

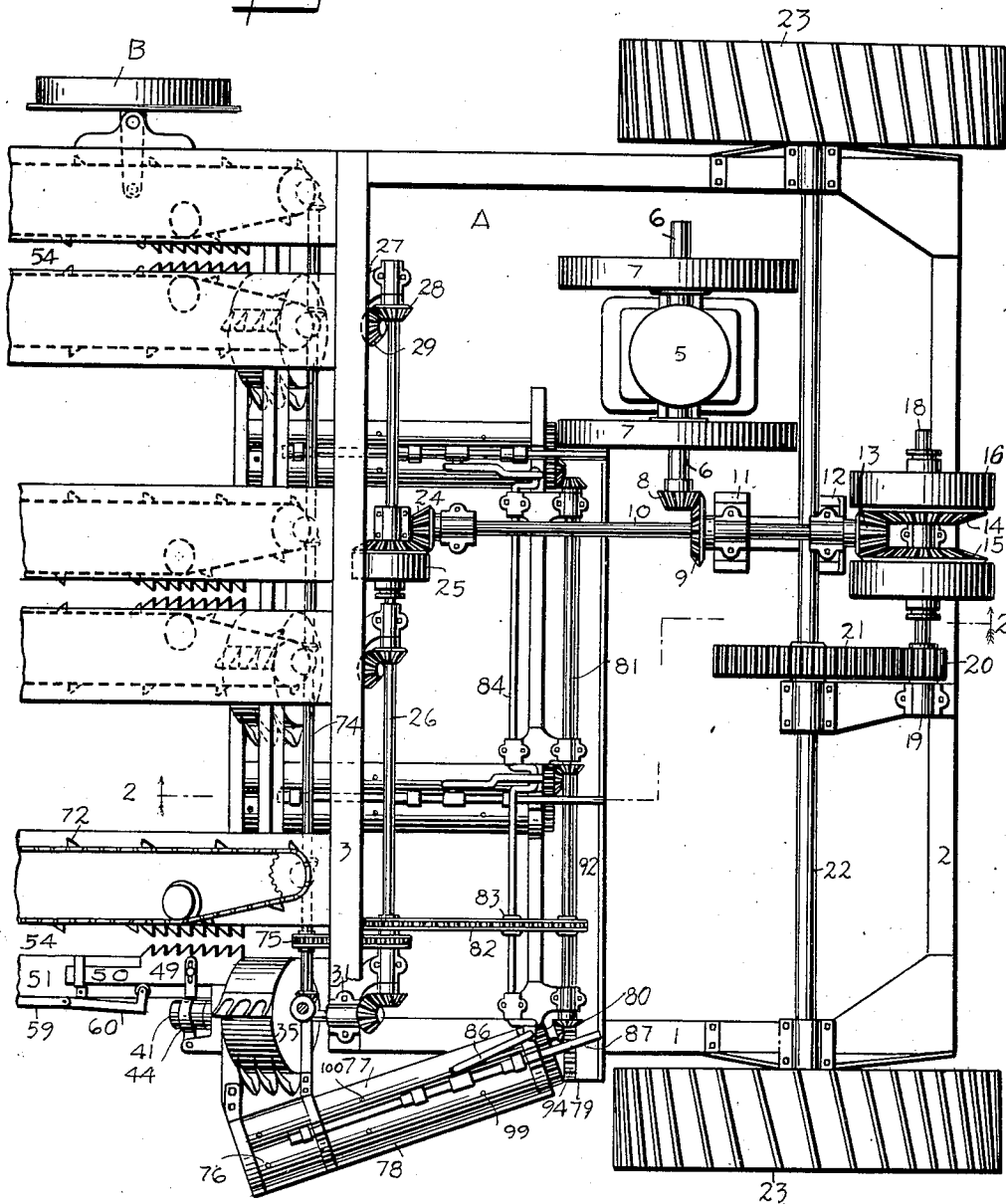
W. H. RUSSELL.
CORN PICKING AND HUSKING MACHINE.
APPLICATION FILED DEC. 30, 1910.

1,018,346.

Patented Feb. 20, 1912.

4 SHEETS—SHEET 1.

FIG. I.



