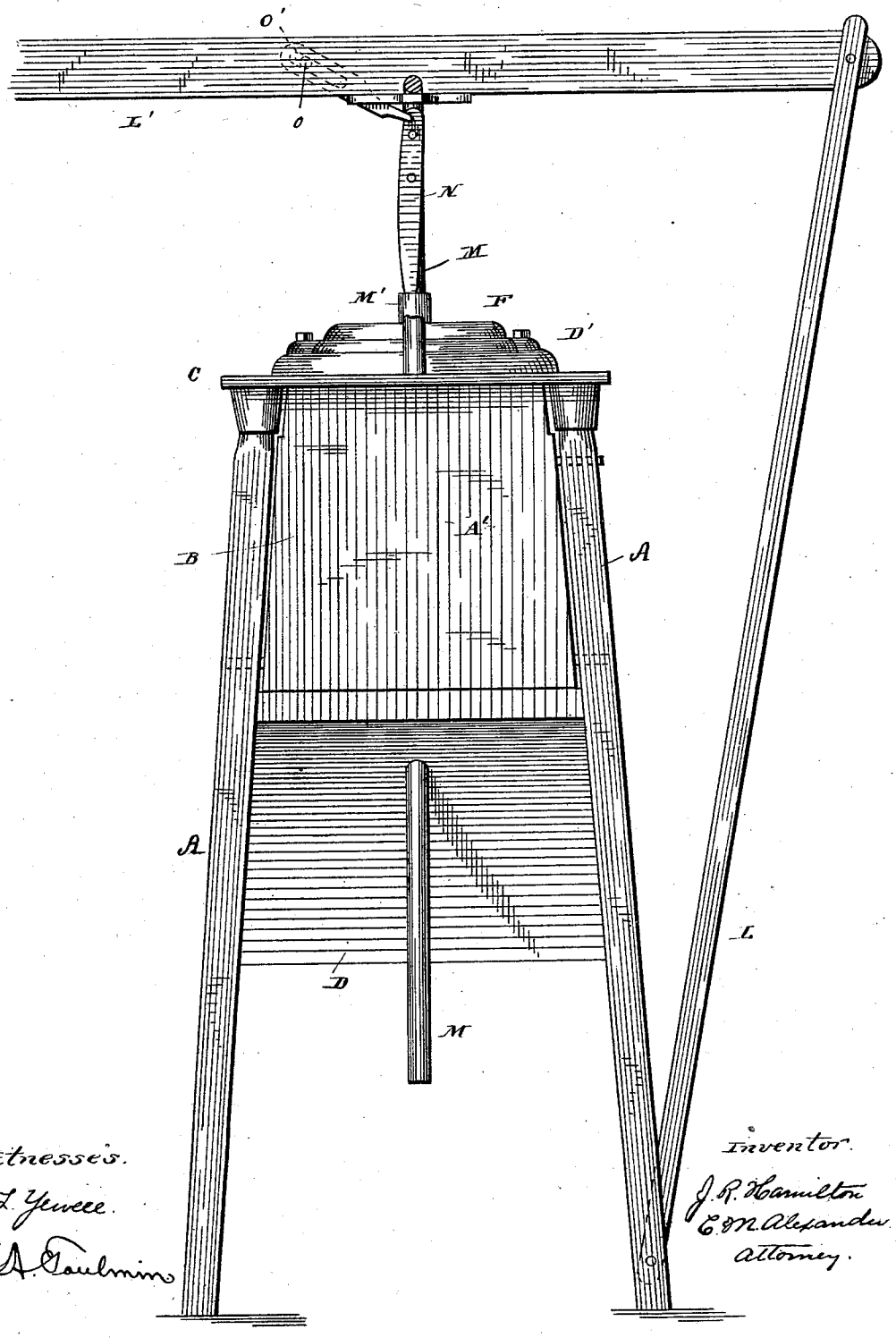
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J. R. HAMILTON.

CORN SHELLER.

No. 281,868. Patented July 24, 1883.

Fig. 1.



