

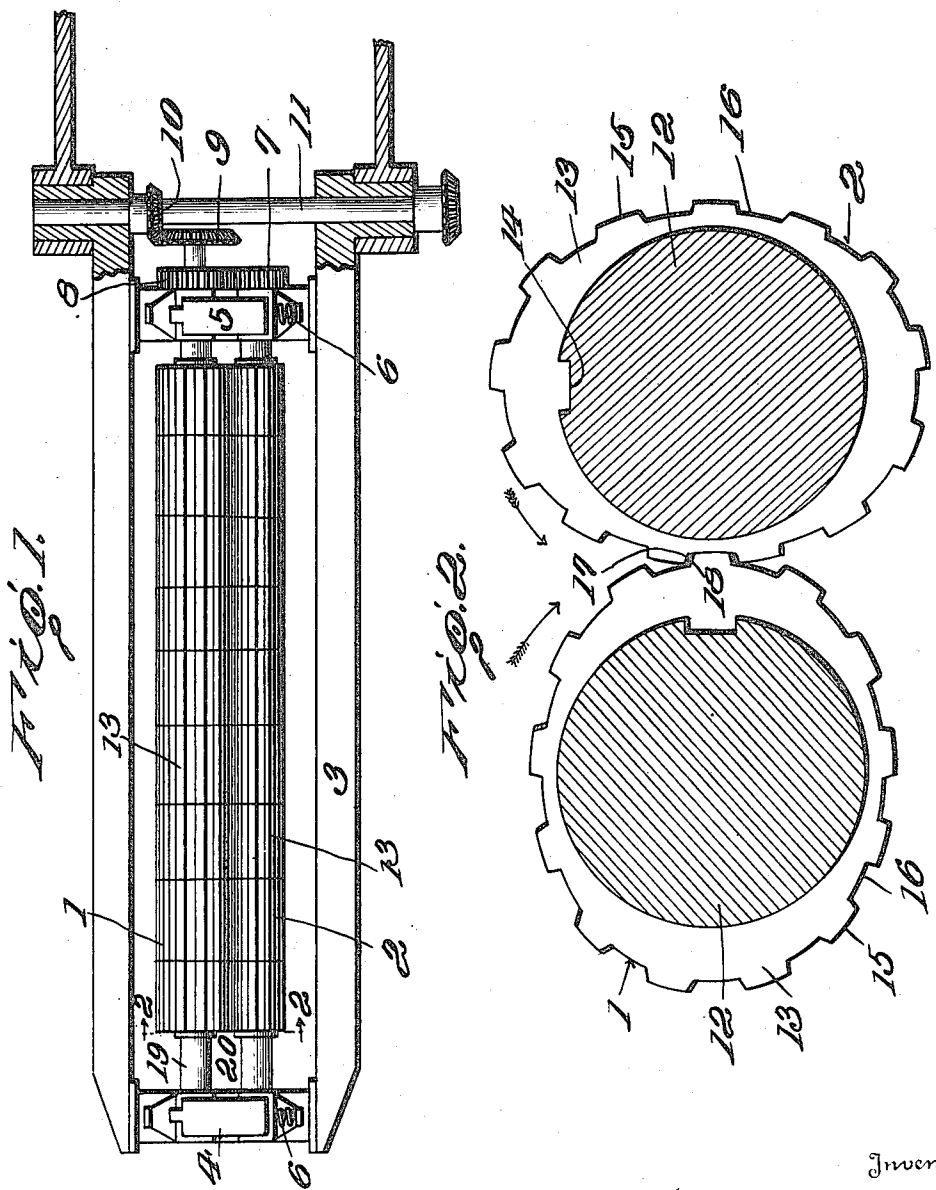
June 12, 1923.

1,458,221

R. COVER

CORN HUSKING MACHINE

Original Filed June 3, 1919



Inventor

Ralph Cover

By Sturtevant & Mason

Attorneys

Patented June 12, 1923.

