

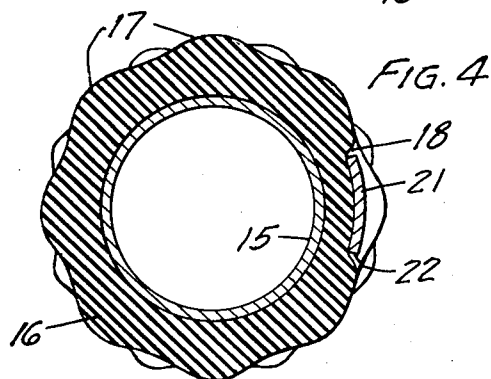
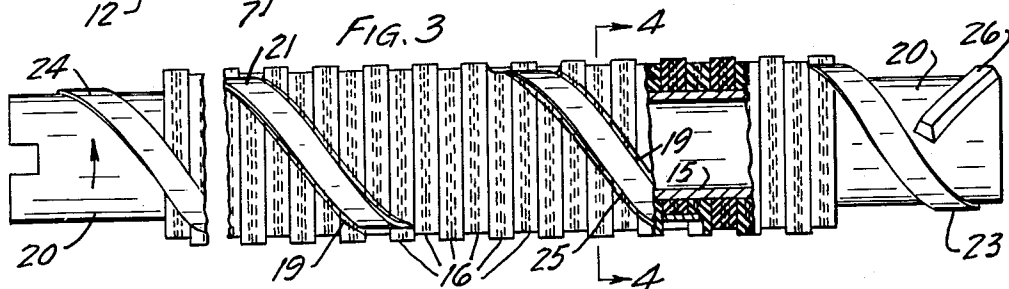
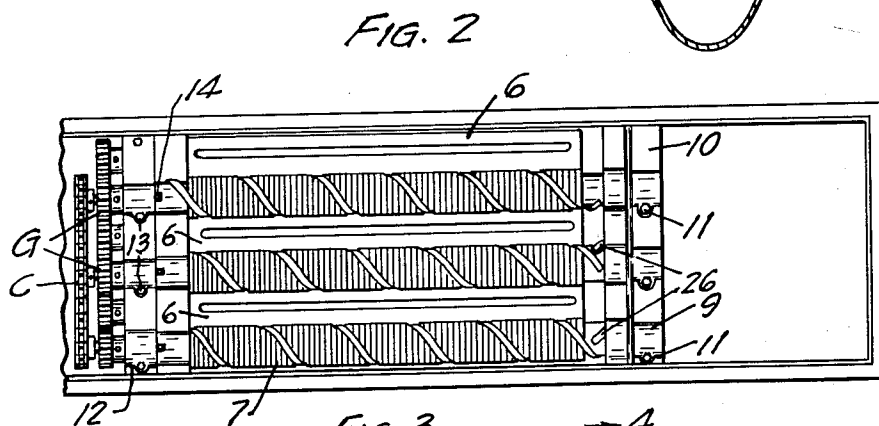
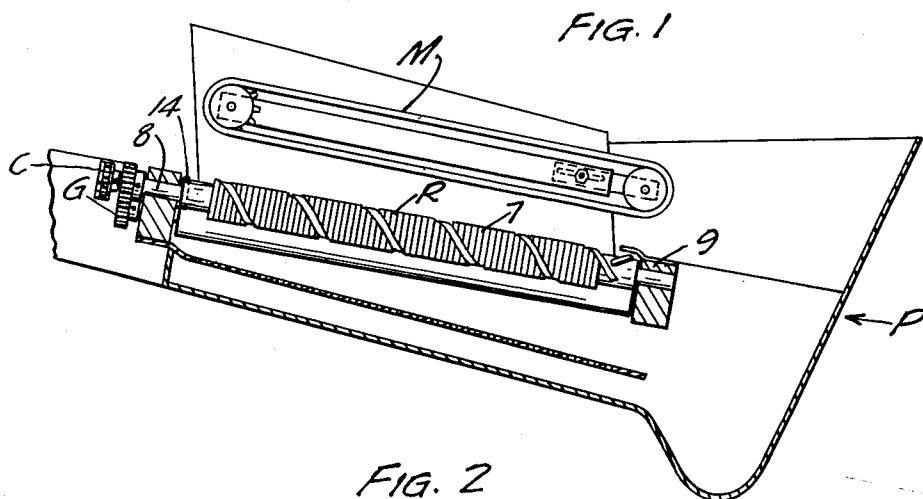
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HUSKING ROLLER

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HUSKING ROLLER

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5 Claims. (Cl. 130—5)

This invention relates to new and useful improvements in rollers adapted for use on various types of machinery, such as corn shredders, pickers and the like. More particularly it relates to rollers for use in conjunction with Dearborn-Wood Bros. corn huskers and other similar corn picking and harvesting machinery.

