(No Model.)

C. J. ALLEN.

RICE SEPARATOR.

No. 382,931. Patented May 15, 1888.

Fig. 1.

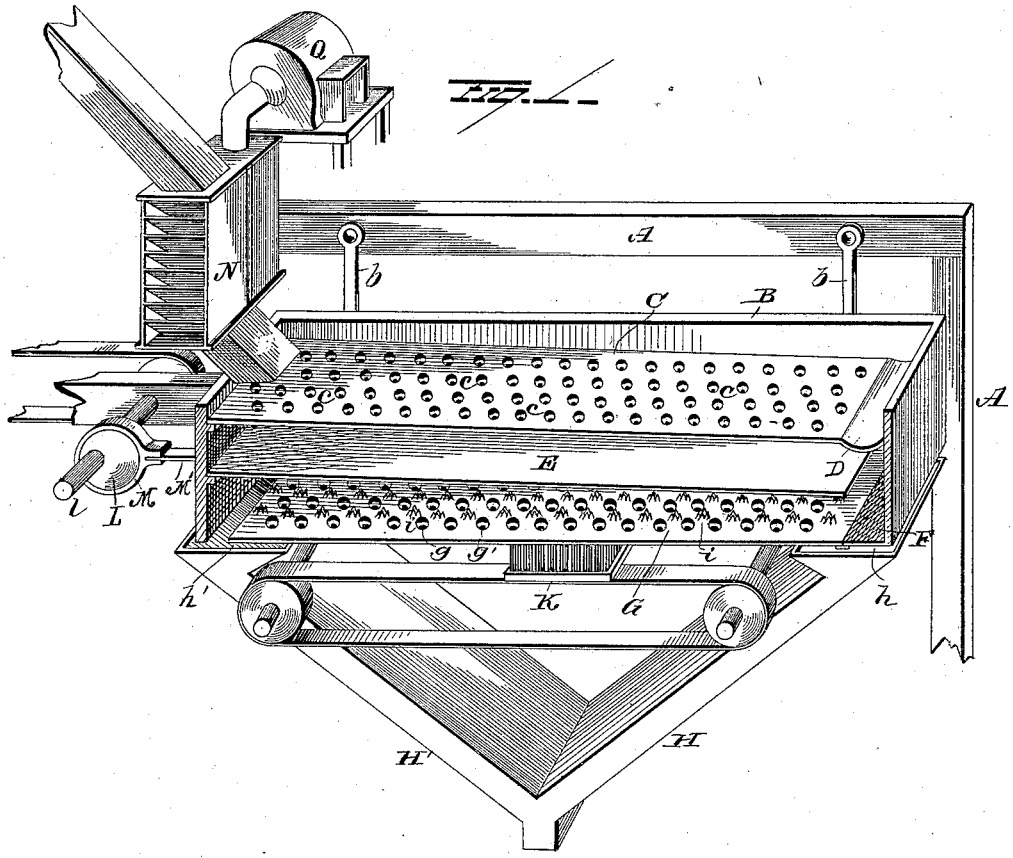
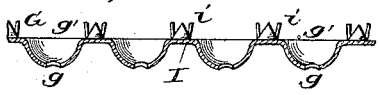


Fig. 3.

Fig. 2.



Witnesses,
E. Mottingham.
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Inventor,
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By his Attorney
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UNITED STATES PATENT OFFICE.

CHARLES J. ALLEN, OF NEW ORLEANS, LOUISIANA.

RICE-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 382,931, dated May 15, 1888.

Application filed August 11, 1886. Serial No. 210,620. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. ALLEN, of New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Rice-Separators; 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 appertains to make and use the same.

My invention relates to an improvement in rice-separators.

While the rice which is harvested early is comparatively free from foul matter in the shape of seeds of various weeds, and commonly termed "black seed," the crops which are harvested later are liable to be quite extensively fouled by the said black seed.

The object of my present invention is to provide a machine which shall be adapted to use in separating the rice from the particles of straw, trash, stack-rice, &c., when the crop is free from black seed, and from the straw, &c., and black seed, whenever the latter is found mixed therewith, thus combining in a single machine effective means for separating either clean or foul rice, as may be required.

A further object is to provide a screen having peculiar-shaped perforations adapted for use in connection with a rice-separator, by means of which the black seed may be more effectually separated from the rice than has hitherto been accomplished.

With these ends in view my invention consists in certain features of construction and combinations of parts, as will be hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of the rice-separator, the casing being partially removed, showing the internal construction. Fig. 2 is a partial cross-section of the lower screen. Fig. 3 is a view of a modified form of screen.

