T. WEAVER.

Corn Sheller.

No. 94,050. Patented Aug. 24, 1869.

Fig. 1,

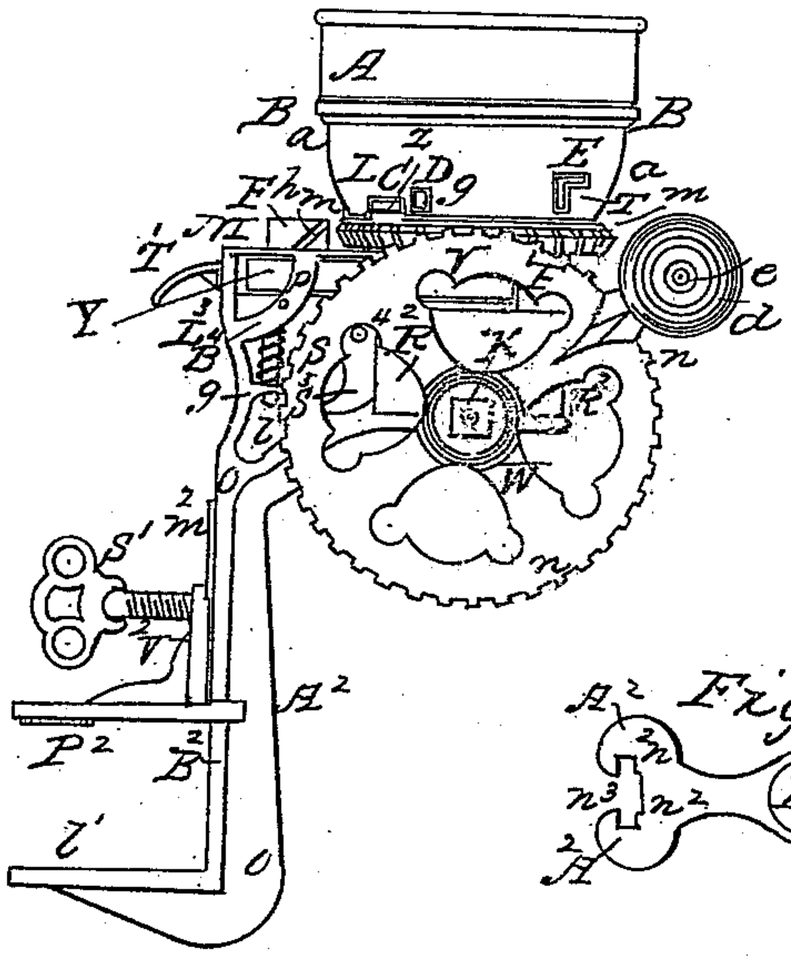


Fig. 2,

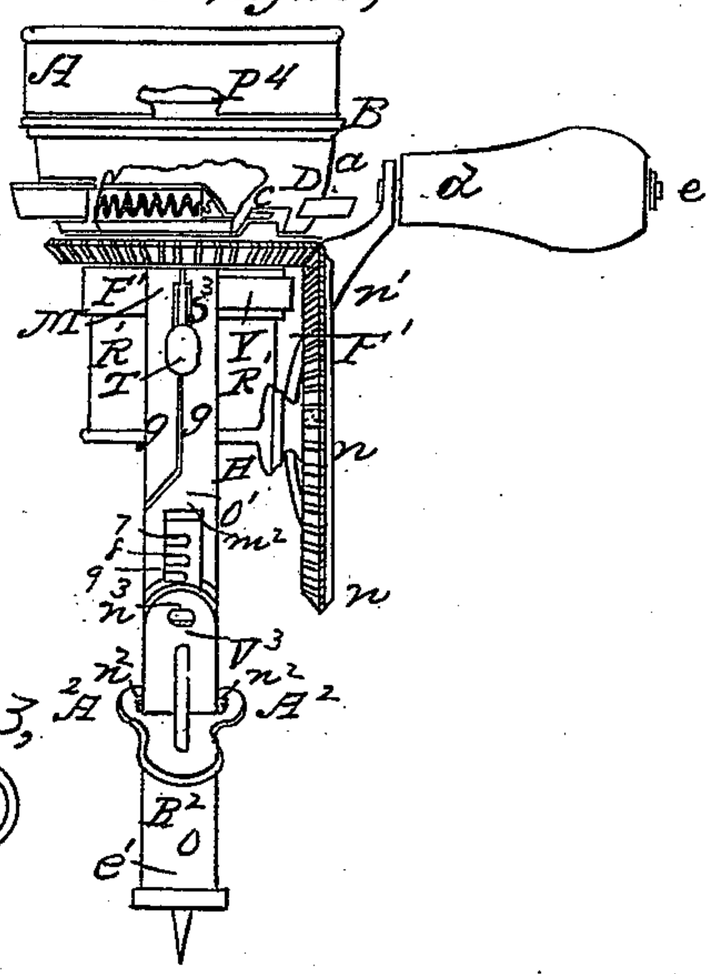


Fig. 3,

Fig. 4,

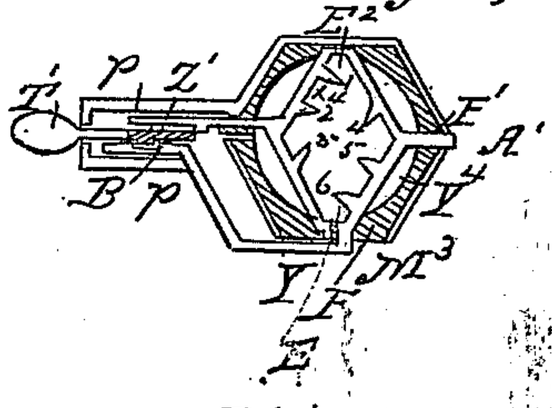


Fig. 5,

Fig. 6,

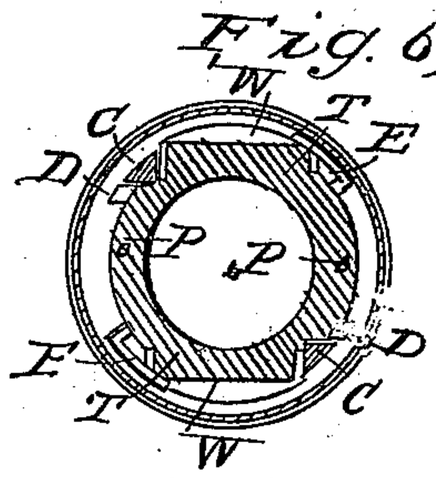


Fig. 7,

