

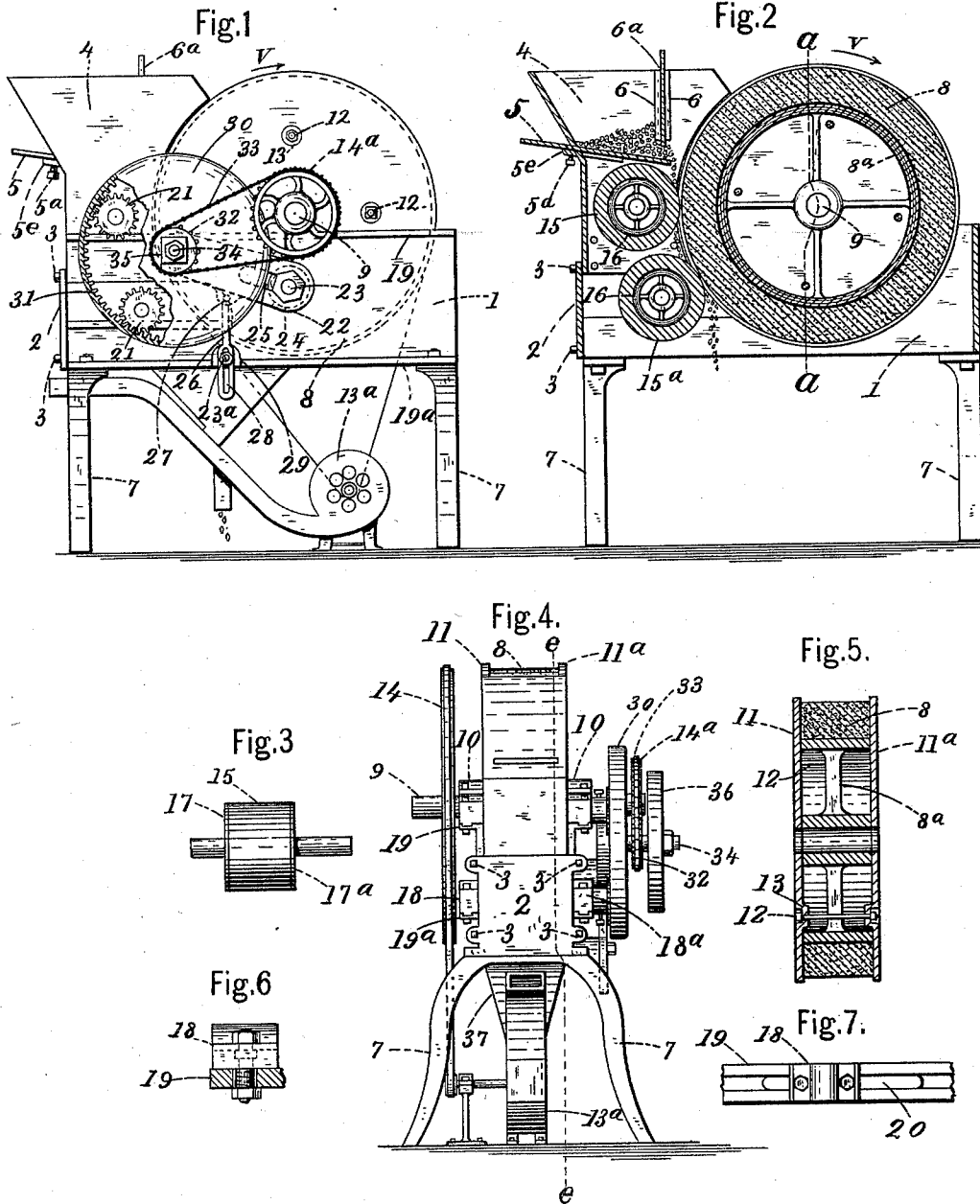
(No Model.)

L. A. RIESTER.

MACHINE FOR AND MODE OF HULLING COFFEE, RICE, &c.

No. 509,606.

Patented Nov. 28, 1893.



Witnesses.

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UNITED STATES PATENT OFFICE.

LEON A. RIESTER, OF BUFFALO, NEW YORK.

MACHINE FOR AND MODE OF HULLING COFFEE, RICE, &c.

SPECIFICATION forming part of Letters Patent No. 509,606, dated November 28, 1893.

Application filed February 18, 1893. Serial No. 462,829. (No model.)

To all whom it may concern:

Be it known that I, LEON A. RIESTER, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Machines for Hulling Coffee, Rice, &c., of which the following is a specification.

