2 Sheets—Sheet 1.

G. H. CORMACK.

Oatmeal-Machine.

No. 220,275. Patented Oct. 7, 1879.

Fig. 1.

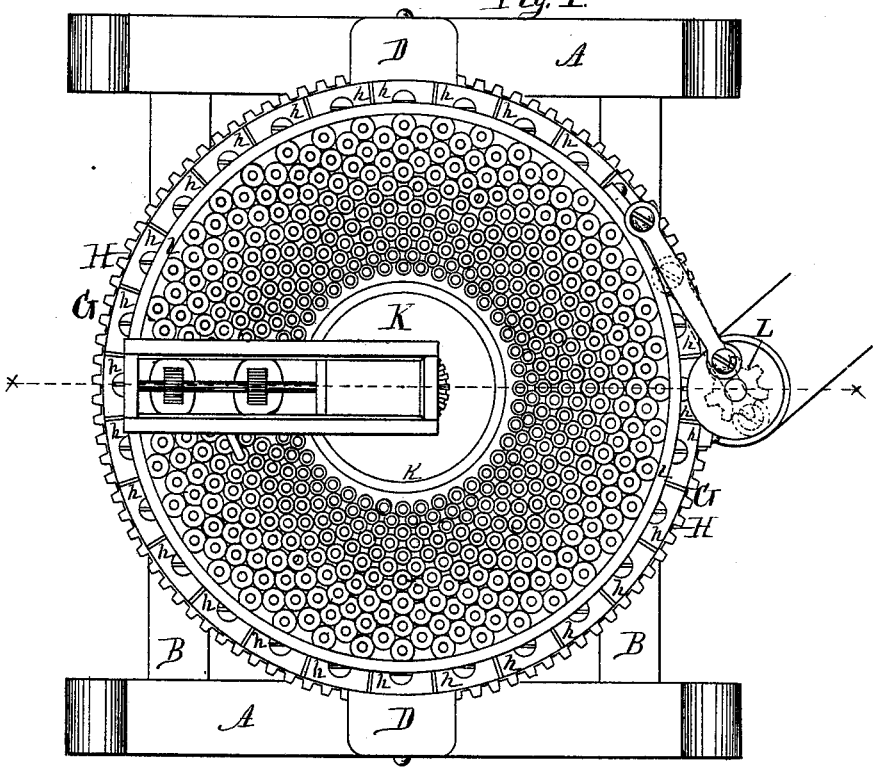
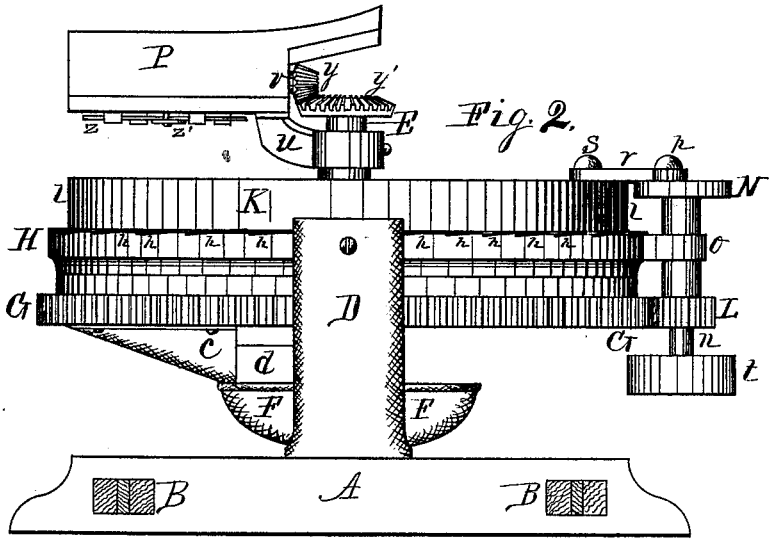


Fig. 2.



Witnesses.
C. E. Sweringen
A. O. Behel

Inventor.
George H. Cormack
Per Jacob Behel
Atty

2 Sheets—Sheet 2.

G. H. CORMACK.

Oatmeal-Machine.

No. 220,275. Patented Oct. 7, 1879.

Fig. 6.

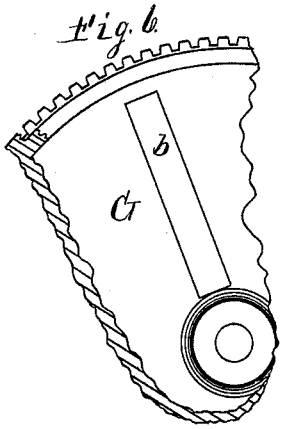


Fig. 3.

