No. 808,264. PATENTED DEC. 26, 1905.

L. G. VANDEGRIFT, JR.

CORN HUSKING MACHINE.

APPLICATION FILED JUNE 20, 1905.

4 SHEETS—SHEET 1.

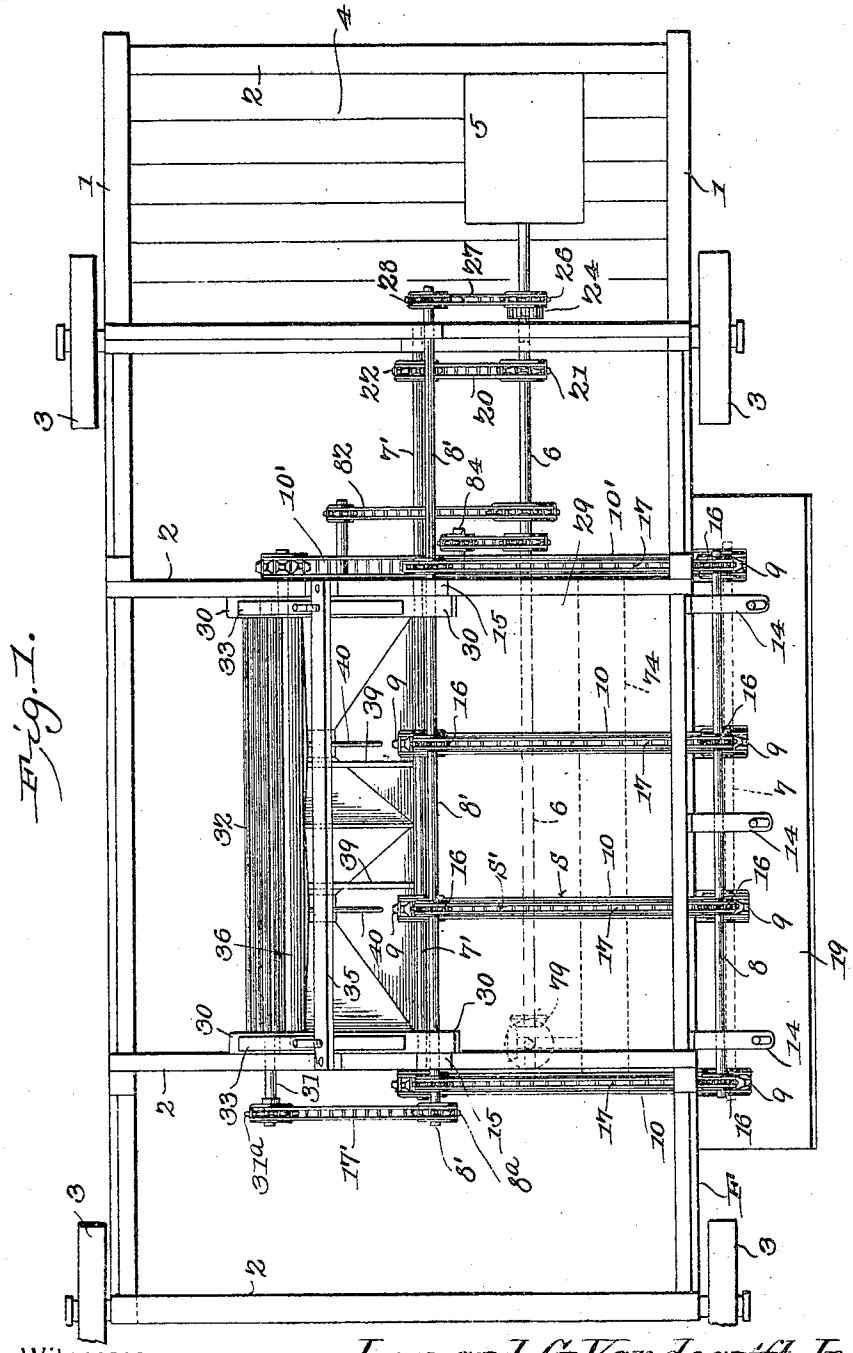


Fig. 1.

