No. 745,269. PATENTED NOV. 24, 1903.

R. W. WELCH.

RICE HULLING MACHINE.

APPLICATION FILED APR. 9, 1902.

NO MODEL.

Fig. 1.

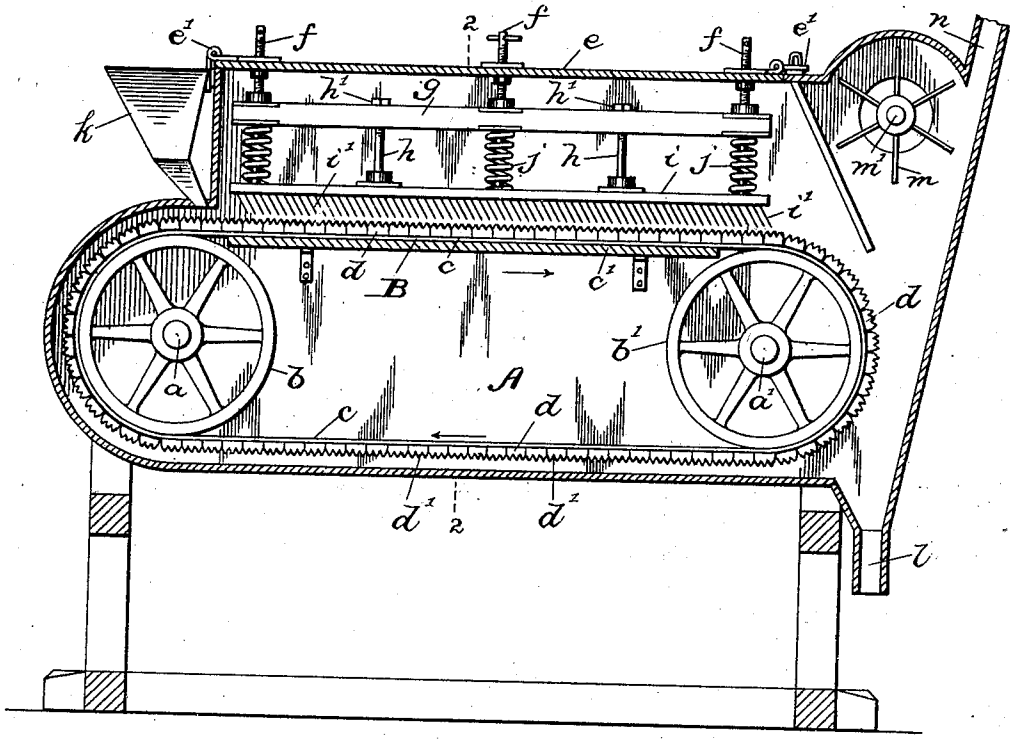


Fig. 2.

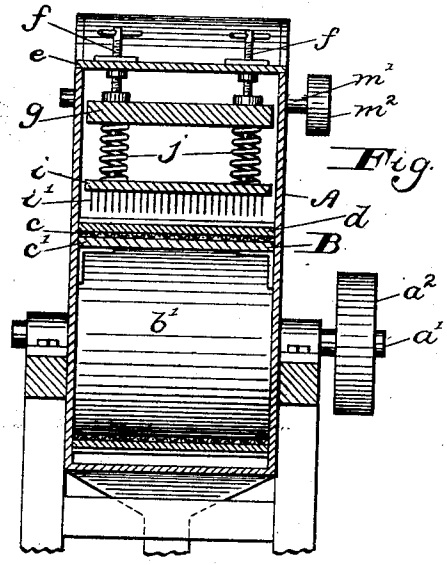


Fig. 3.

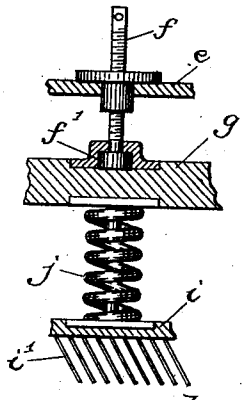


Fig. 4.

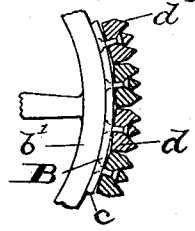
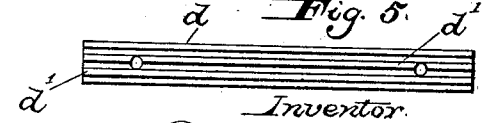


Fig. 5.



Witnesses.
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UNITED STATES PATENT OFFICE.

ROSIA W. WELCH, OF BALTIMORE, MARYLAND, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO ROYAL MILLING AND MANUFACTURING COMPANY, A CORPORATION OF MAINE.

RICE-HULLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 745,269, dated November 24, 1903.

Application filed April 9, 1902. Serial No. 101,999. (No model.)

To all whom it may concern:

Be it known that I, ROSIA W. WELCH, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Rice-Hulling Machines, of which the following is a specification.

