

No. 759,370.

PATENTED MAY 10, 1904.

M. D. HATCH.
CORN PICKER AND HUSKER.
APPLICATION FILED APR. 10, 1903.

NO MODEL.

5 SHEETS—SHEET 1.

FIG. 10.

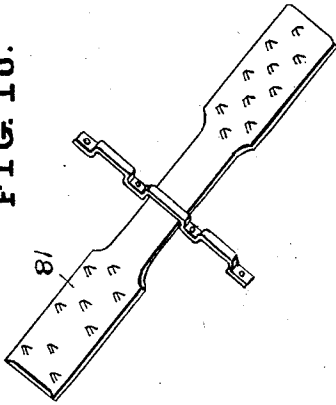


FIG. 1.

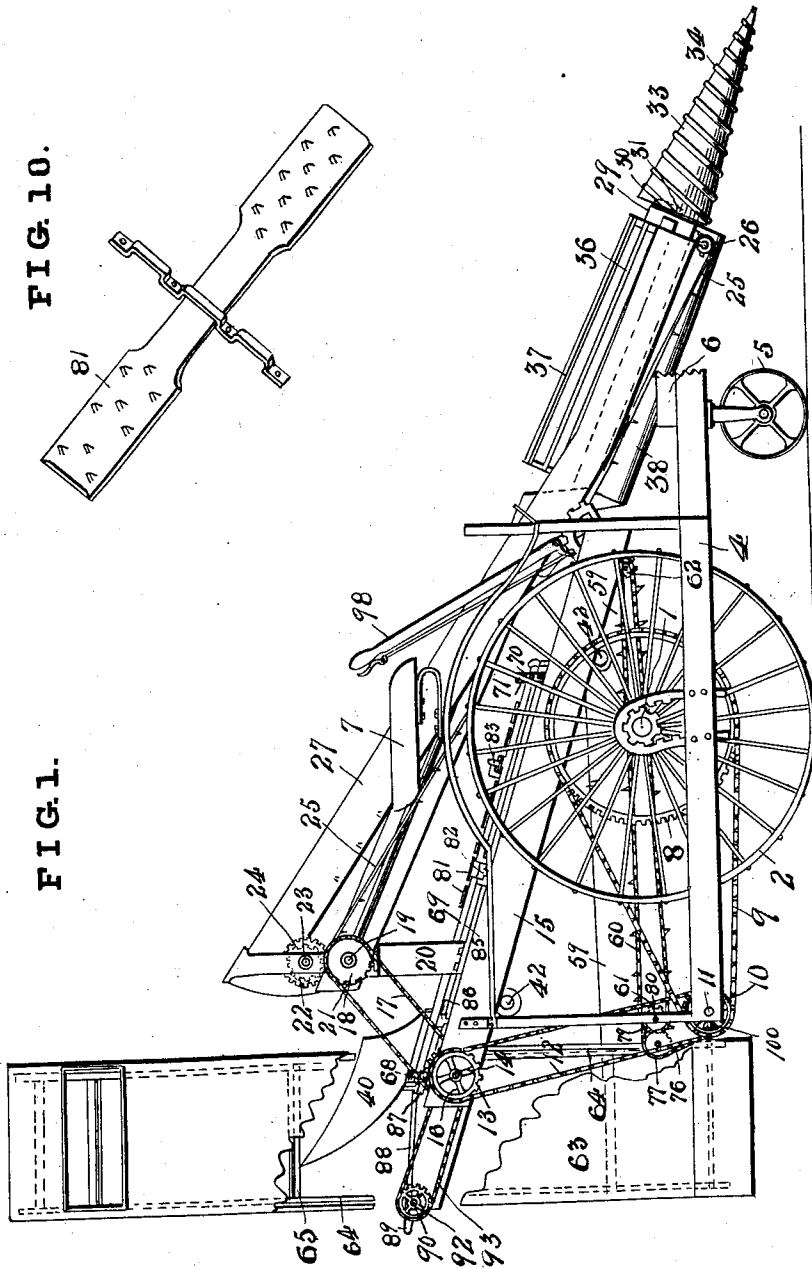
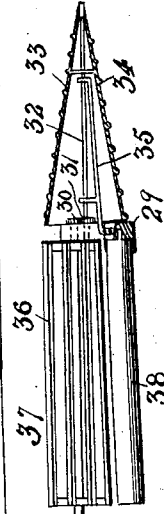


FIG. 11.