WITNESSES
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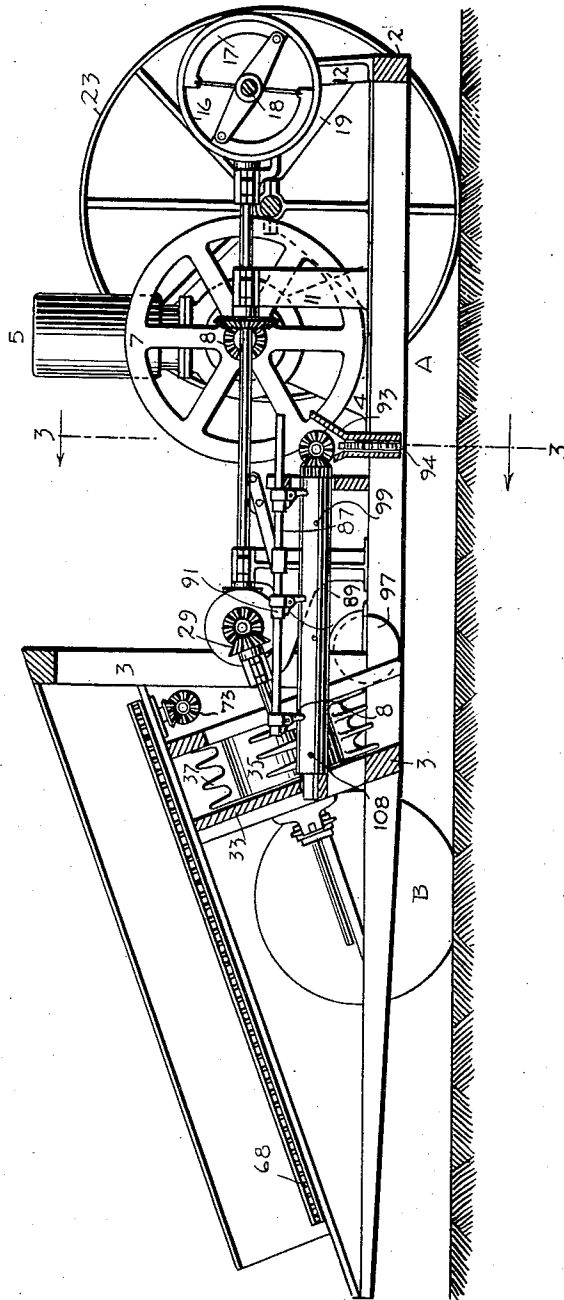
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4 SHEETS—SHEET 2.

Fig. 2.



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4 SHEETS—SHEET 3.

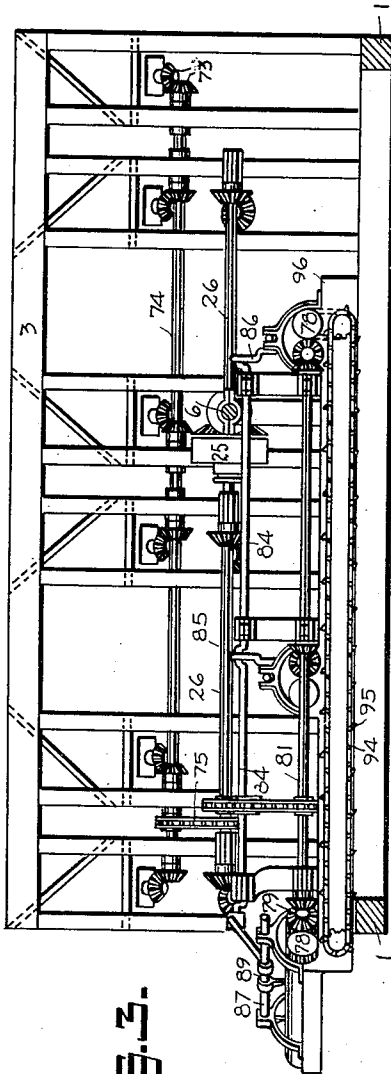


FIG. 3.

