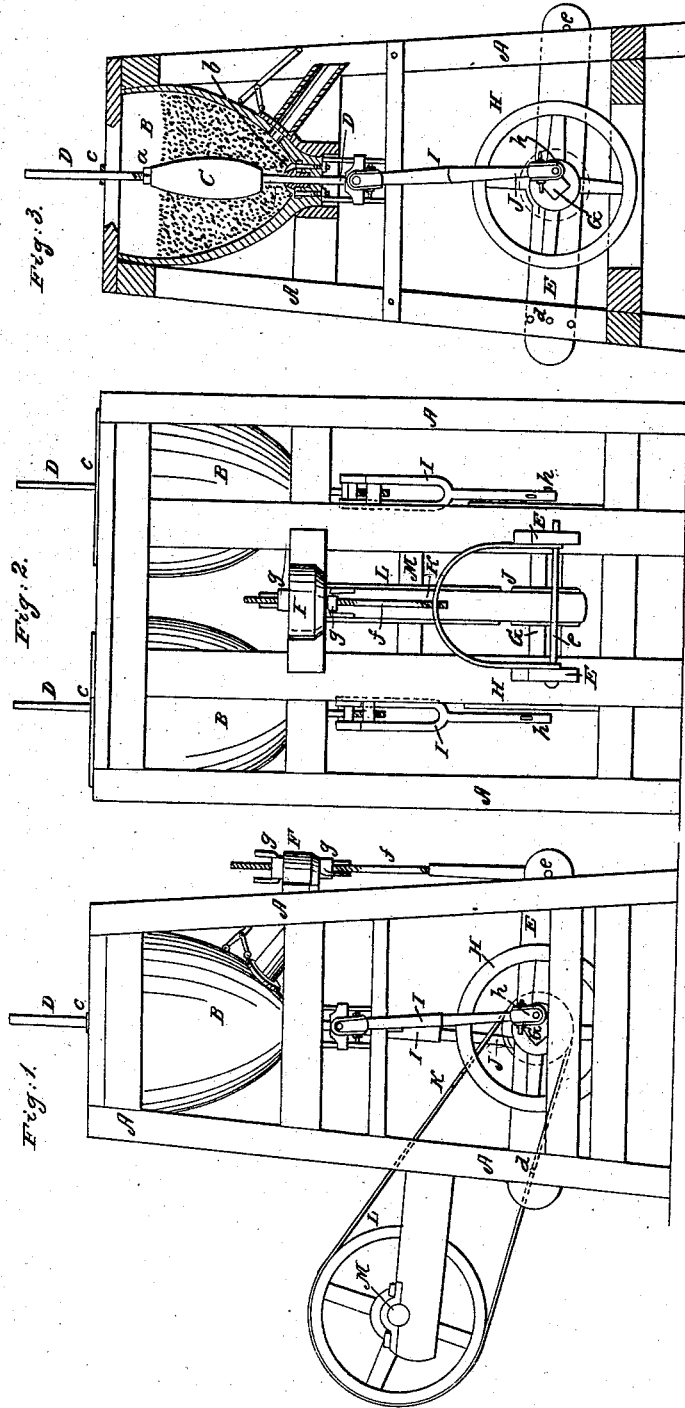


P. McKINLAY.

Rice Cleaner.

No. 8,010.

Patented April 1, 1851.



# UNITED STATES PATENT OFFICE.

PETER MCKINLAY, OF CHARLESTON, SOUTH CAROLINA.

RICE-HULLER.

Specification of Letters Patent No. 8,010, dated April 1, 1851.

*To all whom it may concern:*

Be it known that I, PETER MCKINLAY, of the city of Charleston, in the county of Charleston and State of South Carolina, have invented a new and useful Improvement in Mills for Cleansing Rice; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

Figure 1, is a side elevation of one of my improved mills having two mortars. Fig. 2, is a front elevation of the same. Fig. 3, is a vertical section taken from back to front through the center of one of the mortars.

Similar letters in the several figures, refer to corresponding parts.

The nature of my invention consists in operating the pestle by attaching it to a rod which passes through the bottom of the mortar, and is attached to a connecting rod, which connects it to a crank on a shaft, having its bearings in levers so arranged below the mortar, as to allow of the pestle being adjusted at any required height in the mortar.

