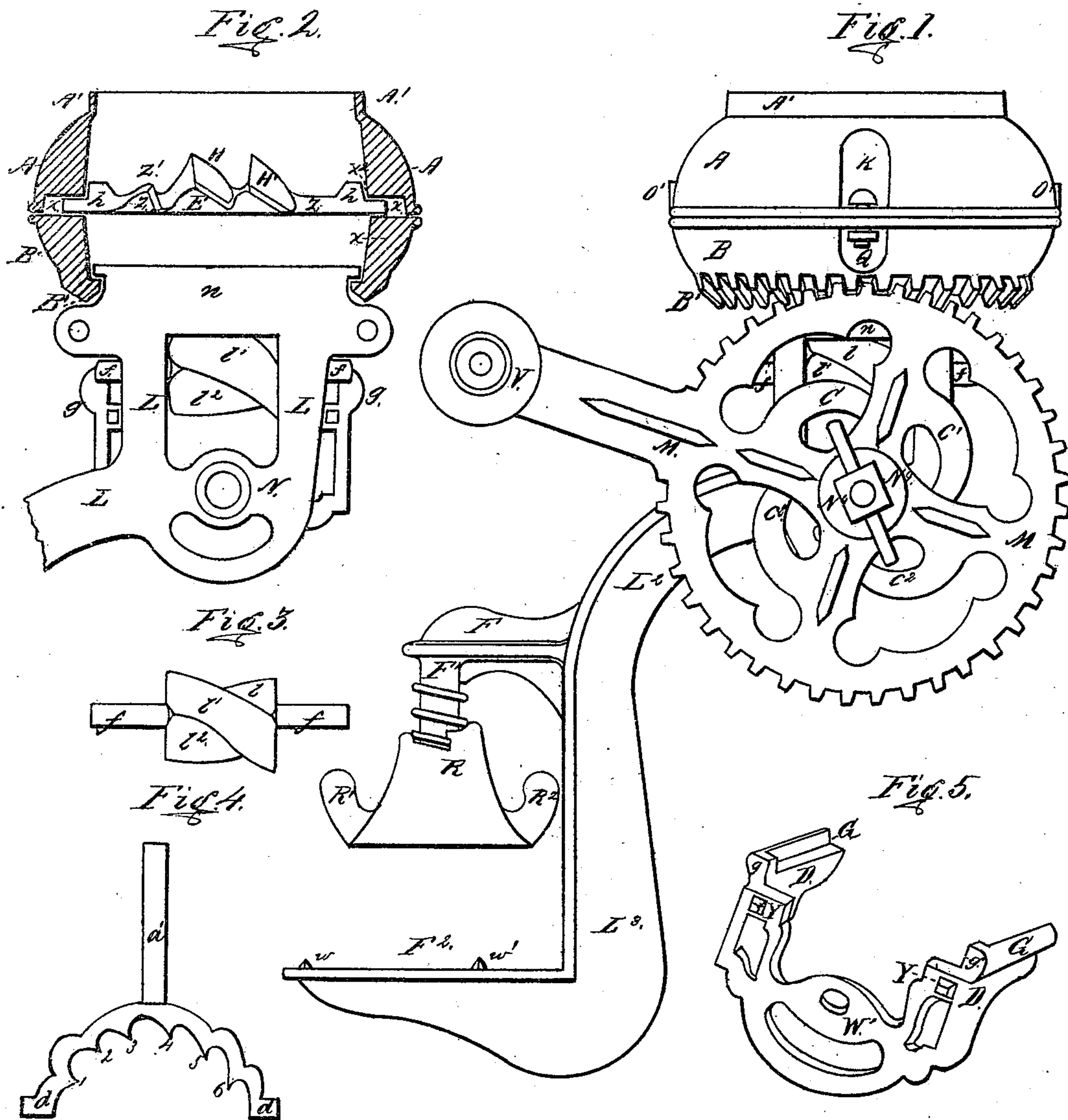


T. WEAVER.

Hand Corn-Shellers.

No. 133,346.

Patented Nov. 26, 1872.



Witnesses.
 Lewis Tress
 Peter Stricker.