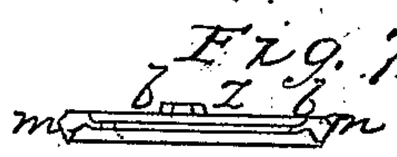


Fig. 8,

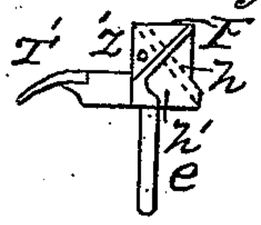


Fig. 9.

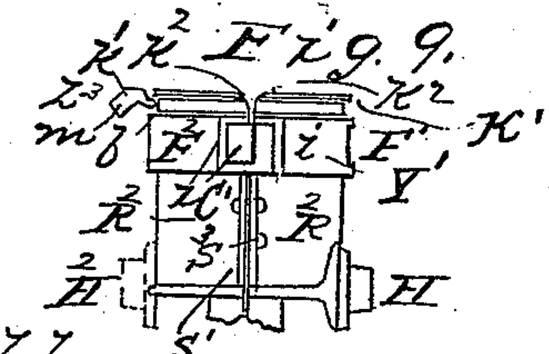


Fig. 10

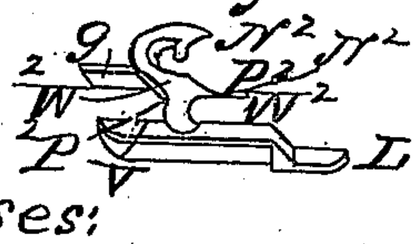
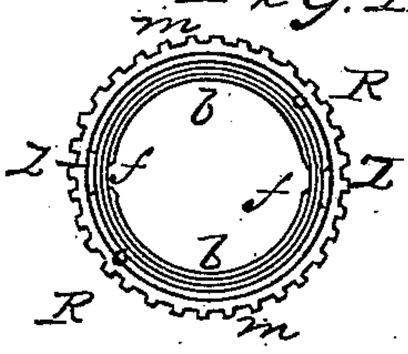


Fig. 11,



Witnesses;
Robert A. Johnston.
F. W. Haas.

