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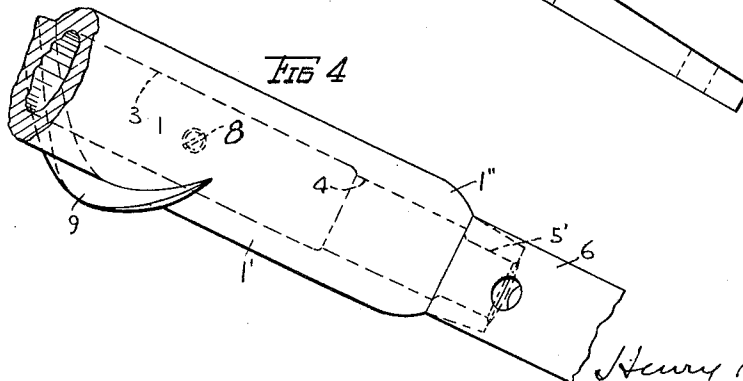
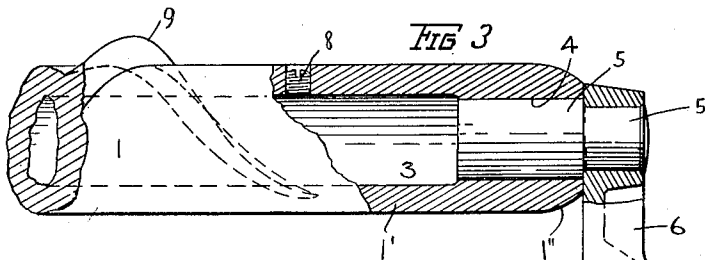
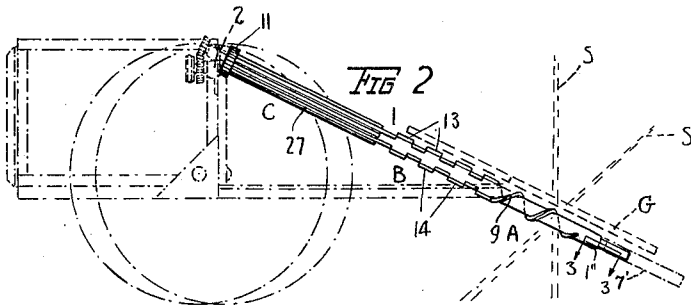
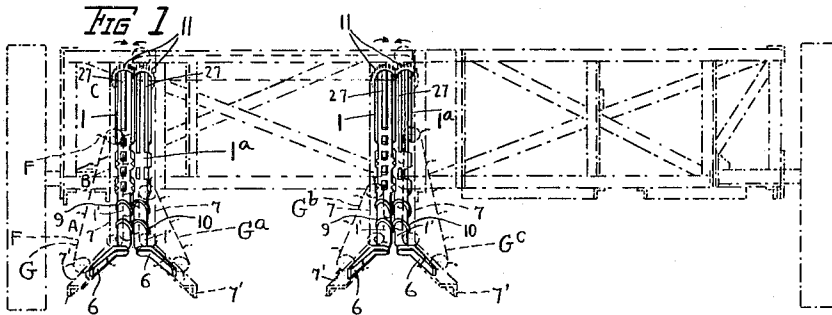
H. SYNCK

