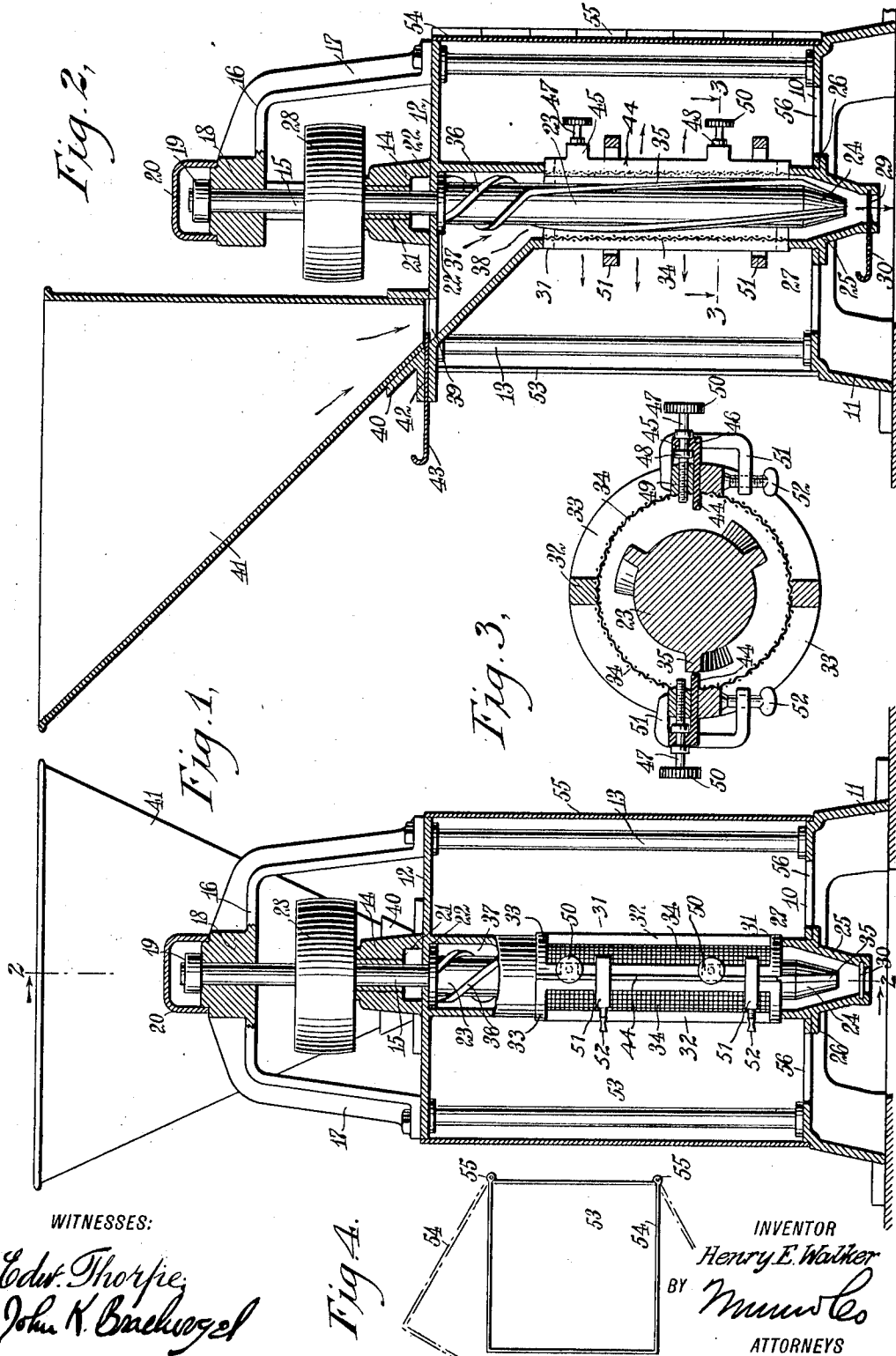


H. E. WALKER.
GRAIN CLEANING MACHINE.
APPLICATION FILED SEPT. 28, 1910.

1,020,377.

Patented Mar. 12, 1912.



WITNESSES:
Edw. Thorpe,
John K. Bachmayer

Fig. 4.

INVENTOR
Henry E. Walker
BY *Munn & Co.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

HENRY EDWIN WALKER, OF HONOLULU, TERRITORY OF HAWAII.

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Specification of Letters Patent.

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Application filed September 28, 1910. Serial No. 584,369.

To all whom it may concern:

Be it known that I, HENRY E. WALKER, a subject of the King of Great Britain, and a resident of Honolulu, in the county of Honolulu, Hawaii, have invented a new and Improved Grain-Cleaning Machine, of which the following is a full, clear, and exact description.

This invention relates to machines for removing husks or hulls from different kinds of grains, and freeing grain from admixed foreign substances, and has reference more particularly to a grain cleaning machine comprising a screen, a rotary member, means for feeding grain into the space between the screen and the rotary member, and an adjustable retarding blade for regulating the movement of the grain, to determine the amount of attrition to which it is subjected.

The object of the invention is to provide a simple and efficient machine for hulling, cleaning, and freeing from impurities, rice and other kinds of grains, which is compact in form, which requires little power to operate it, by means of which large quantities of grain can be worked in a comparatively short time, which can be easily taken apart and assembled, and which can be regulated to adapt it for use with different kinds of grains, and with grains in different conditions.

The invention consists in the construction and combination of parts to be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views, and in which—

Figure 1 is a vertical section of an embodiment of my invention; Fig. 2 is a similar view, the section being taken at right angles to that of Fig. 1, on the line 2—2 in said figure; Fig. 3 is an enlarged, transverse section on the line 3—3 of Fig. 2; and Fig. 4 is a plan view of the casing of the machine.

