J. McFARLANE.

MACHINE FOR HULLING COTTON SEED.

APPLICATION FILED FEB. 2, 1909.

955,532. Patented Apr. 19, 1910.

Fig. 4

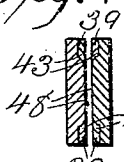


Fig. 1.

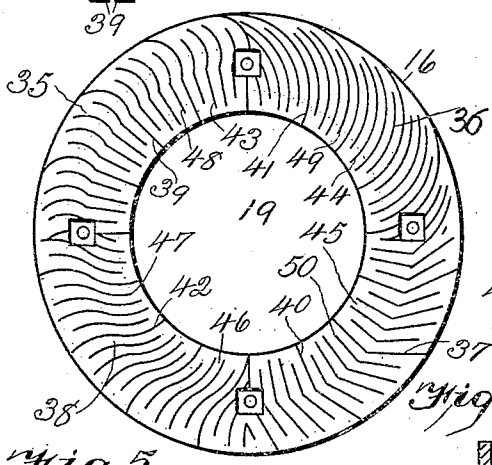


Fig. 2.

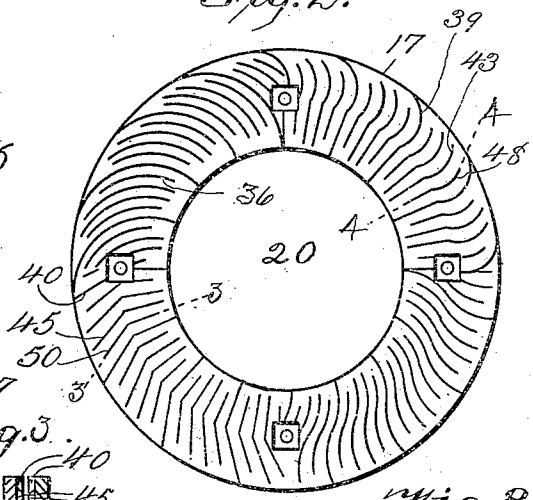


Fig. 3.

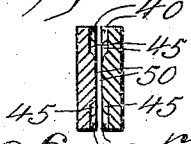


Fig. 5.

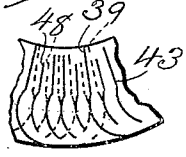


Fig. 6.

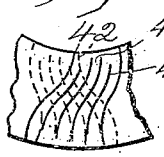


Fig. 7.

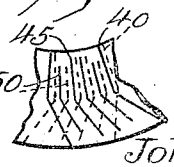
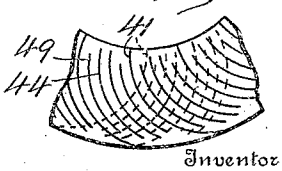


Fig. 8.



Witnesses

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MACHINE FOR HULLING COTTON-SEED.

955,532. Specification of Letters Patent. Patented Apr. 19, 1910.

Application filed February 2, 1909. Serial No. 475,638.

To all whom it may concern:

Be it known that I, JOHN MCFARLANE, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Machines for Hulling Cotton-Seed, of which the following is a specification.

This invention relates to the utilization of cotton seed.

The object of the present invention is to provide new and improved hulling plates for first cracking and afterward removing the shell from the kernel and retaining the kernel in its uncrushed and natural form.

With this object in view the invention consists in the improved hulling plates, the construction and arrangement of the parts, the dress of which will be hereinafter fully described and afterward specifically pointed out in the claims appended to this specification.

In order that others may be enabled to construct and use the invention, I will now proceed to describe it in detail, reference being had to the accompanying drawings, in which—

Figure 1 represents a face view of one of the plates. Fig. 2 represents a similar view of the face of the other plate. Fig. 3 represents a sectional view on the broken line 3—3 of Fig. 2. Fig. 4 represents a similar sectional view on the broken line 4—4 of Fig. 2. Figs. 5, 6, 7 and 8 represent detail views for the purpose of illustrating the relative action of the dress of the opposing faces of the plates during the operation of hulling the seed.