1,827,216

SNAPPING ROLLS FOR CORN PICKERS

Filed June 10, 1929

2 Sheets-Sheet 1



INVENTOR

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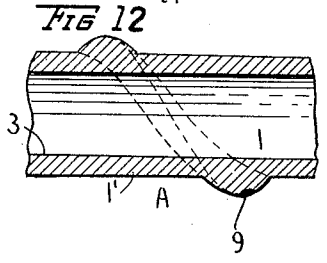
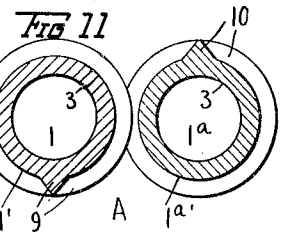
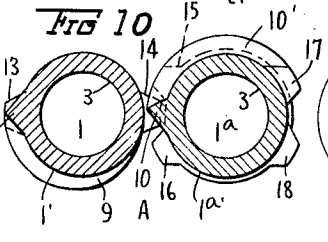
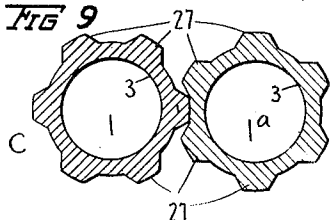
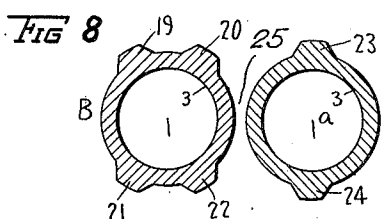
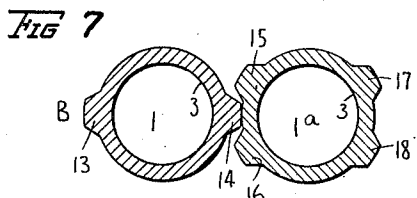
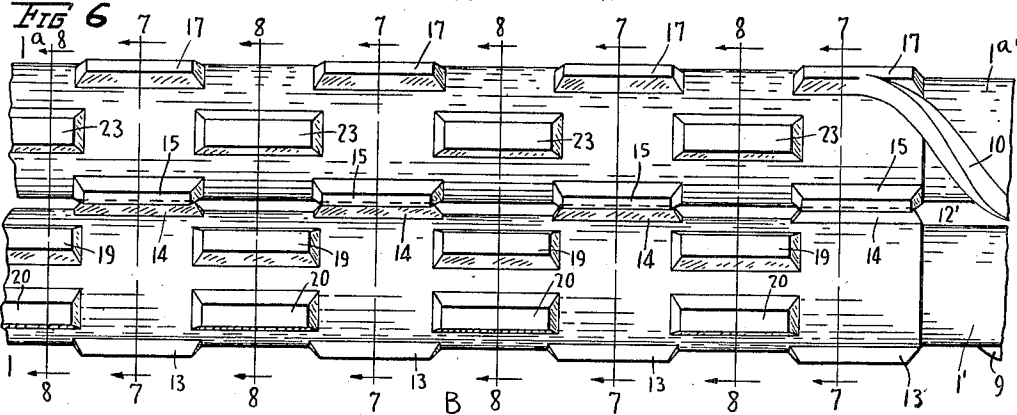
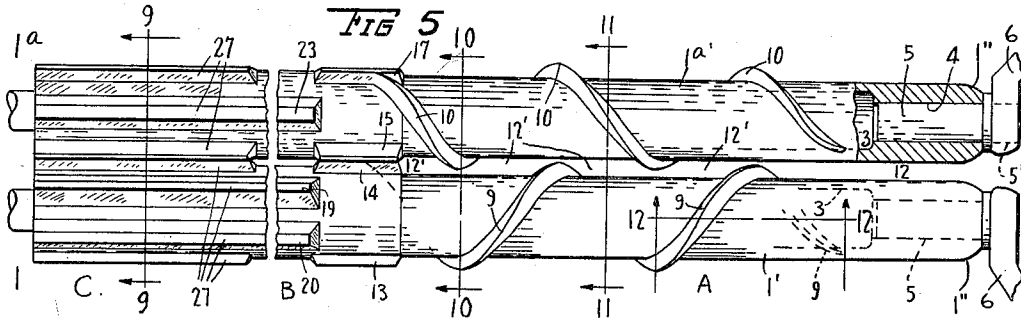
H. SYNCK

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SNAPPING ROLLS FOR CORN PICKERS

Filed June 10, 1929

2 Sheets-Sheet 2



INVENTOR
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UNITED STATES PATENT OFFICE

HENRY SYNCK, OF COLDWATER, OHIO, ASSIGNOR TO THE NEW IDEA SPREADER COMPANY, OF COLDWATER, OHIO, A CORPORATION OF OHIO

SNAPPING ROLLS FOR CORN PICKERS

Application filed June 10, 1929. Serial No. 369,884.