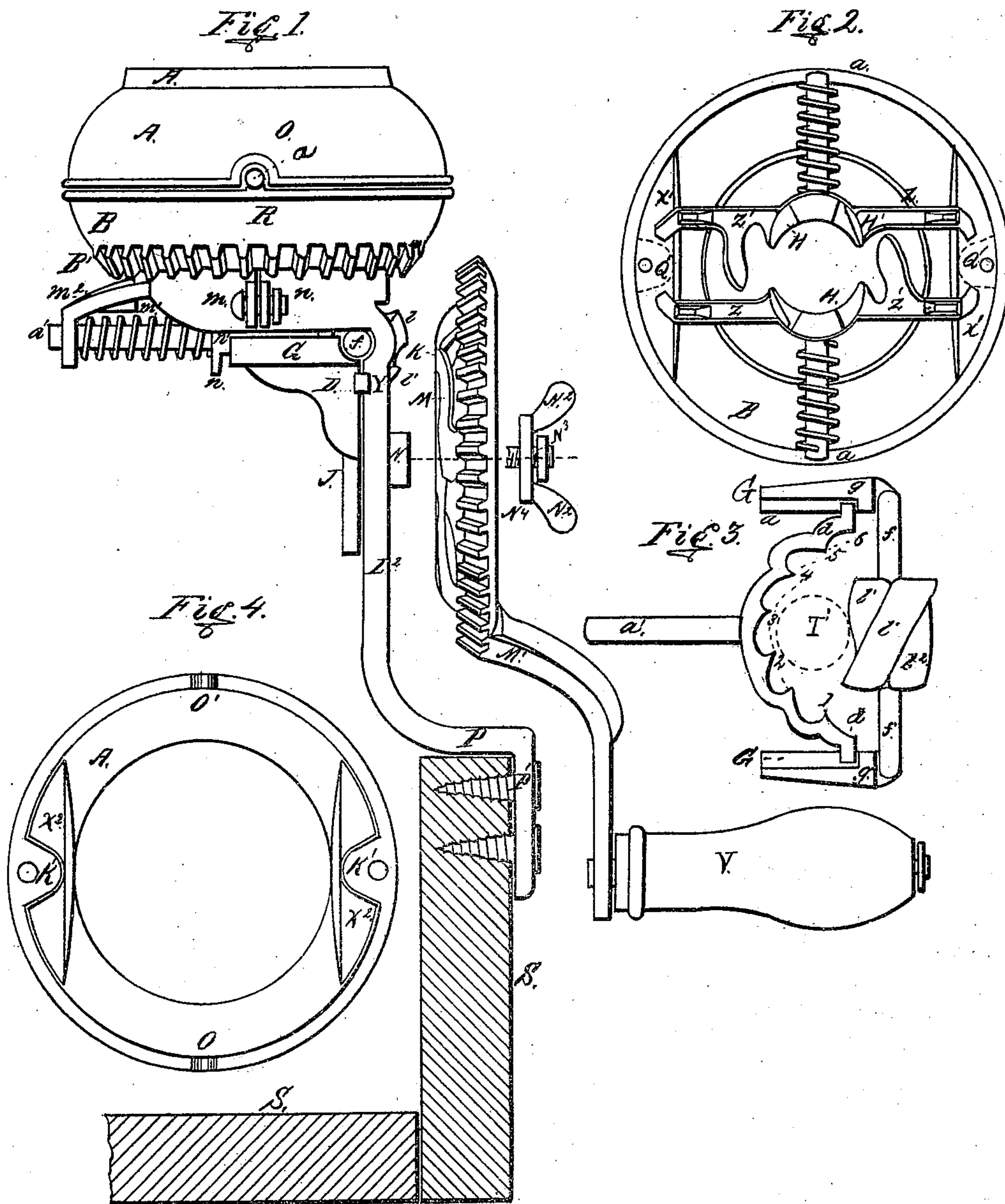
Inventor.
 Theophilus Weaver.

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 Peter Shuckers.

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 Theophilus Weaver.

UNITED STATES PATENT OFFICE.

THEOPHILUS WEAVER, OF HARRISBURG, ASSIGNOR TO WILLIAM A. MIDDLETON, OF NEWVILLE, AND GEO. WINTERS, OF HARRISBURG, PA.

IMPROVEMENT IN HAND CORN-SHELLERS.

Specification forming part of Letters Patent No. 133,346, dated November 26, 1872.

To all whom it may concern:

Be it known that I, THEOPHILUS WEAVER, of the city of Harrisburg, county of Dauphin, and State of Pennsylvania, have invented an Improved Hand Corn-Sheller, of which the following is a specification:

My invention consists, first, in a cob-ejecting device, composed of a spring-jaw acting in conjunction with a spirally-bladed roller, and this device itself acting automatically in conjunction with the shelling device; second, in a new mechanical movement, whereby the above conjoint action is effected; third, in a new machine-holder, composed of a screw-bearing bracket and a bell-shaped recessed nut; fourth, in certain modifications in the case-sections made to conform by embracing and supporting the shelling and cob-ejecting devices; fifth, in a cast-wrench washer.