Witnesses

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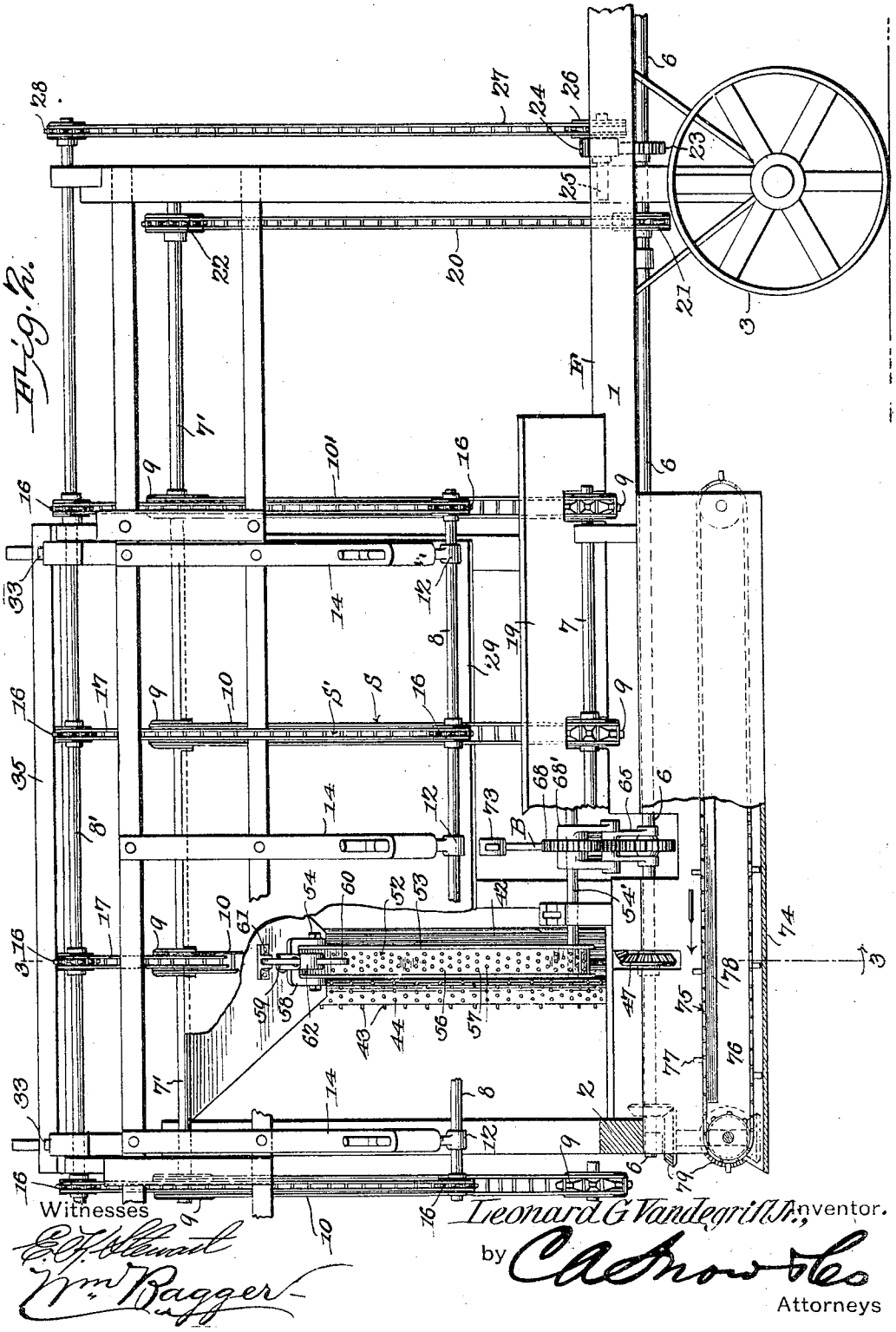


Fig. 2.

