

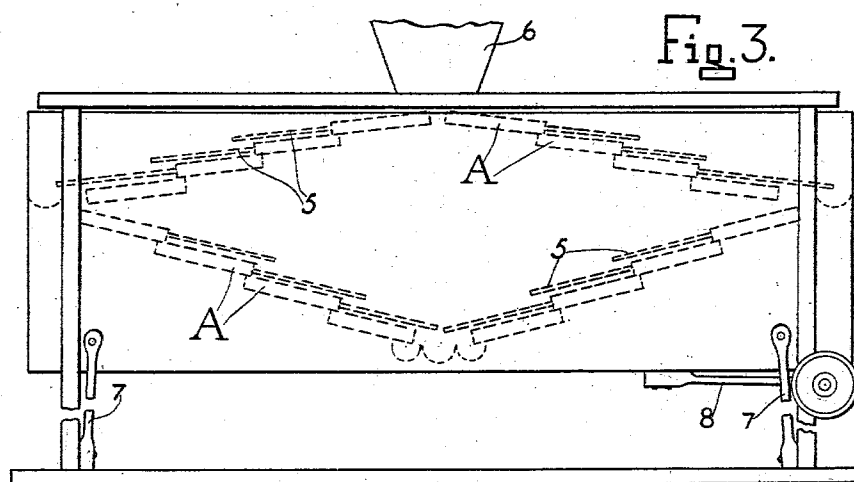
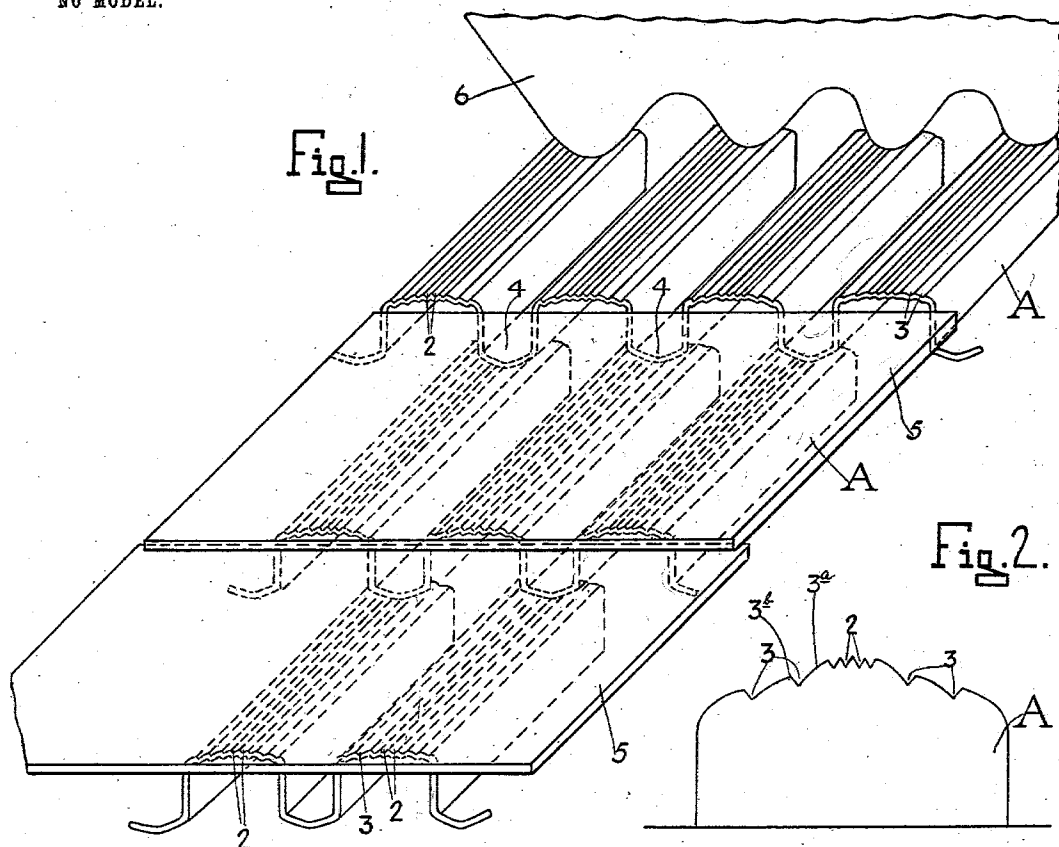
No. 743,752.

PATENTED NOV. 10, 1903.

W. G. READ.  
SEPARATOR.

APPLICATION FILED MAR. 12, 1903.

NO MODEL.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

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## SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 743,752, dated November 10, 1903.

Application filed March 12, 1903. Serial No. 147,411. (No model.)

*To all whom it may concern:*

Be it known that I, WALTER G. READ, a citizen of the United States, residing at Davisville, county of Yolo, State of California, have invented an Improvement in Separators; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an apparatus which is designed for the separation of materials, such as nuts or pits of nuts from the shells or debris which may be mixed therewith, grain and chaff, mining products, and any material which may be separated in a similar manner.

It consists of surfaces inclined and grooved in the direction of the length and made convex or declining from an apex to the edges transversely of the length, means for feeding the material to be separated upon the central line of grooves, means for imparting a shaking motion to a plurality of these surfaces over which the material is designed to pass, and means for conveying away the separated products.

It also comprises details of construction, which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a perspective view of a fraction of my invention. Fig. 2 is an end view of one of the tables. Fig. 3 is a general side elevation of the separator.

It is the object of my invention to separate valuable and worthless products by means of an apparatus in which I am enabled to produce such separation without the use of screens or an air-blast.

