

(No Model.)

G. W. PACKER.
CORN SHELLER.

No. 522,669.

Patented July 10, 1894.

Fig. 1.

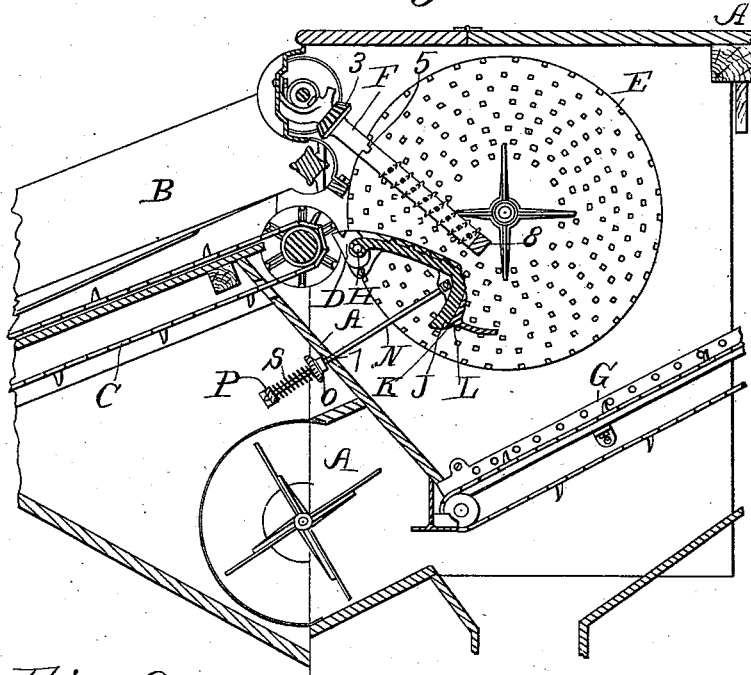


Fig. 2.

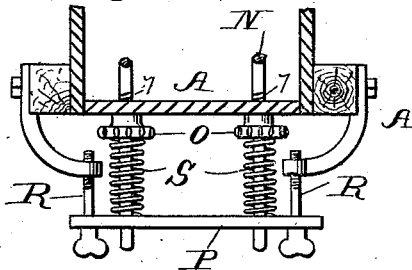


Fig. 3.

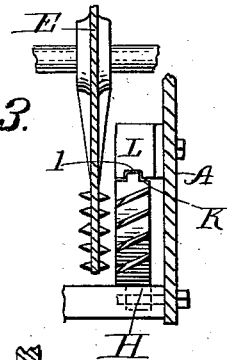
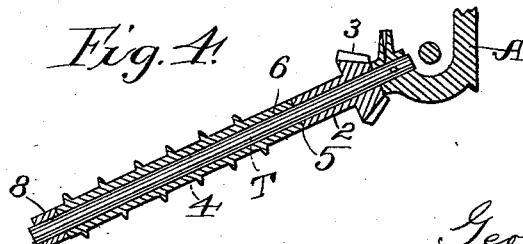


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

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CORN-SHELLER.

SPECIFICATION forming part of Letters Patent No. 522,669, dated July 10, 1894.

Application filed January 29, 1894. Serial No. 498,321. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. PACKER, a citizen of the United States, residing at Rock Falls, in the county of Whiteside and State of Illinois, have invented certain new and useful Improvements in Corn-Shellers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention has reference to corn shellers, and consists in certain novel and useful improvements in the machine, for which United States Letters Patent were granted to my father, Harvey Packer, as follows:—No. 206,258, July 23, 1878; No. 248,497, October 18, 1881; No. 263,427, August 29, 1882; No. 263,804, September 5, 1882; No. 293,669, February 19, 1884; No. 297,288, April 22, 1884, and the substantial changes in this application consists, first, in raising the concave, shown in Fig. 6 of said Patent No. 248,497 into substantial prolongation of the line of progress of the chain feed, or so nearly in said prolongation as to permit the ears of corn to pass from said chain feed into the shelling devices, without such variation in their line of movement as to occasion any tilting, or other disturbance of the position of said ears. And, second, in hinging said concave at its upper end, and seating it adjustably upon a spring at its lower end so as to afford the necessary adjustment of said concave to accommodate it to any variation in the size or quantity of ears passing over it at different times. And third, in forming the diagonal shelling shaft in sections, so as to readily remove the portion exposed to the wear, and renewing the same without the expense of supplying an entirely new shaft. These advantages I attain by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal vertical section of a machine provided with my invention, the sectional line being drawn through one side of one of the feed holes of the machine. Fig. 2 is a detail of the seat of the spring, and

the adjunctive parts, which afford the above named flexibility to said concave. Fig. 3 is a detail, in cross section, above the concave, viewed from the top. Fig. 4 is a longitudinal vertical section of the shelling shaft referred to.

