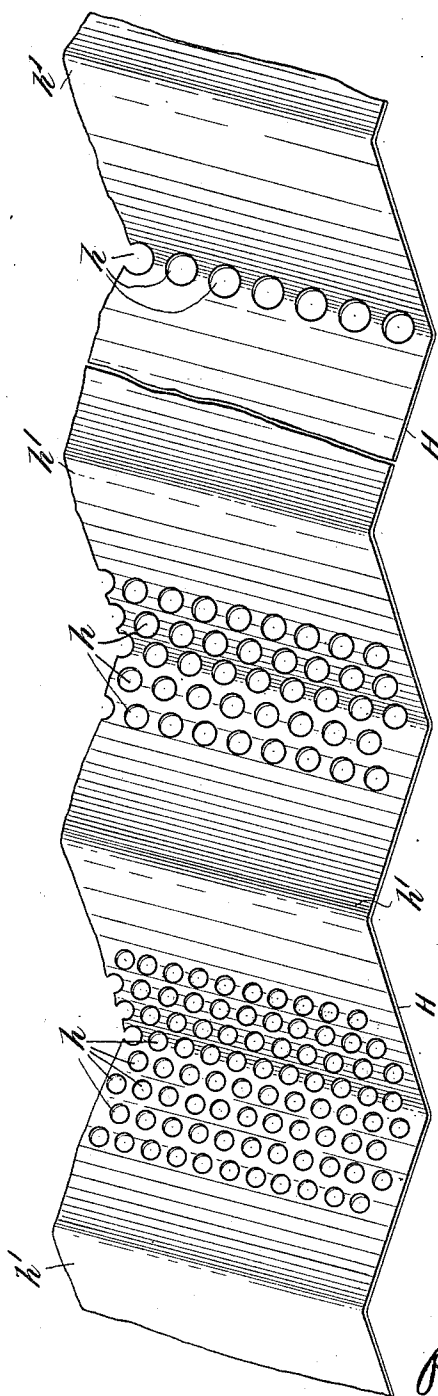


R. W. McLEAN.
COTTON SEED SHAKER SEPARATOR.
APPLICATION FILED APR. 11, 1912.

1,067,263.

Patented July 15, 1913.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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COTTON-SEED SHAKER-SEPARATOR.

1,067,263.

Specification of Letters Patent.

Patented July 15, 1913.

Application filed April 11, 1912. Serial No. 690,139.

To all whom it may concern:

Be it known that I, ROBERT W. McLEAN, a citizen of the United States, and resident of Bridgewater, in the county of Plymouth and State of Massachusetts, have invented new and useful Improvements in Cotton-Seed Shaker-Separators, of which the following is a specification.

This invention relates to shaker separators, for separating meats of cotton seed from the hulls, and its principal object is to provide a shaker tray having a bottom of increased strength and durability, and one by which the material being treated will be more evenly distributed, and the work of separation more effectively accomplished than heretofore.

Shaker separators for cotton seed have heretofore been used having a vibrating or reciprocating tray, made with a flat sheet metal bottom, provided with evenly distributed holes or perforations, through which the meats of the seed fall, while the hulls pass down said sheet metal bottom without falling through. The material comes to the shaker separator from the huller, in which the cotton seed is cracked and opened, and when delivered on to the flat-bottom vibratory tray, will not always be distributed evenly over the surface of the tray, nor be as completely and perfectly separated as could be desired. Moreover in practice such flat sheet metal bottom is easily bent, and tends to sag, thus still further increasing the tendency of the material to accumulate unduly on part of the tray, and preventing even distribution of the material.

In order to increase the strength of the tray bottom, to insure better distribution of the material, and to accomplish a more complete and perfect separation, I have devised a transversely corrugated bottom for the vibratory tray, provided with perforations in the grooves or channels only of the corrugations, while the crowns of the corrugations are solid and imperforate.