The basis of my invention is the table A, which may be made of any suitable material and having any desired length and width. The upper surface of this table is curved or declines from the center to the edges and is formed with grooves 2 and 3, extending lengthwise of the table. The grooves 2 are formed at the apex or highest point of the table, and the material to be separated is delivered by any suitable means upon this apex.

The tables, of which there may be a plurality, are inclined from the upper or receiving end in the direction of their length and are disposed as shown in transverse section, so that the sides of each two adjacent tables

which decline toward each other will discharge into an intermediate trough or channel, as at 4. Any number of these tables may thus be disposed, and the material passing down the inclined or convex surface of one series of tables will be discharged into the intermediate channels 4 and will be delivered from these channels upon the apices or highest points of the next series of tables, thus passing the material over as many of the tables as may be found necessary or desirable.

Below the lower ends of each series of tables are plain surfaces, as at 5, upon which the material which passes down the channels 2 and 3 to the ends of the table will be delivered and by it carried above the next lower series of tables, and this lower series of tables has a similar surface to receive the material discharged from the channels of said tables.

The carrying-surfaces 5 of the upper set of tables discharge upon the similar surfaces of the next lower series, and so on to the end, the inclination being similar to that of the tables in the direction of their length, and the lighter or worthless material thus separated will be eventually discharged at the lower end of the apparatus separate from the more valuable portion.

The grooves 3 in the surfaces are formed upon the transversely-inclined or convex sides of the tables, as previously described, and are of such a character that the material to be separated and saved will pass over these grooves and eventually be discharged from the lower edge or side into the trough 4, while the worthless material will, as previously described, follow the direction of the channels. These channels or grooves are peculiarly formed and of a width depending upon the material which is to be treated.

For purposes of illustration I will describe the method of separating nuts or the meats from the pits of various pit-bearing fruits. The pits or nuts being cracked and the interior meat being loosened therefrom, the broken shells and meats are delivered through any suitable hopper or spout, as at 6, into the grooves 2 at the highest part of any one of the tables. The tables are preferably mounted in series comprising a number of these tables.

They may be inclined lengthwise in one direction or in both directions from the apex, which latter is the construction here shown. These united tables are suspended by hangers or supports 7, and by means of an eccentric and pitman, as at 8, or any other well-known means connecting with the tables the latter are given an oscillating reciprocating motion in the direction of their length. This causes the lighter shells and worthless parts to pass down the inclines, the larger shells slipping down into the wider grooves 3, and by reason of their flat and broken character they will be arrested in one or the other of these grooves and eventually discharged over the lower end of the table upon the flat plate 5, previously described, and will thereafter continue on the surfaces of the successive plates of this character. The meats or interior portions which are to be saved are more or less rounded on their surfaces, and the grooves 3 are of such a character that the meat will rest upon the highest point between two of the grooves 3 and upon the incline or curve of the opposite and higher side of the groove, this curve or incline, as shown at 3<sup>a</sup>, being in all cases higher than the edge or apex 3<sup>b</sup> between the next two grooves or channels. For this reason the longitudinal shaking motion of the surfaces will cause the meat or grains to gradually pass across the channels 3 transversely to the length of the tables and eventually fall into the intermediate channels 4.

Where a series of tables succeed each other in the direction of their length, the apices of the next lower series of tables will lie in line with the discharge of the channels 4, so that the meats or grains discharged from these channels will fall into the grooves 2 of the next series of tables and with them any shells, husks, chaff, or worthless material which was not fully separated on the first series of tables. These are again subjected to a similar action of the second series, and so on until they are sufficiently separated and cleaned.

An important feature of the invention is the formation of the grooves or channels 3 in such a manner that the ridge between each two channels is lower than the side or surface of the uppermost of the channels upon which the nut, meat, or grain rests, so that the tendency will be to force the said substance to gradually cross these channels and be discharged from the lower edge, while the flat and unrounded surfaces of the waste material will be carried lengthwise of the channels to the point of delivery.

Having thus described my invention, what

I claim, and desire to secure by Letters Patent, is—

1. A separator having a table provided with grooved, convex surfaces; means for carrying off material retained by the grooves to one place; means for carrying off to a different place material which is not retained by the grooves; and means connected with the table for shaking it.

2. A separator having inclined tables provided with grooved, convex surfaces extending in the direction of the length of the tables said grooves having one side higher than the ridge between it and the next lower groove; means between each pair of tables for carrying off material retained by the grooves to one place; channels between each pair of tables for carrying off to a different place material which is not retained by the grooves; and means for shaking said tables.

3. An apparatus for the separation of nuts, grain and the like from shells and chaff consisting of a series of tables inclined in the direction of their length and provided with grooved convex surfaces, each series of tables having intermediate channels into which they discharge material not retained by the grooves and each succeeding series being fixed so that the apex of the convexity is in line with the receiving-channels of the series above, said tables having their grooves or channels parallel and extending lengthwise and disposed from the highest point to the lowest upon each side of the table, said grooves being adapted to retain shells and chaff and discharge them in the direction of their length, and means for shaking the tables.

4. An apparatus for the separation of nuts, grain and the like from shells and chaff, consisting of successive series of convex longitudinally-grooved and inclined tables united, means for suspending said tables, and means for oscillating them, channels formed between the pairs of tables of each series into which the separated substances are delivered, said channels of each upper series standing in line with the highest convexity of the next series of tables below, inclined plates forming continuations of each upper series and above the next series below, said plates adapted to receive the shells or chaff delivered from the lower ends of the grooves and conduct them away separately from the nuts.

In witness whereof I have hereunto set my hand.

WALTER G. READ.

Witnesses:

S. H. NOURSE,

JESSIE C. BRODIE.