(No Model.)

A. BALL.

MACHINE FOR BREAKING SHELLED CORN.

No. 442,086. Patented Dec. 2, 1890.

Fig. 1.

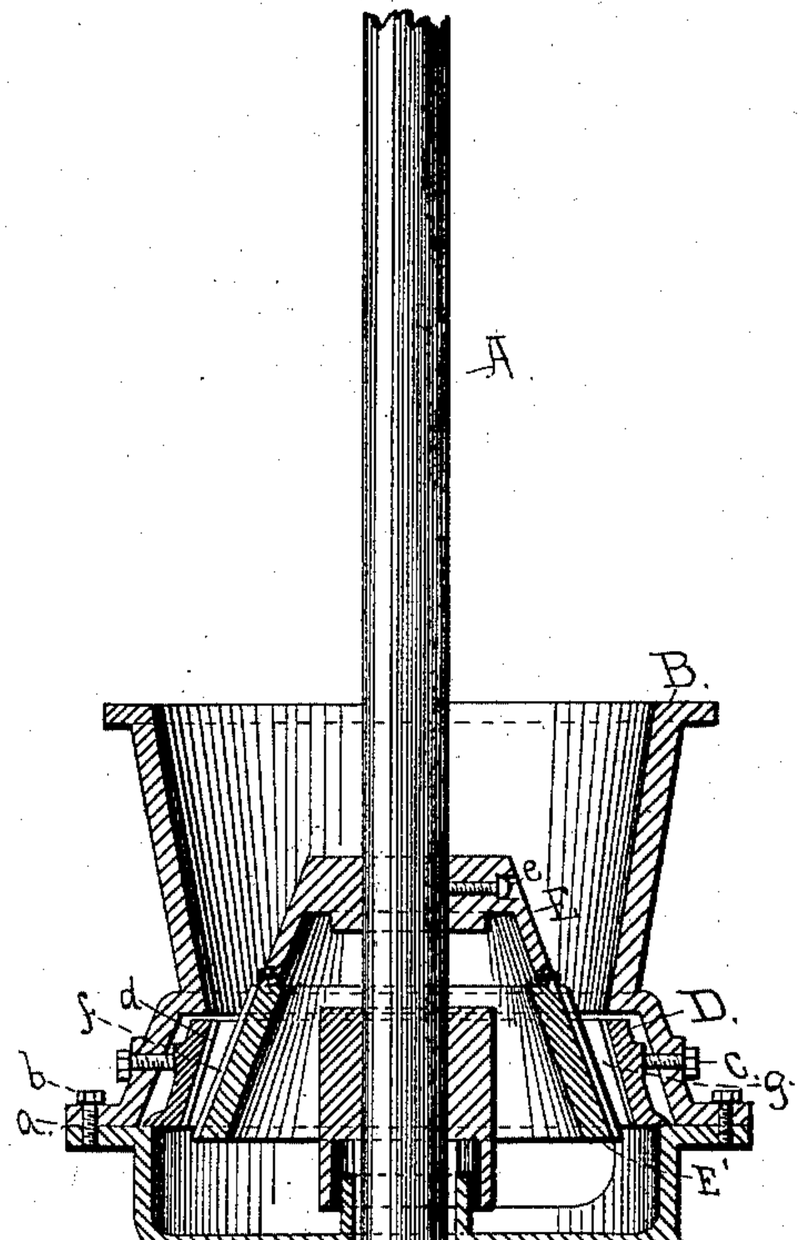


Fig. 4.

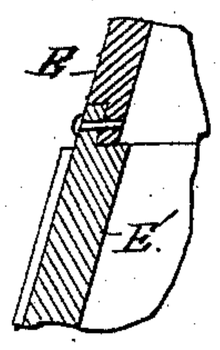


Fig. 5.

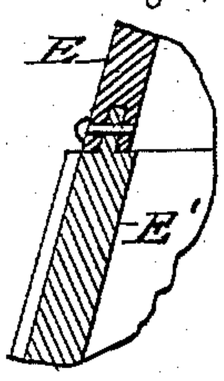


Fig. 3.

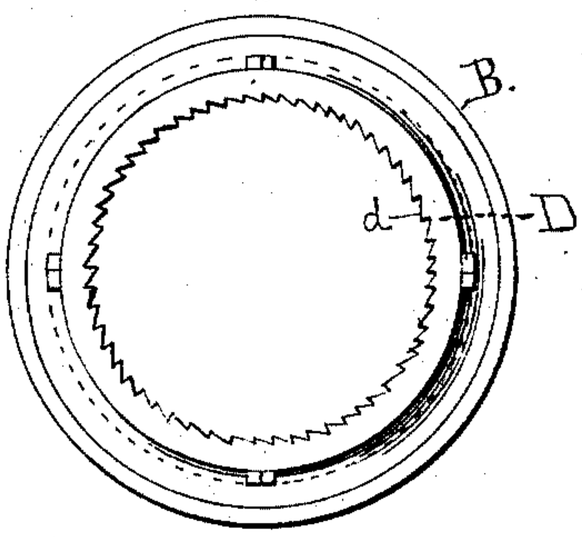
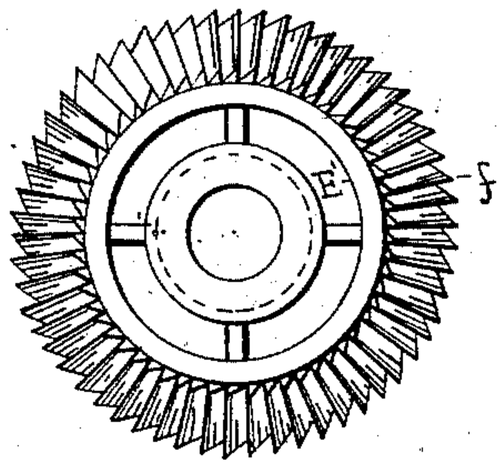


Fig. 2.



