



(No Model.)

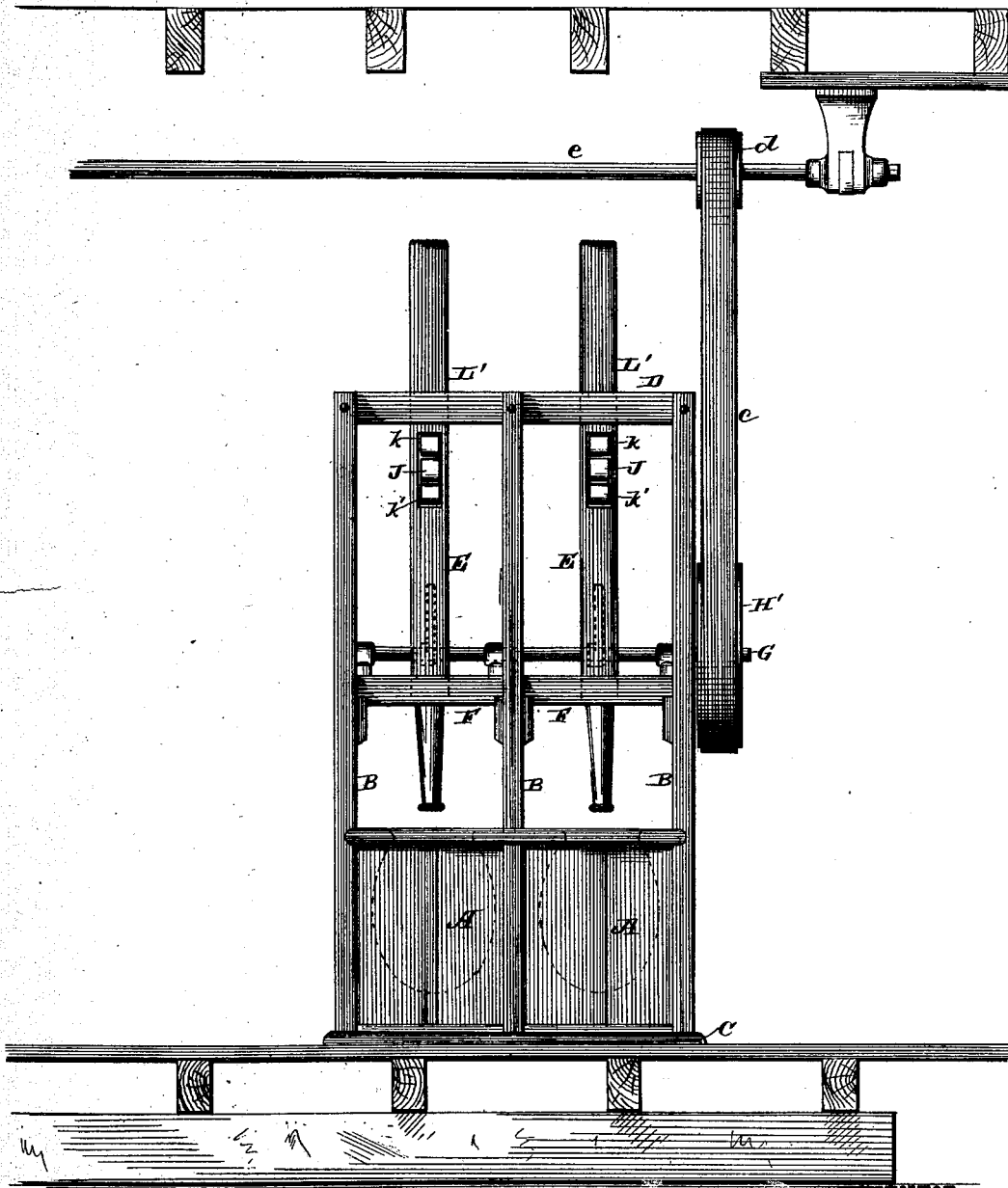
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S. HUGHES.  
Rice Pounder.

No. 235,535.

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Fig. 2.



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# UNITED STATES PATENT OFFICE.

SAMUEL HUGHES, OF CHARLESTON, SOUTH CAROLINA.

## RICE-POUNDER.

SPECIFICATION forming part of Letters Patent No. 235,535, dated December 14, 1880.

Application filed August 13, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, SAMUEL HUGHES, of Charleston, in the county of Charleston and State of South Carolina, have invented certain new and useful Improvements in Rice-Pounders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in rice-pounders.

In the old style of rice-pounders the pestle was raised by revolving arms passing in their revolution through a slot in the pestle-body and engaging the latter at the top of the slot. Owing to the undue wear and friction of the lifting devices, and also to the great noise produced in the operation of such machines, they met with disfavor and are objectionable in use. Again, rice-pounders have been made wherein the pestle is lifted by cams or eccentrics engaging with the opposite sides of a lifting board or rod attached to the pestle. This latter form of machine has been found objectionable in use, owing to the fact that the cams or eccentrics soon wear away the lifting rod or board, thereby necessitating the renewal of such parts of the machine, and further complicated mechanism is required to maintain the proper adjustment of the cams or eccentrics, thereby enhancing the cost of the machine and increasing its liability to become impaired and unfitted for use.

The object of my invention is to obviate the defects and objectionable features referred to, and provide a rice-pounder which shall be simple and economical in its construction, durable in use, and adapted to be operated at a minimum expenditure of power.

With these ends in view my invention consists, essentially, in the combination, with a pestle having rollers journaled in its body portion, of an oscillating arm the free end of which engages with said rollers, and a cam arranged to engage with a roller journaled in the vibrating arm and lift the same.