In corn pickers, huskers, etc. similar to the Dearborn-Wood Bros. type of corn picker manufactured by Dearborn Motors Corporation, Detroit 3, Michigan, the corn husking rollers consist of a plurality of rubber rollers each inclined and cooperating with steel, wooden, or other rollers of relatively non-compressible material. During operation, it frequently happens in a corn husker of this type that a corn nubbin or similar structure will pass partially through and between such rollers and being too large in diameter to pass entirely through. As a result, the nubbin will be held in the same position while the rollers are rapidly turning and rapidly wearing away the rubber on the roller until all of the rubber has been worn away and the effectiveness of the roller has been destroyed.

In addition, the type of corn husker such as the Dearborn-Wood Bros. type has a metal plate extending transversely across and above the lower ends of the rollers to facilitate the movement of the corn ears over the area where the rollers are journaled. I have found, however, that small ears of corn, nubbins, etc. work their way between the rollers and beneath such plate and lodge in such position. As a result the rubber will be entirely burned off its carrier shaft or sleeve in that area and the efficiency of the roller in that area will be thereby destroyed so that the rollers will not perform a proper husking operation.

It is a general object of my invention to provide novel and improved rollers for use on various types of machinery such as corn shredders, corn pickers, and the like.

A more specific object is to provide a novel and improved roller of the class described constructed to positively progress thereacross the corn ears or other material normally carried by such rollers.

Another object is to provide a novel and improved roller of the class described constructed to positively prevent excessive wear in a local area along its length by nubbins, small ears, or the like becoming lodged between such rollers intermediate their ends.

Another object is to provide a roller having inherent means for moving ears, nubbins, and the like rearwardly from beneath the end plate covering the lower end of said rollers and for moving such ears and nubbins into the path of additional downwardly moving material to be carried therewith beyond the ends of the roller.

Another object is to provide a helically recessed roller having a progresser element disposed within the confines of the recess to positively progress material lengthwise over the roller.

These and other objects and advantages of my invention will be more apparent from the following descrip-

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tion made in connection with the accompanying drawings, wherein like reference characters refer to similar parts throughout the several views and in which

Fig. 1 is a sectional view diagrammatically showing a husking section of a corn picker of the Dearborn-Wood Bros. type with one embodiment of my invention mounted thereon and shown in side elevation.

Fig. 2 is a plan view of the structure shown in Fig. 1.

Fig. 3 is an enlarged side elevational view of one embodiment of my invention with a portion thereof broken away.

Fig. 4 is an enlarged cross-sectional view taken along line 4—4 of Fig. 3.

Fig. 1 displays a portion of a corn picker indicated generally as P having a leveling mechanism M and a plurality of rollers R therebeneath. It also discloses these rollers R being driven by gears G and chains C.

The rollers R are comprised of pairs of rollers one 6 of which is formed of steel, wood, or some other rigid material and the other 7 of which is an embodiment of my invention. Each of these rollers 6 and 7 is mounted on a shaft 8.

Each of the rollers 7 which embody my invention is normally mounted in place for rotation during the husking operations in bearings 9 and are held in place at their lower ends by a bearing cap or plate 10 which in turn is secured by a plurality of cap screws 11. The upper ends of these rollers are held in place by a rear bearing cap or plate 12 which in turn is secured by a plurality of cap screws 13. Each of the rollers is driven by a pin 14 which extends through the upper end portion of its shaft 8 and engages the roller by means of a slot formed therein as will be hereinafter described.