Witnesses

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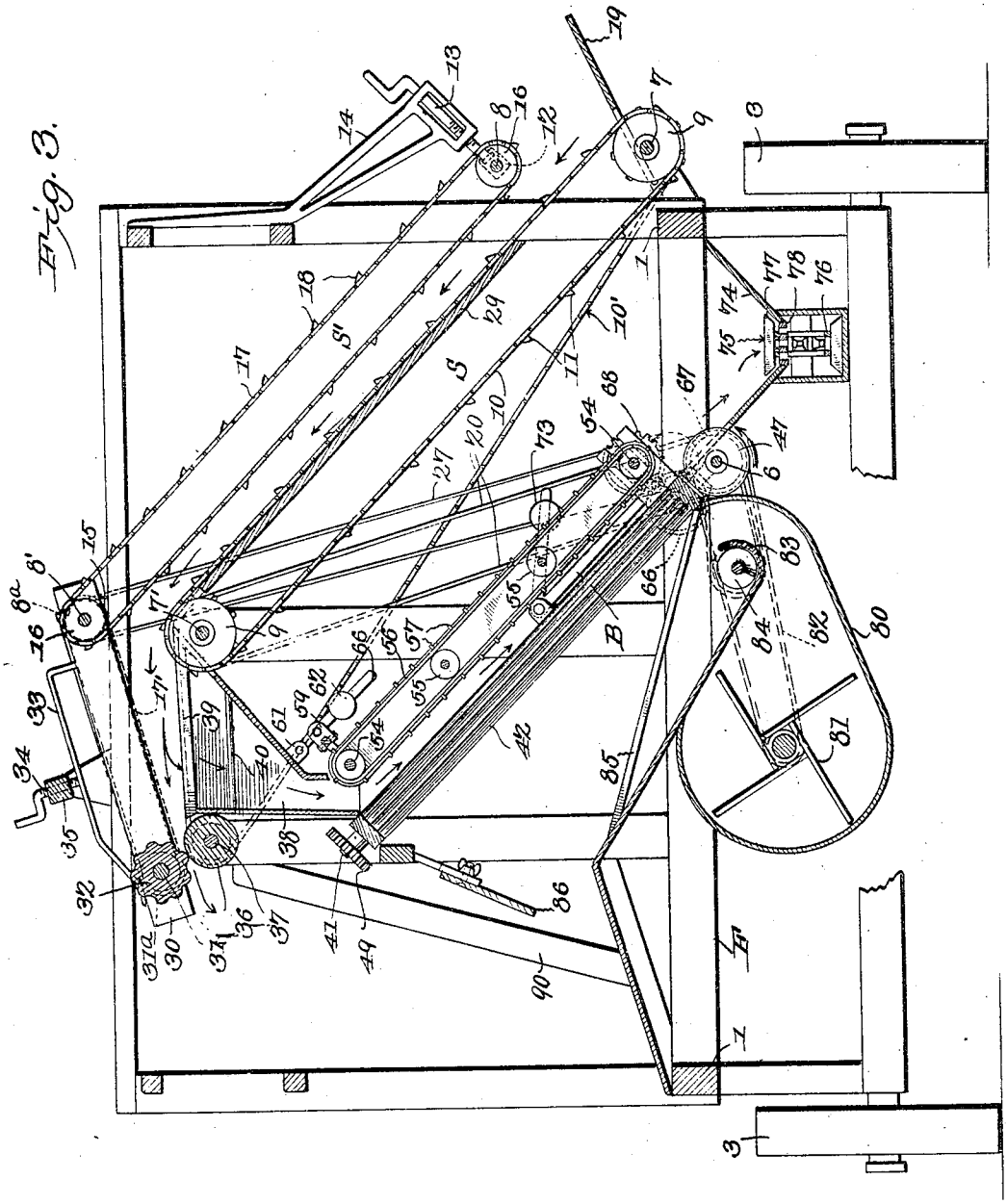
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4 SHEETS—SHEET 3.

Fig. 3.



Witnesses

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4 SHEETS—SHEET 4.

Fig. 4.