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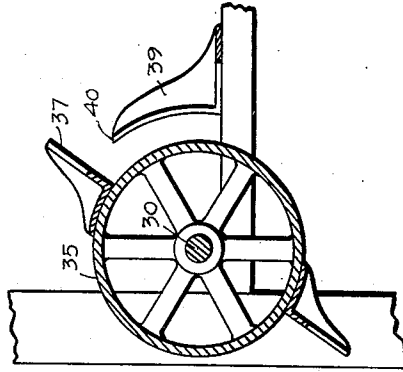


FIG. 7.

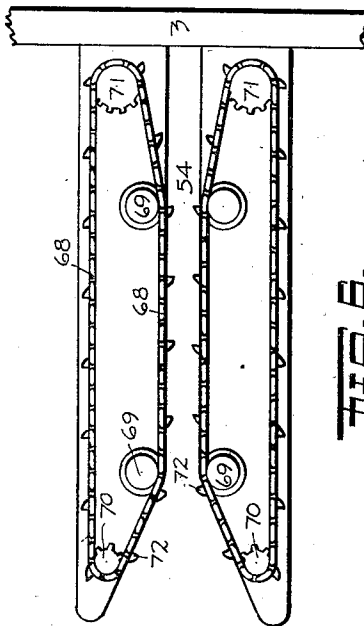


FIG. 6.

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4 SHEETS—SHEET 4.

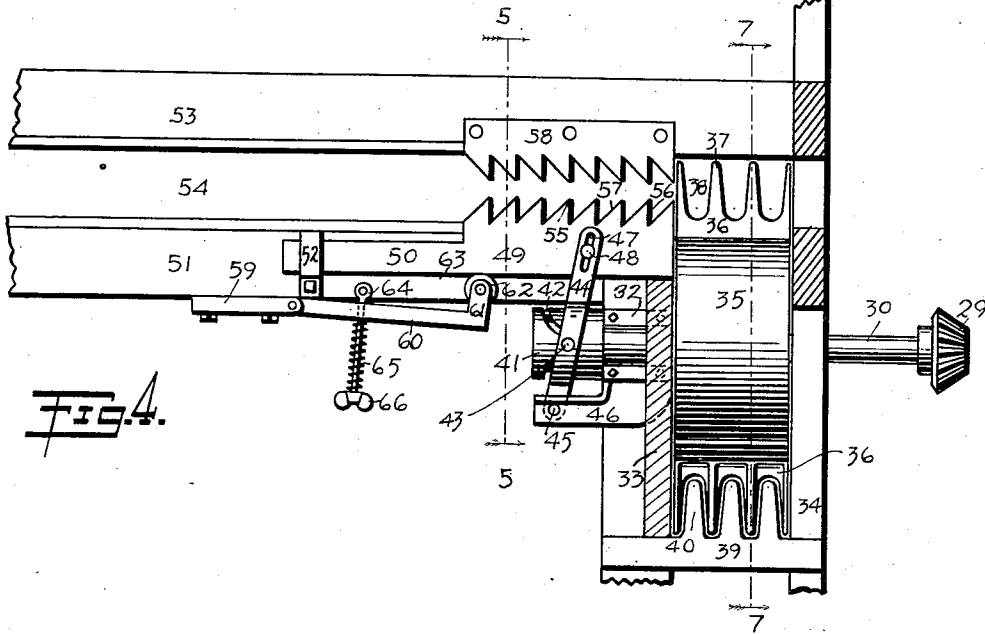
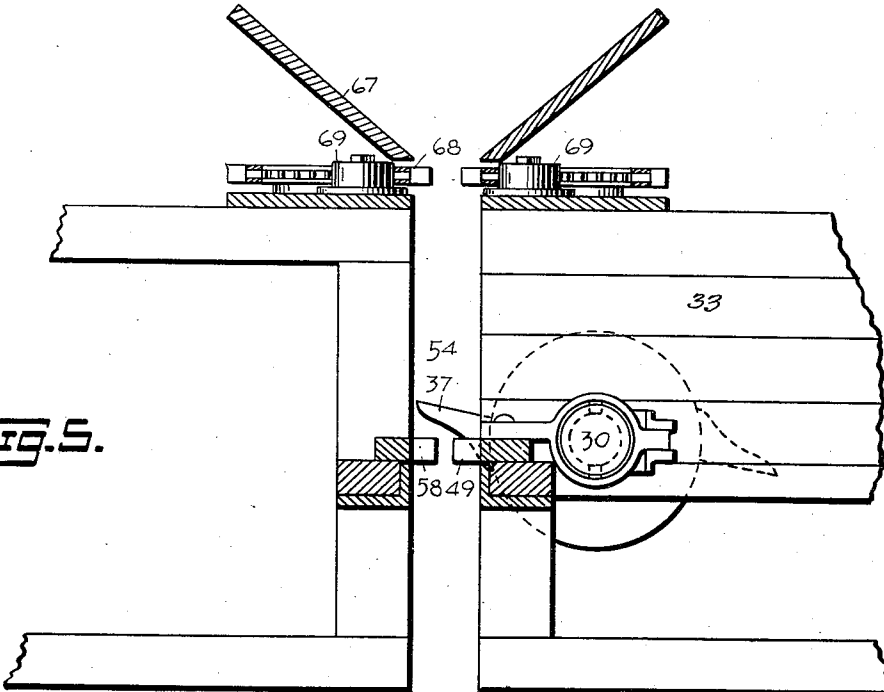