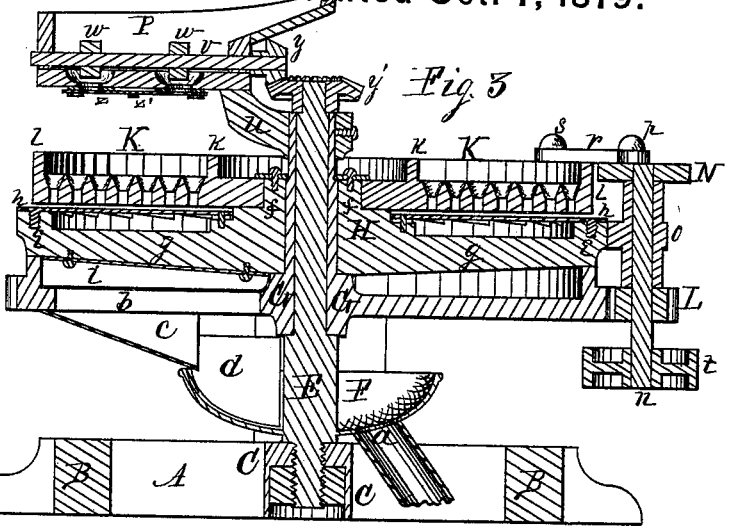


Fig. 7.

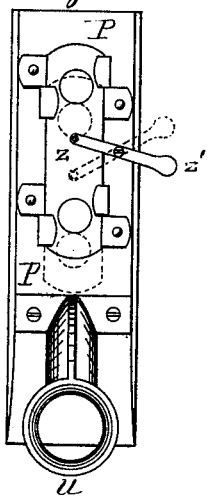


Fig. 4.

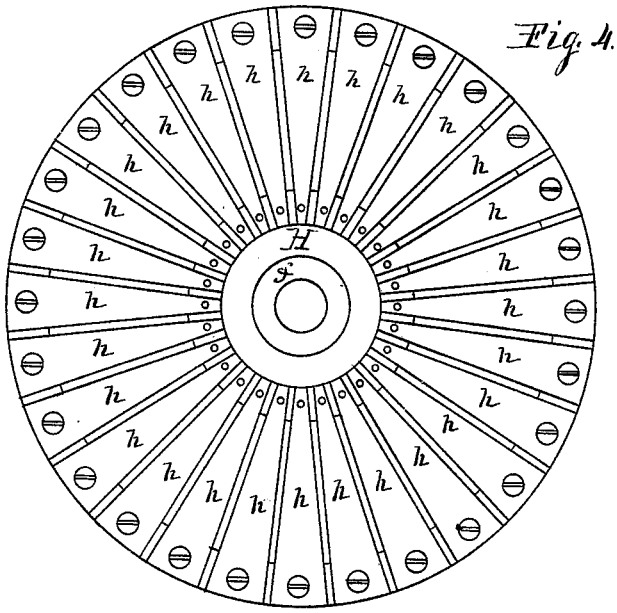
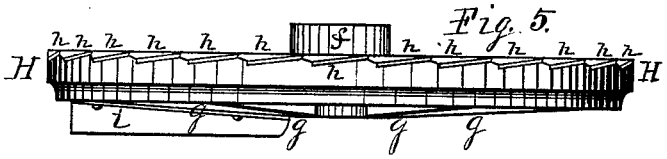


Fig. 5.



Witnesses.
C. E. Sweeney
A. A. Behel

Inventor.
George H. Cormack.
Per Jacob Behel
Atty.

UNITED STATES PATENT OFFICE.

GEORGE H. CORMACK, OF ROCKFORD, ILLINOIS, ASSIGNOR TO A. M. JOHNSTON & CO., OF SAME PLACE.

IMPROVEMENT IN OATMEAL-MACHINES.

Specification forming part of Letters Patent No. **220,275**, dated October 7, 1879; application filed February 3, 1879.

To all whom it may concern:

Be it known that I, GEORGE H. CORMACK, of the city of Rockford, in the county of Winnebago and State of Illinois, have invented a new and useful Improvement in Oatmeal-Milling Machines, of which the following is a specification.

This invention relates to that class of machines employed in the manufacture of oatmeal or grits. Its purpose is to cut the oat-grains into small sections or grits after the chaffy hull or shuck has been removed from the grain, forming clean sharp grits, with but little waste. To this end I have designed and constructed the machine represented in the accompanying drawings, in which—

Figure 1 is a plan view of my improved oatmeal-milling machine, of which Fig. 2 is a side elevation. Fig. 3 is a transverse vertical section on dotted line *x* of Fig. 1. Fig. 4 is a plan view of the cutters fixed in position on the cutter-disk, which is detached from the machine, of which Fig. 5 is an edge view, showing the inclined ends of the cutters fixed to the cutter-frame. Fig. 6 represents the slotted portion of the recessed toothed disk, and Fig. 7 is a bottom view of the rotating hopper.