Witnesses.
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Esther E. Carrick.

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Melvin D. Hatch
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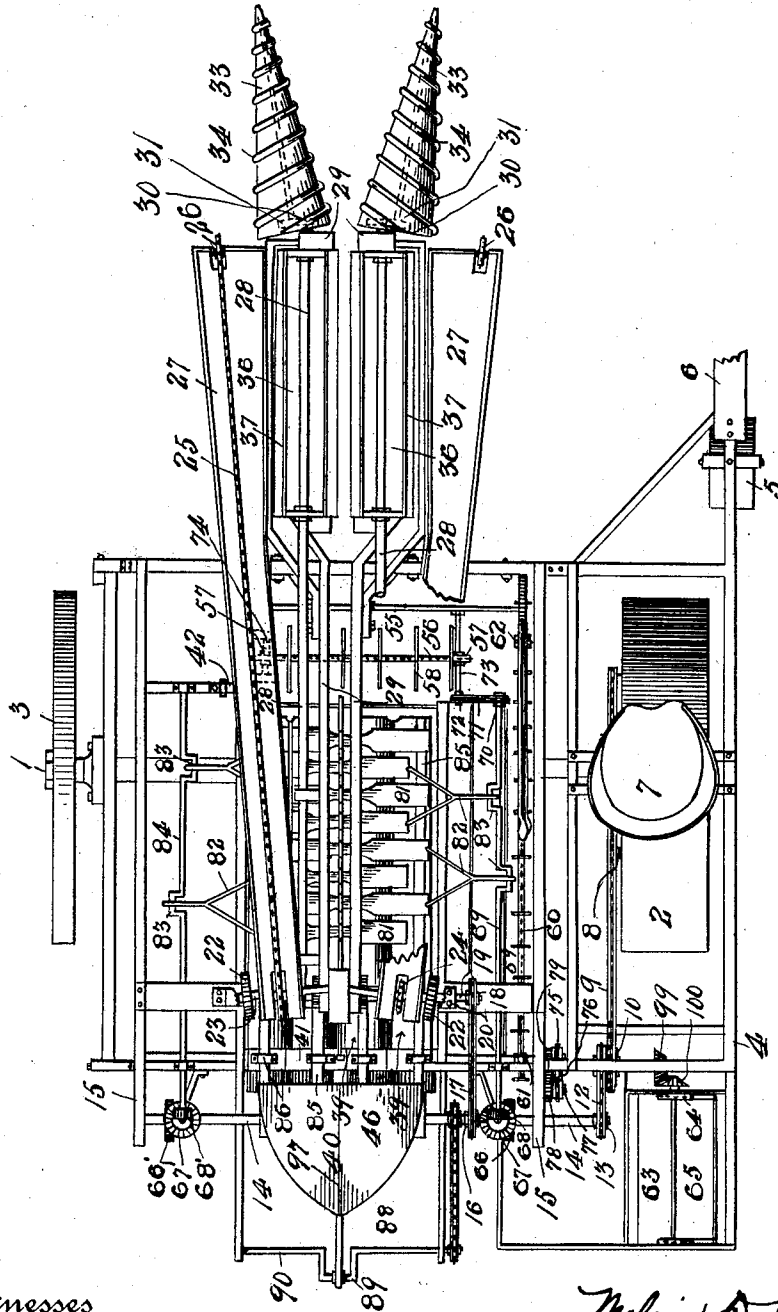
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5 SHEETS—SHEET 2.

FIG. 2.



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5 SHEETS—SHEET 3.

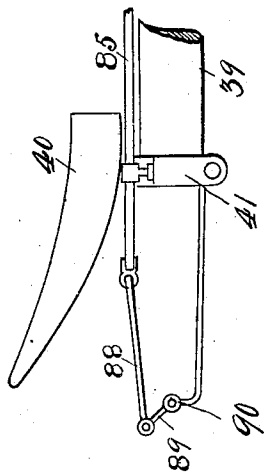


FIG. 8.

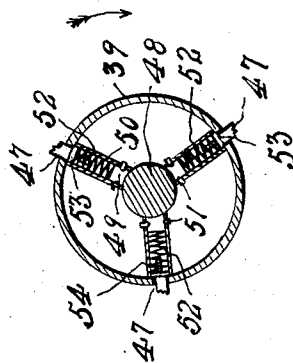


FIG. 9.

