

No. 815,530.

PATENTED MAR. 20, 1906.

M. D. HATCH.
CORN HARVESTER.

APPLICATION FILED APR. 8, 1905.

4 SHEETS—SHEET 1.

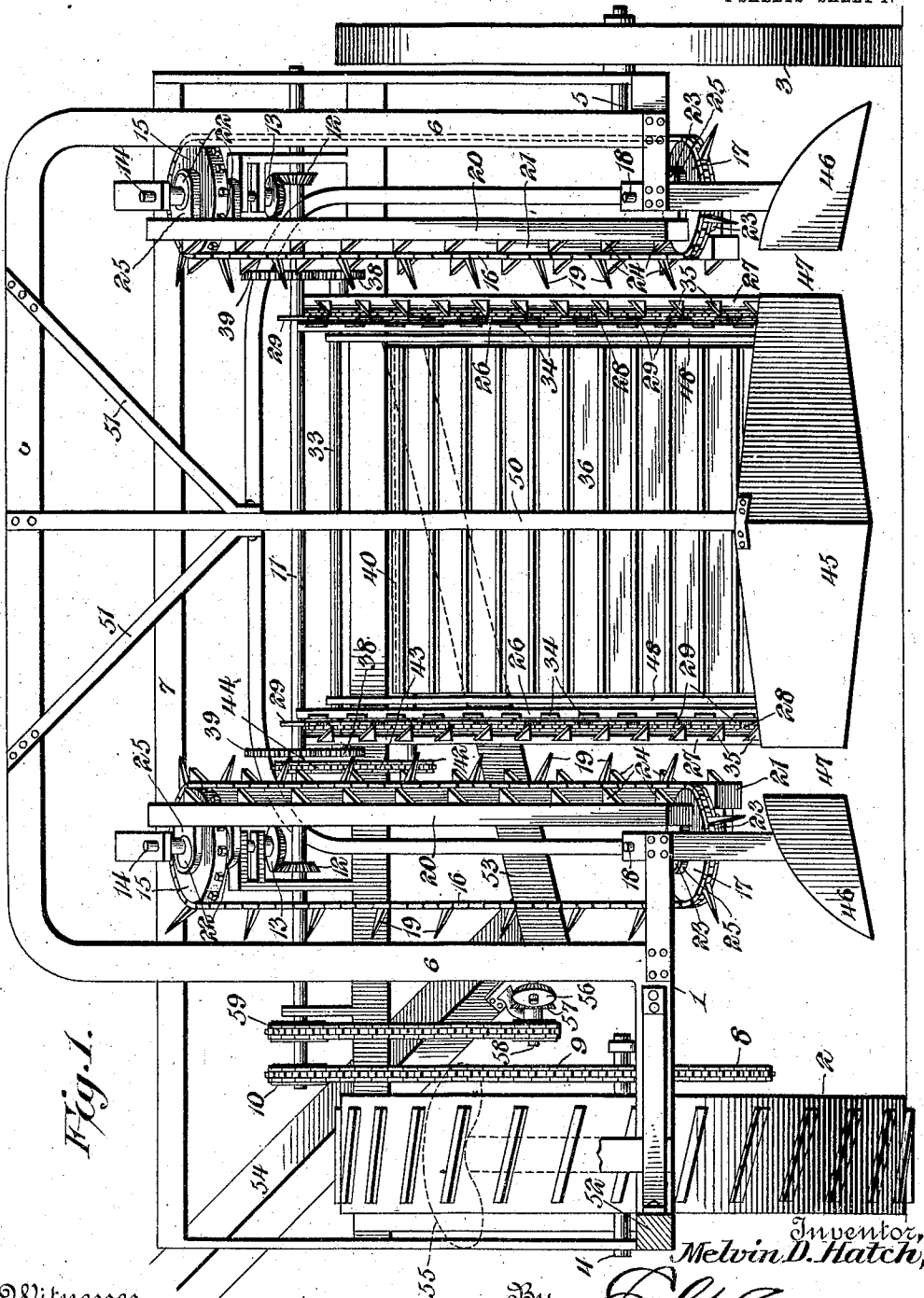


Fig. 1.