Inventor
T. Weaver

UNITED STATES PATENT OFFICE.

THEOPHILUS WEAVER, OF HARRISBURG, PENNSYLVANIA.

IMPROVEMENT IN CORN-SHELLERS.

Specification forming part of Letters Patent No. **94,050,** dated August 24, 1869.

To all whom it may concern:

Be it known that I, THEOPHILUS WEAVER, of Harrisburg, county of Dauphin, and State of Pennsylvania, have invented a new and Improved Corn-Sheller; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a perspective side view of the machine. Fig. 2 is a perspective edge view of the same. Fig. 3 is a bottom view of the sliding clamp of the holder. Fig. 4 is a plan of the eduction cob-rack. Fig. 5 is a top view of the revolving feed-cone and the two similar sheller-jaws. Fig. 6 is a top view of the same with the jaws removed. Fig. 7 is a sectional view of the miter-gear connecting-ring. Fig. 8 is a side view of the eduction trip-slide. Fig. 9 is a sectional view of sheller-case body. Fig. 10 is a perspective view of a sheller-jaw. Fig. 11 is a top view of miter-gear connecting-ring.

I style this sheller "The Little Giant," and its nature is such as to constitute a cheap, neat, and efficient household machine for cutting or shelling dry or green corn off the cob with ease and without scattering of the grains. It consists of a case and a holder combined, a cob-rack and trip-slide, a revolving feed-cone and two jaws, and a propelling and an annular connecting miter-gear wheel, all so constructed and arranged as to require no machine-work in erecting the machine.

The case-body R^2 F′, as shown in Figs. 1, 2, and 9, consists of two almost similar halves bolted or riveted together at S^4, and oppositely at the parting-line, through hasps, as shown in Figs. 1 and 9. The lower ends of said sections are vertical semi-cylinders, to which are attached the hasps and a branch of the holder-frame O^2, Fig. 1, and the upper ends are also semi-cylinders surmounted with an external flange which is flush with the top of the tube, and is cut rounded at the case-parting, thus forming the lips K^2, as shown in Fig. 9, for the purpose hereinafter explained. At a distance less than the thickness of the miter-gear connecting-ring *m b*, Figs. 7, 11, and 9, the sections of the case-body are swelled out into semi-hexagonal abutments F′ F′, thus forming an internal bench above R^2, Fig. 9, on which are arranged the clutches of the cob-rack X^4 Y^4, as shown in Fig. 4. The walls of the hexagonal chamber are cut at F′ to form a bearing for the guide A′ of clutch Y^4, and at C′ to make a clearance for the limb of clutch X^4, and at M^3 for a clearance for limb of clutch Y^4. On the outside, near the lower end of the semi-cylinder, is formed a hollow spindle, H, and may be formed a similar spindle, H^2, on the opposite section, for the attachment of the miter propelling hand-wheel *n n′ d*, as shown in Figs. 1, 2, and 9. Said wheel is made to stand parallel to the plane of the case-parting, and has a depressed hub to revolve clear of the chamber-wall F′ and to match the miter-gear *m*, as in Fig. 2. It is attached to spindle H by means of a stove-bolt, nut, and washer, said spindle being of such length and thickness as to receive the washer on its face, clamped rigidly by the nut, while the wheel is left to play freely on said spindle, guided by the washer and the base of the spindle in its plane. For chair or other seat attachment of the machine, the wheel is attached on spindle H, as shown in Figs. 9 and 2. For stand attachment, the wheel must be attached on spindle H^2, Fig. 9, as the case must stand away from such stand to let the cob out of the case below, and the motion of the wheel must not be reversed in shelling.