My invention relates to certain improvements in machines for hulling coffee, rice or other similar grains and will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of the machine complete, a portion of the inside gear wheel being broken away to show the interior construction and arrangement of the gear for driving the elastic faced rollers. Fig. 2 is a vertical longitudinal section in or about line *e e*, Fig. 4, the fan blower and its operating parts being omitted. Fig. 3 is a side elevation of one of the elastic faced rollers. Fig. 4 is a front elevation of the machine complete. Fig. 5 represents a cross section through the grinding roller, in or about line *a a*, Fig. 2. Fig. 6 represents a detached sectional portion of one of the flanges projecting from the side of the machine also an end view of one of the boxes in which the feeding rollers are mounted. Fig. 7 is a top view of the same showing the slot through which the collar bolts pass for holding the box to the flange when adjusted to the point desired.

Referring to the drawings—the frame 1 of the machine is usually constructed of cast iron but any other suitable material may be used. It is made in a rectangular form and is provided with a cover or door, 2, at the front end of the frame secured in place by bolts, 3.

At the front top of the frame is a hopper 4, having in its inside lower portion a slightly inclined plate, 5, forming the bottom of the same. This bottom piece, 5, extends forward to within a short distance of the grinding roller leaving room enough to let the grain fall through. It is made adjustable back and forth by means of the set screw, 5^a, which passes through the lug, 5^b. This adjustment allows it to be moved forward as the grinding stone (or emery) wears away. On each

inner side of the hopper is a slideway, 6, in which is fitted a vertical or substantially vertical partition plate, 6^a, which is adjustable up or down so as to let more or less grain pass through, some grain, such as coffee and rice require a different adjustment to regulate the feed.

The machine is mounted on four legs, 7, made preferably of cast iron. In this frame is mounted a stone or emery hulling wheel, 8, made either of a grind stone or of emery. The stone or emery is fitted on a spider, 8^a, made of cast iron and rigidly secured to a shaft, 9, which is mounted in bearings, 10, in said frame so as to turn therein. This stone or emery hulling wheel is provided with two circular side pieces 11 and 11^a, which are held rigidly in place by bolts, 12. The heads and nuts of these bolts are fitted in countersunk portions, 13, see Fig. 5, so as to leave a perfectly plain surface on each side of the stone hulling wheel without any obstructions. On one end of the hulling wheel shaft is a pulley, 14, for driving a fan blower, 13^a, and on the opposite end is a sprocket gear wheel, 14^a, for driving the feed rollers. The feed rollers 15 and 15^a, are made of elastic material, india rubber for instance, mounted upon a spider 16, made preferably of cast iron.

On each side of the elastic feed rollers is a thin disk of raw hide, 17, and 17^a, see Fig. 3, connected or otherwise secured thereto. These feed rollers are mounted in adjustable bearings that can be moved forward and secured at any desired point.

The bearing boxes, 18, and 18^a, for the feed rollers rest upon flanges 19 and 19^a, which project far enough out from the sides of the machine to receive them. In Figs. 6 and 7, I have shown detached enlarged views of a portion of one of these flanges and one of the adjustable boxes. The flanges are provided with a slot, 20, through which the bolts for holding the boxes pass and by which, as will be readily understood, the box may be adjusted along back and forth. Each feed roller is provided with a pinion, 21, see Fig. 1, in which these pinions are shown.

A slotted arm 22 is bolted by a bolt 23 to a lug, 24, (shown partly by dotted lines in Fig. 1,) projecting from the side of the machine.

The bolt, 23, passes through a slot, 25, in said arm, which allows the arm, 22, to be adjusted back and forth by means of said bolt. To hold this arm, 22, more securely when
 5 adjusted and secured by the bolt, 23, I employ a slotted arm, 26, having its upper end pivoted to the arm, 22, by a pivot, 27, shown by dotted lines in Fig. 1. The lower end of the arm, 26, is provided with a slot, 28, through
 10 which the bolt, 23^a, passes into a lug, 29, which projects out from the side of the machine.

To a stud on the outer end of the arm, 22, is mounted an internal gear wheel, 30, so as to turn thereon, the gear teeth, 31, being on
 15 the inside engaged with the teeth on the pinion for operating the feed rollers, the operation being such that while the stone or emery roller moves more slowly than the feed rollers in the direction of the arrow V, Fig. 2,
 20 the feed rollers move in the same direction but in as much as the opposite faces of the stone or emery wheel and elastic feed rollers face each other the working surfaces at the points of contact with the grain of each move
 25 in opposite directions.