Witnesses
Howard D. Orr.
J. F. Riley

By

Inventor,
Melvin D. Hatch,
E. J. Siggers
Attorney

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4 SHEETS-SHEET 2.

Fig. 9.

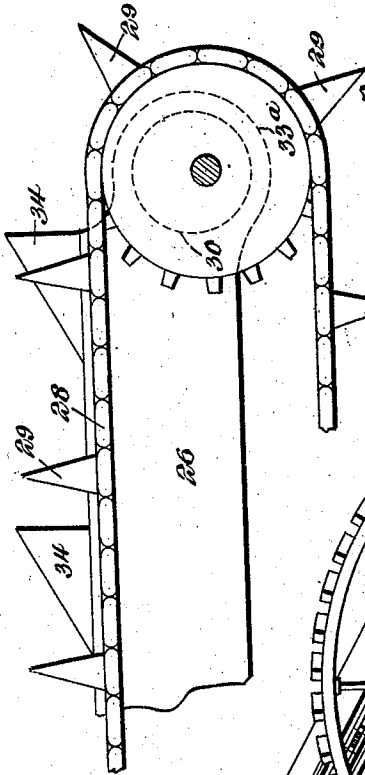
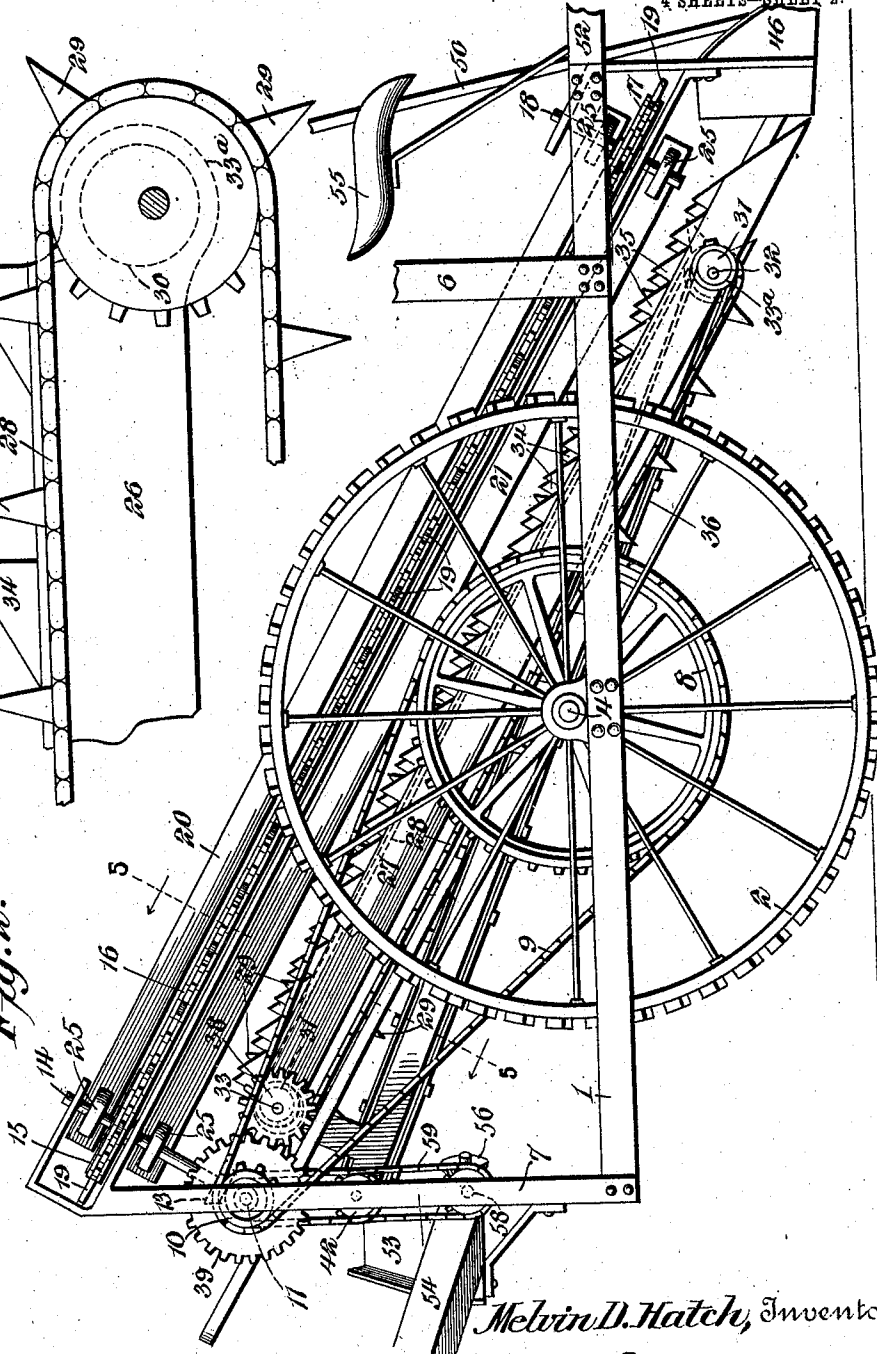