1,458,221

UNITED STATES PATENT OFFICE

RALPH COVER, OF BALTIMORE, MARYLAND, ASSIGNOR TO THE UNITED MACHINERY COMPANY, OF WESTMINSTER, MARYLAND, A CORPORATION OF MARYLAND.

CORN-HUSKING MACHINE.

Application filed June 3, 1919. Serial No. 301,506. Renewed September 17, 1921. Serial No. 501,450.

To all whom it may concern:

Be it known that I, RALPH COVER, a citizen of the United States, residing at Baltimore, in the county of Baltimore, State of Maryland, have invented certain new and useful Improvements in Corn-Husking Machines, of which the following is a description, reference being had to the accompanying drawing and to the figures of reference marked thereon.

The invention relates to new and useful improvements in corn husking machines, and more particularly to a husking machine which is adapted to strip the husks from green corn.

In husking green corn it is desirable to moisten or wet the ears which are being husked and this results in making the husking rolls more or less slippery and increases the difficulty in properly stripping the husks from the ears, particularly when short ears pass through the machine. It also often results in a slow clogging of the machine, due to the failure of the rolls to strip the husks and the ear remaining at a standstill on the roll and other ears coming along and clogging behind the same.

An object of the present invention is to provide a husking roll construction, wherein the husks will be positively gripped by intermeshing projections and thus forcibly stripped from the ear.

A further object of the invention is to provide a machine of the above character, wherein the projections forming the intermeshing teeth are so shaped as to make gripping contact with the opposed roll between the projections thereof, so as to insure that the husks will be firmly gripped and forcibly stripped from the ear.

A still further object of the invention is to provide husking rolls of the above character wherein the projections are so timed relative to each other, that an advanced corner on one projection co-operates with a rear corner of the projection on the opposed roll, so as to produce a bending grip on the husks and thus forcibly strip the same from the ear.

A still further object of the invention is to provide a pair of husking rolls having husk gripping projections of the above character, which husking rolls are elliptical in cross section and disposed so that the major axis of one husking roll is in co-opera-

tive relation to the minor axis of the opposed husking roll thereby producing, in addition to the forcible husking action, a tumbling of the ears and thereby a movement of the ear away from the gripping point of the husking rolls on the husks.

These and other objects will in part be obvious and will in part be hereinafter more fully disclosed.

In the drawings which show by way of illustration one embodiment of the invention—

Figure 1 is a view partly in plan and partly in section showing a portion of a husking machine having my improved husking rolls mounted therein;

Figure 2 is a sectional view through the husking rolls on the line 2—2 of Figure 1.

The invention is directed to husking rolls which are used for stripping the husks from ears of corn, and more particularly to a construction of husking roll which is adapted to strip the husks from green corn. It is well known that the surface of the husking rolls are more or less slippery particularly when the ears are sprayed or flushed with water prior to or during the husking operation.

One of the purposes of the present invention is to provide a pair of co-operating husking rolls which are so constructed as to have a positive stripping action on the husks to aid in stripping the same from the ears. This is accomplished in the carrying out of my invention by providing the husking rolls with intermeshing projections, the projection on one roll engaging the space between the adjacent projection on the other roll. These projections are preferably so shaped as to have a gripping contact with the surface of the roll between the projections on the opposed rolls. The projections are also so shaped and proportioned and the rolls timed, so that the advanced corner on one projection will co-operate with the rear corner on a projection on the opposed roll to bend the husk and thus firmly grip the same. Furthermore, the rolls are preferably elliptical in cross section and disposed so that the major axis of one roll co-operates with the minor axis of the other roll. By this positioning and shaping of the rolls the ear of corn is tossed about as it is being husked in view of the fact that the husking line—that is, the point of gripping contact

between the rolls, shifts laterally of the rolls and also the point of contact between the ear being husked and the respective rolls shifts up and down and sidewise and this
 5 tumbles the ear about, thus moving the ear away from the husking line. The husk being gripped by the co-operating rolls at the husking line and the movement of the ear away from this point of gripping of
 10 the husk greatly aids in the efficient stripping of the ears of husks and also greatly facilitates the time period in husking an ear as well as prevents slow clogging of the ears on the rolls.