On the gear wheel, 30, is mounted a sprocket gear wheel, 32, which connects with the sprocket wheel 14^a by a sprocket chain, 33. The driving shaft or stud 34, upon which the
 30 sprocket gear, 32, is mounted is provided with a projecting square portion 35, adapted to receive a handle for turning it. When power is used to drive the machine a pulley, 36, shown in Fig. 4, is employed. For some
 35 uses it is desirable to use more than one elastic feed roller.

From the above description it will be seen that the stone or emery wheel is considerably larger than the elastic face feed rollers. The
 40 face of the elastic feed rollers should run at least with double the speed of the face of the stone or emery wheel, so that the stone or emery hulling wheel will not be liable to carry the grain or berries up over with it but allow the
 45 feed rollers to roll them directly downward between the elastic and stone or emery surfaces. The feed rollers being elastic and running with much greater speed at their peripheries than the periphery of the stone or
 50 emery wheel, and in the proper direction for feeding, the grain is all carried down through the oppositely moving surfaces. As the grain is passing an elastic faced roller it is partly embedded in the face of the same and
 55 the stone or emery wheel causes it to rotate during its passage through thereby removing the hull entirely from the grain, the faces of the elastic rollers being close enough to the stone or emery wheel to cause it to rotate.

The object of the emery or stone wheel is to present a roughened surface to the grain. A roughened or corrugated iron or steel hulling wheel will also answer a good purpose
 60 and equally as well for some kinds of grain as the emery or stone.

If the stone or emery hulling wheel was the feed roller instead of the elastic faced roller,

and the adjustment and relative speed of the different rollers was the same as above described, the machine would be practically in-
 70 operative, because the movements of all rollers being reversed and the motion of the elastic faced rollers very rapid in comparison with the stone or emery wheel, they would, as practical demonstration has shown, throw the
 75 grain up over them and consequently out of the machine instead of in and through it.

I am aware that machines have heretofore been constructed with a stone or emery wheel acting as a feed wheel and the elastic faced
 80 rollers moving in an opposite direction from the stone or emery hulling wheel. Machines made in that way have never come into practical use because they could not be made to operate successfully. I therefore do not claim
 85 such construction broadly, but

What I do claim is—

1. In a machine for hulling coffee, rice or other grain, an elastic roller mounted in bearings in the supporting frame and geared so
 90 as to receive the grain from the feeding hopper and feed it into the machine, in combination with a roughened surface hulling wheel of larger diameter, mounted also in bearings
 95 in the supporting frame, and geared to move in the same direction, while at the point of contact with the grain its periphery moves in an opposite direction and slower than the elastic feed roller substantially as described.

2. A machine for hulling coffee, rice or other
 100 grains consisting of a supporting frame, a hopper to receive the grain in the upper part of said frame, a series of elastic feed rollers mounted in bearing boxes in said frame and
 105 a means as substantially above described for rotating said elastic feed rollers in a direction to feed the grain down into the machine, in combination with a roughened hulling wheel geared to move slower and in the same direction,
 110 as the feed roller, so that its periphery at the point of contact with the grain will move in the opposite direction, and a means for adjusting the feed rollers forward as the hulling and feed rollers wear away, substantially as above set forth.

3. In a machine for hulling coffee or other grain, a hopper for receiving the grain, an elastic feed roller having a disk of raw hide secured to each side and mounted on a shaft
 120 set in horizontally movable boxes on the supporting frame and adapted to be adjusted forward or back on said frame, in combination with a roughened surface hulling wheel provided with a flange on each side between
 125 which the peripheries of the elastic faced feed rollers move, a means substantially as above described for giving the elastic faced rollers a rotary movement to feed or carry the grain into the machine, and for rotating the roughened faced hulling wheel at its point of con-
 130 tact with the grain in a reverse direction to the movement of the elastic faced feed roll, substantially as described.

4. In a machine for hulling coffee or other

grain, a hopper for receiving the grain, an elastic feed roller having a disk of raw hide secured to each side and mounted on a shaft set in horizontally movable boxes on the supporting frame and adapted to be adjusted forward or back on said frame, in combination with a roughened surface hulling wheel provided with a flange on each side between which the peripheries of the elastic faced feed rollers move, a means substantially as above described for giving the elastic faced rollers a rotary movement to feed or carry the grain into the machine, and for rotating the roughened faced hulling wheel in the same direc-

tion so that its periphery at the point of contact with the grain moves in a reverse direction to the elastic feed roller, a fan blower for carrying off the chaff or hulls and a belt connected with a pulley on the roughened hulling wheel shaft and with a pulley on the blower for separating the hulls and chaff from the grain as it leaves the machine substantially as described.

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