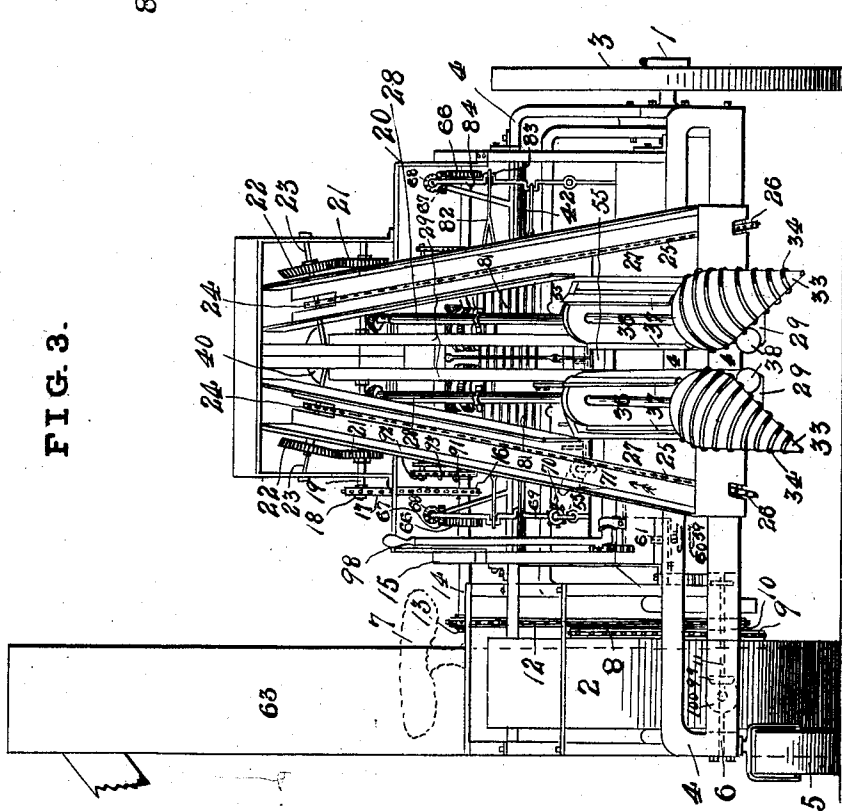


FIG. 3.

Witnesses.

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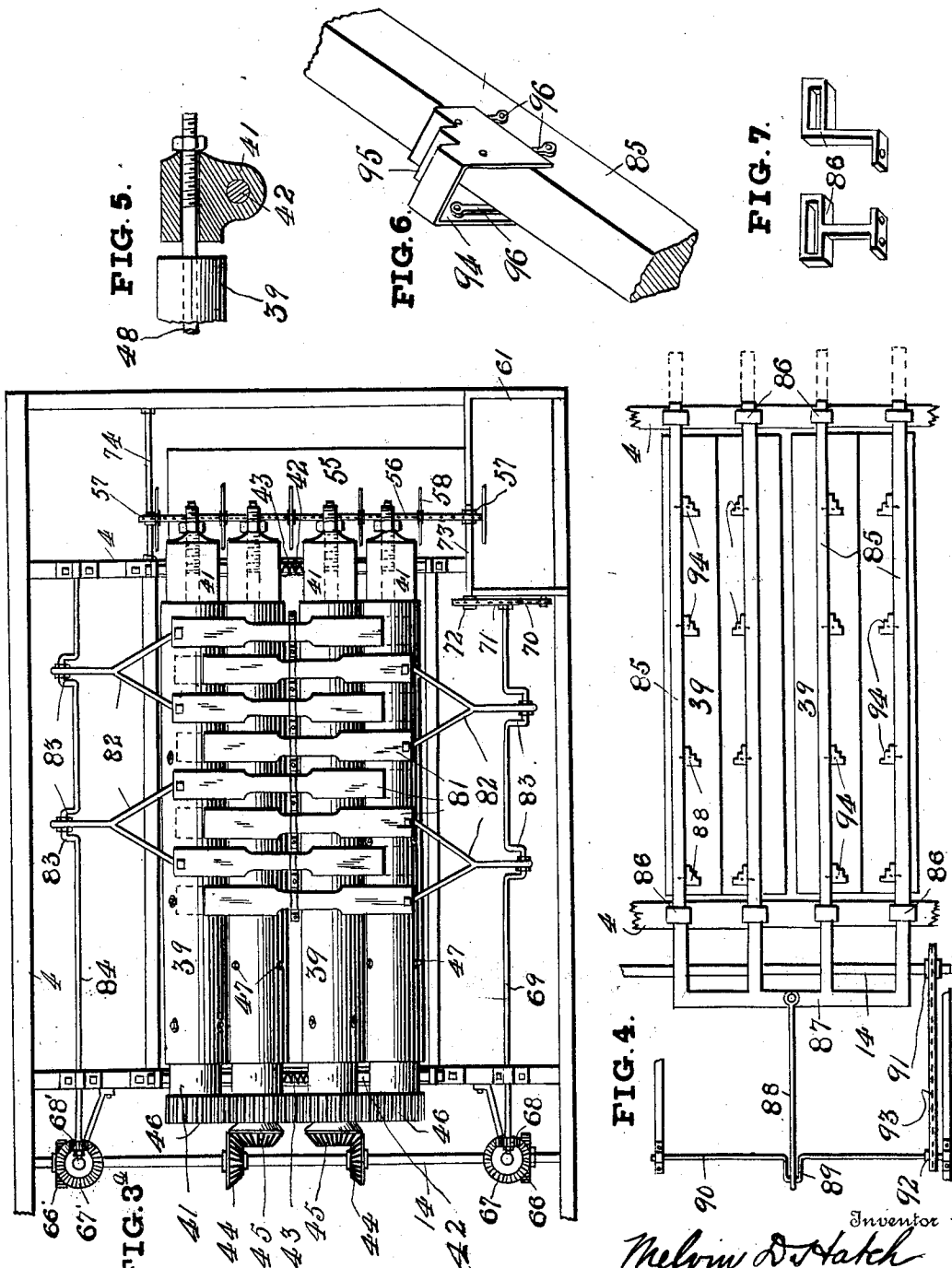
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5 SHEETS—SHEET 4.



