

W. WATTS.
CORN SHELLER.
APPLICATION FILED MAR. 19, 1914.

1,137,100.

Patented Apr. 27, 1915.

2 SHEETS—SHEET 1.

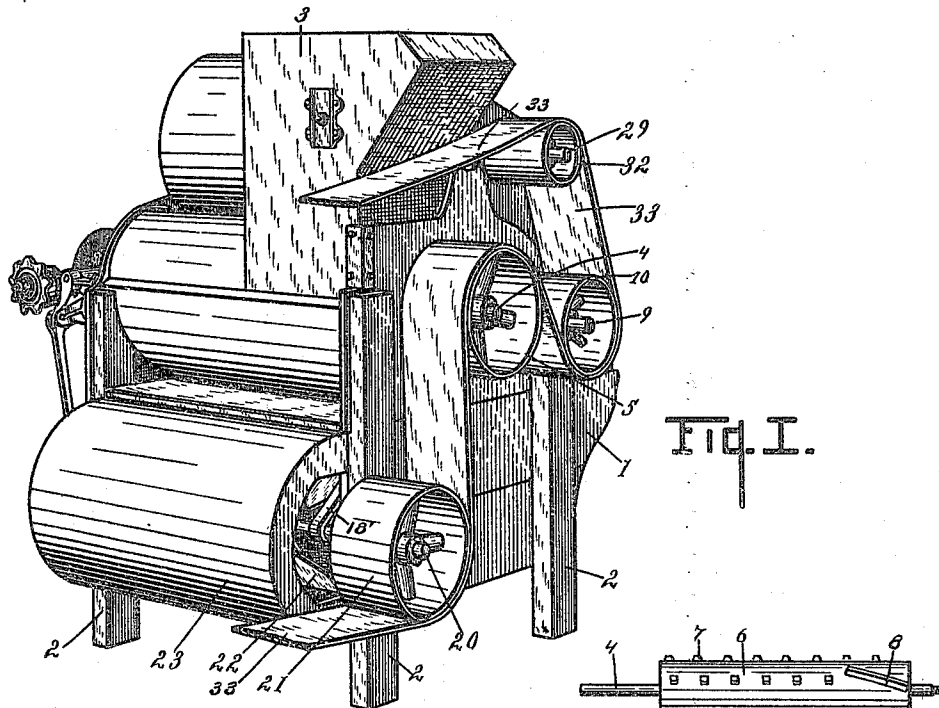


FIG. I.

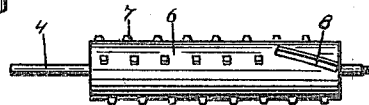


FIG. VI.

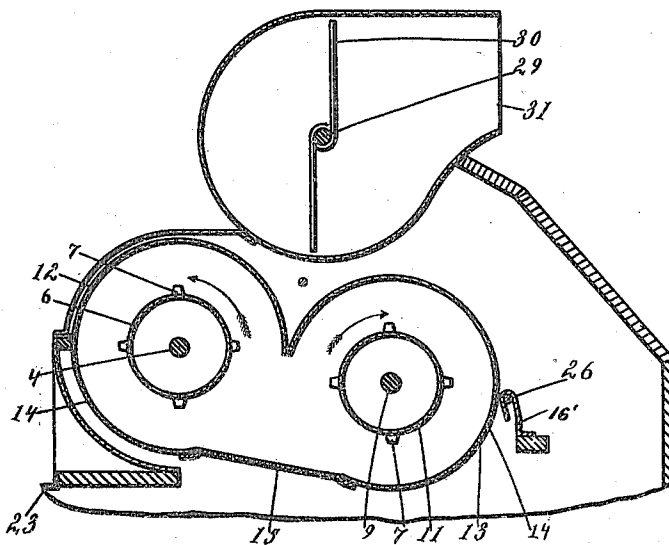
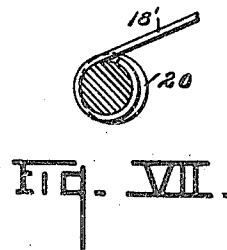


FIG. VII.

Witnesses
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2 SHEETS—SHEET 2.