In the figures, A are end sills, into which the lengthwise side sills, B, and center sill, C, are framed, forming the base of the supporting-frame. D are vertical posts framed centrally in the end sill. These parts form the supporting-frame on which my improved oatmeal-mill is mounted. E represents a vertical shaft, having its lower end firmly fixed in the center of the center sill, C. F is a receiving-hopper, fixed to the shaft immediately above the sill C, and is provided with an outlet, as at *a*, through which its contents may be discharged. G is a disk, recessed on its upper face, into which the oatmeal is received as it drops from the cutters, and is fitted to revolve on the vertical shaft E. Its outer edge is fitted with gear-teeth, to engage the teeth of a suitable driving-wheel to impart a rotary movement to the disk. *b* represents a radial slot formed in the disk G, designed as an outlet through which to discharge the contents of the recessed disk. *c* is a conducting-spout fixed to the under side of the disk G, immediately under the radial slot *b*, and is inclined toward the center of the disk, opening into the bell-formed hopper F, and is designed to conduct the contents of the recessed disk G as they are discharged through the radial slot *b* into the bell-formed hopper F. *d* is a scraper or conveyer fixed to the inner end of the conducting-spout *c*, and extends into the bell-formed hopper F, and is designed to convey the contents of the hopper to discharge the same through the opening *a* in the lower portion of the bell-formed hopper. H is the cutter-frame, which is of wheel form, consisting of an outer rim, *e*, and a center hub, *f*, connected by radial arms *g*. This cutter-frame is supported on the vertical sleeve or hub of the recessed disk G, immediately above the disk, and is fixed in position to the posts D. *h* are the cutter-blades, made from plate material of proper form, so that when placed on the upper face of the cutter-frame, to which they are fixed radially, these cutters are inclined to the face of the cutter-frame, so that the forward cutting-edge of each cutter will be on a plane above their non-cutting edges, and the vertical distance between the cutting-edge and non-cutting edge of each adjacent cutter will determine the length of the sections cut from the grains forming the meal or grits.

Thus it will be seen that these machines may be constructed to produce oatmeal of different grades, which will be accomplished by varying the inclination of the cutting-blades with the face of the cutter-frame, to increase or lessen the vertical distance between the cutting and non-cutting edges of the adjacent cutters.

i is a scraper or conveyer blade fixed to the radial arm of the cutter-frame, and extends into the recessed disk G in such a manner that in the revolutions of the disk its contents will be conveyed to and discharged through the radial slot *b*, to be conducted by the spout *c* into the bell-formed hopper.

K is a perforated disk, constructed with an upward-rising inner rim, *k*, and an upward-rising rim, *l*, on its outer edge, forming a recessed portion between the inner and outer rims, which portion is closely perforated with holes of proper size and form to admit the oat-

grains to drop through endwise. This perforated disk is fitted on the upward-rising portion of the hub of the cutter-frame, on which it oscillates with its under face-surface in close proximity to the cutters.

L is a spur-toothed pinion mounted on a vertical shaft, *n*, fitted to revolve in a suitable bearing, *o*, fixed to the periphery of the cutter-frame in such a manner as to place the teeth of the pinion in working contact with the teeth on the periphery of the recessed disk G.

N is a crank-head mounted on the upper end of the shaft *n*, and is fitted with a wrist-pin, *p*, which receives the connecting-rod *r*, one end of which is pivoted to the outer rim of the perforated disk K, as at *s*. *t* is a pulley fixed on the lower end of the shaft *n*, and is adapted to receive a belt to put it in connection with the power employed to impart a rotary motion to the shaft of the pulley, which will be transmitted through the spur-pinion to the recessed disk, causing it to revolve. By this movement an oscillatory movement will be imparted to the perforated disk by means of the rod *r*, which connects the disk with the crank-head.

P is a rotating hopper supported on a crane-like arm, *u*, which is fixed to the upper end of the sleeve-like hub of the recessed disk G, which causes it to rotate with the disk. The hopper P is fitted with a lengthwise shaft, *v*, supported to revolve in end bearings in the hopper, and is fitted at proper intervals with feed-wheels *w*, which are placed over openings cut in the bottom of the hopper. The inner end of the shaft *v* extends through the end of the hopper, and is fitted with a beveled toothed pinion, *y*, the teeth of which engage the teeth of the beveled toothed gear-wheel *y'*, fixed on the upper end of the vertical shaft E. From this arrangement it will be seen that, if motion be imparted to the disk G, the hopper P will be made to rotate in unison with the disk, and the shaft in the hopper, with the feed-wheels mounted thereon, will be made to revolve in the hopper by means of its tooth-gear connection with the fixed gear-wheel on the upper end of the fixed vertical shaft.

By this arrangement of the parts it will be seen that, if grain were placed in the hopper and the machine put in motion, it would be carried by the feed-wheels through the openings in the bottom of the hopper and distributed over the surface of the perforated disk.