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM HERMAN RUSSELL, OF ARCADIA, INDIANA.

CORN PICKING AND HUSKING MACHINE.

1,018,346.

Specification of Letters Patent.

Patented Feb. 20, 1912.

Application filed December 30, 1910. Serial No. 600,153.

To all whom it may concern:

Be it known that I, WILLIAM HERMAN RUSSELL, a citizen of the United States, and a resident of Arcadia, in the county of Hamilton and State of Indiana, have invented a new and Improved Corn Picking and Husking Machine, of which the following is a full, clear, and exact description.

This invention relates to a corn-picking and husking machine adapted to be mounted upon and actuated by a traction engine.

One object of my invention is to provide a new and novel machine for use in picking ears of corn off the standing or matured stalks, to husk the picked ears of corn, and to pass them through a conveyer to a wagon or other receptacle.

My invention more particularly relates to a new and improved means by which the stalks are fed to the picker, and to a new and improved way in which the ears are picked from the stalks.

A further object of my invention is to arrange the necessary actuating means with the least number of parts and in a way to economize the power required to actuate the several necessary parts.

With the above and other objects in view, as will more fully hereinafter appear, the present invention consists in certain novel details of construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and more particularly pointed out in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures, and in which—

Figure 1 is a plan view looking down upon a preferred embodiment of my invention, with parts of the guiding means broken away; Fig. 2 is a vertical sectional view taken on the line 2—2 of Fig. 1, and looking in the direction of the arrow; Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 2, looking in the direction of the arrow; Fig. 4 is a detailed plan view showing the auxiliary feeding device and picker; Fig. 5 is a cross sectional view taken on the line 5—5 of Fig. 4; Fig. 6 is a detailed plan view showing the guideways and main feeding device mounted in the front of the machine; and Fig. 7 is a transverse sectional view taken on the line 7—7 of Fig.

4, but with the picker slightly rotated in order to show the picker comb cleaner.

This machine is driven from an engine 5, through a shaft 10 and friction clutches 14 and 15 to the gear connections 20 and 21, which actuate the drivers 23 and move the machine backward and forward.

This machine is adapted to pass down the rows of standing corn, and in this particular embodiment, means are shown for acting on the ears in three rows, which means comprise a series of guideways 54, each engaging a row of corn. The corn is fed rearwardly by means of a main feeding device 68 on to auxiliary feeding devices 58 and 49, and on to a picker drum 35, said drum having a comb to detach the ears from the stalks and to convey the ears of corn to husking rollers 76, from whence they are moved on to a conveyer 92. These several members are all actuated by suitable gear-and-chain connection from the shaft 26, which engages with the main driving shaft 10 through the clutch gear 25, which in turn is driven by the shaft 6 from the engine 5.