Fig. 2.



Melvin D. Hatch, Inventor,

By *E. G. Siggers*

Attorney

Witnesses

Howard D. Ott.

J. F. Riley

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4 SHEETS—SHEET 3.

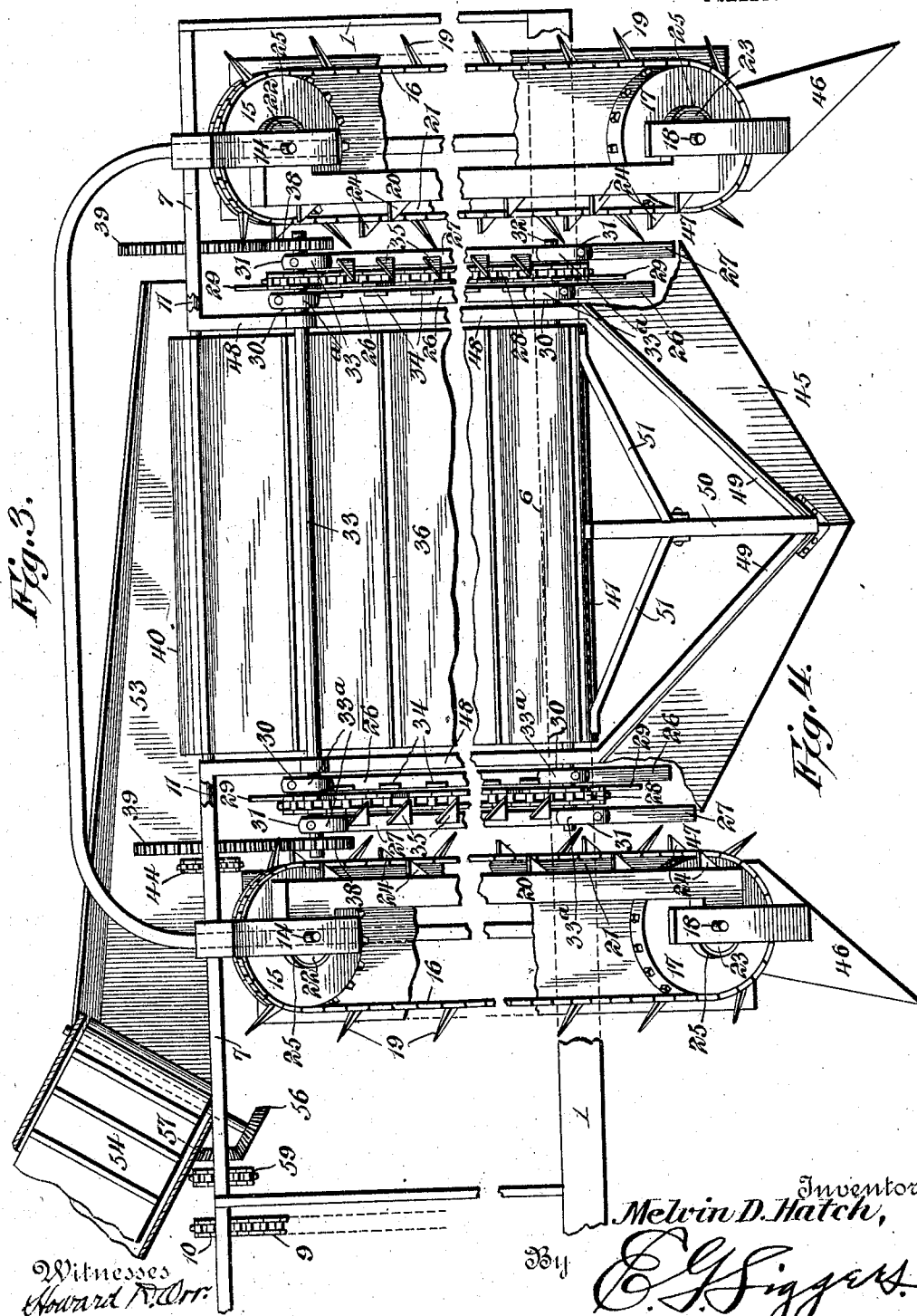


Fig. 3.

Fig. 4.

Witnesses