Referring more in detail to the drawings, my improved husking rolls are indicated at 1 and 2 in the drawing. These husking rolls are mounted in a suitable frame 3, having bearings, indicated at 4 and 5, in which the
 20 rolls are journaled. The roll 2 is mounted in bearings which are yieldingly moved toward the bearings on the other roll by means of springs 6—6. Mounted on the roll 2, at the receiving end thereof, is a gear wheel 7, and mounted on the roll 1, at the receiving
 25 end thereof is a gear wheel 8. These gears mesh with each other so that both rolls will be positively driven and keep perfect timing relative to each other. The shaft for the roll 1 is also provided with a bevel gear
 30 9 which meshes with a bevel gear 10 on a shaft 11, which may be utilized for driving the husking rolls. The frame 3, supporting the husking rolls, is inclined from the receiving end thereof toward the delivering
 35 end thereof, so that the ears are conveyed lengthwise of the rolls. The rolls are substantially parallel and are longitudinally extended and are each formed with a husking surface which is similar in construction throughout the entire length of
 40 the rolls.

The husking rolls are each provided with a solid supporting shaft 12 and mounted on
 45 this shaft is a series of sections 13 which form the husking surface proper of the rolls. Each section 13 is provided with an inward projection 14, which engages a groove in the shaft and this locks the section from turning
 50 on the shaft. Each of the sections 13 are similar in construction and are provided with projections 15 and between the adjacent projections 15 is a space 16. These projections are extended to a certain extent
 55 and are slightly less in width than the spaces 16 between the projections, so that the projections on one roll will intermesh with the projections on the other roll—that is, the projection on one roll enters the space between the adjacent projection on the op-
 60 posed roll. The bottom faces of the projections are curved and the outer face of the opposed roll between the adjacent projections is also curved and these two curved
 65 surfaces are so disposed as to grip the husks.

Under the influence of the spring 6—6 the rolls are held close together and one roll may yield relative to the other to let the husks pass between the same. The rolling
 70 contact of one husking roll on the other is the contact between these curved surfaces—that is, the curved surface on one projection cooperating or bearing against the curved
 75 surface between projections on the opposed roll. Instead of having a bearing contact, the surfaces may be set so as to run close together, by suitable means for limiting the
 80 movement of the bearing supporting the roll 2. A means such as shown and described in the application of William H. Leister, Serial No. 192,366, filed September
 85 20th, 1917, may be utilized for supporting the yielding roll and limiting the movement thereof. The rolls rotate in the direction of the arrows as indicated in Figure 2, and
 90 the advanced corner 17 of a projection on the roll 2 co-operates with the rear corner 18 of a projection on the roll 1 in bending the husks and thus forming a very firm gripping
 95 bight on the husks.

As clearly shown in the drawings, each husking roll is uniform in peripheral cross
 100 section throughout its length, and by peripheral cross section, I mean the tops of the projections 15, in the preferred form of the
 105 invention, the sections 13 are elliptical in cross section at their outer faces, while they are concentric in cross section at their inner faces, so that the sections will be firmly supported by the shaft 12 which carries the
 110 same. These elliptical sections are so disposed on their supporting shafts and timed that the major axis of the diameter of one roll co-operates with a minor axis of the
 115 opposed roll. As a result the line of gripping contact or the husking line shifts laterally of the vertical plane passing centrally between the axis of the husking roll. This
 120 is brought about by the major axis of one roll varying to a minor axis and as it varies to the minor axis the opposed roll is varying from a minor axis contact to a major
 125 axis contact and so the husking line shifts back and forth. Then again, let us assume that an ear of corn is resting on the roll, there will be two points or lines of contact
 130 between the ear and the husking rolls. That is, the ear will rest on the two rolls. This line of contact will also shift laterally and up and down by reason of the fact that the
 135 distance of the point of contact from the center of the shaft is constantly varying by reason of the elliptical shape of the husking surfaces of the rolls. As this line of contact with the ear shifts back and forth and
 140 up and down, the ear will move sidewise and up and down and thus be tumbled about. In other words, when the husk is firmly gripped at the husking line between said
 145 husking rolls this husking grip not only

