portion of said plate being provided with fingers 8, that are downwardly bent. A yoke-bar e (see Figs. 6 and 7) is pivotally connected upon the left hand of the rod 7, (see Fig. 1,) and this yoke-bar is connected to the plate d by a screw 9, which screw passes through the plate and into a lug of the yoke-bar.

The cylinder comprises the rubber roller f , with an integral spiral rib 10, the periphery of which rib is provided with concaves that are approximately of the same length. (See Fig. 3.) The cylindrical core g is within the rubber roller, and the rod h passes through

the cylindrical core, and I provide end journals or caps *i i'* of conical form, which are adapted to fit into the flanged centers 2 of the heads *a b* and to fit over the ends of the core *g* and against the ends of the rubber roller *f*. (See Fig. 4.) On one end of the rod *h* is a cam 11, adapted to fit into the jaw of the yoke-bar *e*, (see Fig. 6,) and at the other end of the rod *h* is a pinion 12, recessed to fit over the end journal *i'*, and a nut 13 on the end of this rod *h* clamps the end journals to the cylindrical core and the pinion to one end journal, holding these various parts that go to make up the entire cylinder so securely that they move as one. On the head or end *b'* are a boss and short shaft 14, and an internal spur-gear 15 fits thereon and is provided with an arm and handle *k*. The spur-gear 15 meshes with the pinion 12, (see Fig. 2,) and by turning the handle and the internal gear the pinion 12 and the cylinder are rotated in the direction of the arrow, Fig. 3. The ratio of size of the pinion and the internal gear provides for speeding up the parts, so that with a slow revolution of the internal gear the pinion and cylinder may be caused to travel quite rapidly. I provide concaves *l m*, surrounding the larger portion of the cylinder. The lower end of the concave *l* is provided with pivots 16, engaging the heads *a b*, and between said heads there is a pivoted bar 17, through which passes an adjusting-screw 18, bearing upon the upper end of the concave *l*, and stops 20 on the heads limit the movement of the concave in one direction, while the said adjusting-screw limits the movement in the opposite direction. The inner surface of the concave *l* is provided with inclined ribs 19, that are stepped off. (See particularly Figs. 3 and 4.) The direction of these ribs is opposite to the direction of the spiral, as the same is presented in opposition to the ribs. The concave *m* is provided with spirally-arranged ribs 21 over the inner surface, that run in the same direction as the spiral rib 10 of the rubber collar—that is, in opposition thereto; but the same are at a greater inclination, and they run up over onto the delivery portion of said incline. (See Figs. 3 and 5.) This concave *m* is provided with openings 22 between the ribs and at spaced-apart intervals and with flanges 23 at the ends, through which one of the connecting-bolts 3 passes, said incline *n* being held between the heads by said bolt 3 and by the forward edge of the incline resting upon the other bolt 3 and by the edges of the inclines coming below lugs 24 on the inner surfaces of the heads *a b*.

Below the concave *m* and the shaker-plate *d* I provide a delivery-incline *n* of curved form, with the edges resting upon the ribs *a' b'* of the heads, and said edges are notched to receive lugs 25 upon the opposite inner surfaces of the heads *a b*, so that while the delivery-incline *n* is supported by said ribs

any movement thereof is prevented by the lugs 25.

In the operations of the pea-sheller the pods are fed into the machine over the feed-plate *c* and between the same and the upper end of the concave *l*. The pods pass down against the cylinder and upon the spiral rib 10, and by the rotation of the cylinder the pods are carried forward against the concave *l* and its stepped inclined ribs 19, the distance between the parts growing less as the pods approach the concave. The action of the spiral rib and the ribs 19 is to roll over, twist and snap the pods open, and at the same time progress the pods slightly lengthwise of the cylinder, producing a nipping action tending to separate the peas from the pods as well as to snap the pods open. As the pods pass over the concave *l* onto the concave *m* the general direction of movement is reversed, because of the difference of inclination of the ribs 21 on the concave *m*, the cylinder meanwhile traveling at considerable speed and forcing the pods over the ribs and gradually lifting the pods without the peas over the upper edge of the concave *m* onto the shaker-plate *d*, the peas meanwhile having passed through the openings 22 in the concave *m* and openings between the meeting edges of the concaves *l* and *m*, the peas falling upon the delivery-incline *n* and being received into any suitable receptacle. The movement imparted to the yoke-bar *e* by the cam 11 and therefrom to the U-shaped plate *d* is a shaking or jiggling action tending to move the pods as received from the concave *m* upon and over the surface of the plate *d* and away, delivering the pods over the fingers 8 into a receptacle at the left-hand side of the machine. (See Fig. 3.) If the pea-pods are small, it is advantageous to bring the concave *l* nearer to the cylinder by the action of the adjusting-screw 18, which forces the upper edge of the concave nearer to the stops 20 on the heads, and in the movement of the parts should any pods be carried around with the cylinder and come against the under surface or edge of the feed-plate *c* the same will lift to allow the pods to pass by and to pass a second time into the machine, as the said feed-plate *c* rests freely upon the stop 6.

