(No Model.) 2 Sheets—Sheet 1.

W. MATTHIAS & C. E. RUDOLPH.

OATMEAL MACHINE.

No. 346,934. Patented Aug. 10, 1886.

Fig. 1

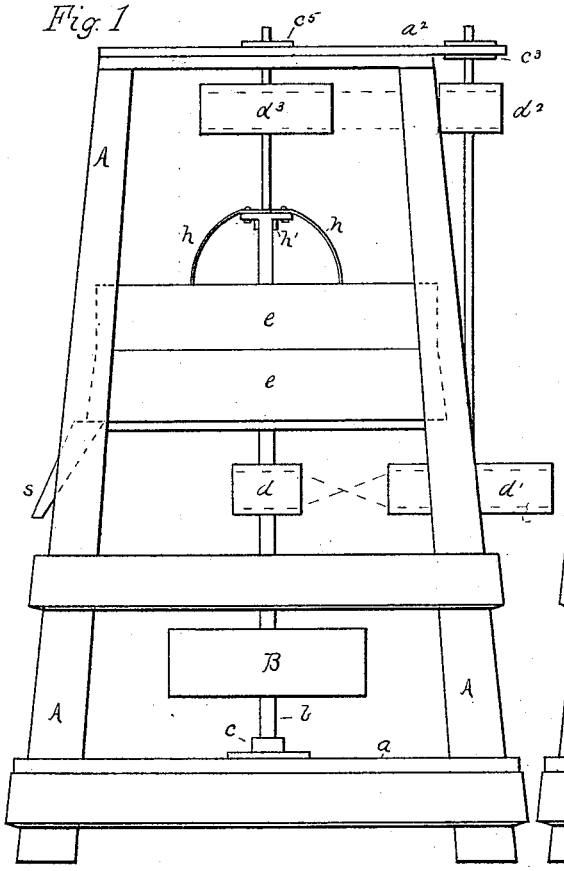


Fig. 2

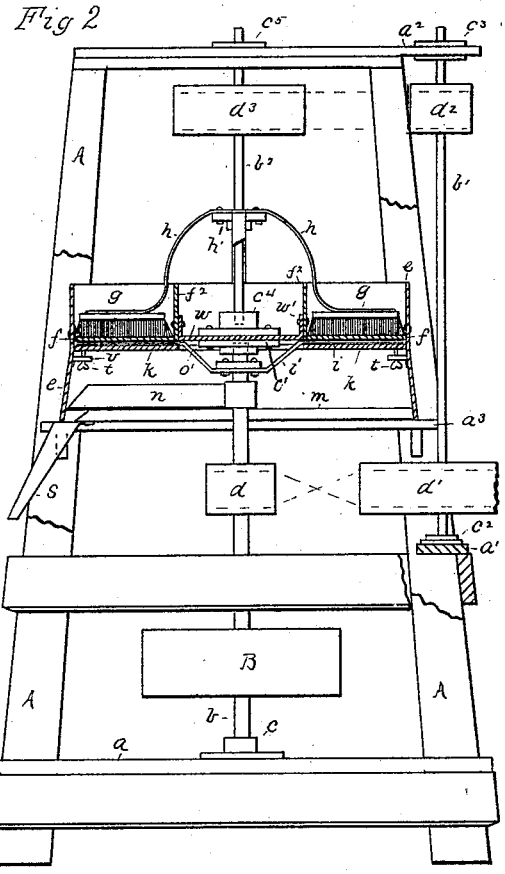
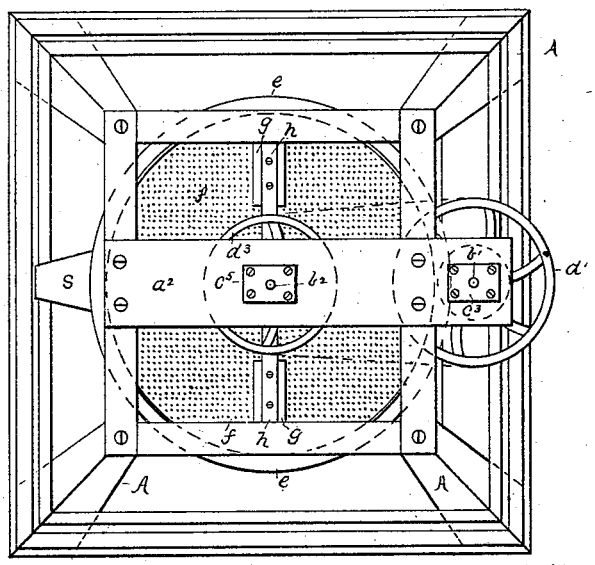