This invention relates to improvements in corn picking machines, it more particularly relating to the snapping rolls, and especially in the provision of improved bearings for the lower ends of such rolls and to the particular manner of providing ribs and rib-like projections on the exterior of the rolls to facilitate the gathering and picking of the corn.

It has been the practice in corn picking apparatus to support the lower ends of the inclined snapping rolls by providing the end of each roll with a trunnion, usually removable, and journaling the trunnion in a stationary bearing supported by the frame of the gathering and picking mechanism. As the rolls are arranged in pairs, receiving the corn stalks between them, which enter at the lower end of the rolls, this arrangement of supporting the lower ends of the rolls resulted in a comparatively long throat at the entrance to the rolls, formed by the adjacent bearings, since the trunnions and bearings necessarily had to be of considerable length to provide for sufficient bearing surface, as a consequence of which it frequently happened that low hanging ears of corn would clog the entrance to the rolls and prevent the proper gathering of succeeding stalks.

It is one of the objects of this invention to overcome this difficulty by so supporting the lower ends of the rolls as to eliminate the long roll bearings whereby the entrance to the throat between the rolls is defined by opposed walls of comparatively short length and of a form which will readily allow low hanging ears of corn to pass to and over the end of the rolls as the stalks pass into the throat.

A further object of the invention is to construct the snapping portions of the snapping rolls as to obviate to a great extent injury to the ears of corn; a more specific object in this connection being to provide the rolls with coacting snapping elements which are separated by pronounced mating but separated plain portions on the periphery of the rolls so that the stalks are subjected to pulling actions which are interrupted by the plain portions with the result that the ears are

snapped from the stalks with a minimum degree of injury, the plain portions helping to pull the stalks down, but not having enough pull to snap off ears, this being done by the snapping elements.

A further object of the invention is to so arrange the co-acting snapping elements referred to in the preceding paragraph around the rolls so that the pulling action is distributed uniformly throughout the revolution of the rolls, but intermittently on the stalks.

A further object is to provide the lower portions of the snapping rolls with effective means for conveying the stalks to the snapping portions of the rolls; a more specific object in this connection being to provide the pair of rolls with more space between the rolls at this portion than at the snapping portion of the rolls, and with intermeshing helical ribs which extend from a point adjacent the lower ends thereof to the snapping portions of the rolls.

In the accompanying drawings:

Fig. 1 is a front elevation of a corn picking machine in which a plurality of gathering rolls are shown, in which my improvements are embodied, the corn-picking machine being shown diagrammatically.

Fig. 2 is a side elevation of the same.

Fig. 3 is an enlarged plan view, partly in section, the portion in section being on the line 3—3 of Fig. 2.

Fig. 4 is an enlarged side elevation of the parts shown in Fig. 3.

Fig. 5 is an enlarged top plan view of one of the pairs of snapping rolls, partly broken away.

Fig. 6 is an enlarged top plan view of that portion of the rolls broken away in Fig. 5.

Figs. 7 and 8 are enlarged sectional views on the lines 7—7 and 8—8 respectively of Fig. 6.

Figs. 9, 10, 11 and 12 are enlarged sectional views on the lines 9—9, 10—10, 11—11 and 12—12, respectively, of Fig. 5.