The construction of my improved pea-shelling machine is simple, no parts are liable to become misplaced, the parts, if damaged or broken in use, may be replaced with interchangeable parts, and the machine is comparatively inexpensive.

I claim as my invention—

1. In a pea-sheller, the combination with the heads or ends having openings forming bearings, of a cylinder comprising a rubber roller with an integral spiral rib, a cylindrical core, end journals or caps and a rod extending through the core and the end journals or caps and by which the said parts are securely clamped together, and devices coacting with

the said cylinder for effecting the shelling of the peas, substantially as set forth.

2. In a pea-sheller, the combination with the heads or ends having conical openings forming bearings, of a cylinder comprising a rubber roller with an integral spiral rib, a cylindrical core, end journals or caps and a rod extending through the core and the end journals or caps and by which the said parts are securely clamped together, said end journals or caps being of conical form, and a pinion clamped between one end of the rod and one end journal or cap, and an internal spur-gear meshing with said pinion, and a handle for rotating the parts, and devices coacting with the said cylinder for effecting the shelling of the peas, substantially as specified.

3. In a pea-sheller, the combination with the heads or ends having conical openings forming bearings, of a cylinder comprising a rubber roller with an integral spiral rib, a cylindrical core, end journals or caps and a rod extending through the core and the end journals or caps and by which the said parts are securely clamped together, said end journals or caps being of conical form, and a pinion clamped between one end of the rod and one end journal or cap and an internal spur-gear meshing with said pinion, a handle for rotating the parts, and a cam on the opposite end of the said rod, and a shaker device actuated thereby with the rotation of the cylinder for delivering the pods from the machine, and devices coacting with the said cylinder for effecting the shelling of the peas, substantially as set forth.

4. In a pea-sheller, the combination with the heads or ends having conical openings forming bearings, of a cylinder comprising a rubber roller with an integral spiral rib, a cylindrical core, end journals or caps, and a rod extending through the core and the end journals or caps and by which the said parts are securely clamped together, said end journals or caps being of conical form, and a pinion clamped between one end of the rod and one end journal or cap, and an internal spur-gear meshing with said pinion, a handle for rotating the parts, a cam 11 on the opposite end of the rod, and a shaker device comprising a yoke-bar *e* pivoted to the rod 7 of the machine, and an elongated U-shaped plate *d* also pivoted to the same rod of the machine, and a screw connecting the said yoke-bar *e* and the plate *d* and the plate made with downwardly-bent fingers 8 along its delivery edge, and devices coacting with the said cylinder for effecting the shelling of the peas, substantially as set forth.

5. In a pea-sheller, the combination with the heads and a revoluble cylinder having a rubber roller-surface and spiral rib, of a concave pivotally connected between the heads and adjustable in its relation to the cylinder and having on its inner surface ribs inclined in a direction opposite to the spiral of the cylinder, a second concave also connected be-

tween the heads of the machine, and means for supporting the same and ribs upon the inner surface of the second concave extending in the same direction as the spiral of the cylinder but at a greater inclination, substantially as set forth.

6. In a pea-sheller, the combination with the heads and a revoluble cylinder having a rubber roller-surface and spiral rib, of a concave pivotally connected between the heads and adjustable in its relation to the cylinder and having on its inner surface ribs inclined in a direction opposite to the spiral of the cylinder, a second concave also connected between the heads of the machine and means for supporting the same, and ribs upon the inner surface of the second concave extending in the same direction as the spiral of the cylinder but at a greater inclination, there being openings between the ribs of the second concave and between the meeting edges of the respective concaves through which the peas are delivered, and a delivery-incline beneath the concaves, substantially as set forth.