Witnesses.
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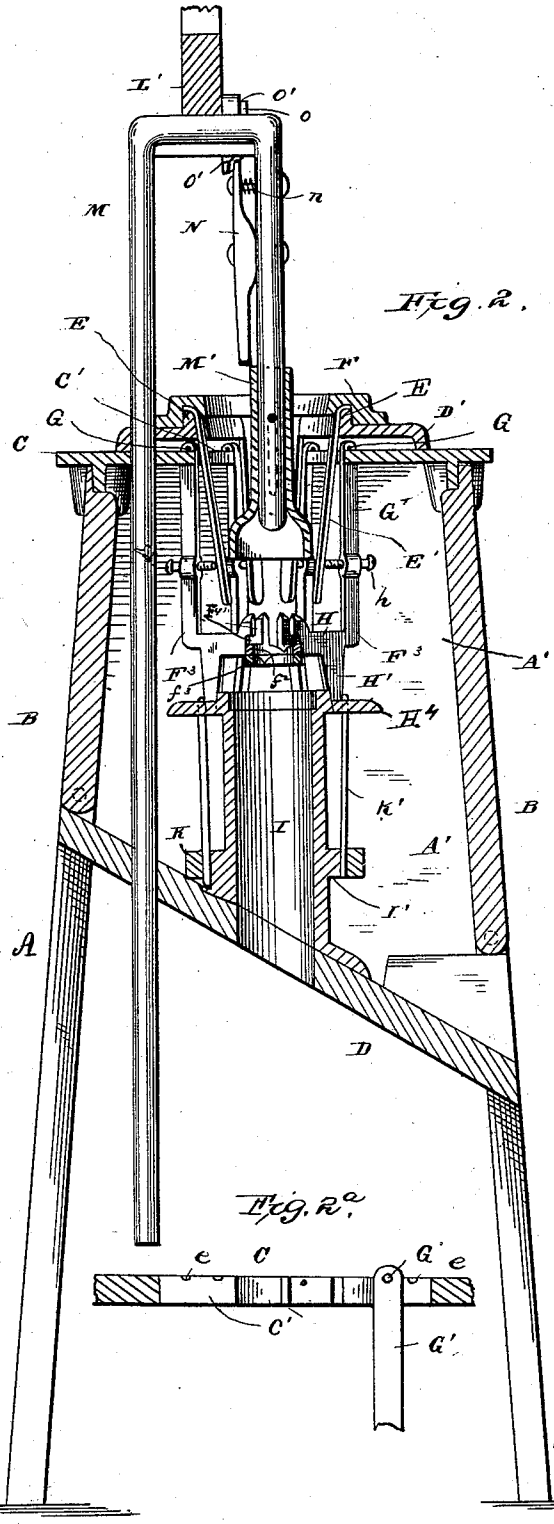
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CORN SHELLER.

No. 281,868. Patented July 24, 1883.

Fig. 3.

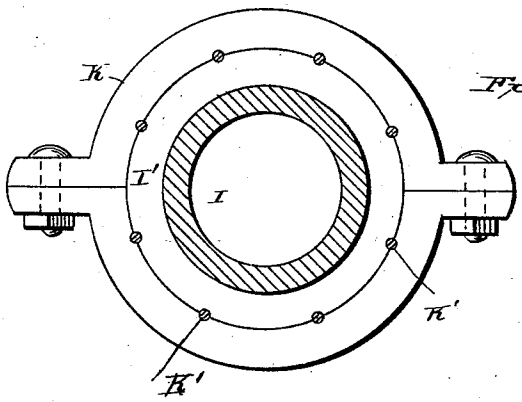


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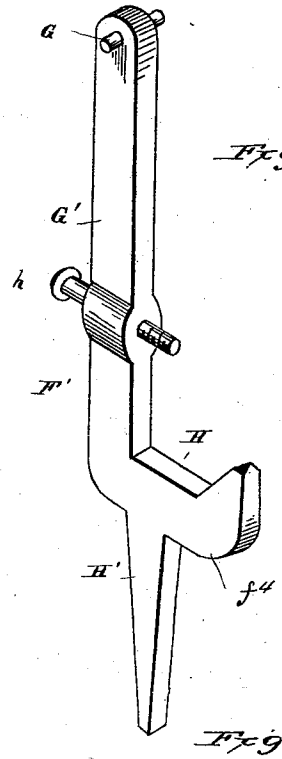