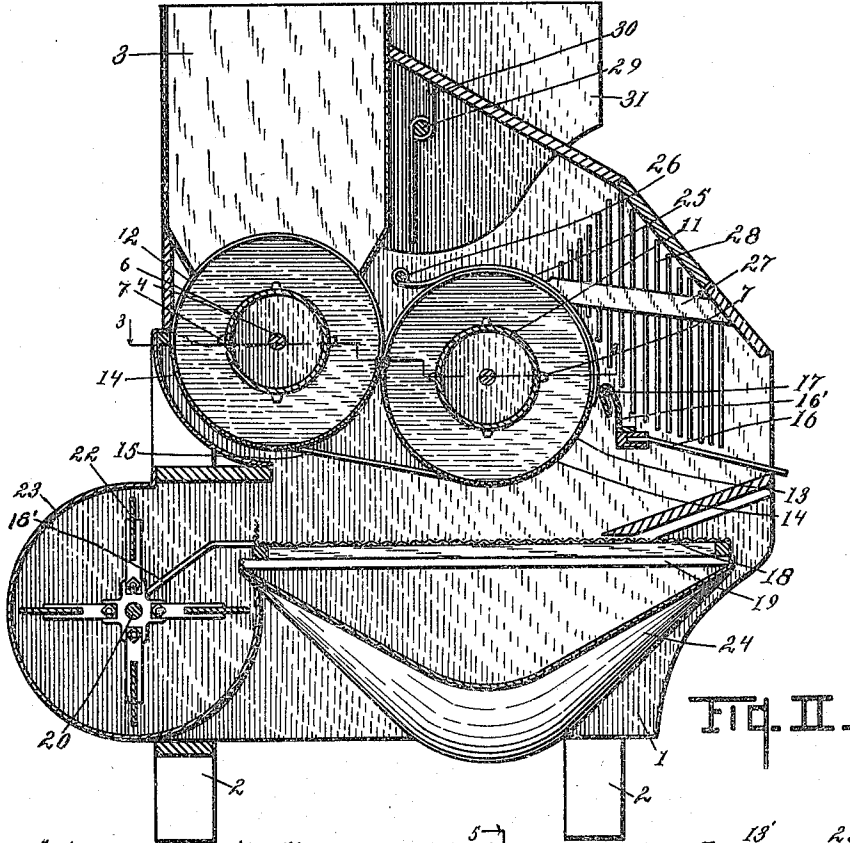


FIG. II.

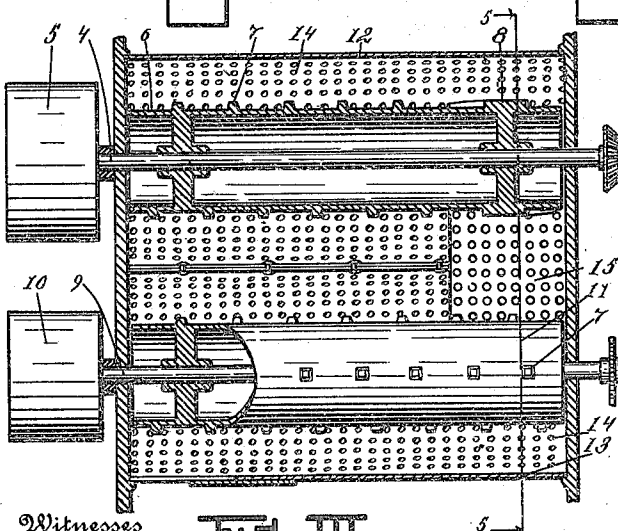


FIG. III.

Witnesses

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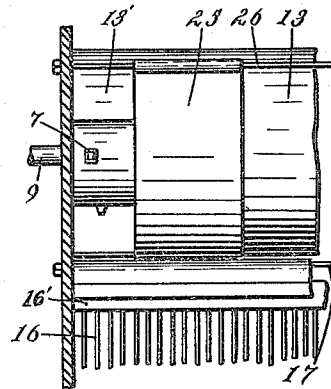


FIG. IV.

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UNITED STATES PATENT OFFICE.

WILLIAM WATTS, OF JACKSON, MICHIGAN.

CORN-SHELLER.

1,137,100.

Specification of Letters Patent.

Patented Apr. 27, 1915.

Application filed March 19, 1914. Serial No. 825,768.

To all whom it may concern:

Be it known that I, WILLIAM WATTS, a citizen of the United States, residing at the city of Jackson, county of Jackson, State of Michigan, have invented certain new and useful Improvements in Corn-Shellers, of which the following is a specification.

This invention relates to improvements in corn shellers.

The main objects of this invention are: First, to provide an improved corn sheller in which the corn is shelled and in which the husks may also be removed at one operation. Second, to provide an improved double cylinder corn sheller in which the ears of corn are thrown from one cylinder to the other by means of centrifugal force causing them to travel the length of both cylinders and thus doubling the capacity of the machine.

Further objects, and objects relating to details and economies of structure and operation will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure constituting a preferred embodiment of my invention is illustrated in the accompanying drawing forming a part of this specification, in which:

Figure I is a perspective view of a machine embodying my invention. Fig. II is a vertical sectional view taken through the machine shown in Fig. I. Fig. III is a horizontal sectional view taken on the irregular line 3—3 of Fig. II. Fig. IV is a detail plan view showing the opening through which the cobs and husks are discharged from the machine. Fig. V is a transverse sectional view on the line 5—5 of Fig. III. Fig. VI is a top plan view of one of the shelling cylinders. Fig. VII is a detail view showing the eccentric cam for oscillating the screen.