A roller which embodies my invention may include, as best shown in Figs. 3 and 4, a carrier body or sleeve 15 having mounted thereon in pierced relation a plurality of discs 16. These discs 16, as shown in Figs. 3 and 4, are preferably formed of a rubber impregnated fabric such as is found in automobile tires and have a relatively irregular peripheral edge 17. As shown, each of these discs are relatively thin with respect to their diameter and each is provided with a diagonally extending recess or groove 18 which is formed in their outer circumferential portions. These discs 16 are mounted on the sleeve 15 in close compact side by side relationship with respect to each other and are arranged so that their recesses or grooves 18 communicate with the groove of the adjacent disc to form a helical groove or recess 19 extending around the roller throughout its length. The nature of the material from which the discs 16 are made is preferably elastic and/or compressible, the fabric being incorporated therein to provide added resistance to wear.

The carrier body or sleeve 15 is slightly larger in diameter than the diameter of the shaft 8. The end portions 20, however, of the roller are enlarged in diameter to enable the rollers to be mounted in the conventional bearings and to reduce the amount of space which would ordinarily exist between the sleeve 15 and the plate 10 if the sleeve were of the same diameter throughout its length.

Circumventing the roller spirally and lying within the helical groove 19 is a progresser element 21. As shown this progresser element 21 may be comprised of a metal strap which is rectangular in cross-sectional shape and which has an edge 22 adapted for engaging stalks and nubbins which may have become lodged between the rollers. The ends of this progresser element 21, as shown, are secured to the enlarged end portions 20 of the rollers as at 23 and at 24. The length of this strap 21 is such that the discs 16 are each compressed thereby and held immovable relative to each other and relative to the sleeve 15. Thus it may be readily seen that this pro-

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gresser element 21 integrates the plurality of discs 16 into a composite laminated roller. This composite roller has formed in this manner a helically extending groove 19 the rearward edge 25 of which during rotation is a husk engaging edge. The roller of course will be rotated in the direction indicated in Fig. 3 by an arrow.

Mounted on the outer surface of the lower enlarged end portion 20 is a diagonally extending retrogresser element or rib 26. It should be noted that this rib 26 extends rearwardly from the bottom end of the roller in a direction opposite to the direction in which the progresser element 21 extends.

Operation

In operation the rollers 7 are caused to rotate by the chain C and the gears G in the direction indicated in Fig. 3. The ears of corn are normally deposited upon the rollers from above and as they work their way toward the lower end of the rollers the husks are removed therefrom by the rollers. As pointed out previously, it frequently occurs that a nubbin will become lodged between rollers when the conventional type of rollers are used. This is impossible, however, when a roller of the type disclosed herein is used for the progresser element 21 will cause the nubbin to be moved downwardly toward the lower end of the roller. The edge 22 of the progresser element will engage the nubbin and force it lengthwise of the roller toward its lower end. Thus it can be readily seen that the progresser element 21 positively prevents a nubbin from becoming lodged in any position for any substantial length of time and thusly prevents extensive wear on the roller 7. The husk engaging edge 25 of the groove 19 engages the husks and tears them free of the ears, carrying them downwardly between the pairs of rollers.

Whenever a small ear of corn or a nubbin or corn stalk works its way beneath the plate 1, the retrogresser element or rib 26 engages the same and thrusts it upwardly and rearwardly, forcing the nubbin into the path of other downwardly moving ears. In this manner the nubbin will be carried along over the lower end of the roller and in this manner the nubbin is positively prevented from inflicting excessive wear and damage to the compressible portions of the roller.

It is contemplated that the compressible portions of my roller may be constructed of other compressible material. For example, the discs 16 may be replaced by a single vulcanized integral piece of rubber. My progresser element, so long as it is disposed within the confines of the groove 19 will operate with equal efficiency regardless of the nature of the material from which the compressible portions of the roller are made. Likewise, the retrogresser element 26 will effectively prevent extensive wear to the roller regardless of the manner in which the compressible portions of the roller are constructed.

Thus it can be readily seen that I have provided a roller which effectively eliminates to the most perplexing and damaging problems experienced in constructing a roller for husking operations. By utilizing a retrogresser element and a progresser element it is possible to extend the life of a roller very substantially and to consequently reduce the maintenance costs on huskers using rollers of this type.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the parts without departing from the scope of my invention.