Fig. 3.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4

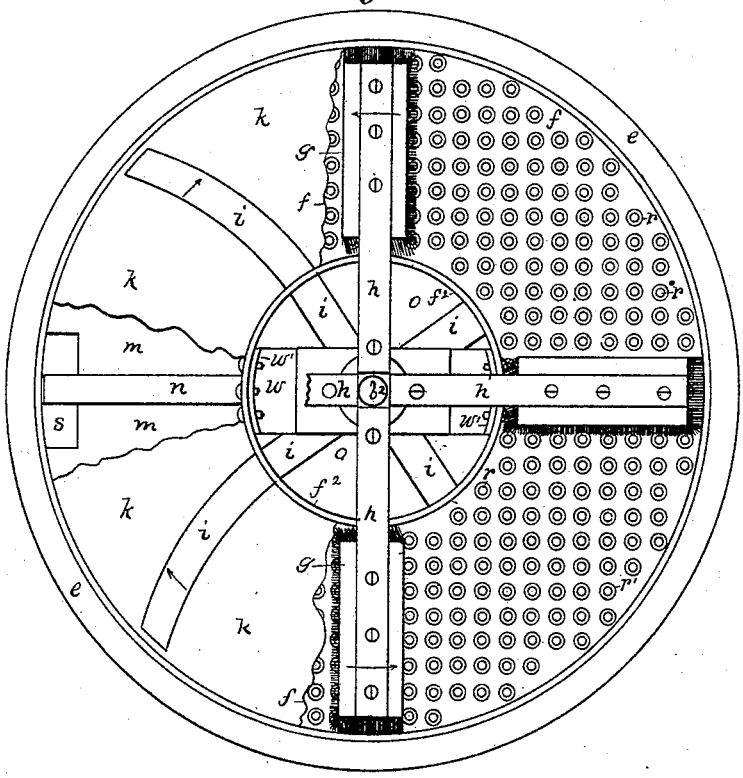
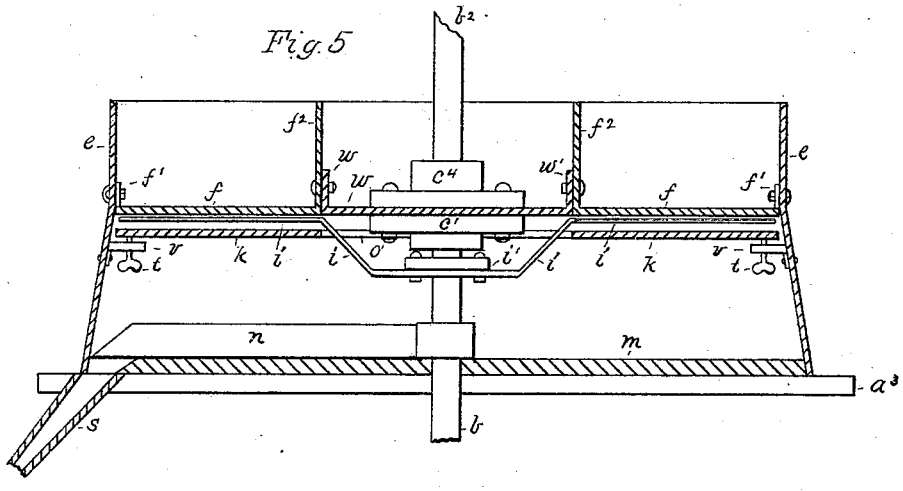


Fig. 5



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UNITED STATES PATENT OFFICE.

WILLIAM MATTHIAS AND CHARLES E. RUDOLPH, OF COLFAX, DAKOTA TERRITORY.

OATMEAL-MACHINE.

SPECIFICATION forming part of Letters Patent No. 346,934, dated August 10, 1886

Application filed November 9, 1885. Serial No. 182,174. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM MATTHIAS and CHARLES E. RUDOLPH, citizens of the United States, residing at Colfax, in the county of Richland and Territory of Dakota, have invented certain new and useful Improvements in Oatmeal-Machines, of which the following is a specification.

Our invention relates to the class of machines in which the meal is produced by cutting instead of crushing or grinding the grain; and the object of the invention is the production of comparatively simple and cheap mechanism for cutting the grain-kernels transversely into sections of nearly uniform size, and for regulating the fineness of the meal produced.

In the accompanying drawings, Figure 1 is an elevation of the machine. Fig. 2 is also an elevation, with a portion of the frame-work broken away, showing the operative devices partly in section. Fig. 3 is a plan of the machine. Fig. 4 is an enlarged top view of the cutting devices and the inclosing-case; and Fig. 5 is a central vertical sectional view of the same.

A represents the frame for supporting the operative parts of the machine.

B is the driving-pulley, and is on a spindle, *b*, at the central line of the machine. The spindle *b* is stepped in a step-box, *c*, on a cross-piece, *a*, of the frame-work, and the head of the spindle has a bearing in a box, *c'*, and operates the cutting-knives and sweeper. The spindle *b* also carries a smaller pulley, *d*, which is connected by a twist-belt with a pulley, *d'*, on a vertical shaft or spindle, *b'*, at the side of the frame. The spindle *b'* has a step-box, c^2, on a cross-piece or bridge-tree, *a'*, fastened to the posts of the frame, and the upper end of the spindle has a bearing in a projecting piece, a^2, at the top of the frame. This spindle carries a pulley, d^2, which is belted to a pulley, d^3. The pulley d^3 is on a spindle, b^2, at the center of the machine and in line with the spindle *b*, and this spindle has an end bearing in a step, c^4, and a bearing for its upper portion in a box, c^5, in the cross-piece a^2. This spindle is for rotating the brushes, hereinafter described.