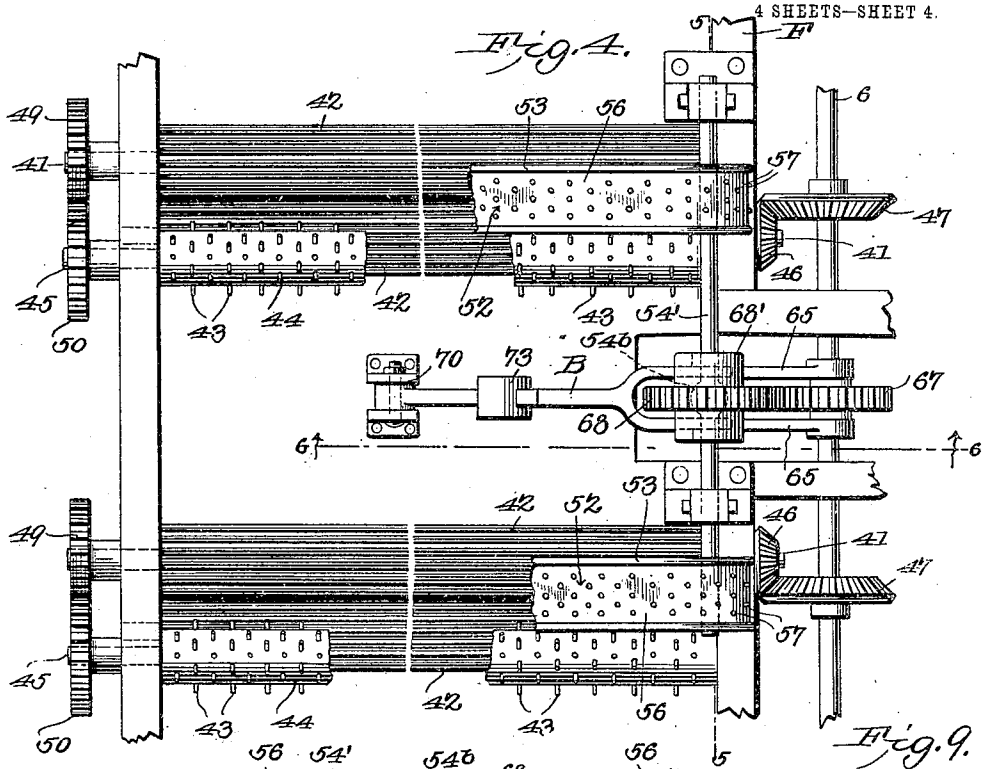


Fig. 9.

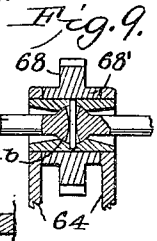


Fig. 5.

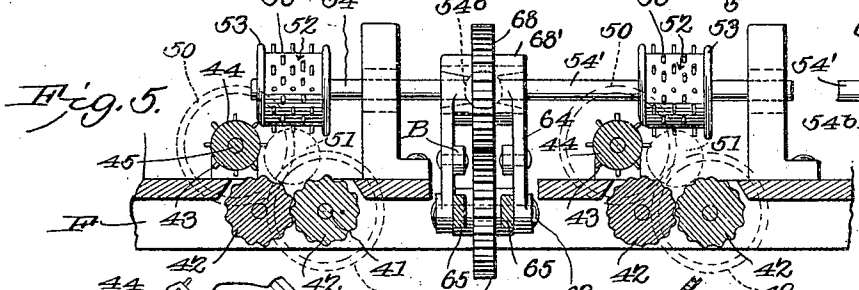


Fig. 8.

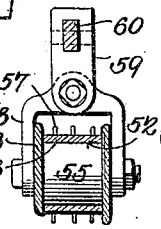


Fig. 6.

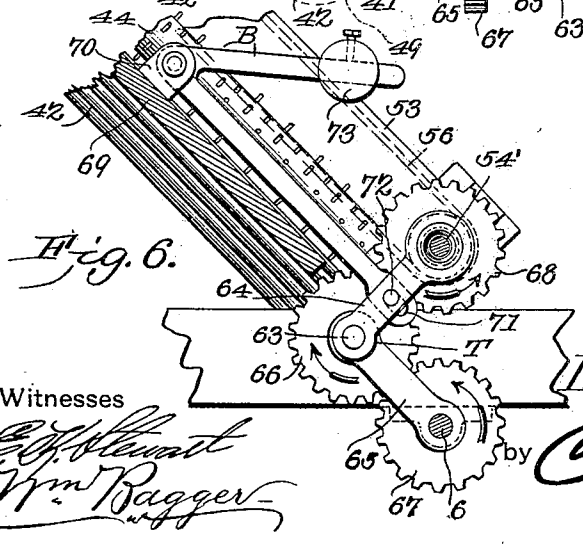


Fig. 7.

Witnesses

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UNITED STATES PATENT OFFICE.

LEONARD G. VANDEGRIFT, JR., OF McDONOUGH, DELAWARE.

CORN-HUSKING MACHINE.

No. 808,264. Specification of Letters Patent. Patented Dec. 26, 1905.

Application filed June 20, 1905. Serial No. 266,185.

To all whom it may concern:

Be it known that I, LEONARD G. VANDEGRIFT, Jr., a citizen of the United States, residing at McDonough, in the county of Newcastle and State of Delaware, have invented a new and useful Corn-Husking Machine, of which the following is a specification.

This invention relates to portable corn-husking machines such as may be readily transported from one place to another for the purpose of snapping the ears from stalks of corn that have been previously cut and for stripping the husks from the ears.

The object of the invention is to present a durable and comparatively simple and light machine which may be driven along the shock-row in the field and be stopped alongside of each shock, which may then be fed to the machine for the purposes aforesaid, the machine being provided with a special motor for driving its operative parts. Further objects of the invention are to simplify and improve the construction and operation of this class of devices.

With these and other ends in view, which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of embodiment of the invention, it being, however, understood that no limitation is necessarily made for the precise structural details therein exhibited, but that the right is reserved to any changes, alterations, and modifications to which recourse may be had within the scope of the invention and without departing from the spirit or sacrificing the efficiency of the same.