Similar letters refer to similar parts throughout the several views.

These machines are constructed with any desired number of feed holes, from two to six, and as the construction and appliances of each feed hole are the same as those of the others, I do not deem it necessary to show or describe my invention, except as applied to one of said feed channels.

As the general construction and operation of the machine is shown by said earlier patents, it is unnecessary to embody in this application anything more than the parts constituting, and those adjacent to, my invention with a general reference to the conformation and construction of the machine, as shown in Fig. 1.

A is the general frame of the machine.

B is the feed elevator, which consists of a series of longitudinal compartments of a width something greater than that of an ordinary ear of corn, the bottom of each compartment being traversed lengthwise by an endless feed chain C. This latter carries the ears endwise successively over the head roller of said chain, and deposits them upon the concave D, a procession of ears passing into the sheller at each feed opening.

E is the usual vertical rotating picker wheel, whose main function is to rotate the ear in the process of shelling, and incidentally advance the ear.

F is a diagonal shelling shaft, provided peripherally with spirally arranged shelling projections.

G is the cob and shelled-corn elevator, and consists of a parallel series of discharge chains, similar to the chains C.

In the process of shelling, the ears of corn, being discharged successively by and from each feed chain C upon the corresponding concave D, are carried forward on the latter by the joint action of the picker wheel E and the spiral movement of the exterior projections upon the shaft F. The interval between

the shaft F and concave D gradually converges toward the center of the machine until, at the inner end or exit thereof, such interval is of a size to permit the passage of the cob only. The upper surface of the concave D is provided with the diagonal transverse ribs which, conjointly with the picker wheel E and shaft F, feed the ears through the machine. As there is necessarily a variance in both the size of the ears and their number, which are presented to the shelling mechanism, it is essential that one side, at least, of the interval between the said shaft F and concave D be made yielding, so as to vary the width of said interval to accord with the changes in the amount of material passing through the same, as aforesaid. In the former construction of this machine this was sought to be attained by adjustably supporting the inner end of said shelling shaft F; but inasmuch as said shaft projected somewhat across the end of the progress of the ears, the initiate of the pressure broke off the end of the ear before pressure sufficient was exerted to cause said shaft to yield, and therefore the cobs were very largely broken as delivered from the machine, (which was quite objectionable, as said cobs were utilized for fuel,) and the adjustment of said shaft thereby interrupted. Also the ear had to lift the shelling shaft.

In my invention the ears of corn lie upon their sides upon the concave D, and therefore the lateral pressure of said ears on said concave has no effect in breaking the cobs, and the ear, by reason of its position, communicates a steady pressure to the concave D. Also the shaft F has necessarily a gear attachment at its upper end, through which the power is applied to rotate said shaft, and the ready movement, or adjustability, of said shaft in said former construction, was complicated with, and necessarily retarded by, said gear attachment, while in my invention the concave D, having simply a hinged connection at its upper end, and spring seat at its lower end, and being otherwise a passive element in the machine, is free to swing in and out, in proportion to the pressure thereon, without being affected by any other part of the machine, and is therefore very sensitive to said adjustability.

In Fig. 1, one side of the feed channel is shown as removed, and only that side represented which is closed by the picker wheel E. The lower end of the shaft F is suitably and rigidly attached to that side of the feed opening which is removed, and consequently said shaft, remains in substantially the position shown in Fig. 1. The concave D is hinged at its upper end H to the frame A of the machine, in position to allow its opposite end to have a free vertical movement. The opposite end J of the concave D is turned downward, and in such turned face there is provided a vertical flange or tongue K. L is a shoe, suitably attached to the side A of the

feed channel oppositely to the picker wheel E, and provided with a vertical slot I, adapted to receive the tongue K of concave D, and to be traversed by said tongue in the vertical oscillation of said concave. The function of the shoe L is to retain the adjacent end of said concave from lateral movement, and thus assure its proper relation to the wheel E and the shaft F.