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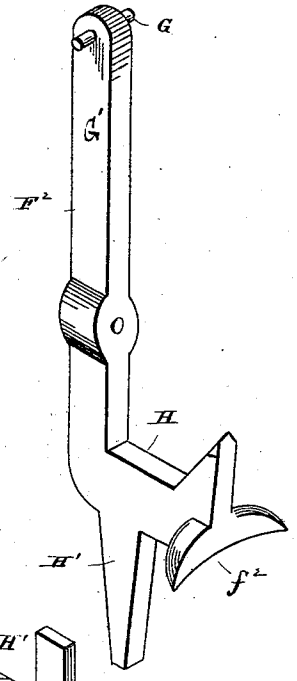


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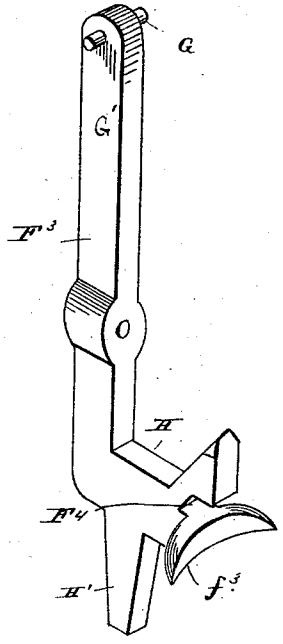
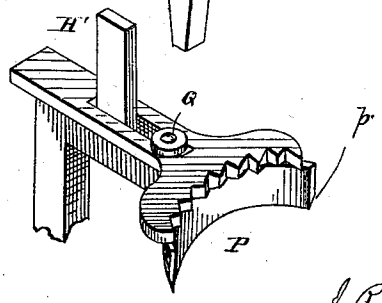


Fig. 7.



Witnesses.

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(No Model.) 4 Sheets—Sheet 4.

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CORN SHELLER.

No. 281,868. Patented July 24, 1883.

Fig. 8.

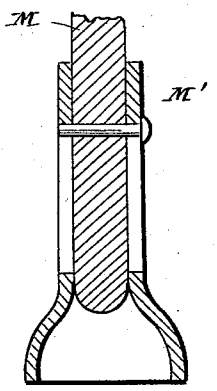


Fig. 9.

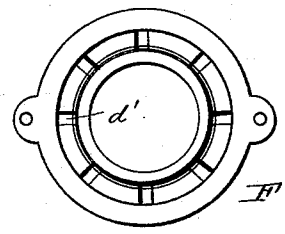


Fig. 10.

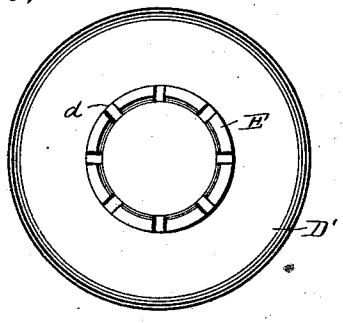


Fig. 11.

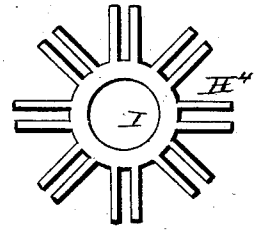
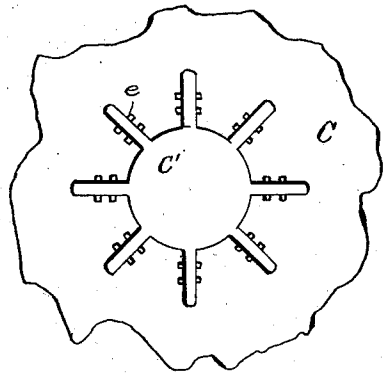


Fig. 12.



Witnesses.
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By C. M. Alexander
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UNITED STATES PATENT OFFICE.

JONATHAN R. HAMILTON, OF KINGSTON, MINNESOTA.

CORN-SHELLER.

SPECIFICATION forming part of Letters Patent No. 281,868, dated July 24, 1883.

Application filed March 7, 1883. (No model.)

To all whom it may concern:

Be it known that I, JONATHAN R. HAMILTON, a citizen of the United States, residing at Kingston, in the county of Meeker and State of Minnesota, have invented certain new and useful Improvements in Corn-Shellers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in corn-shellers, and it has especial reference to that class which is known as "reciprocating shellers;" and it consists in the peculiar arrangement and construction of the several devices, as more fully hereinafter pointed out, and specifically stated in the claims.