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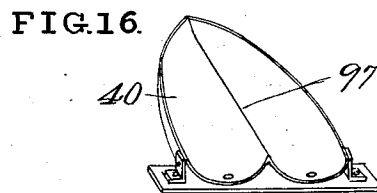
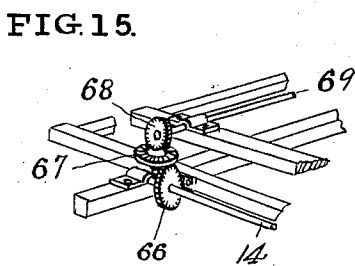
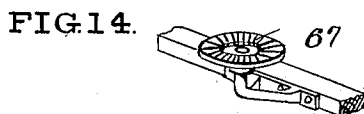
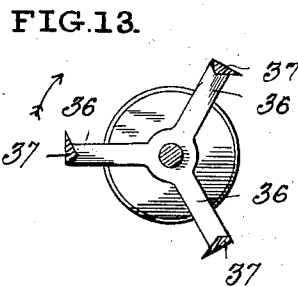
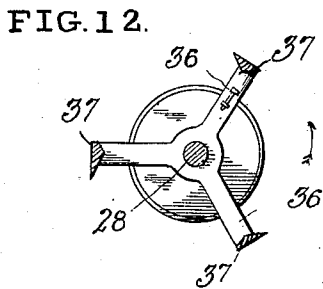
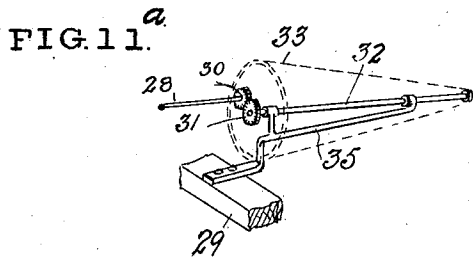
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APPLICATION FILED APR. 10, 1903.

NO MODEL.

5 SHEETS—SHEET 5.



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UNITED STATES PATENT OFFICE.

MELVIN D. HATCH, OF LINCOLN, NEBRASKA.

CORN PICKER AND HUSKER.

SPECIFICATION forming part of Letters Patent No. 759,370, dated May 10, 1904.

Application filed April 10, 1903. Serial No. 152,087. (No model.)

To all whom it may concern:

Be it known that I, MELVIN D. HATCH, a citizen of the United States, and a resident of Lincoln, in the county of Lancaster and State of Nebraska, have invented certain new and useful Improvements in Corn Pickers and Huskers, of which the following is a specification.