The bottom of the hopper is fitted with an adjustable slide, *z*, adapted to open or close the openings in the bottom of the hopper, as the slide is moved in one or the other direction, to increase or lessen the quantity of grain distributed on the perforated disk.

z' is a pivoted lever connected with the feed-slide *z*, by which it can be moved in either direction to regulate the feed.

The operation of my improved oatmeal-machine is as follows: The grain being conducted into the rotating hopper in any convenient manner, and motion being imparted to the machine, as hereinbefore described, the grain will be fed from the hopper by the feeding-wheels rotating therein, and will be distributed over the perforated disk, and its oscillatory movement will cause the grains to enter and descend endwise through the perforations onto the cutter-blades, and in its forward movement the grain will descend over the inclined cutter-blades and against the cutting-edge of the next adjacent cutter, where the grains will be cut in sections about equal in length to the difference in height between the cutting-edge of the cutters and the non-cutting edge of the preceding cutter-blades, and will drop through between the parallel edges of each two adjacent cutters into the recessed disk immediately below the cutter-frame, and its rotary movement will cause the cut meal to be carried by the fixed scraper or conveyer to and be discharged through the radial slot in the rotary recessed disk into the inclined conducting-spout, and descend into the bell-formed hopper, from which it will be discharged through the outlet or opening in the under portion of the hopper by means of the scraper or conveyer rotating therein.

In use the grain from the huller may be conducted into the rotating hopper in any convenient manner, and the meal, as it is discharged from the bell-formed hopper, may be received in sacks, barrels, or in other suitable packages; or it may be conducted into a suitable receptacle, from which to be put in packages for market or shipment.

I have represented and described the cutter-frame fitted with radial cutter-blades fixed to the side face of the cutter-frame and inclined thereto; but instead of the blades being placed on radial lines, they may be placed on tangent lines, or curved blades may be employed and placed on spiral lines, either of which would produce a drawing or sliding cut.

I claim as my invention—

1. In an oatmeal-machine, the combination, with a movable perforated disk, of a flat stationary cutter-frame provided with radially-arranged cutter-blades inclined to the face of the cutter-frame, substantially as set forth.

2. In an oatmeal-machine, the combination, with an oscillating perforated disk, of a stationary cutter-frame provided with radially-arranged cutter-blades inclined to the face of the cutter-frame, substantially as set forth.

3. In an oatmeal-machine, the combination, with an oscillating perforated disk, of a stationary cutter-frame constructed with an annular depression in its upper face, and provided with radially-arranged cutter-blades inclined to the face of the cutter-frame, the opposite ends of said blades being secured to a central hub, and an outer rim to constitute a free opening in the cutter-frame below the cutters, substantially as set forth.

4. The combination, with the oscillating perforated disk, of a rotating hopper to distribute

the grain on the oscillating perforated disk, substantially as hereinbefore set forth.

5. In an oatmeal-machine, the combination, with a cutter-frame and an oscillating perforated disk, of a rotating hopper and rotating feed-wheels within said hopper, substantially as set forth.

6. In an oatmeal-machine, the combination, with a cutter-frame and an oscillating perforated disk, of a rotating hopper, a shaft provided with feed-wheels journaled in said rotating hopper, and beveled toothed gear-wheels for imparting rotary motion to the feed-wheels in the hopper, substantially as set forth.

7. In an oatmeal-machine, the combination, with a stationary cutter-frame provided with radially-arranged cutters, and an oscillating perforated disk located over said cutter-frame, of a rotating recessed disk located below the cutter-frame, and adapted to receive the oatmeal as it drops from the cutters, substantially as set forth.

8. In an oatmeal-machine, the combination, with a stationary cutter-frame provided with radially-arranged cutters, and an oscillating perforated disk located over said cutter frame, of a recessed rotary disk located below the cutter-frame, said disk provided with a discharge opening or outlet, and a fixed scraper or conveyer to discharge the oatmeal from the disk, substantially as set forth.

9. In an oatmeal-machine, the combination, with a stationary cutter-frame provided with radially-arranged cutters, and a rotary disk provided with an opening or outlet, through which the meal is discharged, of a conducting-spout attached to the rotary disk, and a receiving-hopper, into which the oatmeal is discharged throughout the complete rotation of the disk, substantially as set forth.

10. In an oatmeal-machine, the combination, with a stationary cutter-frame provided with radially-arranged cutters, and a perforated disk located over said cutter-frame, of a revolving shaft provided with a crank-head, and a connecting-rod attached at one end to the crank-head and at its opposite end to the perforated disk, whereby an oscillating motion is imparted to said perforated disk, substantially as set forth.

GEORGE H. CORMACK.

Witnesses:
J. C. BUTTERFIELD,
JAMES FERGUSON.