Referring specifically to the drawing, 16 and 17 indicate two annular plates which are to be set up in a machine in any usual manner so that one of said plates may be rotated while the other is held stationary, whereby the ribs may engage the seed to be hulled as it is passed between the plates from the center openings 19 and 20 outward. These plates are spaced apart a distance slightly less than the short diameter of the seed so that no seed will pass through without being operated upon, the distance apart being regulated so that a portion of each seed will always rest between the ridges on the face of the plates in position to be struck by the ribs or ridges of the opposite plate as it passes by, the distance between the ridges or ribs being such that the released kernel and the cracked shell, when separated from each other, will drop freely from between the plates. These ribs are made of various forms in order that each seed, in its passage between the plates, may be sure to be acted upon, the seed being liable sometimes, when a single form of rib is used, and all of the crossing angles are the same, to pass through without being operated upon. For this reason I show in this instance plates with different forms of ribs in different sections as indicated at 35, 36, 37 and 38 in Figs. 1 and 2. In sections, 35 and 37 the ribs for about half their length are radial, while in sections, 36 and 38 the corresponding half lengths of the ribs approach as near the radial as possible in their curved form. In all of the sections, ribs at regular intervals, as at 39, 40, 41 and 42, extend entirely from the inner to the outer periphery of the plates, while the intervening ribs, as at 43, 44, 45 and 46, begin a short distance from the inner edge of the plate and ribs intervening between the last named series, and the full length ribs, as indicated at 47, 48, 49 and 50, are still shorter leaving a greater distance between their terminals and the inner and outer edges of the plate. This leaves an entrance space between the plates, as at 51, in Fig. 3, to first receive the seeds between the plates where they are operated upon by the full length ribs, 39, 40, 41 and 42 only. From this space they feed outward between the ribs of the plates and are next operated upon by the median length ribs, 43, 44, 45 and 46, as well as the full length ribs. Their further progression brings them into position to be operated upon by all of the ribs, having in this last step passed beyond the inner ends of the shortest ribs, 47, 48, 49 and 50. As they continue through until they reach the median circle of the plates, they are still operated upon by all of the ribs, all of which cross each other almost parallel. From this point it is desirable that their exit from between the ribs be facilitated and for this purpose the various ribs are formed or led out upon different angles, the ribs in the section, 35, being slightly curved and almost continued in the radial line. The ribs of the section, 36, are continued on the same arc as in the inner half of the plate. The ribs in the section, 37, are inclined backward on tangential lines, approaching tangents

drawn upon the inner periphery of the plate; while the ribs in the section, 38, are curved in the opposite direction into substantially what is known as ogee form. The operation of the ribs in this outer half of the plates is partially illustrated in Figs. 5, 6, 7 and 8, all of the ribs in these sections crossing each other at varying angles and tending, as the ribs of the rotary plate pass those of the stationary plate to prevent the seed from lodging, or clogging up the plates. This construction of the ribs in the inner half of the plate is very effective in the actual cracking of the shells while the construction in the outer halves of the plates is extremely effective in finishing the operation and clearing the broken shells and uncrushed kernels from between the plates.

Having thus described my invention, what I claim as new is:—

1. In a machine of the character described, cracking mechanism comprising annular plates having opposing operating faces, the face of each plate having a series of regularly spaced substantially radial ribs extending entirely across it and dividing it into equal sections and each section being provided with a plurality of intervening ribs extending in radial lines from the inner periphery to about the median circle of the plate, extended outward and backward beyond the median circle at different angles or curves, and terminating at a distance from the outer periphery.

2. In a machine of the character described, cracking mechanism comprising annular plates having opposing operating faces, the face of each plate being provided with a series of regularly spaced substantially radial ribs extending from the inner to the outer periphery of the plate and dividing it into equal sections, and a plurality of ribs in each section between said full length ribs terminating at a distance from said outer periphery.

3. In a machine of the character described, cracking mechanism comprising annular plates having opposing operating faces, the face of each plate being provided with a series of regularly spaced substantially radial ribs, extending from the inner to the outer periphery of the plate, and dividing it into equal sections, and a plurality of ribs in each section between said full length ribs terminating at varying distances from said outer periphery.

4. In a machine of the character described, cracking mechanism comprising annular plates having opposing operating faces, the face of each plate being provided with a series of regularly spaced substantially radial ribs which extend from the inner to the outer periphery of the plate and divide it into equal sections, and a plurality of ribs in each of said sections between said full length ribs terminating at a distance from the inner and outer peripheries respectively.

5. In a machine of the character described, cracking mechanism comprising annular plates having opposing operating faces, the face of each plate being provided with a series of regularly spaced, substantially radial ribs which extend from the inner to the outer periphery of the plate and divide it into equal sections, and a plurality of ribs on each of said sections between such full length ribs terminating at varying distances from said inner and outer peripheries, respectively.

6. In a machine of the character described, cracking mechanism comprising annular plates having opposing operating faces, the face of each plate being provided with a series of regularly spaced, substantially radial ribs which extend from the inner to the outer periphery and divide it into equal sections, and a plurality of ribs in each of said sections between such full length ribs consisting of a pair of ribs in the center of each section similar in form to the full length ribs terminating at short distances from the outer and inner peripheries of the plate, and a rib on each side of said pair of central ribs adjacent to a full length dividing rib, of a form similar to other ribs and terminating at greater distances from the outer and inner peripheries of the plate.

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

JOHN McFARLANE.

Witnesses:
S. Brashears,
Robert A. Boswell.