In the embodiment of my invention here set forth, I have shown a framework A mounted upon front idler wheels B and drivers 23 hereinafter described. This framework A comprises spaced-apart side beams 1, a connecting end piece 2 and an intermediary connecting frame 3 in the front of the machine. Mounted upon suitable standards 4 positioned toward the rear of the framework and toward one side, is a gasolene or other fluid engine 5 having a driving shaft 6, upon which are mounted fly wheels 7, and upon the end of which is rigidly affixed a bevel gear 8 in engagement with the bevel gear 9 rigidly mounted on the main driving shaft 10, which shaft is at right angles to the shaft 6 and is mounted in suitable bearings 11 and 12 projecting from the framework A. On the rear end of the main driving shaft 10, is positioned a bevel gear 13, which engages clutch gears 14 and 15, which gears each have a flange 16 projecting from one side and adapted to engage a clutch 17. The clutches 17 are connected to a shaft 18 mounted in suitable bearings 19 projecting upwardly from the end piece 2. The clutches are of the common form of friction clutch and are so arranged that by actuating a lever in one direction, the shaft 18 will be rotated clockwise by engaging one of the clutches, while

by actuating the lever in the opposite direction, so that the other clutch is in engagement with the shaft 10 the shaft 18 will be rotated anti-clockwise, thereby driving the machine either forward or backward. Rigidly mounted upon the shaft 18 and to one side of the clutches, is a pinion 20 engaging with the main driving gear 21 on the main driver shaft 22, upon opposite ends of which shaft and rigidly connected thereto and on the outside of the side beams 1, are drivers 23. It will be noted that by this arrangement, the entire device may be driven either forward or backward, depending upon which of the clutches is in engagement with the driving mechanism. The main driving shaft 10 not only actuates the means by which the machine is moved, but also actuates the different moving parts of the machine proper. The machine proper is in this instance, positioned upon the front part of the machine, and is so designed that it will pass over three rows of standing corn and will remove the ears from the stalks of each one of the rows at the same time.

At the forward end of the main driving shaft is a pinion 24 engaging the clutch gear 25. The purpose of this clutch gear is to disconnect the picker and husking device while the machine is being moved from place to place. The friction clutch is carried on the shaft 26 supported by brackets 27 projecting from the intermediary connecting frame 3. Rigidly fastened upon this shaft 26 are a number of miter gears 28, shown in this case as two end gears and an intermediary gear. The purpose of these miter gears is to actuate three sets of corn-picking and husking devices, but it is of course to be understood that any number of these devices may be positioned on one machine, and in this detailed description, but one of these devices will be described, it being understood that the description of one applies substantially to each of the other devices. The miter gears 28 engage with similar gears 29 rigidly mounted on the inner end of the shaft 30, carried in brackets 31 on the intermediary connecting frame 3, and this shaft 30 is also journaled in bearings 32 mounted upon a connecting front piece 33, which front piece is positioned at an angle of about thirty degrees to the transverse vertical plane through the framework A of the machine. Parallel with the connecting front piece 33 and positioned between said piece and the intermediary connecting frame 3, is a connecting beam 34, which with the connecting member 33, forms a guideway for the picker drum 35 rigidly mounted upon the shaft 30. Oppositely disposed upon the picker drum 35 is a pair of combs 36, in this case having four teeth 37 forming substantially U-shaped spaces 38 wider at the outer side

than at the inner side and of sufficient size to allow the corn stalks to pass there-through, but small enough to intercept the passage of an ear of corn. To one side of this picking device and rigidly fastened to the members 33 and 34, is a comb cleaner 39, having teeth 40 corresponding in shape to the teeth 37, and so positioned that the space 38 between the teeth 37 will pass over the teeth 40, whereby any loose material is swept off the rotating picking device.