My invention further consists in certain

other details of construction and combinations of parts, as will hereinafter be described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view, in side elevation, of my improved rice-pounder. Fig. 2 is a front elevation of the same. Fig. 3 is a detached view, in vertical section, of the pestle. Fig. 4 is a longitudinal section of one of the rubber-cushioned rollers. Fig. 5 is a transverse section of the roller. Fig. 6 is a side elevation, and Fig. 7 an end elevation, of the roller. Fig. 8 is a detached view of the pestle-cap, bolt, and nut. Fig. 9 is a plan view of the nut. Fig. 10 is a transverse section of the upper portion of the pestle-body. Figs. 11 and 12 are modifications.

A represents the mortar, which may be of any suitable construction and material. B are the upright frame-pieces, secured at their lower ends to sills C, and at their upper ends to the upper pestle-guide, D.

Pestle E is retained in place by the upper and lower guides, D F, said guides having openings formed therein to allow of the free reciprocation of the pestle, and to prevent any lateral displacement of the same.

G is a counter-shaft, supported in bearings *a*, mounted on beams *b*, secured at one end to the pounder-frame, and at their opposite ends to the frame-work H, located in rear of the mortar.

H' is a band-pulley, secured to counter-shaft G, and driven by a belt, *c*, which passes over pulley *d*, attached to the driving-shaft *e*. A cam, I, is attached to the counter-shaft G, or it may be bolted to or cast solid with the pulley H'. A vibrating arm, J, is hinged at *f* to the frame-work H.

To the under side of the vibrating arm is secured a bracket, K, in which is journaled a roller, L, which engages with the cam I, the latter serving to lift the arm at each revolution of the counter-shaft and allow it to fall, by its gravity, when the outer end of the cam is released from contact with the roller.

The outer or free end of the arm J is inserted between rollers *k k'* journaled in the body L' of the pestle. As the cam I is revolved it engages with the roller L and lifts the vibrating arm at each revolution of the cam. The roller

L rolls over the periphery of the cam, and thus the friction and wear are very slight between such parts. As the vibrating arm is raised its outer or free end engages with the rollers in the body of the pestle and raises the latter. The vibrating arm will, of course, describe an arc of a circle when raised by the cam, and hence its free end will have an end-wise movement between the rollers; but the friction and wear are reduced to a minimum by the employment of the rollers, which engage the upper and lower sides of the arm.

Rollers  $k k'$  and L are preferably constructed in the manner illustrated in Figs. 4, 5, 6, and 7. Each roller is composed of the hub Q, provided with a flange,  $q'$ , at one end, and with removable flange,  $q^2$ , at the opposite end, the flange  $q^2$  being retained in place by means of screws  $q^3$  or other suitable devices. The hub Q is mounted on a shaft,  $Q^2$ , having journals  $q^4$  on opposite ends thereof.

Within the annular groove R formed between the flanges  $q' q^2$  is placed a rubber tire or ring,  $R'$ , which serves as a cushion to relieve the machine of any sudden shocks, and also deadens the noise of the machine. Instead of using rubber-cushioned rollers the latter may be made solid with unyielding peripheries, and the free end of the vibrating lever be provided with cushions, as shown in Fig. 11.

S S' represent rubber cushions, which are secured to the upper and lower edges or sides of the vibrating lever by tacks or screws  $s$ . A strip of leather,  $S^2$ , is then passed around the end of the lever and over the rubber cushions, the leather strip being secured in place by screws  $s'$ , inserted through plates  $s^2$ , having countersunk holes  $s^3$  for the reception of the screw-heads.

The pestle is made with a hollow iron body,  $L'$ , which may be of any desired length, size, and form—that is, it may be square, round, diamond-shaped, or other form in cross-section.

To the lower portion of the pestle is secured the cap  $m$ , by means of the bolt N. The head  $n$  of the bolt is inserted in a recess,  $n'$ , in the face of the cap, while the screw-threaded shank engages the nut  $N'$ , the latter being elongated in form and adapted to be inserted through the opening in the lower end of the pestle.

The cap  $m$  may be made of any desired form and size, and when unduly worn can be readily removed and replaced by a new one.

Within the hollow body of the pestle are placed iron borings O, for the purpose of increasing the weight of the pestle, and by va-

rying the quantity of iron borings the pestle may be made of any desired weight.

Instead of employing iron borings, I may use sand, or any material found suitable for the purpose, the object being to readily adjust the weight of the pestle. This form of pestle is also adapted for use with other styles of rice-pounders, and may be constructed as illustrated in Fig. 12, wherein P represents a lifting-board, secured to the upper end of the hollow pestle by bolts  $p$ .

Hence I would have it understood that I do not restrict myself to the employment of this improved pestle is the particular construction of pounder herein shown and described.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a rice-pounder, the combination, with a pestle and rollers journaled in its body portion, of a vibrating arm having its free end inserted between said rollers, the peripheries of the latter being arranged and adapted to engage with the upper and lower edges of the vibrating arm, substantially as set forth.

2. In a rice-pounder, the combination, with a pestle and rollers journaled in its body portion, of a vibrating arm having its free end inserted between said rollers, and a rubber cushion interposed between the rollers and vibrating arm, substantially as set forth.

3. In a rice-pounder, the combination, with a pestle having rollers journaled in its body portion, said rollers having rubber-tires attached thereto, of a vibrating arm or lever having its free end inserted between said rollers, the latter arranged and adapted to travel backward and forward on the upper and lower edges of said vibrating arm, substantially as set forth.

4. A pestle constructed with a hollow body and adjustably weighted by material placed within the chamber of the pestle, substantially as set forth.

5. A pestle constructed with a hollow body and provided with a removable cap, and adjustably weighted by material placed within the chamber of the pestle, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 4th day of August, 1880.

SAML. HUGHES.

Witnesses:

J. B. FLEMING,  
M. BARNES.