In the accompanying drawing, which illustrates one embodiment of the invention, the figure shows a fragmentary perspective view, enlarged, of the corrugated and perforated sheet metal constituting the bottom of the vibratory tray.

Referring to this drawing: According to

the present invention each tray frame is provided with a bottom H of sheet metal, corrugated transversely of the tray frame, the depressions, or grooves, or channels of the corrugations being provided with perforations or holes *h*, while the projecting portions or crowns *h'* of the corrugations are solid, plain and without perforations. These perforations in the channels of the corrugated bottoms are preferably graded in size, three sizes being shown in the drawing. The upper end of the inclined tray, for about one-third of its extent, is provided with perforations of the smallest size shown at the left of the figure; the middle portion of the tray, for about a third of its extent is provided with the second size of perforations illustrated in the middle of the figure; and the lower end of the tray, for about a third of its extent is provided with the largest perforations illustrated at the right of the figure. The largest perforations are preferably arranged in a single row, as shown, in the extreme bottom of the channels of the corrugations.

The material, consisting of a mixed mass of meats and hulls of the cotton seed, is deposited on the upper end of the shaker tray. As the tray vibrates the material is distributed over the surface of the corrugated bottom, the corrugations assisting in the even distribution, and the mass moves gradually down the incline of the tray. As the material is agitated, the meats gradually work their way to the bottom by gravity, and into the grooves or channels of the corrugations, whence they fall through the perforations; while the hulls, to which a substantial amount of lint is clinging, being lighter, tend to rise to the top of the mass. At the upper part of the tray, a sufficiently large part of the meats will be separated by gravity from the mass as the tray is agitated, to fill or substantially fill the grooves of the corrugated bottom, and so prevent the hulls and lint, which at that stage are comparatively loose, from falling through the perforations, while the plain, unperforated crowns of the corrugations will of course prevent anything from falling through the tray bottom between the perforated grooves. Thus the upper part of the tray will be wholly closed to the hulls, although the hulls at that point may be loose enough to drop

through the perforations if any were open to them. As the material works its way down the incline the hulls and lint tend to roll and "ball" and to shake off the meats.

5 The perforations in the upper part of the tray are comparatively small, and therefore only small pieces of the meats will be permitted to fall through, while substantially none of the hulls and lint will pass through,

10 as the grooves will be filled with meats in the manner already described, although at that stage the hulls are looser and less matted together than later. As the material passes downward, and the hulls, rolling and

15 "balling" pick up the lint, a sort of mat is formed of the hulls and lint, which rests on the plain, unperforated crowns of the corrugations, with little or no tendency to drop through the perforations, while the meats

20 are shaken off and gravitate into the grooves. By the time the mass reaches the lower part of the tray all but the largest pieces of the meats will have been separated out, and as

25 these large pieces will be comparatively few in number, a single row of the largest size of perforations in the bottom of each channel in the lower part of the tray will be sufficient.

With this invention, not only is the tray

30 bottom with its corrugations, and its alternate bands of perforated and solid sheet metal, much stronger and more durable than

the flat, evenly perforated tray bottoms heretofore used, but in its action on the material being treated, it effects a more equal distribution of the material upon the tray, and a more efficient separation of the meats from the hulls than has hitherto been possible to attain.

I claim:

1. In a shaker separator, a tray having a transversely corrugated bottom providing alternate grooves and crowns, said bottom having transverse rows of perforations in the grooves, the perforations in each groove progressively increasing in size and diminishing in numbers of rows from end to end of the tray.

2. In a shaker separator, a tray having a transversely corrugated bottom providing alternate grooves and crowns, the opposite sides of the crowns being inclined at equal angles from the tops of the crowns whereby to support the matted hulls, the bottoms having transverse rows of perforations in each groove progressively increasing in size and diminishing in numbers of rows from end to end of the tray.

Signed by me at Boston, Massachusetts, this 2d day of April 1912.

ROBERT W. McLEAN.

Witnesses:

ROBERT CUSHMAN,
CHARLES D. WOODBERRY.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."