What I hereby claim is:

1. A husking roller comprising an elongated rigid carrier body adapted to be mounted for rotation on its longitudinal axis, a laminated generally cylindrical roller body made of resilient material and carried by said carrier body in surrounding and fixed relation thereto, said roller body having a recess formed in its outer cylindrical surface extending helically therearound, and a metal strap disposed within said recess and extending outwardly from

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the bottom thereof a distance short of the general cylindrical surface of said roller body to facilitate the progression of materials carried by said roller body while said carrier body is rotated, said strap holding the laminates of said roller body against movement relative to each other and said carrier body.

2. A husking roller having in combination an elongated rigid carrier body adapted to be mounted for rotation on its longitudinal axis along an inclined plane, a laminated generally cylindrical roller body carried by said carrier body in surrounding and fixed relation thereto, said roller body having a recess formed in its outer cylindrical surface extending helically therearound and inwardly from the general cylindrical surface of said body, an elongated metal strap disposed within said recess and extending continuously around said body and outwardly from the bottom of said recess a distance short of the general cylindrical surface of said roller body to facilitate the progression of materials carried by said roller body downwardly while said carrier body is rotated in a given direction, and a rib element carried by said carrier body adjacent the lower end of said roller body and extending outwardly and upwardly around said carrier body in a direction opposite to its direction of rotation to positively engage materials which have been moved downwardly over said roller body and lodged adjacent the lower end of said roller body and to move such materials in the opposite direction into a position where they will be carried substantially beyond the lower end of said roller body by additional oncoming downwardly directed material, said strap being connected to said carrier body and functioning to hold the laminates of said roller body against movement relative to each other and relative to said carrier body.

3. A husking roller comprising an elongated rigid carrier body adapted to be mounted for rotation on its longitudinal axis, a laminated generally cylindrical roller body carried by said carrier body in surrounding and fixed relation with respect to said carrier body, said roller body having an elongated narrow helical recess formed in its general cylindrical surface and extending therearound throughout its length and being comprised of a plurality of rubber impregnated fabric discs each being mounted in surrounding relation upon said carrier body in registering relation to its adjacent disc and each having a recess formed in its periphery arranged to communicate with the recess of its adjacent disc to form said elongated recess in the composite roller body, and a combined progresser and retainer element disposed principally within the confines of said elongated recess and extending therealong, said element comprising an elongated metal strap the ends of which are secured to said carrier body, said strap extending outwardly from the bottom of said recess a distance short of the general cylindrical surface of said body throughout the length of said elongated recess and being of such a length as to compress each of said discs and retain the same in fixed position with respect to said carrier body and to each other.

4. A husking roller having in combination an elongated rigid shaft adapted to be mounted for rotation on its longitudinal axis, a laminated composite generally cylindrical roller body mounted on said shaft in surrounding and fixed relation thereto, said roller body being comprised of a plurality of rubber impregnated fabric discs carried by said shaft in pierced relation, each of said discs being disposed in registering relation with respect to its adjacent discs and each having a narrow recess formed in its periphery to communicate with the recess of its adjacent discs to form an elongated narrow helical recess in the general cylindrical surface of said composite roller body which extends helically therearound throughout its length, a combined progresser and retainer element comprising an elongated flat metal strap extending throughout said elongated recess and com-

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pletely within the confines thereof, said strap extending outwardly from the bottom of said recess a distance short of the general cylindrical surface of said body, the ends of said element being secured to said shaft, said element being of such length as to compress each of said discs and retain the same in fixed position with respect to said shaft and to each other, and a retrogressor element comprising a rigid rib secured to the lower end portion of said shaft and extending outwardly from said shaft and diagonally with respect to the longitudinal axis of said shaft and in the opposite direction in which said progressor element extends and in which said shaft will be rotated.

5. A husking roller comprising an elongated rigid carrier body adapted to be mounted for rotation on its longitudinal axis along an inclined plane, a laminated generally cylindrical roller body carried by said carrier body in surrounding and fixed relation thereto, said roller body having a helically extending recess formed in the generally cylindrical surface of said body, and a combined progressor and retainer element disposed within the confines of said recess and extending therealong in close-fitting relation to the portions of said body defining said

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recess, said progressor element comprising an elongated strap having an engaging edge thereupon extending outwardly a distance short of the general cylindrical surface of said body adapted to engage the materials passing over said roller body and thereby facilitate the progression of such materials when said carrier body is rotated, said strap holding the laminated portions of said roller body against movement relative to each other and said carrier body.

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