The object of my invention is to separate the thin skin or film which remains on the grain after the hull or rough outside shell has been taken off and blown away, without breaking or bruising and thereby lessening the market value of the rice.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

A, A, represent a strong frame of timber consisting of posts and cross timbers of sufficient strength to carry the working parts of the mill.

B, B, are the mortars which are of the same form as those usually employed, they are supported on a platform in the frame at a suitable height to admit the working parts below them, each one has an opening at or near the bottom closed by a draw gate for the purpose of letting out the rice after it is cleansed.

C (Fig. 3,) is one of the pestles or stampers which is of cast iron or other suitable metal and may be either solid or hollow.

D, is a rod which passes through the pestle, the pestle is secured to it by a nut *a*, which fits on a screw on the rod; the screw and nut will admit of the pestle being adjusted to a higher or lower position on the

rod according to the distance above the bottom, it is wished to allow the pestle to descend; the lower end of the rod passes through a stuffing box *b*, in the bottom of the mortar, (see Fig. 3) which keeps the rice from leaking out, and its upper end works in a guide *c*, which is placed across the top of the mortar, a cross head may be applied to the lower end being bored to fit stationary guide bars, for the purpose of keeping the pestle in line.

E, E, are levers which are secured by pins or fulcra *d*, *d*, to the back part of the frame; a pin or bolt *e*, passes through the opposite ends of these levers and also through the forked ends of a suspension rod *f*, which is screwed at its upper end and secured by nuts *g*, *g*, to a sill or shaft F, on the front of the frame one nut being above the sill, and the other being below it, by unscrewing or screwing these nuts the forward ends of the levers may be raised or depressed.

G, is a shaft carrying fly wheels H, H, it has journals fitting in bearings in the levers E, E, directly under a line drawn through the centers of the mortars; on each of the fly wheels H, H, there is a pin *h*, which serves as a crank pin.

I, I, are connecting rods provided with bearing boxes at each end, one end of each being attached to one of the crank pins *h*, *h*, and the other end to the end of one of the rods D, D.

J, is a pulley fast on the shaft G; it receives motion through a band K, from a pulley L, on the main driving shaft M, which rests in bearings on brackets at the back of the frame.

The operation of the mill is as follows: The proper quantity of rice being put in the mortars; rotary motion is communicated from the main shaft M, to the shaft G, which will cause the crank pins *h*, *h*, to give a reciprocating rectilinear motion to the pestles, this motion should be given at the rate of about from 120 to 150 strokes per minute, the pestle in its downward stroke (not being allowed to descend quite to the bottom of the mortar) will cause the rice under it to receive considerable pressure, and to be forced from beneath it toward the sides of the mortar, which will create great friction between the grain and will scrub off the skin, but will not strike or beat it with sufficient force to break the

grain; when it is sufficiently cleansed the draw gate at the bottom of the mortar may be opened and the rice allowed to run out.

The method of operating the pestle or stamper in most general use, is to have it very heavy, and to raise it to a considerable height by means of levers or lifters on a shaft of large diameter placed above the mortars, when it is released and allowed to fall by its own gravity or weight; this requires very heavy machinery, and can only be operated at a very slow speed in consequence of the danger of breaking the lifters, it also breaks the grain by the great percussive force with which the pestle strikes or beats it, and is frequently out of repair.

The advantages of my improvements are, that in consequence of the rapid motion of the pestle the rice is cleansed much more quickly and much more perfectly; that the rice can be drawn off from the bottom of the mortar instead of being taken out by scoops, &c., from the top, which saves con-

siderable time, and inconvenience; that the machinery for operating the pestle is lighter, takes less power to drive and is not so liable to get out of repair; that the pestle can be raised to any height above the bottom of the mortar, so as to give greater or less friction to the rice as may be required, by raising or lowering the suspension rods *f*, which will raise or lower the shaft *G*'.

Having described my invention I will now state what I claim as new in my invention and desire to secure by Letters Patent.

I claim—

Operating the pestle by having it attached to a rod passing through the bottom of the mortar and receiving motion through a crank or its equivalent placed below it substantially as and for the purpose herein set forth.

PETER MCKINLAY.

Witnesses:

FRANCIS BERRY,  
JOHN DUNN.