Referring to the drawings, 1 and 1^a represent a pair of snapping rolls of a corn picking machine, these rolls being arranged as shown in Figs. 1, 2, 5 and 6 in which it will be seen that they are placed in pairs and

set at an angle to the ground, being revolved in the direction of the arrows appearing in Fig. 1. The upper end of each roll is rotatably mounted in a bearing bracket 2 secured to the main frame of the machine, and each roll is formed hollow, there being a bore 3 preferably throughout the entire roll. At the lower end 1', the bore of the roll is reduced and machined, as indicated at 4, to receive a trunnion 5. This trunnion has a reduced end 5' which is received in an aperture in the upper end of a bracket 6, this reduced end being preferably secured to the bracket by riveting as shown in Fig. 3. The brackets 6 are converged toward their upper ends and are attached to forwardly extending frame members 7 of the machine and the extreme upper end of each bracket is bevelled as indicated at 7' so as to provide a converged throat.

It has been the practice in the construction of snapping rolls to reduce the lower ends as shown at 1' and to also round or incline the extreme end portion as indicated at 1'' which construction in conjunction with the inclined bracket portions, impart a pronounced tapering throat effect at the lower ends of the rolls.

By having the lower end of the rolls journaled upon trunnions which are stationarily supported by brackets, that portion of this tapered throat which is immovable is of comparatively short length, as the bracket can be made of sufficient width only to form a proper support for the trunnion, thus reducing to the minimum the danger of clogging the entrance or of crushing of ears at this point. This advantage will be appreciated when it is explained that in the construction as heretofore practiced wherein the trunnion was carried by the roll, it was necessary to provide a bearing for the trunnion of a length equal to that of the bearing surface of the trunnion, it appearing therefore that with the present construction the length of the immovable walls of the converged throat may be reduced by one-half or more.

For the purpose of lubricating the bearing, with this construction the hollow roll may be utilized as a reservoir for lubricant and for that purpose is provided with a plug 28 through which a quantity of lubricant may be inserted; the downward pressure of the roll against the face of the bracket preventing undue loss of oil.

The rolls 1 and 1^a may be considered as being divided into three sections, designated in general as A, B and C, and which are, in the order as shown; the section A comprising reduced diameter rolls with helical ribs, serving to aid in feeding the stalks through the throat and having little or no effect other than this; the section B being of larger diameter and comprising comparatively short, longitudinal ribs alternating

with open spaces, in which series the larger percentage of ears are snapped from the stalks; and the section C comprising longer longitudinal ribs extending to the upper ends of the rolls, serving to snap off any ears that may escape the action of the snapping ribs in the section B.

Referring especially to Figs. 1, 2, 5 and 6, the lower portion of each roll 1 and 1^a is provided with a helical rib 9 and 10, integrally formed on the reduced diameter portions 1'. The helical ribs 9 and 10 are of opposite hand, the rib 9 or roll 1 being left-hand, while the rib 10 on the roll 1^a is right-hand, and, when the rolls are placed in the machine with the twin spur-gears 11 in mesh and rotated, the ribs 9 and 10 will clear each other and produce a conveying action upwardly to help the gathering chains to work stalks and ears of corn upwardly, or into the snapping portion of the roll.

Referring now to Figs. 6, 7 and 8, the section B of the rolls is arranged with a plurality of short longitudinal ribs integrally formed on the cylindrical surface of the rolls. In the present case, eight series of opposed ribs are employed, each series consisting of two single diametrically opposite ribs on one roll which cooperate with two diametrically opposite pairs of ribs arranged on the other roll. In four of the series of ribs, the single ribs are on one roll and the pairs of ribs are on the opposite roll while in the other series of ribs the arrangement is reversed. Referring particularly to Fig. 7, there is illustrated the arrangement of the ribs on the four section lines 7—7 of Fig. 6 in which it will be seen that the roll 1 has two single ribs 13 and 14 arranged diametrically opposite each other and that the roll 1^a has two pairs of ribs arranged diametrically opposite each other, one pair of ribs being indicated at 15 and 16 and the other pair of ribs at 17 and 18. In Fig. 8 there is shown the arrangement of the ribs on the section lines 8—8 of Fig. 6 in which it will be seen that the single ribs indicated at 23 and 24 are on the roll 1^a and the pairs of ribs indicated at 19, 20, 21 and 22 on the roll 1, this arrangement being just the opposite as to the number of ribs on each roll from that shown in Fig. 7. The arrangement of the ribs shown in Fig. 8 also differs from the arrangement of the ribs of Fig. 7 in that the single ribs on the roll 1^a are positioned thereon 90° in advance or behind the single ribs on the rolls 1 and that the pairs of ribs on the respective rolls are similarly positioned. Thus, as the snapping rolls revolve the snapping ribs on the sections 7—7 and 8—8 will engage alternately, thus causing a set of snapping ribs to engage at every quarter turn of the roll. It will be seen that when the ribs are meshed with each other as shown in Fig. 7 there is a positive gripping action on the stalks be-