The holder-frame L^3 B^4 *g* O^2, Fig. 1, is also divided vertically into two similar sections, as shown in Fig. 2, and each section, as shown in Fig. 1, has two branches, M O^2, which extend laterally from the line of the standard O O′ to join the case-body, branch O^2 making a detour upward to the lower end of said body and branch M a direct approach to the wall of the hexagonal chamber F′, as shown in form and position, cross-section, at *i i*, Fig. 9, at right angles to said wall and to said standard. The said standard, from O′ up to the top of the frame, is also divided into two trunks. Said trunks make a detour above O′, to receive arms *g* on the inside of the frame for the support of a coiled spring and for a bearing for the stem *l* of the eduction trip-slide, as shown in Fig. 1. Farther up each of the trunks is massed into a brace, B^4, which spans across the angle to branch M, and has a pin, *p*, on its inside, and serves, in connection with the similar brace on

the other trunk and the trip-slide, to form a frame-work beneath branch M, for the insertion, support, and guidance of the limbs of the clutches of the cob-rack, as shown in Fig. 4, and hereinafter explained. In the trunk-parting is formed a slot, which the stem T′ of the trip-slide traverses up and down, as shown in Figs. 1 and 2, and in which said slide is partially guided and stopped, a slot in the branch M parting also receiving and guiding the blade of the same, as shown in Figs. 1 and 8 at F. The division of the standard into trunks is carried down to O′, that the breech A^2 n^2 n^3 of the clamp, Fig. 3, may be entered in place on the standard before the sections of the case are bolted together, as shown in Fig. 2, and not be removable until the case is parted. The standard is made of a main front bar, B^2, a short grooved ledge, m^2, in front of it, and a rear brace, O, terminating in the usual foot, l', below, but without a set-screw, as shown in Fig. 1. The cut n^2 n^3 n^2 in the breech of the clamp, Fig. 3, is made to fit the cross-section of the standard loosely, allowing the foot P^2 to cant, when a set-screw, S′, through the arm V^2 vibrates the clamp, the claws A^2 A^2 acting as a fulcrum, while the point of the screw S′ in grooves 7, 8, 9, &c., of ledge m^2, Fig. 2, fixes the action at any desired point on the standard, thus rendering the holder capable of a great range of adjustment. Moreover, this clamp is harmless to furniture to which it may be attached, as the foot P^2 can be let down on a pad and then compressed, as above recited, without permitting a screw to come in contact with articles to which it is attached. It is in principle a sliding bell-crank lever, and its breech or fulcrum is cut into claws A^2 A^2 for the purpose of entering it on this holder, as specified; but it can be used on other machines and implements where no permanent connection is required with the standard, and the breech can then be made into a cavity. The grooves 7, 8, 9, &c., are cast shut at the end toward which the screw-point travels, to prevent its walking out of the groove. The arm V^2 is recessed to match the ledge m^2 loosely to insure a steady action in sliding the clamp.