This invention relates to improvements in machines for hulling and decorticating rice and similar grain; and one of its objects is to provide a machine of this character which will act on practically each individual grain and abrade and open the hull or pod, so that the kernel will readily fly or pop out of the same before it reaches the discharge end of the machine; and another object of the invention is to provide improved adjusting and tensioning means by which greater abrasive pressure may be exerted on the grain at different points in its travel through the machine. For instance, rice may be fed into one end of the machine and be denuded of its hull by a slight abrasive pressure on the same, and then farther along in the machine the hulled rice may be decorticated or stripped of its inner skin by a greater abrasive action exerted upon it.

The invention consists in certain constructions, arrangements, and combinations of the parts hereinafter fully described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of the machine with the casing in section to better illustrate the construction. Fig. 2 is a transverse sectional view of the machine, taken on the line 2 2 of Fig. 1. Fig. 3 is an enlarged detail sectional view illustrating the yielding and adjustable manner in which the hulling and decorticating comb is suspended. Fig. 4 is a detail view of a portion of the transversely-corrugated belt conveyer for carrying the rice along underneath the said comb. Fig. 5 is a detail plan view of one of the corrugated plates which together form the surface of the belt conveyer.

Referring to the drawings, the letter A designates a casing provided at its opposite ends with transverse shafts a a' in horizontal alinement with each other, and to each of said shafts is secured a pulley, (designated b b'.) An endless-belt conveyer B is mounted to pass over said two pulleys with its two laps running in a horizontal direction, and said conveyer comprises a belt proper, c, of canvas or other suitable material, and a plurality of corrugated plates d, secured to the said belt c by rivets or the like. The said plates and their corrugations d' extend transversely of the belt, and the plates abut one against the other and cover the entire outer surface of the belt, as indicated in Fig. 1. The upper lap of the belt slides along a horizontal supporting-ledge c', secured in the casing, whereby to prevent said lap from sagging.

The top e of the casing is removably held thereto by hasps e', and secured in said top are a number of vertical adjusting-bolts f, swiveled at their lower ends f', as shown in Fig. 3, to a horizontal beam g. Suspension-rods h are mounted in said beam g and are movable in a vertical direction through the beam, being prevented from detachment from the beam by nuts h' on their upper ends, and from said rods is suspended (in proximity to the upper lap of the belt conveyer B) a horizontally-extending comb i, provided with a number of spring-teeth i', of wire or the like, which are inclined and all trend, as shown in Fig. 1, rearwardly—that is, toward the discharge end of the machine. Three pairs of coil-springs j are interposed between the beam g and the comb i, whereby the latter may yield upwardly, and by turning the adjusting-bolts f the said beam, which carries the said comb, may be raised or lowered as a whole or at either end toward or away from the belt conveyer for a purpose presently described.

A hopper k is secured at one end of the casing A just above the belt conveyer, and a bottom discharge-spout l is located at the opposite end of the casing, and above said discharge-spout is mounted a rotary fan m, adapted to carry off the hulls and particles of skin through a chute n. Both the fan-shaft m' and one of the conveyer-shafts a' are provided with driving-pulleys m^2 a^2, respectively.

In practice the rice is fed a comparatively

small quantity at a time into the hopper *k* and passes from thence on to the belt conveyer B, which is moving in the direction indicated by the darts, Fig. 1. To get the best results, the rice is fed in quantities sufficient to only fill the transverse corrugations *d'*, and it is carried in said corrugations into contact with the rearwardly-trending teeth *i'*, whose abrasive or dragging action opens the hull and allows the kernel to come out of the same. The pressure of the said abrasive action may be regulated by raising or lowering the comb *i* by means of the adjusting-rods *f*, and, if it is desired, that end of the comb nearer the discharge end of the machine may be regulated to press harder on the rice than the other end of the comb, whereby the rice may be first hulled in the machine by a slight pressure of the comb and then decorticated by a harder pressure of the comb.

The top *e*, with the comb suspended therefrom, may be removed for the purpose of cleaning the comb or for any other purpose.

In the practical construction of the machine the spring-teeth *i'* are very close together, so that practically every grain of rice will be acted on by said teeth.

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

A rice-hulling machine, comprising a casing provided at one end with a hopper and at the other end with a discharge; a transversely-corrugated endless belt mounted to run horizontally in said casing; a plurality of vertical adjusting-bolts mounted in the top of said casing; a horizontal beam, *g*, to which the lower ends of said bolts are swiveled whereby to support said beam so that it may be vertically adjusted; suspension-rods, *h*, mounted in said beam and movable vertically therein; a horizontally-extending comb suspended from said rods and provided with spring-teeth adapted to act with an abrasive action on the adjacent lap of said belt; and springs interposed between and bearing against said beam and said comb, as and for the purpose set forth.

In testimony whereof I affix my signature in the presence of two witnesses.

ROSIA W. WELCH.

Witnesses:

CHARLES L. VIETSCH,

FREDERICK S. STITT.