In the drawing, similar reference characters refer to similar parts throughout the several views, and the sectional views are taken looking in the direction of the little arrows at the ends of the section lines.

Considering the numbered parts of the drawing, 1 is the main casing of the machine which is supported on the legs 2—2. The upper part of the machine is provided with

the feed hopper 3. In line with the lower end of the hopper 3 and suitably journaled in the casing 1 is the shaft 4 with a driving pulley 5 on its outer end. Said shaft carries a shelling cylinder 6 provided with a plurality of shelling teeth 7 and with a pair of blades 8 arranged diametrically opposite each other, and disposed spirally on said cylinder. The shaft 9 is also journaled in the casing 1 and lies parallel to and slightly lower than the shaft 4. Shaft 9 has on its outer end a driving pulley 10 arranged in line with the pulley 5 and carries a shelling cylinder 11 provided with a plurality of shelling teeth 7. A cylindrical jacket 12 surrounds the shelling cylinder 6 and has an opening in the top beneath the feed hopper 3. The lower portion of said jacket is made of perforated metal 14 through which the corn is discharged upon the screen 18 as it is shelled. The cylinder 11 is surrounded by the cylindrical jacket 13, the bottom of which is also made of perforated metal. The sides of said jacket at the ends removed from the hopper are open and connected by means of a platform 15 of perforated metal to permit the passage of the shelled corn therethrough.

The jacket 13 is open at the top at the discharge end thereof for the discharge of the cobs and husks. At the end of said jacket a discharge chute is provided made up of the rods 16 secured to the bar 16' which is carried on a rod 17 extending between the side walls of the casing. This chute is for the discharge of the cobs as they are ejected from the open end of the jacket 13.

A screen 18 is carried by a frame 19 and disposed beneath the shelling cylinders so that the corn which passes through the bottom of the jackets falls upon said screen. This screen is oscillated back and forth by means of an eccentric carried by the shaft 20 which is suitably journaled in the casing and connected thereto by rod 18' as clearly shown in Fig. VII. At the outer end of said shaft 20 is provided a pulley 21 in line with the pulleys 5 and 10. Upon the shaft 22 is provided a plurality of fan blades 23 which rotate inside of the casing 23. It will thus be seen that corn from the shelling cylinders falls upon the screen 18 which is oscillated back and forth and the fan blades create a blast of air which blows the chaff from the corn out through the openings between the rods 16 while the corn itself

passes down through the screen 18 into the discharge spout 24. A rod 26 is provided carried by the side walls of the casing and extending parallel to the shaft 9. The jacket 13 is provided with a gate 25 made of sheet metal which conforms to the curvature of the jacket 13, and the end of which is wrapped around the rod 26 so that it is slidably carried thereby. As clearly shown in Fig. IV, this gate can be moved back and forth so as to regulate the discharge opening 13' of the jacket 13. Through this opening 13', the cobs and husks are ejected from the machine.

A bar 27 is provided extending from the top wall of the casing to the top of the jacket 13, and to this bar are secured the vertically extending rods 28 which form a sort of gate to prevent the cobs and husks from passing to the other end of the casing. At the farther end of the casing above the jacket 13 is provided the husk discharge outlet 31. A shaft 29 is suitably journaled in the casing and provided at its outer end with the pulley 32 in line with the other pulleys, and upon this shaft is mounted the fan 30, so that as this shaft 29 rotates the fan revolves to create a suction and draw the husks up through the outlet 31. The pulleys are driven by means of a belt 33 which passes over the pulley 29 down beneath the pulley 10, up over the pulley 5 and down beneath the pulley 21. Thus it will be seen that the pulleys 10 and 5 are driven in opposite directions.

From the description of the parts given above, the operation of the structure should be very readily understood. The ears of corn are introduced through the hopper 3, fed by it down through the opening in the upper part of the jacket 12 to the shelling cylinder 6. The teeth on said cylinder cooperate with the walls of the jacket to remove the husks from the ears of corn and to shell the corn. The shelled corn passes out through the perforations 14 onto the screen, 18. The rotation of the shelling cylinders causes the ears of corn to travel along said jacket to the farther end thereof where they are thrown by centrifugal force through the opening above the platform 15 into the jacket 13 where they are caught by the second shelling cylinder 11 and caused by it to travel back to the end thereof nearest the hopper. The blades 8 which are opposite the passage connecting the jackets assist in throwing the ears of corn from one jacket to the other.