Figure 1 is a side elevation of the harvester to which I have applied my improvements. Fig. 2 is a plan view thereof. Fig. 3 is a front elevation of the same. Fig. 3^a is a plan view of the corn-husker mechanism. Fig. 4 is a detail plan view of portions of the husker mechanism. Fig. 5 is a detail elevation and section of one of the bearings of the husker-rolls. Fig. 6 is a detail perspective of one of the reciprocating plunger-bars forming part of the husker mechanism. Fig. 7 shows detail views of the reciprocating plunger-bar bearings. Fig. 8 is a detail side elevation showing a portion of the husker-bar-reciprocating mechanism and ear-divider pan. Fig. 9 is a transverse section through one of the husker-rolls. Fig. 10 is a detail perspective view of one of the husking-plates. Fig. 11 is a detail perspective view of the conical-roll-supporting mechanism. Fig. 11^a is a detail perspective of the mechanism for driving the conical ribbed rolls. Figs. 12 and 13 represent cross-sections of the picker-reels. Figs. 14 and 15 are detail perspective views of the series of gears 66, 67, and 68 which actuate the transverse conveyer 56. Fig. 16 is a perspective of the ear-divider pan.

My invention relates to grain-harvesters.

More particularly stated, the invention is especially designed in this instance as a corn-harvester. It picks the corn from the stalk in the field by being driven through the rows of corn. In this operation it throws out the stalk, picks the corn, husks it, and finally delivers it into any proper receptacle.

In carrying out these objects and purposes the invention consists in the following constructions and combination of the various elements of the harvester, the details of which will first be fully described and the features of novelty then pointed out and claimed.

In the drawings, 1 represents the axles of

the machine, each carrying the supporting-wheels 2 and 3.

4 is a frame supporting the operative parts of the machine.

5 is a caster-wheel mounted on the front extension of the frame.

6 is the tongue secured over the caster-wheel 5.

7 is the driver's seat, mounted upon the upper frame 4, attaching to front and rear truss-arches.

The main wheel 2 is provided with a sprocket-wheel 8, upon which is mounted an endless chain or band 9, transmitting motion to a sprocket-wheel 10, mounted on a counter-shaft 11 at the rear of the frame. This sprocket-wheel 10 is a double sprocket and carries a chain 12, passing upwardly and over a sprocket 13 on the main drive-shaft 14. This main drive-shaft 14 is mounted upon a rectangular framework 15, supported upon the main frame 4. Upon drive-shaft 14 is a sprocket 16, upon which a chain 17 passes to another sprocket-wheel 18, mounted upon shaft 19, supported by the framework 20, mounted on rectangular framework 15. Upon shaft 19 are mounted straight gears 21, meshing with straight gears 22 on shafts 23, which serve to transmit rotary motion to sprocket-wheels 24 on shaft 23, over which the endless-belt carrier lug-chain 25 passes. These carriers project forwardly and centrally of the machine to the sprocket-wheels 26. They are inclined, the top of the belts moving in the direction of the arrow thereon for the purpose of carrying upwardly and rearwardly the corn after it is picked and discharging it at the rear of the machine for the purpose of conveying it through the husking device. 27 represents conveyer-troughs. The shafts 28 are prolonged through the picker-reel frames 29, terminating in straight gears 30. Gears 30 mesh with straight gears 31, carried on shafts 32, transmitting rotary motion to said shafts and also to the conical rib picker-fingers 33, to which they are rigidly attached.

The conical rib picker-fingers 23 are provided with spiral-shaped ribs 34 upon their exterior faces, and between them is a converg-

ing space which advances as the machine is being driven along the rows, between which the stalks and corn are caught and passed rearwardly to the corn-picker reels. These
5 conical rib-fingers rotate in opposite directions, causing the cornstalks to pass rearwardly into the picker-reel.

Attached rigidly to the picker-frames 29 are arms 35, provided with bearings or boxes
10 which support the rotating shafts 32.