tween the rolls, while when the ribs are out of mesh as shown in Fig. 8 only light gripping action takes place due to the space indicated at 25 between the rolls, the effect and purpose of which is to divide the work of drawing down the corn stalks while allowing an opportunity for readjustment of the stalks during their travel upward between the rolls so as to allow the chains to more readily draw the stalks upward without breaking or tearing them off.

In picking corn of more than average height, the ears will be relatively higher above the ground, and may escape the action of the discontinuous snapping ribs just described. For this contingency, the section C of the rolls is provided with a series of ribs 27, which are equally spaced about the periphery of the rolls. These ribs 27 are continuous. (being those designated as the series C) and therefore act to draw down, continuously, any stalks engaged thereby.

Distribution of the stalks between the rolls, and the picking up of down corn is facilitated by gathering chains G, G^a, G^b, and G^c. Figs. 1 and 2. These chains are provided with a plurality of projecting fingers F, and each chain is so applied that the fingers run over the approximate center of a roll, the direction of travel of the runs being upwardly. The outer chains G and G^c extend upwardly for a considerable distance preferably about three-fourths of the length of the roll, while the inner chains G^a and G^b are much shorter, and terminate their upward run at a point near the upper termination of the helical ribs 9 and 10; in other words, the effect of the inner chains, such as G^a and G^b, is merely to assure that all stalks are put into position between the rolls. The longer runs of chains G and G^c in addition to gathering stalks between the rolls is desirable as an aid in stalk distribution, into and also along the snapping portion of the rolls.

Snapping rolls so constructed will permit the stalk to enter freely between them and be conveyed freely to and along the length of the snapping portions of the rolls, the snapping of the ears from the stalk thereafter being accomplished in an effective manner without appreciable injury to the ears.

Having thus described my invention, I claim:

1. In a corn gathering and snapping apparatus, a pair of snapping rolls, a plurality of individual ribs on one roll adapted to intermesh with a plurality of pairs of ribs on the other roll to engage and pull the stalks therebetween, said rolls having pronounced peripheral mating plain portions between the ribs.

2. In a corn gathering and snapping apparatus, a pair of snapping rolls, a plurality of series of intermeshing ribs on said rolls, each series of ribs including a plurality of ribs on

each roll arranged at different points on the periphery thereof and separated by pronounced peripheral plain portions, the ribs of one series being arranged in staggered relation with the ribs of another series.

3. In a corn picking machine, a pair of inclined parallel snapping rolls, each roll being substantially cylindrical throughout its length, supports at the lower ends of said rolls, and a trunnion carried by each support extending into the end of the corresponding roll to form a bearing therefor, said trunnion being formed as a separate element from said support with means for securing the same firmly thereto, those portions of the support which carry the trunnions having their inner faces at least tapering away from the rolls and providing walls of entrance to the space between the rolls considerably less in length than the length of those portions of the trunnions which extend into the rolls.

In testimony whereof, I have hereunto set my hand this 23rd day of May, 1929.

HENRY SYNCK.

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