It will be seen that the two shelling cylinders are rotating in opposite directions and by means of this movement I am able not only to shell the ears of corn but also to husk them. When the ears of corn arrive at the farther end of the first cylinder, the husks are wound up in a rope. When

however they have passed through the second cylinder the husks are unwound by the movement through the second jacket in a reverse direction and are entirely separated from the cob. The cob is entirely shelled and the corn passes out through the perforations 14 in the bottom of the jacket and in the bottom of the platform 15. The cobs and husks are ejected through the opening 13' in the jacket 13 and the husks are drawn up and ejected through the husk discharge opening 31 while the cobs are discharged over the chute 16. The corn passes from the perforations 14 on to the screen 18, is cleaned by means of the air blast from the fanning mill 22 and passes through the screen into the discharge chute 24.

The feature of my invention which is of especial importance is the provision of the shelling cylinders running in reverse directions and the delivery of the corn from one to the other by means of centrifugal force. It is this feature of the shelling cylinders running in reverse directions which enables me to husk the corn as well as to shell it.

I am aware that the particular embodiment of my invention which I have shown is susceptible of considerable variation without departing from the spirit of my invention and, therefore, I do not wish to be restricted to the same. However, I have found that this form is to be preferred and, therefore, I desire to claim the same specifically as well as broadly as indicated by my appended claims.

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

1. In a device of the class described, the combination of a casing, a hopper carried thereby, a shelling cylinder provided with a plurality of shelling teeth, rotatably mounted in said casing, a jacket provided with a perforated bottom surrounding said cylinder, said jacket having an opening adjacent to the lower end of said hopper, and an opening in its side at the other end of said jacket, a second shelling cylinder rotatably mounted in said casing, a jacket having a perforated bottom surrounding said second cylinder and having an opening in its side communicating with the opening in said first named jacket, a platform having a perforated bottom connecting said openings in said jackets, said second jacket being provided with a discharge opening adjacent the inlet opening of the said first jacket, means for varying the size of said discharge opening, and means for driving said shelling cylinders in opposite direction, all coacting substantially as described for the purpose specified.

2. In a device of the class described, the combination of a casing, a shelling cylinder rotatably mounted in said casing, a jacket

provided with a perforated bottom surrounding said cylinder, a second shelling cylinder mounted on a shaft parallel with and in a plane slightly lower than that of the first cylinder, a jacket surrounding said second cylinder, said jackets having openings in line with each other, a platform between said jackets provided with a perforated bottom and connecting said openings, and means for driving said shelling cylinders in opposite directions, all coacting substantially as described for the purpose specified.

3. In a device of the class described, the combination of a casing, a hopper carried thereby, a shelling cylinder rotatably mounted in said casing, a jacket provided with a perforated bottom surrounding said cylinder, said jacket communicating at one end with said hopper, a second shelling cylinder rotatably mounted in said casing parallel to said first named cylinder, a jacket having a perforated bottom surrounding said second cylinder, said jackets being connected with each other by a passage, said second jacket having a discharge opening in the end thereof, a rod extending transversely of said casing, a gate slidably mounted on said rod adapted to be moved transversely of said casing for opening and closing the discharge opening, and means for driving said shelling cylinders in opposite directions.

4. In a device of the class described, the combination of a casing, a pair of shafts rotatably mounted in said casing parallel to each other, shelling cylinders mounted on said shafts, pulleys on the outer ends of said shafts in line with each other, a third shaft rotatably mounted in said casing above said shelling cylinders, a fan mounted on said third shaft, said shaft being provided with

a pulley on its outer end in line with said first named pulleys, a fourth shaft rotatably mounted in said casing parallel to and below said first named shafts, a fan carried by said fourth shaft, and a pulley for driving the same arranged in line with the first named pulleys, and a driving belt passing over said upper fan pulley, beneath one of said shelling cylinder pulleys and above the other and beneath said last named fan pulley, whereby said shelling cylinders are driven in opposite directions.

5. In a device of the class described, the combination of a casing, a hopper carried thereby, a shelling cylinder provided with a plurality of shelling teeth disposed beneath said hopper, a jacket having a perforated bottom surrounding said shelling cylinder, a second shelling cylinder rotatably mounted in said casing parallel to said first named cylinder, a jacket surrounding said second cylinder and provided with a perforated bottom, said jackets being connected by a passage at one end thereof, said last named jacket being provided with a discharge opening, a husk discharging chute mounted above said last named opening, means for drawing the husks through said chute, and a cob discharging chute to one side of said last named jacket adjacent to the discharge opening therein, all coacting substantially as described for the purpose specified.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

WILLIAM WATTS. [L. s.]

Witnesses:

GROVE H. WOLCOTT,
ALBERT O. REECE.