The picker-reels 36 are mounted upon shaft 28 and receive their rotary motion therefrom. There is a picker-reel in the rear of each conical rib-finger 33. These reel-arms are com-
15 posed of a plurality of parallel triangular shaft rolls or bars 37. The picker-reels rotate in opposite directions and approach each other closely in their rotation, rotating upwardly at the point of closest approach. They
20 serve to detach the ears from the stalks and carry them upwardly and outwardly into the troughs 27. The troughs 27 are provided with endless lug-chains 25 for carrying the ears rearwardly. Below the picker-reels 36
25 are a set of discharging-rolls 38, moving outwardly for the purpose of ejecting the cornstalks after the ears have been picked therefrom. These rollers are conical, the smaller diameter of which is at the front and the
30 larger diameter to the rear, the space between the rollers being of converging shape. At each side of picker-reel 36 is attached trough 27, the front end of the troughs being slotted to permit the lugs on the chains 25 to project
35 into the same for the purpose of moving the ears rearwardly.

The elevator-belt 25, the conical fingers 33, the picker-reels 36, the troughs 27, and the discharging-rolls 38 are all swung from the
40 shaft 19, which permits the projecting conical fingers 33 and the attached mechanism to be vertically adjusted, whereby the conical fingers may be supported at any suitable height in operating the machine. For the purpose
45 of securing this adjustment an operating-lever 98 is mounted upon the machine within reach and control of the driver.

The ears after being separated from the stalks by the picker-reels are deposited in the
50 troughs 27 on each side of the same. As the picker-reels revolve, the ears are deposited upon the endless conveyer-belts 25, which conveyers discharge the ears at the upper rear end of the machine upon the husking-rolls 39, of which there are preferably two
55 pairs. The ears in passing from the conveyer 25 to the husking-rolls are delivered upon an ear-divider pan 40, which divides the ears substantially equal upon both sets of husking-rolls. The rolls 39 are mounted in boxes 41,
60 the boxes being in turn mounted upon a cross-shaft 42, carried and supported by a rectangular frame 15. These boxes 41 are provided with screws and lock-nuts, and said boxes are
65 free to slide laterally one upon each of the

cross-shafts 42. Springs 43 upon the cross-shafts 42 serve to force the husking-rolls 39 in close contact with each other during the rotation of the rolls and at the same time permit them to yield sufficiently to carry the
70 husks of the ears downwardly throughout and be discharged.

The rolls 39 are driven by the main shaft 14, which are provided with bevel-gears 44, which mesh with bevel-gears 45, carried on
75 the roll-shafts, which are journaled in the boxes 41. There are bevel-gears 44 and 45 for one of each of the pairs of husking-rolls 39, the other complementary roll of each pair being geared and driven by the intermeshing
80 gears 46.

The husking-rolls 39 are of cylindrical shape and are provided with spring-teeth 47 at regular intervals. These spring-teeth 47 have serrated faces and normally project slightly be-
85 yond the periphery of the rolls 39. Preferably a circumferential line of teeth 47 operate adjacent to a smooth portion of the complementary roll in contact therewith, and said circumferential line of teeth alternate upon each
90 pair of rolls 39 throughout their length. To secure the spring action of these teeth, the shafts 48 of the rolls are provided with rotary spuds 49, from which projects a cylindrical sleeve 50, secured to spuds 49 by pins 51.
95 Within the sleeve 50 a spiral spring 52 is interposed between the spuds 49 and the spring-teeth 47. The teeth 47 are provided with collars 53, which normally bear against the interior of the roll 39 and have short projections
100 54, which are received into the outer ends of the springs 52.

It will be noted that the teeth 47 project slightly beyond the periphery of the cylinder and that the serrated faces of the same are ec-
105 centrically disposed with respect to the periphery of the roll. The lower serrated faces of the teeth are in front of and are in advance of the rotation of the rolls in contact with each other. These teeth, in connection with the
110 rotary movement of the rolls, engage the husks, draw them downwardly through the rolls, and discharge the same.

At the lower end of the husking-rolls 39 is a pan 55 for receiving the husked corn, ex-
115 tending transversely of the husking-rolls. Across this pan extends an endless conveyer-chain 56, mounted on sprocket-wheels 57 and provided at intervals with conveyer-plates 58, which sweep the husked ears transversely of
120 the husking-rolls and deposit the same in a receiving-trough 59, through which passes an endless conveyer-chain 60 over sprocket-wheel 61 and idle sprocket 62, which carries the corn rearwardly and deposits it into elevator 63,
125 through which passes upwardly an endless elevator-belt 64, provided with buckets 65.