In the accompanying drawing, Plate 1 represents as follows: Figure 1 is a front view of the sheller complete. Fig. 2 shows the globe hopper vertically bisected, disclosing one of the shelling-jaws in position therein, the driving-wheel and machine-holder being removed. Fig. 3 is a perspective view of the spiral roller. Fig. 4 is a top view of the cob-jaw. Fig. 5 is a perspective view of the trunk-plate. Plate 2 represents as follows: Fig. 1 is a side view of the sheller, showing the driving-wheel set off from its bearing. Fig. 2 is a top view of the shelling-jaws imposed in position on the lower section of the globe hopper. Fig. 3 is a top view of the cob-ejecting device. Fig. 4 is a bottom view of the upper section of the globe hopper.

General Description.

The globe hopper consists of two ellipsoidal shells or rings turned base to base, forming, when united, a globular swell at its middle. The upper section A may be topped with a band, A', and has in its lower edge cuts O diametrically opposite, and the lower section B has shoulders R made to match the cuts O, in such manner that when the sections are united round bearings are formed for the stems *a* of the shelling-jaws, as shown in Fig. 1, Plate 2; the shoulders also serve to keep the parts rightly imposed when the sections are hasped together by rivets or bolts K Q, Fig. 1, Plate 1. Said sections are provided interiorly with

parallel abutments $X^1 X^2$, made for the location and guidance of the limbs of the shelling-jaws, as shown in Figs. 2 and 4, Plate 2. The abutments are left short, in the upper section, to form slots X, as shown in Fig. 2, Plate 1, leaving their middle to stand down full in each slot as stops to limit the forward thrust of the shelling-jaws, as shown at K' Q', Figs. 2 and 4, Plate 2. The backward thrust of said jaws is limited by the globe shell, which closes the rear ends of the said slots, and they are limited sidewise by lugs *h* on their upper sides, as shown in Fig. 2, Plate 1. The lower section B of the globe has formed on its lower part a girdle of teeth, B', by which the hopper is driven, and it is supported on one side by the driving-wheel M, on which it revolves, and its diametrically-opposite side rides on an arm, m^2 , Fig. 1, Plate 2. It is kept imposed and balanced on these two supports by an interior flange-coupling, shown in Fig. 2, Plate 1. The two shelling-jaws are similar. They have each two vertical blades sheering toward the right, arranged so as to stand nearly at tangents to the central opening, and to have a slightly-flaring pitch outwardly from said opening to conform to the taper of cobs which are presented point foremost, and may or may not have oblique winding lips E E' on the side toward the central opening, as shown in Fig. 2, Plates 1 and 2. Said jaws have formed on their insides guards Z', arranged centrally outside of the circle of the shelling-blades, whose office is to keep the cob in the center between the shelling-blades, said guards being dished spirally downward and inward so as to have little friction on the cob when it is thrust against them.

The office of the cob-ejector is to prevent the rotation of the cob and to draw it regularly downward while the shelling-jaws are spinning around it. The parts composing it—namely, a spring-jaw, a spiral roller, and a trunk-plate—are shown, respectively, in Figs. 3, 4, and 5, Plate 1, and are combined, as shown Figs. 1 and 3, Plate 2. The spring-jaw, having a rear stem, *a'*, for the support of a coiled spring and for guidance, a scalloped arch provided with teeth 1, 2, 3, &c., pitched sidewise therein, and strikes or guides *d* at the ends of the arch, is presented at right angles to the roller, and in the plane of its axis,

in such proximity to it that a small cob-point, T' , may be inserted between said teeth and roller, as shown in Fig. 3, Plate 2. The jaw is supported at its rear end by the stem a' through an arm, m^2 , on the minor section of the sheller-case, as shown in Fig. 1, Plate 2, and is supported at its front end by slides G , in which its guides d vibrate. The cross-edges g , at the head of the slides G , stop the guides d . A lip on the middle of the arch stops the back thrust of the jaw against a stop, m^1 , beneath the arm m^2 on the minor section. The spiral roller has several blades, l , l^1 , l^2 , &c., twisted partially around it according to the number of blades—*e. g.*, three blades require one-third-way round twist, four blades require one-fourth-way twist, &c. The hub of the roller is made thick enough to let the blades thereon protrude through the major section or frame of the case, as shown in Fig. 1, Plate 2, and into the cams of the driving-wheel made for their propulsion, as shown in Fig. 1, Plate 1, and said hub is long enough to fill the space between the studding L of the two-parted standard, as shown in Fig. 2, Plate 1. The axle of the roller f is made long enough to span the trunk-plate guide-boxing, between which and the standard-studding it has its bearings, as shown in Figs. 1 and 3, Plate 2. The trunk-plate jams up to the case bottom, and thus limits the vertical play of the spring-jaw, and is clamped against the inside of the standard by a bolt through the hub N , which also connects the driving-wheel, as indicated in Fig. 1, Plate 2, by a jam-nut on the face of said hub. Said trunk-plate is in form of a double bracket, as shown in Fig. 5, Plate 1, that its sides may shield and not hinder the exit of grains of corn below.