A represents a suitable supporting-frame from which a box-casing, B, is suspended by hangers *b*. Near the top of the casing B is secured a screen, C, provided with perforations *c*, sufficiently large to allow rice-kernels with the hulls on to readily drop through, but fine enough to prevent the heavy pieces of straw and sticks from passing through. The screen C is set on a gradual incline from the end which receives the rice, and at its lower end is located a trough, D, also set on an incline toward one side of the casing, which collects the trash which does not pass through the screen and conducts it off through the side of the casing.

A short distance below the screen C within the casing is located a smooth-faced table, E, inclined in the same direction as the screen C, and adapted to conduct the rice which falls through the screen C to the end of the casing beneath the waste-trough D, where it falls over the end of the table onto a removable table-section, F, adapted to form an extension of a second screen, G. If the rice is free from black seed, the chances are that it will be clean as it falls from the table E; and if such be the case it may be conducted directly into the mouth *h* of the rice-conduit H by sliding out or otherwise removing the section F. If, on the other hand, the rice has more or less black seed mixed therewith, the section F is kept closed and the rice and foul seed are required to travel along the face of the screen G.

The screen G is slanted in the opposite direction from that of the screen C, and is provided with indented perforations G—viz., the perforations *g* are formed at the centers of curved depressions *g'*, as shown clearly in Fig. 2. The perforations *g* are intended to be sufficiently large to allow a black seed to pass through endwise, and the depression around the edge of the perforation is for the purpose of tilting the black seed on end and causing it to enter the perforation *g*.

Between the longitudinal lines of perforations *g* the plane surface of the screen is punctured from underneath, and hence having burrs *i* projecting upwardly therefrom. The object of these upward projections is to cause the black seed to more surely pass into the perforations *g*, and also to spread the seed evenly over the entire surface of the screen; and to further assist in the spreading of the seed the screen G might be given a laterally-swinging motion. The screen G might also be made slightly concave at the end where the seed enters upon it and gradually flatten out toward the end off which the seed passes.

The black seed as it falls through the lower

screen may either be allowed to fall on the ground or floor or it may be caught by a suitable hopper and conducted away.

The rice as it passes over the end of the screen G is caught in the mouth *h'* of a conduit, H', and conducted away to be bagged or stored. I find it convenient to have the conduits H and H' meet at a point below the screen G and form a single conduit leading to the desired point of packing or storage; or if the passage of the rice through a single machine should not prove sufficient to thoroughly clean it, it may be allowed to fall from the conduits H H' onto another screen or set of screens and be further cleaned, and if in connection with a mill it may fall onto the stones ready for milling.

To keep the perforations in the screen G open, I provide one or more brushes, K, secured to a pair of endless chains or belts driven by suitable power and caused to travel continuously beneath the screen, substantially as shown in the drawings, Fig. 1.

The casing B, with its screens and table, is caused to vibrate longitudinally by means of an eccentric, L, secured on a rotary shaft, *l*, and having a strap, M, around it, the strap being connected with the end of the casing through the intervention of the spring-metal strip M'. The rice is preferably delivered onto the screen C from the lower end of an aspirator, to which it is conducted by a suitable elevator. (Not shown.)

N represents an "aspirator" of ordinary construction, and in connection with it a fan, Q, is employed to force air into the box through suitable openings for the purpose, the object of the current of air produced being to draw with it the light straw and trash.

The modified form of screen shown in Fig. 3 consists of a screen provided with the indented perforations hereinabove described; but the surface of the screen between such perforations is plane, instead of corrugated or punctured. A screen so constructed is found quite efficient when employed in the place of the screen G, above described.

It is evident that slight changes might be resorted to in the form and arrangement of the several parts described without departing from the spirit and scope of my invention; hence I do not wish to limit myself strictly to the construction herein set forth; but,

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

1. In a rice-separator, a sheet-metal screen provided with rows or series of indented perforations, the said plate at points between said rows of perforations being punctured from underneath, forming series of upwardly-projecting burrs, substantially as set forth.

2. The combination, with a supporting-frame, a vibratory casing suspended therein, and a rotary shaft for giving motion to the casing, of a pair of oppositely-slanting screens located in the casing, a table located between the screens, there being a space between one end of the table and the end of the casing, and also a space between the two ends of the lower screen and the ends of the casing, a removable bottom section adapted to fill one of the spaces, and rice-conduits extending from the spaces formed at the ends of the lower screen and uniting into one, substantially as set forth.

3. The combination, with a supporting-frame, a vibratory casing suspended therein, and a rotary shaft for giving motion to the casing, of a pair of oppositely-slanting screens located in the casing, a table located between the screens with a space between one end of the table and the end of the casing, and also with a space between the two ends of the lower screen and the ends of the casing, a removable bottom section adapted to fill one of the spaces, a cleaner-brush carried in contact with the lower screen, and rice-conduits extending from the spaces formed at the ends of the lower screen, substantially as set forth.

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

CHARLES J. ALLEN.

Witnesses:
EDWIN T. MERRICK, Jr.,
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