In said drawings, Figure 1 is a top plan view of a machine constructed in accordance with the principles of the invention. Fig. 2 is a side elevation, enlarged, of a portion of the same. Fig. 3 is a transverse sectional view taken on the plane indicated by the line 3 3 in Fig. 2. Fig. 4 is a plan view, enlarged, of the husking mechanism detached, parts having been removed for the purpose of exposing the underlying construction. Fig. 5 is a transverse sectional view taken on the plane indicated by the line 5 5 in Fig. 4. Fig. 6 is a sectional detail view taken on the plane indicated by the line 6 6 in Fig. 4. Figs. 7 and 8 are detail views illustrating a part of the adjusting mechanism for the feeders used in conjunction with the husking-rolls. Fig. 9 is a sectional detail view of a portion of the feeder-adjusting mechanism.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

The frame of the improved machine has been illustrated as being of approximately rectangular shape, being composed of side members 1 1, which are connected and spaced apart by means of cross-pieces, as 2 2, said frame being suitably supported upon carrying-wheels 3 3. The frame, which as a whole is designated F, is provided near one end with a floor or platform 4, supporting a motor 5, which may be of any suitable description, such as a gasolene-engine. The entire machine may be propelled by animal-power, or it may, if desired, be geared so as to be propelled by the motor 5; but such gearing has not been shown in the drawings, as it is no part of the present invention.

The main driving-shaft 6 of the motor 5 is extended longitudinally of the frame and is provided with suitably-disposed bearings. Motion is transmitted from said main driving-shaft to the various operative parts of the machine, among which are included the stalk-carriers S and S'. Each of the stalk-carriers includes a pair of shafts, (designated, respectively, 7 7' and 8 8',) the shafts 7 7' of the lower carrier S being disposed parallel to one another and the shaft 7 being supported about level with the side members of the frame F, while the shaft 7' is supported upon uprights rising from the cross-bars of said frame. The shafts 7 and 7' are provided each with a plurality of suitably-spaced sprocket-wheels 9, which are connected in pairs by link belts 10, which together constitute the carrier S, said link belts being provided at suitable intervals with teeth or spurs 11, adapted to engage the stalks that are being operated upon in order to prevent said stalks from slipping. The lower shaft 8 of the carrier S' is supported for rotation in boxes or bearings 12, having swivel connection with hand-screws 13, that operate in brackets 14, so that by operating said screws the shaft 8 may receive a degree of vertical adjustment. The shaft 8' is journaled in boxes 15, supported upon the framework of the machine. The shafts 8 and 8' are

provided with a plurality of sprocket-wheels 16, connected by link belts 17, that coöperate to constitute the carrier S', said link belts 17 being provided at intervals with teeth or spurs 18. The link belts constituting the carriers S and S' are located in registry with each other in order that they may take a good hold upon the stalks which are fed between them over a suitably-disposed feed-board 19, as will be clearly seen by reference to Fig. 3 of the drawings. The carrier S is driven from the main shaft 6 by means of a link belt 20, passing over sprocket-wheels 21 and 22, disposed, respectively, upon the shafts 6 and 7'. The main shaft 6 has a pinion 23 meshing with a pinion 24 upon a stub-shaft 25, having a sprocket-wheel 26, which is connected by a link belt 27 with a sprocket-wheel 28 upon the shaft 8' of the carrier S', to which motion is thus transmitted in the proper direction—that is to say, the inner or adjacent leads of the link belts constituting the carriers S and S' will be driven in an upward direction, as indicated by arrows in Fig. 3 of the drawings. A supporting-board (indicated at 29) may be provided for the upper or inner leads of the chains constituting the carrier S.

The shaft 8' supports a pair of bracket-arms 30, affording bearings for a shaft 31, carrying a fluted snapping-roll 32. The upper sides of the bracket-arms 30 are provided with flat arched springs 33, subjected to pressure from adjusting-screws 34, which operate in a cross-bar 35, supported upon the frame of the machine, thus enabling the free ends of the pivoted arms 30 to be forced downwardly under spring tension which is capable of regulation by the screws 34. The fluted snapping-roll 32 is thus forced in the direction of the snapping-roll 36, the shaft 37 of which is permanently supported for rotation in suitable bearings upon the frame of the machine. In the space between the roll-carrying shaft 37 and the shaft 7' of the carrier S are disposed hoppers 38, provided at their upper edges with bridge-bars 39, across which the stalks which are delivered between the carriers S S' may travel in the direction of the snapping-rolls, the bridge-bars being preferably slightly inclined in the direction of the latter, so that the stalks may be readily fed therebetween, and the arms 30 coöperating with the bridge-bars 39 to form guiding means. It is clear that when the stalks are seized upon by the snapping-rolls they will pass between said rolls, and the ears being snapped off from the stalks will drop into the hoppers 38, which latter are provided with cross-bars 40, the object of which is to strike and tilt the ears, so that the latter will have a tendency to pass lengthwise to the husk-stripping mechanism, which will be presently described. It will be seen that by the construction just described the upper snapping-roll will be yieldable in an upward or outward direction from the permanently-supported lower snapping-roll, thus enabling said rolls to operate successfully upon stalks of various dimensions. It is desired to be understood that the snapping-rolls are not necessarily to be constructed in the precise manner herein shown and described, but that said rolls may be dressed in any preferred manner.