7. In a pea-shelling machine, the combination with the heads and a revoluble cylinder having a rubber roller with a surface spiral rib, of the concave *l* having ribs on its inner surface inclined in a direction opposite to that of the adjacent rubber spiral, said ribs being stepped off in their surface configuration, pivots 16 connecting one edge of the concave between the heads of the machine, stops 20 on the heads, a bar 17 pivoted between the two heads, and an adjusting-screw 18 passing through the bar 17 and bearing against the free edge of the concave *l* for adjusting the position thereof, substantially as set forth.

8. In a pea-shelling machine, the combination with the heads, and a revoluble cylinder having a rubber roller and spiral rib thereon, of the concave *m* having flanged ends, a rod 3 passing through the flanged ends and through the heads of the machine for connecting said concave between said heads, a second rod 3 upon which the free edge of the concave rests and is supported, said concave having on its inner surface spirally-arranged ribs extending in the same direction as the spiral of the rubber roller, but at a greater inclination and said concave having openings for the peas to pass through, substantially as set forth.

9. In a pea-shelling machine, the combination with the heads and a revoluble cylinder having a rubber roller and spiral rib thereon, of the concave *m* having flanged ends, a rod 3 passing through the flanged ends and through the heads of the machine for connecting said concave between said heads, a second rod 3 upon which the free edge of the concave rests and is supported, said concave having on its inner surface spirally-arranged ribs extending in the same direction as the spiral of the rubber roller, but at a greater inclination and said concave having openings for the peas to pass through, and stops 24 on the inner surfaces of the respective heads coming above

the upper surface of the concave at the ends thereof so as to lock the same between said lugs and the rods 3, substantially as set forth.

10. In a pea-shelling machine, the combination with the heads and stops 6 on the heads of a rod 7 passing across through said heads, a feed-plate *c* having end lugs through which said rod 7 passes for pivotally connecting the said feed-plate thereto between the heads, the free edge of the feed-plate resting upon the stops 6, substantially as and for the purposes set forth.

11. In a pea-shelling machine, the combination with the heads *a b* having ribs *a' b'* and lugs 25 upon their lower portions, of the curved delivery-incline *n* resting at its opposite edges upon the said ribs and having notches in said edges receiving the said lugs 25 whereby the said incline is held between and supported by the heads and movement thereof prevented, substantially as set forth.

12. In a pea-shelling machine, the combination with the heads, a revoluble cylinder and a cam on one end of the shaft of said cylinder, of a rod 7 passing across through the heads, a feed-plate pivoted to said rod, concaves surrounding the larger portion of the revoluble cylinder and means for supporting the same, a yoke-bar *e*, having a jaw receiving the said cam and pivoted to the said rod 7, an elongated U-shaped plate *d* also pivoted to the said rod 7 between the heads, and a screw for securely connecting the same to the yoke-bar *e*, said plate *d* having an edge in close proximity to the edge of one of the concaves and its opposite edge provided with downwardly-bent fingers whereby a shaking motion is imparted to the said plate *d* as the same receives the pods from the concave for

delivering the pods over the fingers of the said plate, substantially as set forth.

13. In a pea-shelling machine, the combination with the head *a*, of the head *b* and means for connecting the same together, a spanner *b'* integral with a prolongation of said head and adapted to pass over the edge of a table or point of support, a clamp-screw 4 passing up through the lower end of said spanner and said spanner being provided with a vertical mortise, and a plate having a portion thereof recessed to receive the end of the screw 4, and a portion formed as a fan-tail end and passing through the mortise of the spanner and engaging the same when occupying its normal position, whereby the said plate comes between the end of the screw and the point of support and is removably connected to the spanner to prevent accidental separation, substantially as set forth.

14. In a pea-sheller, the combination with the heads or ends having openings forming bearings, of a cylinder comprising a rubber roller with an integral spiral rib, a cylindrical core, end journals or caps and a rod extending through the core and the end journals or caps and by which the said parts are securely clamped together, and a pinion clamped between one end of the rod and one end journal or cap, and an internal spur-gear meshing with said pinion, and a handle for rotating the parts, substantially as specified.

Signed by me this 20th day of September, 1901.

LEWIS AUGUSTUS ASPINWALL.

Witnesses:

C. G. ROWLEY,

W. C. SHANAFELT.