In the accompanying drawings, forming a part of this specification, and on which like letters of reference indicate corresponding features, Figure 1 represents a side elevation of my improved corn-sheller, the shorter arm of the plunger and a portion of the hand-lever being broken off; Fig. 2, a vertical sectional view of the same, showing more clearly the construction and the relative arrangement of the operating parts; Fig. 2ª, a sectional view, showing a portion of the cover and one of the cutters; Fig. 3, a horizontal sectional view of the discharging-tube, showing in plan elevation the annuli employed for the purpose of supporting the pressure-springs. Figs. 4, 5, 6 represent, respectively, a perspective view of the cutters which are used for shelling dried corn; Fig. 7, an inverted perspective view of the cutter and scraper employed when it is desired to shell green corn; Fig. 8, a detail sectional view of the plunger-cup and a portion of the plunger; Fig. 9, a detail inverted view of an annulus for assisting in holding the spring-guides; Fig. 10, a detail plan view of a similar annulus; Fig. 11, a plan view of the discharging-tube, showing the radial guides for guiding the cutters, and Fig. 12 a plan view of a portion of the cover.

A designates the frame of my improved corn-sheller, the same consisting of a series of uprights or legs provided with stationary sides A′, and with hinged sides B, the upper end of said frame being provided with a suitable metallic cover, C, having a central aperture, C′, and with an inclined bottom or corn-slide, D, for a purpose to be hereinafter mentioned.

Located upon and secured to the cover C is an annulus, D′, having a short sleeve, E, extending from its upper surface. In recesses *a*, formed in the upper surface of said sleeve, at suitable distances apart, are fitted a series of inclined depending elastic guides, E′, their upper ends being turned outwardly to adapt them to fit into said recesses.

The letter F indicates an annulus having corresponding recesses, *a*′, to those just alluded to, and adapted to fit over the flange E and down upon the annulus D′, whereby the guides are secured against displacement.

The cover C is provided with a series of radiating slots extending from the aperture C′, and in said slots are loosely fitted the upper ends, G′, of the cutters F′ F² F³, said ends having projecting pins or studs G, which rest each in depressions *e* in the upper surface of the said cover. These cutters each consist of an upright extension, G′, and a short horizontal extension, H, the horizontal extension terminating at its upper end in an A-shaped point, beveled from the vertical side of the extension back at an angle of forty-five degrees. Depending from these latter extensions are long lugs or shanks H′, which are adapted to fit within radiating slots formed between spokes H⁴, extending horizontally from the upper end of the cob-discharging tube I, by which the several cutters are held in their proper relative position in order to bring the points of the cutters in a circular row. Each of said cutters may be adjusted radially at its upper end by simply placing the pin G, which holds the same in a pair of the notches, farther from and nearer to the center of the cover C, so that the faces or vertical parts of the cutters may be adjusted parallel to the plane of the cob; and each cutter is provided with an adjusting-screw, *h*, which is adapted to bear against the outer side of each of the depending elastic guides E′, by which means the cutters are adjusted radially in order to act upon ears of different sizes or different lengths of kernels.

In order to remove from the cob any kernels of corn which may not have been removed by the points of the cutters, I provide every

alternating cutter with a segmental scraper, f^2 f^3, which scrapers collectively form a broken circle. I also provide the inner vertical portion of each of my cutters (indicated by the letter F^3) with a slot, F^4, which allows room for the respective ends of the scrapers f^2 to rest in. I also place the horizontal portion f^4 of the cutters F′ in a horizontal plane above that occupied by the scrapers f^2, thus serving the same purpose as the slots in the cutters F^3, above referred to. The object of this arrangement is to give space for the scrapers, the projecting ends of the scrapers f^2 f^3 being of such length as to bind against each other when the extensions H′ are placed between the radial spokes H^4, unless the ends of the scrapers be located one above another. When the cutters F′ F^2 F^3 are in their proper position in the machine, the slot F^4 receives the adjacent end of the scrapers f^2, and the horizontal portion f^4 of the cutter F′ sets over the opposite end of the scraper f^2. By this means it will be observed that the points of the cutters are brought sufficiently close together to act on the kernels, and the said scrapers f^2 f^3 overlap one another, as seen in Fig. 2, and form a broken circle, as above mentioned.

I indicates a cob-discharge tube, preferably constructed of cast-iron, which is bolted or otherwise secured to the inclined bottom D, said tube being provided intermediate its ends with a flange, I′, having a series of depressions in its periphery.