The endless conveyer-chain 56 is also driven by the main shaft 14, the latter being provided with straight gear 66, meshing with interme-
130

diated gear 67, which meshes with straight gear 68, carried on a shaft 69, mounted in the frame. The opposite end of shaft 69, is provided with a sprocket-wheel 70, over which passes a chain 571. Chain 71 passes over another sprocket-wheel 72, fast on a short shaft 73. To this shaft is secured one of the sprocket-wheels 57 of the conveyer 56, the other sprocket-wheel 57 being mounted on shaft 74, carried by the frame. Through this mechanism the carrier 56 is rotated.

The endless conveyer-chain 60 is driven by sprocket 75 on counter-shaft 11 with chain 76 running upward and over sprocket 77 and straight gear 78 meshing in straight gear 79 on shaft 80 with sprocket-wheel 61.

Mounted above the husking-rolls 39 are a series of husking-plates 81. The surface of the under side of the husking-plates is rasped in order to present teeth, which act to tear the husks from the ears, enabling the teeth 47 of the rolls 39 to catch and pull the husks therefrom. These husking-plates are mounted in suitable ways, which permit the reciprocation of the plate 81 at right angles to the direction of the rolls 39. I prefer to reciprocate each husking-plate 81 in a direction opposite to the adjacent plate. For this purpose I prefer to connect two alternate pairs of plates 81 with forked pitman-rods 82, connected to cranks 83 upon shafts 69 and 84. Thus half of the husking-plates 81 are reciprocated by the shafts 69 on side of the machine, which also operates the transverse conveyer 56, while the remaining husking-plates are actuated by the shaft 84 on the opposite side of the machine. This latter shaft is driven by the main shaft 14 through the straight gears 66', 67', and 68'.

Over the husking-rolls 39 and beneath the husking-plates 81 are located a series of plunger-bars 85, reciprocatingly mounted in bearings 86. Bars 85 are united at one end by cross-pieces 87, to which is attached a pitman-rod 88, connected to a crank 89, carried on a shaft 90. This shaft is driven from the main shaft 14 through sprocket-wheel 91, mounted on shaft 14, and sprocket-wheel 92 on shaft 90, the two sprocket-wheels being connected by an endless chain 93.

Mounted on plunger-bars 85 are teeth 94, having step-like serrations 95 upon their faces. The teeth 94 are connected to the plunger-bars 85 by links 96, pivoted to the teeth and to the plunger-bars. When the plunger-bars are re-

ciprocated rearwardly, the impact of the ears 55 and husks on the rear ends of the teeth 95 causes them to swing upon their links 96 and to slide over plunger-bar 85 and causing the teeth to recede over said bars quite a distance. Upon the opposite reciprocation of the bars 60 85, or toward the front of the machine, the ears and husks are caught by the serrated faces 95 of the teeth, causing the teeth to swing outwardly upon their links 96, and the husked ears moved forwardly and downwardly along the husking-rolls and finally discharged into the husked corn-pan at the foot of the same.

63 is the elevator-trunk within which the endless chain 64 and its bucket 65 work in carrying the husked corn upwardly and to the side of the machine, where it is delivered into a spout or any suitable receptacle adapted to receive the same. It is operated by bevel-gear 99 on counter-shaft 11, meshing in bevel-gear 100, running elevator chain-belt 64. 75

The endless conveyer 27 discharges the ears into the pan 40. This pan is provided with a centrally-diverging ridge 97, which acts to divide the ears equally and discharge the same upon the upper ends of the husking-rolls 39. 80 Divider-pan 40 is mounted upon the plunger-bars 85 and cross-piece 87, uniting the plunger-bars.

In order to prevent confusion of the parts in Fig. 2 the bars 85 have not been run clear 85 forward. The husking-plates 81 are located above the husking-rolls a distance slightly greater than the cross-diameter of a large ear of corn.

What I claim is— 90

In a corn-harvester, the combination of a wheeled frame, conical ribbed rolls located upon the front of the frame for guiding the stalks, picker-reels in the rear of said conical rolls for throwing the ears up and outwardly, 95 rolls mounted beneath the picker-reels for moving the stalks downwardly, a carrier leading from each of the picker-reels, husking-rolls at the ends of the carriers, transversely-reciprocating husker-plates above the rolls 100 and means for operating the moving elements.

In testimony whereof I have affixed my signature in the presence of two witnesses.

MELVIN D. HATCH.

Witnesses:

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G. E. HAGER.