Howard R. Orr.

J. F. Riley

31

Inventor,
Melvin D. Hatch,

E. G. Siggers.

Attorney

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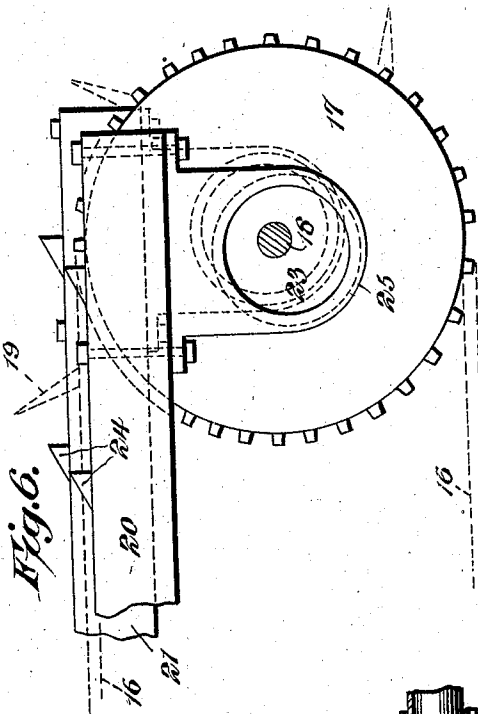


Fig. 6.

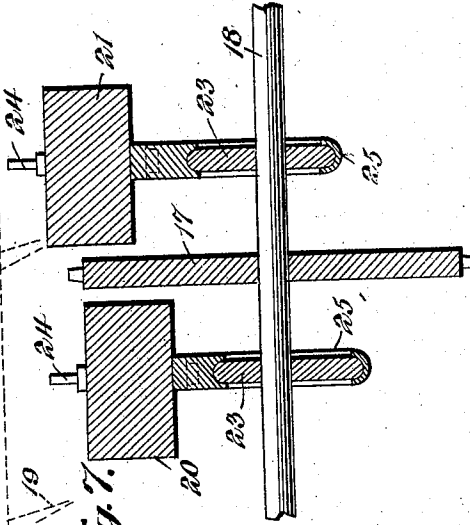


Fig. 7.