On the end of the shaft 30, opposite the gears 29, and rigidly affixed thereto, is a cam 41, the groove 42 of which is engaged by a roller 43 affixed to a lever 44 intermediate its ends. One end of this lever is fulcrumed at 45 on an extension 46 from the connecting front piece 33, and the other end thereof is slotted at 47, in which slot moves a pin 48 rigidly affixed to a sliding plate 49 having a reduced end 50 held to a side 51 by means of a bracket 52. The side 51 coacts with a side 53, to form a guideway 54 projecting forward from the front of the machine and adapted to receive the row of standing corn and convey it to the picker mechanism. The portion of the plate 49, adjacent the picker 35 and in alinement with the teeth 37, has a series of teeth 55, which teeth have their edges 56 facing the picker at right angles to a line passing through the guideway 54 and have their opposite edges 57 inclined at an angle of about forty-five degrees to the vertical edge. It will be seen that this cam action will give the plate 49 a reciprocating movement back and forth, thereby constituting with the plate 58 rigidly affixed to the side 53 and having teeth similarly arranged to the teeth 55, an auxiliary feeder to carry the corn stalks to the picking mechanism. This reciprocating auxiliary feeder may become clogged by an ear of corn that has become detached or it may become clogged due to feeding the material too fast, or if for any other reason the feeding mechanism becomes clogged, the material may be loosened by providing means whereby the plate 49 will fall back out of position with reference to the plate 58 against a spring action, which spring will return the plate 49 to its normal position when the obstruction has passed. This spring mechanism comprises a fastening plate 59, positioned on one edge of the side 51, to one end of which is pivoted an L-shaped lever 60, journaled in the small arm 61 of which is a small roller 62 engaging the edge 63 of the plate 49. Pivoted to the side 51, intermediate the length of the lever 60, is a bolt 64 carrying a coil spring 65 engaging the outer side of the lever 60 and regulated by a thumb screw 66. It will be seen that the plate 49 can be forced out of its alinement and even entirely out of the guideway 54, by compressing this spring, it being

noted that the pin 48 is free to slide in the guideway 47.

Positioned at the top of the guideway 54 and inclined downward to the extreme front of the machine, as shown in Fig. 2, is a V-shaped trough 67, at the open bottom of which is positioned a main feeding device consisting of a pair of endless chains 68, moving over the idler wheels 69 and about the end sprockets 70 and 71, and having outwardly-projecting teeth 72, which teeth are adapted to engage the standing corn stalks and convey them along the guideway 54, where they are taken up by the auxiliary feeding devices 49 and 58 and conveyed on to the picker 35. These endless chains are actuated by bevel gear connections 73, spaced apart on a shaft 74, extending transversely of the machine, which shaft is actuated by a chain-and-sprocket connection 75, between this shaft and the shaft 26. After the ears of corn are detached from the stalks they are carried around on the picker drum 35 and conveyed to husking rollers 76 which comprise a driving roller 77 and a driven roller 78, connected through gear wheels 79 and actuated by bevel gears 80 on a husking roller shaft 81 driven by a chain connection 82 from the shaft 26. This chain connection 82 also engages a sprocket 83 on a crank shaft 84, which crank shaft has pivoted to each of its offset portions 85, a link 86 pivoted to a reciprocating rod 87 disposed above and in alinement with the contacting surface of the rollers 77 and 78. By means of this connection, a relatively slow reciprocating movement is given to the rod 87.

Positioned apart on the reciprocating rod 87, is a series of levers 88, each having a finger 89 projecting into the space between the rollers 77 and 78 and above the point of contact. These levers have an arm 90 normally resting against sleeves on the reciprocating rod 87, which admit of these fingers moving in but one direction, and that is toward the inside of the husking rollers. It will be seen that these projecting fingers 89 coming in contact with the ear, will shove the ear inward along the husking rollers 76 to a conveyer 92 disposed across the machine, which conveyer comprises a Y-shaped trough 93, at the yoke of which moves an endless chain 94 having outwardly-projecting teeth 95 adapted to engage the husked ears of corn and convey them to a wagon or other receptacle outside of the machine. This chain elevator is actuated by suitable chain-driving means 96 shown in Fig. 3.

Projecting from the revolving rollers 77 and 78, are screw heads 99 registering in coating recesses 100 in the opposite roller, which heads will engage the husks of the ears of corn, to roughen, loosen and to separate them, so that they may be engaged by the revolving rollers, and as these rollers are

too close together to admit of the ear itself passing through, this will have the effect of tearing the husks from the ear.