The two foregoing devices for shelling and ejecting simultaneously are operated by the double driving-wheel M , whose periphery is an ordinary bevel-gear to actuate the globe in which is carried the shelling device, and whose inner part is provided with a circle of cams to actuate the spiral roller, which is the positive feature of the ejecting device. The wheel M is boldly dished, so that the interior and exterior gears do not interfere with each other in their planes of communication. The movement effected by said circle of cams, in connection with a roller, hub, or pinion, provided with spiral blades or teeth, is new and peculiar, and is here specially described, as its use is not limited solely to this purpose. The cams C C^1 C^2 C^3 , shown in Fig. 1, Plates 1 and 2, are laminate, eccentric, and complementary. They are laminate because they overlies each other, heel to point, in the circle of cams—that is, the front end of each cam overlaps the rear end of the preceding cam, so as to make a riser at right angles to the face of the wheel, as shown at K , Fig. 1, Plate 2. They are eccentric in relation to the center of the circle of cams—that is, the front end of each cam is nearer said center than its rear end by the eccentricity of the curve which traces the

edge of the cam, so that each cam in traversing a blade or groove on the roller effects a definite, positive, outward motion from the center of the circle of cams equal to the eccentricity. They are complementary—that is, they overlies each other or laminate so far that at the instant the eccentricity of each cam is fully exerted the succeeding cam has already efficiently engaged the succeeding spiral blade or groove of the roller. The motion is overshoot, and from the driver, and non-reversible. The spiral blades may be sharp, as herein shown, or may be blunt and thick, it being requisite only that a well-defined groove be made between them for the sliding travel of the cams. The subdivision of the circle into cams and of the roller into spirals may be varied to any ratio from unity. The movement is, therefore, a power or speed multiplied at pleasure. The more cams for a given number of spirals the greater the speed of the roller, and, vice versa, the greater the power. The machine-holder, as shown in Fig. 1, Plate 1, is composed of the standard L^2 L^3 , having a foot, F^2 , below, and a bracket, F , above, thereon. The bracket has formed on it a pendent screw, F^1 , to which is coupled a bell-shaped nut, R , having thumb-pieces R^1 R^2 near its flaring lower margin, and being recessed deeply beneath to admit the screw into it when the nut is driven up, and to clamp an ordinary board or plank between it and the foot F^2 when it is driven down. The upper part or crown has only one strand of thread cast therein, and the rim below is serrated or made ratchet-faced, to prevent undoing when the machine is at work. For the same reason the foot F^2 has spurs W W' thereon to take a firmer hold. Holes may be made in the sides of the nut for the insertion of a wrench-bar to do and undo the nut, instead of the thumb-pieces. The parts are made complete in casting. The minor and major sections m n of the case are cut semi-cylindrical shells, hasped together oppositely and adapted, as stated, to receive and support the shelling and ejecting devices. The major section or frame has a broad platform about the hub N , as shown in Fig. 2, Plate 1, to guide the driving-wheel firmly; said platform branches off into the standard, terminating in the screw-holder, as described. The washer shown in Figs. 1, Plates 1 and 2, consists of a disk, N^4 , has an eye to pass the threaded bolt through it loosely, and has thumb-pieces N^2 on opposite sides of the disk, whose bases admit nut N^3 snugly between them. The device is a convenient driver for a nut, and here acts also as a keeper for the wheel M .

What I claim as my invention is—

1. The shelling-blades H H^1 , in combination with the side guards, when arranged to curb the cob toward the center, substantially in the manner described and shown.
2. The cob-ejecting device, constructed substantially as above described, composed of the spiral roller l l^1 l^2 l^3 f , and the spring-jaw a' d d , in combination with a rotary shelling

device, operating as described, and herein set forth.

3. The machine holding and clamping device, consisting of the standard $L^2 L^3$, the clutch F^2 , the bracket F provided with the screw F^1 , and the bell-shaped recessed nut $R R^1 R^2$, all constructed and arranged to operate substantially as shown and described.

4. The cogged driving-wheel $M M^1$, when provided with the eccentric cams $C C^1 C^2 C^3$ on its face, in combination with the spirally-bladed roller or pinion $l l^1 l^2 f$, and the cogged belt B' of the globe hopper, arranged to operate substantially as herein set forth.

5. The inner circle or wheel of cams $C C^1 C^2 C^3$, constructed as described, in combination

with the spirally-bladed roller or pinion $l l^1 l^2$, &c., substantially as and for the purposes specified.

6. The arm m^2 , on minor-case section, in combination with the trunk-plate G , and major-case section, all constructed to support the cob-ejecting device, substantially as herein set forth.

7. The wrench-washer, as constructed, with disk N^4 , thumb-pieces N^2 , and seat for the nut N^3 between the thumb-pieces over the eye of the washer, as herein set forth.

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Witnesses:

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