In the accompanying drawings two hoppers 38 have been shown, and it follows that the cornstalks may be fed to the machine with their butts facing in either direction, it being intended that stalks or bunches of stalks shall be fed alternately with their butts facing right and left. The wear upon the machine will thus be equalized, and the capacity of the ear-snapping mechanism will be increased, while the ears will be readily fed to the husking devices, two of which have been shown, without liability of overtaxing the latter.

Each husking mechanism includes a pair of husking-rolls, a husk-loosening roll, a feeder, and auxiliary mechanism; but as the construction of said husking devices is identical the description of one will suffice, it being understood that one such device is supported beneath each of the hoppers to receive the ears discharged from said hoppers. Each husking mechanism, then, includes a pair of roll-carrying shafts 41, supported in an inclined position in a plane approximately parallel to that of the carrier S. The husking-rolls 42, mounted upon said shaft, have been illustrated as provided with intermeshing ribs or flutings, which will readily seize upon the husks of the ears passing over said rolls, said husks being previously loosened by sharp teeth or pins 43, extending radially from a loosening-roll 44, supported upon a shaft 45, adjacent to one of the husking-rolls. One of each set of husking-rolls is extended at its lower end and is provided with a bevel-pinion 46, meshing with a bevel-gear 47 upon the main driving-shaft 6. The shaft of the husking-roll which is driven from the main shaft carries at its upper end a pinion 49, meshing with a pinion 50 upon the shaft of the husk-loosening roll, which latter is thus driven in the proper direction, as will be readily understood by reference to Fig. 5 of the drawings, the dotted line 51 indicating an ear of corn which is passing over the husking-rolls sufficiently within the range of teeth 43 of the husk-loosening roll 44 to cause the husk to be torn loose to such an extent as to be readily seized upon and torn from the ear by the husking or stripping rolls 42.

The upper ends of the husking-rolls are disposed beneath the discharge-spouts of the hoppers 38, and above the pairs of husking-rolls are supported feeders 52. Each of said feeders comprises a trough or casing 53, the sides of which afford bearings for transverse shafts 54, having rollers 55, supporting end-

less belts 56, having teeth or prongs 57, adapted to engage the ears passing over the husking-rolls, so as to assist the said ears in traveling downwardly over the latter. The shafts 54 at the upper ends of the feeder-casings are extended laterally and have bearings in yokes 58, that are hingedly connected with clips 59, which latter are securely connected with and depend from levers 60, pivoted in brackets 61 upon the under sides of the hoppers and provided at their free ends with adjustable weights 62, whereby the upper ends of the feeder-casings will be forced in the direction of the husking-rolls with a degree of pressure which may be regulated by the position of the weights 62 upon the levers 60. The shafts 54′ at the lower ends of the feeder-casings are extended inwardly in the direction of each other and are connected with each other by means of a spherical enlargement 54^b, which is connected for limited universal movement with the hub 68′ of a pinion 68. Said hub is connected by toggles T with the main drive-shaft 6, the connecting-pins 63 of the links 64 and 65, constituting the toggles, supporting an idle pinion 66, which is in mesh with a pinion 67 upon the main drive-shaft 6 and also with the pinion 68 upon the connected shafts 54′. It will be seen that by this simple gearing motion may be transmitted from the main shaft 6 to the feeder-shaft 54′ in any position occupied by the feeder. A partition 69 adjacent to the husking-rolls serves to prevent ears dropping from said rolls while being operated upon. Said partition supports a bracket 70, upon which is fulcrumed a bell-crank lever B, one arm of which has a slot 71 engaging a stud 72 upon the link 64 of the toggle T, the other arm of said bell-crank lever being provided with an adjustable weight 73.