e is a jacket, of wood or metal, for inclosing the cutting devices to retain the grain and meal. It is open at the top and closed at the bottom by a board, *m*. a^3 are cross-pieces on which the jacket rests.

f is a circular plate placed within the jacket *e*, and should fit close to the sides of the jacket, as shown in the drawings, or be provided with a suitable curb to retain the grain. The plate may be secured by means of ears *f'* to the jacket or to a portion of the frame by having the ears project beyond the jacket. As shown in the drawings, the plate *f* has a central opening of sufficient size to admit the box and step c' c^4; but it is obvious that both the box and step c' c^4 may be placed above or below the plate *f*, and that in that case there need be only a hole in the plate *f* large enough for the upper or lower spindle. Around the central opening, *o*, (shown,) is a curb, f^2, to prevent the grain from being swept into the opening. The plate *f* is preferably made of about one-fourth inch thickness, and with round holes *r* of about an eighth inch diameter placed about one-fourth inch apart, and suitably countersunk to cause the kernels to enter freely endwise into the perforations. The countersinks *r'* should be about one-fourth inch diameter, and should be made to intersect each other, or be sufficiently close together to leave no intervening flat surfaces upon which the grains could lodge. Both surfaces of the plate are polished and the lower surface should be perfectly flat and smooth to present no obstruction to the rotary cutters.

g g are brushes for sweeping the upper surface of the plate *f* to assist the grain in falling endwise into the perforations *r*. The brushes are attached to arms *h*, which are of curved or angular form, to avoid the curb f^2, and which are secured to a collar, *h'*, on the spindle b^2. The spindle, and consequently the brushes, rotates in the direction shown by arrows, or against the sun. Four brushes are shown in the drawings, and a desirable speed for them is forty revolutions per minute.

i i are the knives for cutting the kernels as they are presented below the plate *f*. These knives are rotated by the spindle *b*, and they may be attached by means of a flange on a collar, *i'*, carried by the spindle. The knives

should operate very close to or against the lower face of the perforated plate, and a desirable speed for them is about two hundred and twenty revolutions per minute, and they move in the direction indicated by arrows or with the sun. They should be made of spring-steel, about one-sixteenth inch thick, and of proper width to give the requisite strength, and it is desirable that they should be curved slightly backward from the direction of their rotation.

Below the knives is an adjustable plate, *k*, for preventing the grain from falling entirely through the perforated plate, and for regulating the distance they may descend while awaiting the cutters. The size of the cuttings is thus regulated by adjustment of the plate *k*. The plate *k* is a disk of the same diameter as the plate *f*, and has an opening, *o'*, at its center to admit the knives and their fastenings. The disk *k* has a smooth upper surface, so that it may be brought in close contact with the knives without interfering with their operation when it is desired to produce fine meal. The disk rests upon and is vertically adjustable by means of thumb-screws *t*, which may be supported by projecting pieces *v*, secured to the inner surface of the jacket *e*.

To allow the meal to fall off the outer edge of the disk *k*, the jacket *c* is slightly widened below the plate *f* and the centrifugal force given to the particles of meal by the rotating knives throws the meal against the jacket, and thence it falls to the sweep-board *m*, which inclosed the bottom of the jacket. A sweeper, *n*, carries the meal to an opening leading to a spout, *s*, whence the meal leaves the machine.

Within the opening *o* of the plate *f* is a plate, *w*, secured by flanges *w'* to the curb f^2, and the step c^4 and box *c'* are bolted together and to the plate *w*. The plate *w* may of course be dispensed with in case the opening at the center of the disk *f* is a mere hole for one of the spindles, and the step and box c^4 and *c'* may then be bolted together through the disk itself, or both placed above or below the disk. In such case, too, it is obvious the plate *f* need not have perforations within the curb f^2, and that portion of the plate may be made thicker, if desired.

In operating the machine grain is delivered onto the disk *f* from a spout, and the berries by the assistance of the brushes *g* enter the perforations of the disk endwise. When in the perforations the kernels are supported on end by the adjustable plate *k*, and the knives in their rotation cut off the protruding portions and carry them over the edge of the disk, whence they fall onto the board beneath and are swept into the spout to be conducted from the machine.

While the machine is designed for cutting oat-kernels from which the hulls have been removed, for the purpose of producing oatmeal, it can readily be adapted for cutting oats or other grains in their natural state, and for other purposes than the production of oatmeal.

Having fully described our invention, what we claim, and desire to secure by Letters Patent, is—

In combination, in an oatmeal-machine, a frame, a jacket, a plate therein having countersunk perforations, brushes for sweeping said plate, a spindle for rotating said brushes, a lower imperforate plate adjustable relatively to said perforated plate, thin cutting-knives between said plates, and a spindle for rotating said knives, substantially as and the purpose set forth.

WILLIAM MATTHIAS.
CHARLES E. RUDOLPH.

In presence of—
H. B. CRANDALL,
TORGER N. GREEN.