As the machine passes down the rows of standing corn, the stalks will be engaged by the teeth 72 on the endless chains 68 and will be worked up on the teeth 55 of the auxiliary feeding device. Should there be any choking action at this point, the plate 49 will give way against the action of the spring 65 until the obstruction has been removed. The reciprocating plate 49 moving back and forth will feed the corn to the comb 36 on the picker, and this feeding device will attain its maximum stroke just before the comb 36 makes its upward stroke past the horizontal central line of the auxiliary feeding device. After the ears have been removed from the stalks, they are thrown over on to the husking rollers 76, which are located in a horizontal position, and the rollers catching the loose ends of the husks, tear them apart from the ear, and the reciprocating movement of the fingers 89 will work the corn toward and into the conveyer 92, from which it is carried to the side of the machine or into a wagon. As the machine progresses forward, the stalks are bent over and pass under the machine but are not detached from the ground, owing to the presence of the roller 97, which reduces the friction of the stalks against the frame of the machine.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matters contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense. It is also to be understood that the language used in the following claims is merely intended to cover all the generic and specific features of the invention herein described, and all statements of the scope of the invention, which as a matter of language, might be said to fall therebetween, and that materials, sizes and relativities of parts are non-essential, except as called for in the claims.

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

1. In a corn-picking and husking machine, a framework comprising a guideway projecting from the front of said machine, a feeding mechanism working in said guideway, a shaft adjacent said mechanism, a picker on said shaft, working across said guideway and reciprocating means actuated by said shaft and connecting with said feeding mechanism, whereby the material to be acted upon is moved on to said picker.

2. In a corn-picking machine, in succes-

sion a feeding mechanism projecting from the front of said machine, an auxiliary feeding device receiving the material from said feeding mechanism, and a combing picker
5 acting on the material carried on to the same by said feeding device.

3. In a corn-picking and husking machine, a guideway for the corn stalks extending forward from the machine, and a
10 drum adjacent and parallel to said guideway having a picker comb thereon moving across one end of said guideway and adapted to pick or remove the ears of corn off the stalks as they are held against one side of
15 said guideway.

4. In a corn-picking and husking machine, a guideway for the corn stalks extending forward from the machine, a drum adjacent and parallel to said guideway having
20 a picker comb thereon moving inside said guideway and adapted to pick the ears of corn off the stalks, as the stalks are carried along said guideway.

5. In a corn-picking and husking machine, feeding means adapted to feed the corn stalks to an auxiliary feeder, an auxiliary feeder in continuation of said feeding means comprising reciprocating means
25 adapted to carry the stalks on to a picker, and a picker having teeth moving upwardly through the corn stalks adapted to raise and thereby separate the ears from the stalks.

6. In a corn-picking machine, a feeding device comprising a guideway, and oppositely-disposed plates having teeth projecting into said guideway, one of said plates reciprocating in a direction parallel to the guideway, and the other plate stationary in the plane of the reciprocating plate.
35

7. In a corn-picking machine, a feeding device comprising a guideway and oppositely-disposed plates having teeth projecting toward each other into said guideway, one of said plates reciprocating in a direction
45 parallel to the guideway, and spring-

pressed means connected to said reciprocating plate, whereby clogging between the plates may be prevented.

8. In a corn picker, a guideway, a feeding device moving in said guideway, a picker at
50 the end of said feeding device and cam-actuating means coacting with said picker adapted to give a reciprocating motion to said feeding device.

9. In a corn picker, a guideway, a picker
55 working in said guideway, a cam, and a reciprocating feeding device working in said guideway and actuated by said cam, said picker and cam mounted on the same shaft, whereby said picker will cross said guideway during a predetermined period of movement of said feeding device.
60

10. In a corn picker, a guideway, a picker working in said guideway, a cam, a reciprocating feeding device working in said guideway and actuated by said cam, said picker and cam mounted on the same shaft, whereby said picker will cross said guideway during a predetermined period of movement of said feeding device, and means whereby
65 parts of said feeding device will separate to prevent choking in said guideway.
70

11. In a corn picker, a guideway, a feeding device having a toothed plate disposed on one side of said guideway, a coacting
75 toothed plate slidably mounted on the opposite side of said guideway, means reciprocating said last-mentioned plate, and a spring pressed lever having a roller on one end bearing on said reciprocating plate, whereby
80 said reciprocating plate may be forced out of the way of the corn in said guideway, to prevent choking.

In testimony whereof I have signed my name to this specification in the presence of
85 two subscribing witnesses.

WILLIAM HERMAN RUSSELL.

Witnesses:

H. D. PETTIJOHN,

MALLY RUSSELL.