It will be seen that under the construction herein described the feeder is a floating device which is moved in an upward direction against the gravity of the weights 62 and 73 by the pressure of ears of corn passing over the husking-rolls beneath the feeder, which latter is operated directly from the main drive-shaft by the gearing herein described. It will also be seen that the upper and lower ends of the feeder are movable toward or away from the husking-rolls independently of each other, so that ears of corn passing between the husking-rolls and the feeder will be operated upon regardless of the relative sizes or diameters of the said ears.

The ears discharged from the husking-rolls drop into a trough 74, which is supported upon the frame of the machine and in which is supported an endless carrier 75, preferably composed of link belts 76, connected by cross-slats 77, which latter engage the bottom of the trough. The latter is provided with a grating consisting of bars 78, extending lengthwise through the trough and serving to support the upper lead of the endless carrier. The latter, which receives motion from the main drive-shaft 6 by means of suitable interposed gearing 79, serves to convey the husked ears in the direction of the arrows shown in Fig. 2 and to deliver the same at one end of the trough 74, where they may be permitted to drop in a pile on the ground, or they may be gathered in a suitable receptacle or transferred by suitable carrying mechanism to a receptacle, such as a wagon-box, alongside of the machine. Grains which have become detached from the cobs in the process of husking without passing between the husking-rolls will pass between the grate-bars 78 and drop into the bottom of the trough, where they will be scraped by the cross-slats upon the lower lead of the carrier to a point of delivery at the end of the trough opposite to that at which the ears are delivered and where a suitable receptacle may be provided, thus avoiding the waste of any of the shelled corn.

Beneath the husking-rolls is supported a fan-casing 80, within which is mounted a fan 81, driven by means of a link belt 82 from the main shaft 6. The top of the fan-casing forms a chute or spout 83, in which is mounted a spiral carrier-conveyer 84, which may also be driven from the main shaft. A grating composed of a plurality of bars 85 is disposed beneath the husking-rolls and above the conveyer 84, the blast from the fan-casing being directed in an upward and rearward direction between the lower ends of the grate-bars 85 and beneath the husking-rolls for the purpose of disposing of the husks, which latter are blown under a wind board or deflector 86, supported adjustably beneath the upper ends of the husking-rolls. Any grains or kernels of corn that become detached from the ears and pass between the husking-rolls will gravitate between the grate-bars 85 and pass through the conveyer 84, whereby such loose kernels are conveyed to a suitable point of discharge to be there gathered and saved.

The snapping-rolls of the device are positively driven, the upper snapping-roll 32 by means of a short link belt 17′, connecting sprockets 8^a and 31^a upon the shafts 8′ and 31, which latter is driven by the conveyer or carrier S′. The link belt 17′, it will be seen, constitutes a portion of the stalk-carrying mechanism. The shaft 37 of the snapping-roll 36 is in like manner driven by a special link belt 10′, which constitutes one of the link belts of the carrier S and which also assists in carrying the stalks over the bridge-bars 39. In this manner the snapping-rolls will be driven in the proper direction with relation to each other, and the stalks discharged between said rolls will be guided to a point of discharge over inclined guides 90, as will be best seen in Fig. 3.

From the foregoing description, taken in

connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood by those skilled in the art to which it appertains. The machine is readily portable and may be conveyed to any place where the cut corn has been previously gathered, or it may be driven along the shock-row in the field and stopped adjacent to the individual shocks, which may then be fed to the machine for the purpose of husking the corn. The general construction of the machine is simple and inexpensive, and it may be successfully and effectively operated with comparatively slight expenditure of power.

Having thus described the invention, what is claimed is—

1. A stalk-carrier, brackets pivoted upon a supporting-shaft of said carrier, a snapping-roll supported for rotation in said brackets, a coöperating snapping-roll supported in relatively stationary bearings, and bridge-bars extending from the latter snapping-roll in the direction of the carrier.

2. A stalk-carrier, brackets pivoted upon a supporting-shaft of said carrier, a snapping-roll supported for rotation beneath said brackets, bridge-bars extending from said snapping-roll in the direction of the carrier and a snapping-roll supported for rotation in the brackets and gravitating in the direction of the first snapping-roll.

3. A stalk-carrier, brackets pivoted upon a supporting-shaft of said carrier, a snapping-roll supported for rotation beneath said brackets, a snapping-roll supported for rotation in said brackets, means for forcing said brackets in the direction of the snapping-roll beneath them, and bridge-bars extending from the lower snapping-roll in the direction of the carrier.

4. A stalk-carrier, brackets pivoted upon a supporting-shaft of said carrier, a snapping-roll supported for rotation beneath said brackets, bridge-bars extending between said snapping-roll and the carrier, a snapping-roll supported for rotation in the brackets, and resilient means for forcing said brackets in the direction of the snapping-roll beneath them.