The miter-gear connecting-ring *m m*, Figs. 7, 11, and 1, has two lugs, Z, formed on its upper side, which are made to fill recesses under the feed-cone *a a*, Figs. 1 and 2, to add strength and firmness to the rivet or bolt connection which it has with said cone through holes at R, Fig. 11, and at P, Fig. 6. Said ring has an internal flange, *b b*, Fig. 7, about midway in its body, which is the bearing for the ring, and therefore of the feed-cone around the neck of the case-body F′ R^2, beneath the flange K′, as shown in Fig. 9. The connection of said ring with the neck of said case-body is a hinged locking-swivel, and it is effected as follows: The internal flange, *b b*, Fig. 11, is formed into two segments by diametrically-opposite scallops *f f*. The one section of the case-flange K′ is readily entered through said scallops by turning to the line or diameter of the scallops. The other section can then be entered only by opening the lower case parting like hinge-leaves, thus allowing the rounded lips K^2 K^2 to shorten the diameter of the neck of the case and to slide the section to its proper place. When the sections are thus entered and brought in parallel position and bolted together, as shown in Fig. 9, the connection is complete. Said ring is held up to its proper position on said neck beneath flange K′ by its bolted connection with the bottom of the feed-cone, which rests and revolves upon said flange K′, and is guided and propelled by said ring. Said feed cone or bowl *a a*, Figs. 1 and 2, has a base of nearly the same diameter as the upper face of the connecting-ring *m m*. Its wall rises with a gentle outward swell to a bead, B, on which is formed a slightly-tapering standard, P^4, on which is mounted a sheet-metal rim, A, by a cap-joint. The perforation in the floor of the feed-cone, as shown in Fig. 6, is as large as the bore of the cylindrical part of the case-body, which is large enough to emit the cob and shelled corn through it at the same time. At opposite points on the cone-floor are formed two similar quadrantal abutments, C C, Fig. 6, recessed beneath to form bearings for the reception of the sheller-jaw front guides, L L. (Shown in Figs. 10, 5, and 2.) Parallel with said bearings and with each other are formed against the cone-wall two arched abutments, W′ W′, Fig. 6, whose straight edges rise above the cone-floor high enough to come flush with the rectangular wing V of the shellers, as shown in Figs. 5 and 6. At the front ends of said edges are formed two rests or stops, T T, gaged in height and breadth by the cross-section of the recess of said wings V V, which they traverse at right angles, as shown at T, Fig. 1, thus forming, in connection with said wings and abutments W′ W′, spring-chambers, from T to S, as shown in Fig. 2. The cone-wall is also perforated to the rear of the rests T T by rectangular cuts E, to emit said wings V V in shelling, as shown in Fig. 2. The cone-wall is also perforated adjacent to the abutments C C by rectangular cuts D D, to receive, guide, and emit the rear sheller-guides, *g g*, as shown in Figs. 10, 5, 2, and 1. Said parts and perforations are all similarly formed, so that the similar jaws can be inserted miscellaneously, and when inserted the guides, abutments, and bearings are so formed and arranged that no loose grains will hinder the precision of action in the sheller-jaws. Said sheller-jaws proper are raised above the cone-floor to clear a passage for the shelled corn, as shown in Fig. 10. To effect this the rectangular rear guide, *g*, is bent up in front like a runner, and the heel of blade N^2 is massed on its top. On the opposite side of the jaw the tip of blade N^3 is massed on a sharp curved pedestal, which stands on the inner edge of the spring-shuttle V L in such relative height that heel of blade N^2 and tip of blade N^3 will overlie or clear each

other, as shown in Fig. 5. Guide *g* and shuttle V L are parallel to each other, and their lower edges are in the same plane. The jaw, it will be observed, has two semi-elliptical spiral cuts, W^2, one near the middle, the other on the shuttle side, formed partly by the curve of said pedestal. These cuts are so made to facilitate the induction of the corn-ear, which enters from above. The blades N^2 N^3 have underneath them transverse blades P^2, which do the cutting, while the former do the winding.

To enter the jaw and its coiled spring in the feed-cone, the spring is inserted in the recess of the shuttle V L, and the shuttle-wing V is then entered in the recess of the cone-wall, made for it over the rest T, in such manner that said rest takes the spring before it while said wing and guide *g* are entering their recesses or bearings. The jaw is then pressed back far enough to enter the front guide, L, laid down on the cone-floor, and allowed to fly to its place under C by the action of said spring and guides, as will appear by reference to Figs. 10, 6, 5, 2, and 1. The tension of the spring and the length of the throw are such that the jaw will remain in place and working order without a stop for ordinary shelling or cutting. If a stop is needed to limit the throw of the jaw, it can be inserted either on the shuttle-wing or on the cone-floor. This mode of constructing and inserting the jaws is employed to make them removable for the purpose of sharpening them when dull without the necessity of taking the machine apart.

The handle of the driving miter-wheel *m m* stands out from its rim to clear the guides of the jaw when they are pressed out in shelling, as shown in Fig. 2.

