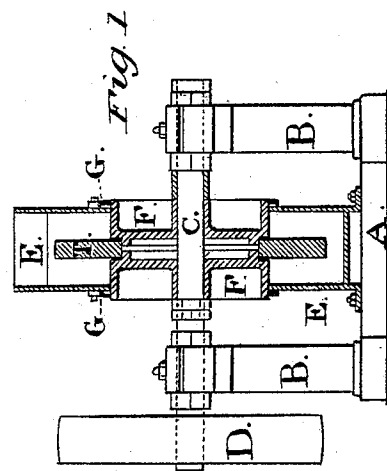
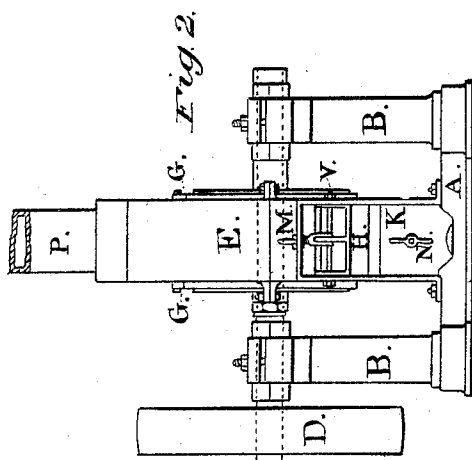
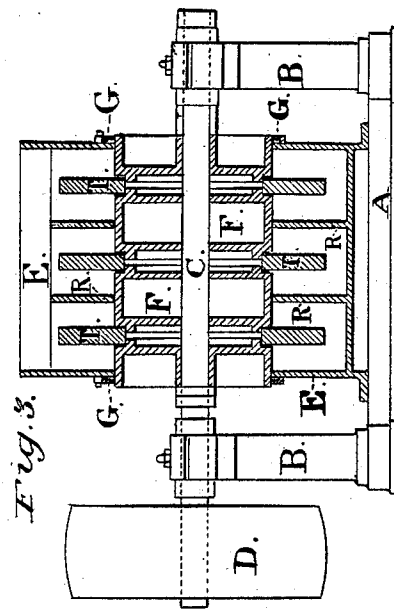
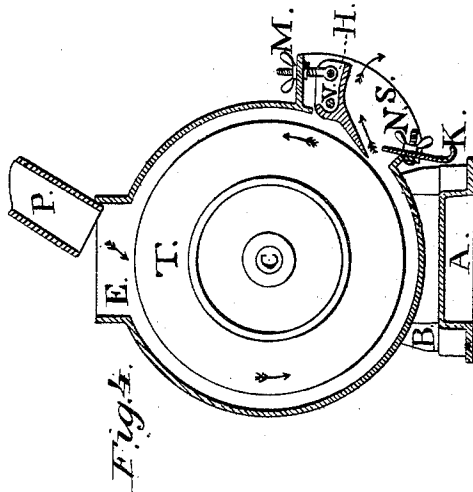


J. HIGGINBOTTOM & E. HUTCHINSON.

GRAIN-CLEANER.

No. 175,979.

Patented April 11, 1876.



Witnesses:
Wm P Thompson
Edward L Cotton

Inventors:
James Higginbottom
Edward Hutchinson

UNITED STATES PATENT OFFICE.

JAMES HIGGINBOTTOM AND EDWARD HUTCHINSON, OF LIVERPOOL,
ENGLAND.

IMPROVEMENT IN GRAIN-CLEANERS.

Specification forming part of Letters Patent No. **175,979**, dated April 11, 1876; application filed
October 1, 1875.

To all whom it may concern:

Be it known that we, JAMES HIGGINBOTTOM and EDWARD HUTCHINSON, both of Liverpool, in the county of Lancaster and the Kingdom of England, have invented a new and useful Improvement in Grain Cleaning and Scouring and Decortivating Machines, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

The object of our invention is to scour wheat, rice, and other grain by means of solid emery-wheels T revolving rapidly in compartments separated by diaphragms R R in stationary case E, aided also by the weight of the grain itself.