5. A stalk-carrier, brackets pivoted upon a supporting-shaft of said carrier, a snapping-roll supported for rotation beneath said brackets, bridge-bars extending between said snapping-roll and the carrier, a snapping-roll supported for rotation in the brackets, resilient means for forcing said brackets in the direction of the snapping-roll beneath them, and means for regulating the tension of said resilient means.

6. A pair of stalk-carriers each including a plurality of endless movable elements, said carriers being spaced apart vertically and adapted to coöperate upon stalks passing therebetween; a snapping-roll supported for rotation, bridge-bars interposed between said snapping-roll and the delivery end of the lower carrier, brackets supported pivotally upon the shaft at the delivery end of the upper carrier, and a snapping-roll supported for rotation in said brackets and gravitating in the direction of the first snapping-roll.

7. A pair of coöperating stalk-carriers, a pair of coöperating snapping-rolls spaced from said carriers, bridge-bars for guiding the stalks from the carriers to the rolls, and hoppers disposed beneath the bridge-bars.

8. A pair of coöperating stalk-carriers, a pair of snapping-rolls spaced from said carriers, resilient supporting means for the upper roll, endless elements included in the carriers and extended to drive the snapping-rolls, and bridge-bars for supporting the stalks in transit from the carriers to the rolls.

9. Stalk-carrying means, a pair of snapping-rolls spaced from the delivery end of said stalk-carrying means, means for supporting the stalks in transit from the carrying means to the snapping-rolls, and hoppers disposed beneath the supporting means.

10. Stalk-carrying means, a pair of snapping-rolls spaced from the delivery end of said stalk-carrying means, means for supporting the stalks in transit from the carrying means to the snapping-rolls, ear-receiving hoppers beneath the stalk-supporting means, and ear-engaging tilting bars in said hoppers.

11. An ear-receiving hopper, bridge-bars extending across said hopper, and a cross-bar within said hopper below the bridge-bars to engage and tilt ears dropping into said hopper.

12. A pair of coöperating husking-rolls, a casing suspended above said rolls, an endless feeder in said casing, and adjustable means for independently forcing the ends of the latter with varying degrees of pressure in the direction of the rolls.

13. A pair of husking-rolls, a feeder, a feeder-containing casing above said rolls, and supporting means for said casing including a yoke, a weighted lever, and an arm connecting said lever pivotally with the yoke.

14. A pair of husking-rolls, a casing above said rolls, an endless feeder in said casing, a yoke pivoted upon the shaft of the endless feeder at one end of the casing, a weighted supporting-lever, an arm upon said lever connected pivotally with the yoke, supporting means for the other end of the feeder-casing, and means for driving the feeder.

15. Pairs of husking-rolls, a main driven shaft, means for transmitting motion from said shaft to a husking-roll of each pair, feeder-casings supported above the pairs of husking-rolls, endless feeders in said casings, a shaft supporting the lower ends of the feeders in the several casings, a hub having universal connection with said shaft, toggles connecting said hub with the main driven shaft, spur-wheels upon the latter and upon the feeder-carrying shaft, and an intermediate pinion

supported for rotation upon the pins connecting the toggle-links and meshing with the aforesaid spur-wheels.

16. Pairs of husking-rolls, feeder-casings above said husking-rolls, independent means for adjustably supporting the upper ends of said feeder-casings, endless feeders in the casings, a shaft extending through the lower ends of the feeder-casings and supporting the lower ends of the feeders, a main driving-shaft, toggle connection between the latter and the feeder-driving shaft including a hub having universal connection with the latter shaft, a weighted bell-crank connected movably with one of the toggle-links, and means carried by said toggle-links for transmitting motion from the main driven shaft to the feeder-shaft.

17. The combination of husking-rolls, a grate supported beneath said rolls, means for directing a current of air between the lower ends of the bars composing the grate and rearwardly beneath the rolls, and an adjustable wind-board beneath the rear ends of said rolls.

18. A pair of husking-rolls, an inclined grate supported beneath the same, a fan-casing beneath said grate and discharging beneath the front ends of the husking-rolls, a trough formed in the upper portion of the discharge-spout of the fan-casing, and a spiral conveyer in said trough.

19. A pair of husking-rolls, a grate supported beneath the same, means for discharging a current of air through the lower portion of said grate beneath the front ends of the husking-rolls and in a rearward direction between the rolls, a grain-trough supported beneath the grate, and a spiral conveyer in said trough.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

LEONARD G. VANDEGRIFT, JR.

Witnesses:
CHARLES S. ROBERTS,
JOHN W. DICKINSON.