creeps up on the husks and pulls the husk down on the rolls, but the shape of the rolls causes the ear to positively move away from the point where the husks are gripped, and this, as above noted, greatly increases the efficiency in the stripping of the husks from ear. Then again a short ear, which, on the ordinary husking rolls, will become substantially to a standstill and form a slow clog, will be tumbled about and the husks will be positively gripped and stripped from the ear and all slow clogging thus prevented. While I have shown the husking rolls as elliptical in cross section, it will be understood that from certain aspects of the invention, they may be otherwise shaped. The essential features consist in providing a form of roll having sections of its peripheral surface disposed at different distances from its axis of rotation, which sections are of sufficient extent and location as to bring about a positive tumbling of the ears a plurality of times during their movement longitudinally of the rolls.

The husking sections terminate short of the lower end of the shafts 12 supporting the same and said shafts are reduced, as indicated at 19, thus forming a space 20 between the shafts at the delivery end of the husking rolls, as clearly indicated in Figure 1 of the drawings. This space prevents the husks which follow down with the ear from clogging between the ends of the husking rolls and the bearing support for the rolls and insures that the husking rolls are kept clean from husks.

The particular shaping of the husking rolls, whereby the ear is caused to be tumbled about while it is being husked, per se forms no part of the present invention, but is claimed in the application of William H. Leister, above referred to. The term "rolls" as herein used, is not used as a limiting term, but in the broad sense to cover any form of elongated rotating member which may be used in removing the husks from the ear.

It is obvious that minor changes in the details of construction and the arrangement of parts may be made without departing from the spirit of the invention as set forth in the appended claims.

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

1. A husking machine including in combination a pair of parallel longitudinally extending husking rolls along which the ears are conveyed, said rolls being non-concentric and disposed so that their cooperating surfaces are substantially of uniform distance apart, said rolls having their surfaces provided with intermeshing projections disposed so as to grip the husk and forcibly strip the same from the ears.

2. A husking machine including in com-

bination, a pair of parallel longitudinally extending husking rolls along which the ears are conveyed, said rolls being provided with intermeshing projections adapted to grip the husks and forcibly strip the same from the ears, said rolls being also elliptical in cross section and timed so that the major axis of one roll is in co-operative gripping relation to the minor axis of the opposed roll.

3. A husking machine including in combination, a pair of parallel longitudinally extending husking rolls along which the ears are conveyed, said rolls being provided with intermeshing projections adapted to grip the husks and forcibly strip the same from the ears, said rolls being also elliptical in cross section and timed so that the major axis of one roll is in co-operative gripping relation to the minor axis of the opposed roll, the projections on one of said rolls being shaped and disposed so as to extend between the projections on the adjacent roll and thus produce a bending grip on the husk passing between the rolls.

4. A husking machine including in combination a pair of parallel longitudinally extending husking rolls along which the ears are conveyed, said rolls in cross section having their surfaces curved and eccentrically disposed to their axes of rotation and with their adjacent surfaces at the point of cooperation substantially a uniform distance apart, said rolls being provided with intermeshing projections adapted to produce a bending grip on the husk and forcibly strip the same from the ears.

5. A husking machine including in combination, a pair of parallel longitudinally extending husking rolls along which the ears are conveyed, said rolls being provided with intermeshing projections adapted to grip the husks and forcibly strip the same from the ears, said rolls being shaped in cross section and timed so as to cause the husking contact line to shift laterally as the husks are being stripped from the ear.