Before proceeding to a more detailed explanation of my invention, it should be clearly understood that while the machine is particularly useful in hulling and cleaning rice, it can also be advantageously employed for a like purpose with other and different kinds of grains. Certain of the de-

tails shown for example herewith, form no part of the invention, and can be varied in accordance with individual preference and special conditions, without departing from the underlying spirit of the invention.

Referring more particularly to the drawings, I employ a base 10, preferably fashioned from cast iron, and having supporting feet 11, by means of which it can be mounted upon a floor, a table or any other suitable carrier for the machine. A top 12 is located above and spaced from the base, and is carried by four posts or columns 13, preferably arranged near the corners of the base, and secured thereto in any suitable manner. The top 12 has a substantially central hub or extension 14, constituting a bearing in which is journaled a shaft or spindle 15, which is arranged in a vertical position, and extends above and below the top. Upon the latter is mounted a bearing member 16 having legs 17 bolted or otherwise secured to the top, and provided with a substantially central bearing 18, which receives the upper end of the shaft 15. The latter, above the bearing 18, has a collar 19, which rests upon the upper surface of the bearing, and is normally covered by a guard cap 20. The shaft 15 has a bearing sleeve 21 in the hub 14 of Babbitt metal, brass or the like. The shaft carries a rotary member 23 under the top 12. The rotary member 23 is substantially cylindrical in form and is rigidly secured upon the shaft, or is formed integral therewith. It has the lower end 24 tapered and extending into a correspondingly formed, tapered outlet sleeve 25, arranged in a substantially central opening 26 of the base, and provided with a supporting collar 27 which rests upon the base. A leather or other washer 22 is placed between the upper end of the member 23 and the top 12.

The top 12 and the bearing member 16 are preferably fashioned from cast iron. Needless to say, any other material adapted to the purpose can be employed for these and others of the parts. A pulley 28 is secured upon the shaft 15, and serves for its operative connection with any suitable prime mover, for driving the rotary member. The outlet sleeve 25, near the lower end, has a transverse slot 29, in which is movably arranged a manually operable slide 30 for regulating the escape of the cleaned grain through the outlet. The receptacles for re-

ceiving the grain are of course located under the outlet, and are filled by the grain escaping at the lower part of the machine. A screen frame is located within the machine, about the rotary member 23, and comprising two screen frame sections 31, of semi-cylindrical form, and each consisting of longitudinal bars or members 32, and semi-circular end members 33 connecting the extremities of the longitudinal members. Screens 34 of wire mesh or any other suitable, reticulate material are carried by the screen frame sections, being secured thereto in any manner adapted for the purpose. The resulting screen member is cylindrical, and encompasses the rotary member 23, which is provided with helical ribs 35 within the screen. The ribs extend longitudinally of the rotary member and are of slight curvature. Above the screen, the rotary member has further, helical ribs 36 of greater curvature, which are arranged in a feed chamber 37, formed by walls integral with the head or body 12. The feed chamber has an opening 38 above the screen, through which the grain escapes to the space between the rotary member and the screen, the ribs 36 assisting in rapidly feeding the grain out through the opening 38. The head has an inlet opening 39 communicating with the feed chamber 37, and has above the same a tapered socket 40 in which is mounted the lower, open end of a feeding hopper 41, which receives the grain to be cleaned. The head has a slot or groove 42, in which is arranged a manually operable slide 43 by means of which the flow of grain from the hopper into the feed chamber can be regulated.

I employ holding or retarding blades 44 preferably two in number, and arranged at opposite sides of the screen casing. They are positioned between the adjacent longitudinal bars 32 of the two screen frame sections. Each blade has at the outer edge laterally disposed flanges 45 having openings 46 receiving the shanks of adjusting screws 47. These have collars 48 and are received in threaded openings 49 of the longitudinal bars 32 of the frame sections. The adjusting screws have heads 50, by means of which they can be manipulated. By turning the screws one way or the other, the blades are moved inwardly or outwardly, to regulate their distances from the rotary member. U-shaped clamps 51 having clamping screws 52, are employed to secure the screen frame sections removably together.

I employ a removable casing 53, consisting of sections 54 of sheet metal, secured together by hinges 55. The casing encompasses the machine, and can be removed when necessary. The base has openings 56, about the outlet sleeve 25, through which the hulls and other impurities removed from the grain can escape. The grain is fed in through the hopper, and as the member 23 rotates, it passes downward within the screen. The retarding blades 44 cause part of the grain to move more slowly than the remainder, so that the separate grains are thoroughly rubbed and agitated, thereby freeing them from their hulls, and separating them from the impurities associated therewith. The hulls and impurities are forced outward through the meshes of the screen and escape through the openings in the base. The grain cannot pass through the screen, and falls downward to escape through the outlet sleeve, whence it is taken in a cleaned condition.

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

1. In a machine of the class described, a vertical, cylindrical screen, a feed chamber above said screen and communicating therewith at the upper end of the same, said screen having at the lower end an outlet, and a rotary member partly within said screen and partly within said feed chamber and having helical ribs of different pitch, respectively, in said screen and said chamber.

2. In a machine of the class described, a vertical screen, a feed chamber at the upper end thereof and registering with said screen, a feed hopper associated with said chamber and having a controlling slide, said screen having at the lower end an outlet, a rotary member partly within said screen and partly within said chamber, and having helical ribs, said helical ribs within said feed chamber being of greater pitch than said ribs within said screen, and a retarding blade associated with said screen and extending into the same toward said rotary member.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY EDWIN WALKER.

Witnesses:

S. DE FREEST,
P. L. NALUAI.