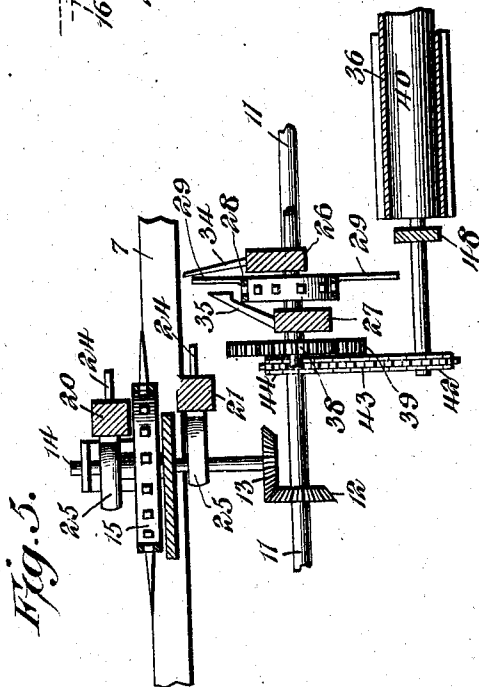
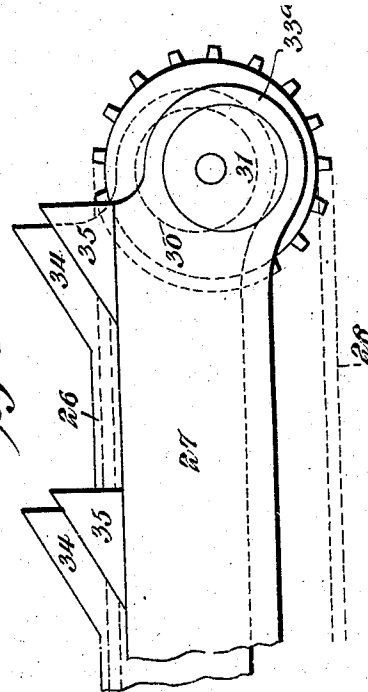


Fig. 8.

Fig. 8.



Melvin D. Hatch, Inventor,

By

E. G. Siggers

Attorney

Witnesses

Howard W. Orr.

J. F. Riley

UNITED STATES PATENT OFFICE.

MELVIN D. HATCH, OF LINCOLN, NEBRASKA.

CORN-HARVESTER.

No. 815,530.

Specification of Letters Patent.

Patented March 20, 1906.

Application filed April 8, 1905. Serial No. 254,554.

To all whom it may concern:

Be it known that I, MELVIN D. HATCH, a citizen of the United States, residing at Lincoln, in the county of Lancaster and State of Nebraska, have invented a new and useful Corn-Harvester, of which the following is a specification.

The invention relates to improvements in corn-harvesters.

10 The object of the present invention is to improve the construction of corn-harvesters and to provide a corn-harvesting machine of light draft adapted to be pulled by two or three horses and designed to be driven through
15 the rows of corn and capable of picking or snapping ears from the stalk and of delivering the former to a wagon or other receptacle and of discharging the stalks from the machine.

20 A further object of the invention is to provide a machine of this character capable of removing all the corn from the smallest nubbin to the largest ear from the stalks, whether the latter be erect or lying upon the ground,
25 without breaking the ears or shelling the corn.

With these and other objects in view the invention consists in the construction and novel combination and arrangement of parts
30 hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended, it being understood that various changes in the form, proportion, size, and minor details of construction within the scope of the claims may be
35 resorted to without departing from the spirit of sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a front elevation of the corn-harvester constructed in accordance with this invention. Fig. 2 is a side elevation of the same. Fig. 3 is a plan view of the rear portion of the machine on an enlarged scale. Fig. 4 is a similar view of the front portion of the machine. Fig. 5 is an enlarged detail section taken substantially on the line 5 5 of Fig. 2. Fig. 6 is an enlarged detail plan view illustrating the construction of the corn-butters. Fig. 7 is a
45 transverse sectional view of the same. Fig. 8 and 9 are detail views illustrating the construction of the picking mechanism.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates the main or supporting frame