K indicates an annulus formed in halves, which are adapted to be bolted together, and are fitted around the flange I′, said annulus being provided with depressions corresponding to those above alluded to, by which means a series of pressure-springs, K′, are held against the shanks H′, thereby serving to hold the cutters to their work.

L indicates a connecting-bar, which is flexibly connected to the leg or other convenient part of the frame of the machine, and extends upwardly a suitable distance. The upper end of said connecting-bar is pivoted to an operating hand-lever, L′, the latter being connected with a plunger, M, consisting of a two-arm bar or rod, the longer of which extends vertically through the top and bottom of the machine, which serve as guides therefor, and the shorter arm of which is adapted to force the ear through the machine, being provided with a plunger-cup, M′. This cup consists of a hollow lower end and a slotted neck, and is movably secured to the shorter arm of the plunger by means of a pin which passes through its slot and an aperture in said arm, said slot serving to allow the cup and plunger to have an independent movement.

N indicates a detent pivoted to the shorter arm of the plunger, the lower end of which is adapted to bear upon the upper end of the cup-sleeve, and the spring *n* is employed for the purpose of maintaining normally contact between the said sleeve and detent.

O′ designates a trip adjustably secured, by means of a slot formed therein and a pin or bolt, O, to the operating-lever, or to a clip which connects said lever and the plunger together. One end of this trip is beveled off at an angle, and is adapted to come in contact with the upper end of the detent N when the plunger-cup has reached its lowest point, whereby the contact between the detent and the sleeve of the cup is broken and the plunger allowed to descend independently of and below the cup, for a purpose which will presently appear.

When it is desired to shell green corn, the cutters above referred to are removed and a sufficient number of the character indicated in Fig. 7 are substituted. These shellers consist of a segmental blade, P, having its upper edge (inverted in the drawings) beveled upwardly, as shown at *p*, and of a correspondingly-shaped scraper, having a series of teeth or serrations which are adapted to scrape or remove from the cob the roots of the kernels, said scrapers having longitudinally-slotted shanks, the vertical and horizontal portions of the scraper-frame and the lug which projects from the horizontal portion being in this instance constructed as above described.

Q designates a set-screw and washer, by which the scraper is adjusted radially to suit different-sized ears, or to the ear, whether its smaller or larger end is down.

The operation of my invention will be readily understood from the foregoing, and may be described as follows: The operating-handle being sufficiently elevated to raise the cup M′ above the annulus F a proper distance, an ear is dropped into the machine and arrested by coming in contact with the guides E′ or the points of the cutters. The plunger is then depressed, the cup engaging and following the upper end of the ear until it is arrested by the convergent ends of the guides, by which time the trip O′ engages the upper end of the detent N and breaks the connection between said detent and the sleeve of the cup, thus permitting the plunger to continue its descent, the slot in the sleeve permitting the plunger's independent movement, as above described, whereby the cob is forced through the discharge-tube I. It will be observed that during the descent of the ear it passes through the circle formed by the cutters, the latter removing the grains therefrom, which fall upon the inclined bottom, whence they are discharged into a suitable receptacle. When the hand-lever is raised, so that the operation just described may be repeated, the weight of the cup causes it to drop to its normal position, as seen in Figs. 2 and 8.

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

1. The combination, in a corn-sheller, of a vertically-operating plunger provided with a forcing-cup movably secured thereto, and

means for automatically releasing it, with a series of flexible feeding-guides, and adjustable cutters having grain-removing points and segments, substantially as shown and described.

2. The combination, in a corn-sheller, of the annuli and flexible feeding-guides secured thereto, with a series of adjustable cutters, constructed substantially as described, the discharge-tube, and pressure-springs, as and for the purpose set forth.

3. The combination, in a corn-sheller, of the cover having radial slots and depressions, and the pivoted depending cutters, with the discharge-tube having radiating spokes and the series of pressure-springs, whereby the cutters are severally guided and held to their work, substantially as shown and described.

4. In a corn-sheller, the combination, with the plunger provided with the slotted pressure-cup movably secured thereto, of the engaging-detent, the operating-lever, and the releasing-trip, substantially as shown and described.

5. In a corn-sheller, the green-corn cutter and scraper, consisting of a segmental blade and an adjustable slotted scraper, substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

JONATHAN R. HAMILTON.

Witnesses:
T. E. BYRNES,
M. MOORE.