6. A husking machine including in combination, a pair of parallel longitudinally extending husking rolls along which the ears are conveyed, said rolls being provided with intermeshing projections adapted to grip the husks and forcibly strip the same from the ears, said rolls being shaped in cross section and timed so as to cause the husking contact line to shift laterally as the husks are being stripped from the ear and so as to cause the lines of contact between the ear and the husking rolls to shift laterally and up and down for tumbling the ear about as it is being husked.

7. A husking machine including in combination, a plurality of substantially parallel longitudinally extending rotary rolls along which the ears are conveyed, each of said rolls being of substantial uniform cross

section throughout its length and having sections of its peripheral surface disposed at different distances from its axis of rotation whereby the ears are positively tumbled about transversely a plurality of times during their movement longitudinally of the rolls, said rolls having their surfaces provided with intermeshing projections disposed so as to grip the husks and forcibly strip the same from the ear.

8. A husking machine including in combination, a plurality of substantially parallel longitudinally extending rotary rolls along which the ears are conveyed, each of said rolls having sections of its peripheral surface disposed at different distances from its axis of rotation, said sections being of sufficient extent and location whereby the ears are positively tumbled about transversely a plurality of times during their movement longitudinally of the rolls, said rolls having a surface of greater distance from the axis of one roll cooperating with the surface of lesser distance from the axis of the other roll, and said rolls having their surfaces provided with intermeshing projections disposed so as to grip the husks and forcibly strip the same from the ear.

9. A husking machine including in combination, a plurality of longitudinally extending rotary rolls along which the ears are conveyed, each of said rolls having sections of its peripheral surface disposed at different distances from its axis of rotation, said sections being of sufficient extent and location whereby the ears are positively tumbled about transversely a plurality of times during their movement longitudinally of the rolls, said rolls being in substantial continuous gripping relation to each other throughout the entire rotation of the rolls, and said rolls having their surfaces provided with intermeshing projections disposed so as to grip the husks and forcibly strip the same from the ears.

10. A husking machine including in combination, a plurality of substantially parallel longitudinally extending rotary rolls, along which the ears are conveyed, each of said rolls being of substantially uniform peripheral cross section throughout its length and having sections of its peripheral surface disposed at different distances from its axis of rotation whereby the ears are positively tumbled about transversely a plurality of times during their movement longitudinally of the rolls, said rolls being in substantially continuous gripping relation to each other throughout the entire rotation

of the rolls, and said rolls having their surfaces provided with intermeshing projections disposed so as to grip the husks and forcibly strip the same from the ear.

11. A husking machine including in combination, a plurality of substantially parallel longitudinally extending rotary rolls along which the ears are conveyed, each of said rolls being of substantially uniform peripheral cross section throughout its length and having sections of its peripheral surface disposed at different distances from its axis of rotation whereby the ears are positively tumbled about transversely a plurality of times during their movement longitudinally of the rolls, said rolls having a surface of greater distance from the axis of one roll cooperating with a surface of lesser distance from the axis of the other roll, and said rolls having their surfaces provided with intermeshing projections disposed so that the projections on one roll extend between the projections on the adjacent roll and thus produce a bending grip on the husks.

12. A husking machine including in combination, a plurality of substantially parallel longitudinally extending rotary rolls along which the ears are conveyed, said rolls being similar in cross section, and of substantially uniform peripheral cross section throughout its length and sections of its peripheral surface disposed at different distances from its axis of rotation whereby the ears are positively tumbled about transversely a plurality of times during their movement longitudinally of the rolls, said husking rolls having their surfaces provided with intermeshing projections disposed so as to grip the husks and forcibly strip the same from the ear.

13. A husking machine including in combination, co-acting rotating husking rolls longitudinally extended in parallel relation and adapted to convey the ear longitudinally thereof, each of said rolls having a husking surface uniformly eccentric to its axis of rotation, said rolls being so timed that the surface of maximum eccentricity on one roll co-acts with the surface of minimum eccentricity on the other roll, said husking rolls having their surfaces provided with intermeshing projections disposed so as to grip the husks and forcibly strip the same from the ear.

In testimony whereof, I affix my signature.

RALPH COVER.