of the corn-harvesting machine, which is provided at opposite sides with supporting or carrying wheels 2 and 3, mounted upon suitable shafts or axles 4 and 5, as clearly illustrated in Fig. 1 of the drawings. The supporting-frame, which may be constructed in any desired manner, is provided with upright front and rear arched portions 6 and 7, the rear arched portion being adapted to support the rear or upper ends of the devices for removing the ears from the stalks, said devices, as hereinafter fully explained, being arranged at an inclination, as clearly shown in Fig. 2 of the drawings, to enable them to operate on the stalks from the bottom to the top thereof. The carrying-wheel 3, which may be of any desired construction, is shown with a smooth periphery, while the other carrying-wheel 2, which operates in the nature of a drive-wheel, is provided with a broad periphery, having transverse ribs or other suitable means for preventing the wheel from slipping. This wheel 2 is keyed or otherwise secured to the shaft or axle 4, which also has mounted upon it a drive-gear 8, from which motion is communicated to the mechanism for removing the ears from the stalks and for conveying the ears to the desired receptacle. In practice, any suitable clutch mechanism may be employed for throwing the machine out of operation, as will be readily understood. The 8 gear receives a sprocket-chain 9, which extends rearward to and is arranged on a sprocket-pinion 10 of a counter-shaft 11, disposed transversely of the machine and extending from one side to the other thereof for transmitting motion to the several devices to be operated. The transverse shaft, which is journaled in suitable bearings, is provided at opposite sides of the machine with bevel-gears 12, which mesh with corresponding bevel-gears 13 of rear upwardly-extending shafts 14, arranged at an inclination and carrying sprocket-wheels 15. The rear sprocket-wheels 15 receive endless sprocket-chains 16, which are arranged at an inclination and which extend from the said sprocket-wheels 15 of the back of the machine to the front sprocket-wheels 17, mounted upon upwardly-extending inclined shafts 18, arranged in parallelism with the rear shafts 14. These endless sprocket-chains are provided at intervals with projecting spurs or teeth 19, adapted to engage and carry inward or rearward the stalks of corn. These endless sprocket-chains, which form

feeding mechanism, operate between upper and lower corn-butters 20 and 21, arranged in pairs at opposite sides of the machine and adapted to engage the corn and throw the same inwardly toward the center of the machine upon picking mechanism, hereinafter described. The corn-butters consist of longitudinal bars, which are oppositely reciprocated by means of upper and lower eccentrics 22 and 23, arranged in pairs and mounted on the front and rear shafts. The bars of the corn-butters are provided at intervals with approximately triangular lugs or teeth 24, beveled at their front edges and provided at their rear edges with shoulders arranged at right angles to the bars of the corn-butters and adapted to feed the corn into the machine. The corn-butters, which intermittently and alternately engage the stalks of corn, move inwardly and outwardly in a direction laterally of the machine, and they also reciprocate backwardly and forwardly or longitudinally of the machine, the rearward movement occurring when the corn-butters are at the limit of their inward movement or during such movement and the forward movement occurring as the butters move outwardly away from the corn. The eccentrics are oppositely arranged, so that one of the butters of each pair is in engagement with the stalks practically the entire time the latter are operated on by the machine. The eccentrics operate in suitable bearings or boxes 25, which extend laterally from the outer edges of the bars of the corn-butters; but cranks or any other eccentric devices may be employed for actuating the corn-butters.

The sets of picking mechanism, which are located at opposite sides of a central endless carrier or conveyer, are adapted to pick or snap the ears from the stalks, and each set comprises a pair of picker-blades 26 and 27 and an endless chain 28, provided at intervals with cutter-blades 29, operating between the picker-blades, as clearly indicated in Fig. 5 of the drawings. The picker-blades are reciprocated longitudinally or backwardly and forwardly and are moved upwardly and downwardly, the backward movement occurring during the forward movement and the outward movement occurring during the downward movement. This movement of the picker-blades is effected by means of oppositely-disposed inner and outer eccentrics 30 and 31, arranged in pairs and mounted on front and rear shafts 32 and 33. The picker-blades are provided at their ends with bearings or boxes 33^a for the reception of the eccentrics, and the said blades are also provided at their upper edges with saw-teeth 34 and 35, arranged at an inclination and converging toward the blades of the endless cutter formed by the endless sprocket-chain 28 and its blades 29. The ears of corn falling upon the picking mechanism are snapped or

picked from the stalks and are caused to fall upon the centrally-arranged endless carrier or conveyer 36, and the machine is capable of picking all the ears from the stalks, getting the smallest nubbins, as well as the largest ears. Each end of the rear shaft 33 is connected with the counter-shaft 11 by spur-gears 38 and 39, whereby motion is communicated from the counter-shaft to the picking mechanism.