The eduction cob-rack, as above recited, is located mainly in the hexagonal chamber of the sheller-case F′ F′, Figs. 9, 4, 1, and 2, and it is placed as near up to the sheller-jaws as possible, in order to grasp the cob as soon as possible after its point is shelled. The mechanism connecting the feed-cone with the case-body is therefore massed and compact, as shown in Fig. 1. Said cob-rack, as shown in Fig. 4, consists of two nearly semi-hexagonal clutches, X^4 Y^4, having their shortened sides parted at E^2 E^2 on the hexagonal abutment, on which said sides slide and on which they are guided by the case-walls. Said clutches are provided internally with tines 1 2 3 and 4 5 6, which are slightly rounded above, and are so inclined as to strike the cob inside of the tangential line, and thus, by impinging on its nap, to resist its revolution while the grains are being shelled or cut off its other part in the jaws above; and said tines are rounded to allow the cob to freely enter said clutches and to pass through between them impelled by the action of the jaws in winding around it. Clutch Y^4 has a rear guide, A′, and a bent link, Y, which passes out of the case through a slot at M^3 and returns and enters the holder-frame, as stated. The clutch X^4 has a straight limb, which, on the other side of the case-parting, also enters said frame parallel to the other limb. At a little distance from the outer ends of said limbs ledges are formed on their upper edges, in which are nicks Z′ and B′. Said nicks are so spaced in relation to each other as to receive the counteracting ledges F and *h* of the trip-slide. (Shown in Fig. 8.) Said trip-slide, Fig. 8, has a vertical blade mounted on a spiral spring-stem, *l*, at its lower left angle. Above said angle, on the left side of the blade, and at right angles to it, is formed a guide, which terminates in the thumb-trig T′. Said blade has two ledges, F and *h*, arranged cruciform on opposite sides, whose inclination is such as to regulate the throw of the limbs of the cob-rack, as already stated, and said blade is of such thickness as to fill the space between the ledges on said limbs loosely, while the guide fills the slot S^3, Fig. 2. Said slide is inserted so as to take on its stem the spring in position, as shown at T′ *l*, Fig. 1, and said clutches are inserted in their places before the case is closed. The external trig is employed to eject the cob instantly, with a downward plunge on T′, after it has passed the sheller-jaws. In the slide-blade is a hole, Z′, for a pin, which, if inserted after the trig is forced down, locks the cob-rack open, which, in some cases, may be desirable, as an ear can be easily conducted through the sheller without the use of the rack; but to cut corn off the cob while it is yet hot from boiling it, the rack will be indispensable.

It should yet be observed that this sheller does not scatter the grains, as the rim A on the feed-cone *a*, Fig. 1, collects all the grains, which are then passed down through the case-body and there properly delivered. All its operations have been recited, and its merits are too obvious to need further comment.

I hereby disclaim the central semi-elliptical spiral cut in the sheller-jaws, also the blades, as those have already been claimed by my patent of July 6, 1869; but

What I desire to secure by Letters Patent of the United States is—

1. In a sheller-jaw of two blades, N^2 N^3, the shuttle V L and the crooked rear guide, *g*, arranged substantially as and for the purpose herein set forth.

2. The combination and arrangement of the shuttle-wings V L with benches W′ and rests T, substantially as and for the purpose herein set forth.

3. Constructing the base of cone *a* with spring-rests T, benches W′ C, and cuts D, all arranged as herein set forth.

4. The sliding clamp A^2 P^2 V^2 S′ n^2 n^3 and standard B^2 m^2 *l*′, constructed and arranged to operate substantially as and for the purpose herein shown and described.

5. Constructing frame O^2 B^4 M *g* S^4 as and for the purpose specified.

6. Constructing case-body R^2 F′ K′ K^2 H as and for the purpose specified.

7. The eduction cob-rack X^4 Y^4 X Y A′ and

trip-slide T′ F *h l*, arranged to operate substantially as herein described.

8. The locking-swivel connection of miter-gearing *m* with case-body, as and for the purpose specified.

9. The combination and arrangement of miter-gear *m* with feed-cone *a*, and with hand miter-wheel *n*, substantially in the manner as and for the purpose herein set forth.

THEOPHILUS WEAVER.

Witnesses:
ROBERT A. JOHNSTON,
G. W. HAAS.