The machine is illustrated more in detail in Figure 1, front elevation; Fig. 2, side elevation; Fig. 3, section of a single-disk machine for small works; and Fig. 4, section of a machine having, as is usually the case, several disks.

P is the spout through which the grain descends into the stationary casing E, which is made in two parts and fastened together with bolts. It can be made either solid or with openings, having wire-cloth or punched sheet iron or steel fastened over the same, the exact details being dependent on the character of grain to be scoured. The top of the casing can be covered; but we prefer it left open like a hopper, as shown in the drawing. Passing through grain-tight glands G in the casing E is shaft C, driven by pulley D. Fixed on this shaft, and kept apart by washer-plates F, are emery-disks T. These are composed of emery and glue, or other adhesive mixture, well mixed and pressed together by hydraulic or other power. H is a circular adjustable hood, dipping into the casing E, there being a separate hood for each compartment, the depth of dip being regulated at pleasure by thumb-screw M. K is an adjustable slide, dipping also into casing E at an acute angle with the periphery of the stone or disk, and controlled by thumb-screw N. S is the discharge-pipe; A, the hollow bed-plate; B, standard carrying bearings for shaft C; R, solid or perforated diaphragms, usually cast

or riveted to the casing E, one being placed between each two disks.

Of course, in a small machine, where only one disk is used, as in Fig. 3, these diaphragms are not required, their only purpose being to separate the disks and form a solid surface for the grain to rub against. The casing E is always kept filled with grain.

The disks T, revolving, give a rotary motion to the grain, retarded, however, by friction against the sides of the casing, the diaphragms, and the grain itself. When, however, the grain has been drawn round sufficiently by the disk, it is caught by hood H and guided down spout S, placed on the periphery of the machine, intermediate between top and bottom. The exit is regulated by the thumb-screw M, which governs the position of hood H through a small circular course round its pivot V, and also by the plate K, adjustable at pleasure, and held as adjusted by thumb-screw N. When several disks are combined in one machine, it is then nothing more than several single machines side by side, there being free entrance of the grain to all, and a hood, H, and slide K to each partition.

The action of this machine differs from other grain-scouring machines in these respects: first, the chamber is stationary, and, being always kept full, the grain is not broken by being dashed about; second, it is only those grains that have undergone most scouring that can be drawn into the exit-pipe, their progress in that direction being exactly proportionate to the amount of scour undergone. We thus avoid the very unequal scouring, and consequent waste, so common in other machines of this kind.

If the grain be not sufficiently scoured, or if it is desirable to entirely decorticate the grain, it is sent through a second or third machine, and so on till sufficiently decorticated.

A patent for this invention has been granted in England, bearing date 25th day of May, 1875, and numbered 1,191. Two other patents have also been applied for by us in England for the same invention; but their entire contents are included in the patent aforesaid, No. 1,191 of 1875.

We claim as our invention—

1. The combination of the stationary case E, having a discharge-spout, S, on the periphery, intermediate between top and bottom, with the vertically-revolving disks T, in grain scouring or cleaning machines.

2. The combination, in a grain-scouring machine, of a scouring-chamber, containing a vertically or nearly vertically revolving disk or disks, and into which the grain has free admission from the top, so that it is kept constantly full, with a slide or other regulator in the exit-pipe.

3. The combination of the stationary case

E with the hood H and the slide K, in grain scouring or cleaning machines.

4. The application of the disks T, made of solid emery composition, instead of being built up with a backing or core of wood or other material, in grain-scouring machines.

5. The combination of the diaphragms R with the disks T, the washer-plates F, and the casing E, in grain-scouring machines.

JAMES HIGGINBOTTOM.

EDWARD HUTCHINSON.

Witnesses:

WM. P. THOMPSON,

EDWARD G. COLTON.