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UNITED STATES PATENT OFFICE.

ALBERT BALL, OF CLAREMONT, NEW HAMPSHIRE.

MACHINE FOR BREAKING SHELLED CORN.

SPECIFICATION forming part of Letters Patent No. 442,086, dated December 2, 1890.

Application filed March 31, 1883. Serial No. 90,119. (No model.)

To all whom it may concern:

Be it known that I, ALBERT BALL, of Claremont, in the county of Sullivan and State of New Hampshire, have invented a new and Improved Machine for Breaking Shelled Corn; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to an improvement in corn-crackers or machines for breaking shelled corn.

The object in view is to so construct such machines that the parts which are subjected to the most wear may be removed and new parts substituted without unnecessary waste of material. To this end I construct the inner portion or cone in two parts, the lower one of said parts being armed with breaking-teeth and capable of being readily removed without disturbing the upper part, and in conjunction with this lower armed part I use an armed ring or section of a cone which is interposed between this armed part and the shell at that point, and in this construction lies the novelty of my invention, all as hereinafter described and claimed.

For the better understanding of the invention reference will be made to the accompanying drawings, which form part of this specification, and in which—

Figure 1 is a central vertical section of a corn-cracker embodying my invention; Fig. 2, a plan view showing the inner set of breaking-edges; Fig. 3, a similar view of a ring secured to shell of machine. Fig. 4 is a view in detail of the fastening employed in securing together the two cone-sections, and Fig. 5 is a similar view of another fastening for said parts.

Like letters refer to corresponding parts throughout the several views.

In the drawings, A represents a shaft around which the cracker is placed and with which certain parts thereof revolve. This shaft is placed vertically and motion is imparted to it in any desirable manner.

The outer casing or shell of the machine (marked B in drawings) is formed of any suitable material and is composed of two parts, each provided with a suitable flange *a*, and the two held together by means of bolts or screws *b*, passed through said flanges *a*. The upper portion of shell B is so constructed as to form a flaring hopper into which the corn is poured. The lower portion of said shell forms a receptacle for the corn after it has been reduced, and is provided with a suitable discharge-pipe C. Situated within the shell B, as shown, and secured to said shell by means of bolts or screws *c*, is a ring or section of a cone D. (Shown in detail in Fig. 3.) This ring D is armed on its inner surface with teeth or breaking-edges *d*, and remains stationary in the operation of the machine.

It will be readily understood that when the ring D, or the teeth with which said ring is provided, become worn said ring may be removed and a new ring substituted therefor, it thus being necessary to remove only such parts as are actually useless, while if these breaking-teeth were situated on the shell itself it would render the entire shell useless whenever said teeth became worn.

Keyed to the shaft A by means of a bolt or screw *e* and revolving with said shaft is a cone composed of two parts E and E′, the two being held together by a rabbet-joint, as illustrated in Fig. 4, or by a tongue-and-groove joint, Fig. 5, or by any of the means well known to a skilled mechanic. The part E′ of this cone, as shown in Fig. 2, is provided on its outer surface with suitable teeth or breaking-edges *f*, which, in conjunction with teeth *d* of ring D, serve to reduce the corn as desired. This part E′ occupies a position on the shaft or spindle that brings it directly opposite the ring D, there being a suitable space *g* left between the teeth with which each of said parts is provided. Inasmuch as the part E′, or that part of the cone which is provided with the breaking-teeth, is the only part of said cone that is subjected to any wear, a great saving of material is made when new parts are to be substituted for those which have become useless.

The operation and manner of using my device are as follows: Motion is imparted to shaft A, and in its revolution said shaft carries around the cone described. The corn to be operated upon is then placed in the upper or

hopper-shaped portion of shell B, the part E of the cone acting as a guide to direct it to the space or opening *g* between the breaking-teeth with which ring D and part E′ of the cone are provided. By the revolution of the teeth on part E′, together with the teeth on ring or cone section D, the corn is reduced and passes down into the chamber or receptacle formed by the lower part of shell B, and thence off through the discharge-pipe C. When the breaking-teeth on parts D and E′ or on either one of them become worn, and therefore useless, the bolts *a*, which hold together the two parts of shell B, are removed and the worn parts taken out, new ones being substituted therefor, and the two parts of shell B again united.

The advantage of my invention is principally in the great saving of material accomplished.

Having thus described my invention, what I claim as new therein, and that for which I desire to secure Letters Patent, is—

The combination of the outer casing or shell B, made in two flanged parts bolted together, the upper of which being flared or hopper-shaped, for the purposes set forth, the cylindrical axle A, mounted in an axle-box made integral with the discharge-chute C, the grinding-cone rigidly secured to said axle and composed of a smooth upper portion E and a serrated or toothed lower portion E′, secured thereto, and the internally serrated or toothed grinding-ring D, removably retained within said upper portion of the outer casing or shell B by means of the set-screws *c c c*, all combined and arranged so that the worn parts of the machine may be removed without disturbing the unworn portions, substantially as and for the purposes set forth.

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

ALBERT BALL.

Witnesses:

J. DUNCAN UPHAM,

CHAS. B. RICE.