Referring to Fig. 2, there is there shown two of the supporting rods N, said figure representing a portion of a two holed sheller. The rod N is pivotally connected at its upper end to the lower side of the concave D, and is projected diagonally downward through the frame A of the machine, and provided, for a short portion of its length, where it passes through said frame, with suitable threads 7. A set nut O is adjustably seated on the rod N outside of and against the frame A. The outer extremity of the rod N is projected through the cross-plate P, adjustably connected with the frame A by means of set-screws R. Between the plate P and nut O there is seated on the rod N a spiral spring S, the latter normally holding the nut O against the frame A, and permitting the outward movement of the rod N to suit the necessary variations aforesaid of the concave D. By means of the set screws R the plate P can be seated as close as may be desired to the frame, and thereby the tension of the spring S be regulated.

Referring to Fig. 4, the shelling shaft F is constructed of a central pin T, rigidly attached at both ends to the frame of the machine. On the central pin T are placed the shells 2 and 4, which are rotated on said shaft. The upper shell 2 is provided with the driving pinion 3, and the shell 4 is provided with the spiral peripheral shelling projections aforesaid. The lower end of the shell 2 is formed into a clutch 5, and the adjacent end of the shell 4 is formed with a like clutch 6, by means of which the shells 2 and 4 are caused to mutually engage, and are held in such engagement by the support 8, in which the projecting extremity of the rod T is rigidly seated. The greater part of the wear upon this shaft is upon the shell 4, provided with said shelling projections, and when worn, or if casually broken, said part can be replaced without the usual expense of renewing the entire shaft.

The operation of the residue of my invention is as follows: The hinge at the upper end of the concave D permits the oscillation of the latter in a vertical plane, and the loose seating of the rod N in the frame A and plate P permits said rod to be forced outwardly by the adjacent end of said concave, when the pressure upon the latter is extreme or unusual, and as soon as said pressure is removed the expansive quality of the spring S throws the nut O against the frame A, thus returning said concave to its normal condition. By means of the threads 7 and nut O on rods N,

the normal size of the opening between said concave and the shelling shaft F may be graduated as desired.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. In a corn sheller, in combination with suitable feed devices the rotating picker wheel E, the rotating shelling shaft F, the concave D provided with the tongue K, and suitably hinged at one end to the frame of the machine, and seated at its opposite end on a coiled spring, and the shoe L seated on the frame of the machine and provided with the slot I adapted to receive said tongue K; substantially as shown, and for the purpose described.

2. In a corn sheller, in combination with positively acting feeding devices and suitable shelling mechanism, the concave D hinged at one end to the frame of the machine, under the discharge of said feeding devices, and adjustably supported at its opposite end upon a spring, in substantial prolongation of the plane of said feeding devices; substantially as shown, and for the purpose described.

3. In the shelling shaft F, the combination of the central pin T suitably supported in the frame of the machine, the shell 2 provided with clutch 5, and pinion 3 the shell 4 provided with the clutch 6, and peripheral shelling projections, and the support 8, said shells being interlocked and loosely seated on said pin, and held in position thereon by said support; substantially as shown, and for the purpose specified.

4. In a corn sheller, the combination of the hinged concave D, rod N pivotally connected

at its upper end to said concave, and projected downwardly through the frame of the machine and through transverse plate P; spring S seated on rod N between said frame and plate, and a set-nut O adjustably seated on said rod N between said spring and frame; substantially as shown, and for the purpose described.

5. The combination of hinged concave D, rod N supporting the free end thereof and adjustably seated on transverse plate P, and set-screws R loosely seated in said plate and adapted to be screwed into the frame A; substantially as shown, and for the purpose described.

6. In a corn sheller, the combination of the transverse plate P, set-screws R projected through said plate and seated in the frame of said machine to adjust the position of said plate optionally with reference to said frame, a concave D hinged at one end, rod N pivotally attached at one end to the free end of said concave, and projected therefrom through the frame A and plate P, and provided with threads 7, spring S seated on said rod between said plate and the frame of the machine, and set-nut O interposed between said spring and said frame, and adapted to be adjusted on the rod N, whereby the maximum altitude of said concave and the tension of said spring may be regulated as desired; substantially as shown, and for the purpose described.

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

GEORGE W. PACKER.

Witnesses:

JOHN G. MANAHAN,

MARTHA W. BARRETT.