The centrally-arranged conveyer consists of an endless apron arranged on upper and lower rolls 40 and 41, the upper roll being connected by sprocket-gearing with the counter-shaft 11. One of the journals of the upper roll 40 is extended and carries a sprocket-pinion 42, which receives a sprocket-chain 43, and the latter extends to a sprocket-wheel 44, which is keyed or otherwise secured to the counter-shaft 11.

The machine is adapted to operate on two rows of corn and is provided with central and side guiding devices 45 and 46, which are adapted to guide the stalks into the longitudinal spaces or passages 47, lying between the corn-butters and the picking mechanism, and the said guiding devices are also adapted to pick up fallen stalks, so that the machine will be enabled to remove the ears from all the corn, whether the stalks be standing erect or lying down. The central guiding device 45, which is constructed of any suitable material, is substantially V-shaped and consists of two forwardly-converging sides or wings arranged at an inclination and adapted to separate the stalks in two rows. The frame of the machine is provided with inner longitudinal bars 48, located at opposite sides of the central conveyer and having converging front portions 49, which are arranged at and secured to the inner faces of the sides or wings of the central guiding device. The central guiding device is also supported by a bracket or hanger 50, consisting of a central bar and side braces 51. The central bar extends downward from the front arch of the main frame to the apex of the front guiding device, as clearly shown in Fig. 1 of the drawings, and the braces 51, which are located at opposite sides of the upper portion of the central bar, extend from the same to the top of the front arch of the main frame. The side guiding devices 46, which are spaced at their rear ends from the sides of the central guiding device, diverge forwardly and are tapered toward their front or outer ends and are adapted to pick off fallen stalks and guide the same to the spaces or passages 47.

The machine is provided at the side at which the wheel 2 is located with a pole or draft-wheel 52, adapted to receive the draft-animals, which may consist of two or three horses.

As the machine is drawn forward it operates on two rows of corn, the stalks being dis-

charged at the rear end of the spaces or passages 47 and the ears being carried upward and rearward by the central conveyer. The central conveyer discharges into an inclined chute 53, disposed transversely of the machine at the rear end thereof and suitably mounted on the main or supporting frame and adapted to deliver the ears to a conveyer 54. The conveyer 54 extends from the rear portion of the machine and is designed to carry the ears to a wagon or other receptacle. In practice the wagon will be preferably arranged at the off side of the machine in position for the rear conveyer to discharge into it.

A seat 55, which is mounted on the main or supporting frame in advance of the wheel 2, is provided for the accommodation of the driver, who will thus be in position to control the horses of the machine and those of the wagon.

The rear conveyer may be of any desired construction, and it consists of a suitable frame or casing and an endless apron mounted on suitable rolls. The lower roll or shaft of the rear conveyer carries a bevel-gear 56, which meshes with a similar gear 57 of a short transverse shaft 58, and the latter is connected by sprocket-gearing 59 with the shaft 11.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a machine of the class described, the combination with reciprocable picking devices to engage the ears of corn, and means for causing the picking devices to alternately engage the corn, of cutting mechanism co-operating with the picking devices to remove the ears from the stalks.

2. In a machine of the class described, the combination with a frame having a passage for the stalks of corn, of cutting mechanism located at the inner side of the passage, corn-butters located at the outer side of the passage, means for carrying the corn-butters alternately in engagement with the corn, and independently-movable feed mechanism co-operating with the corn-butters.

3. In a machine of the class described, the combination of a frame having a passage for the stalks of corn, cutting mechanism located at the inner side of the passage, corn-butters located at the outer side of the passage and extending longitudinally thereof, and independently-movable feed mechanism also located at the outer side of the passage and extending longitudinally of and co-operating with the corn-butters.

4. In a machine of the class described, the combination with cutting mechanism, of spaced reciprocable corn-butters also spaced laterally from the cutting mechanism to provide an intervening passage for the stalks of corn and arranged one above the other, and

endless feeding mechanism operating in the space between the corn-butters and co-operating with the same.

5. In a machine of the class described, the combination with cutting mechanism, of spaced reciprocable corn-butters also spaced laterally from the cutting mechanism to provide a passage for the stalks of corn and arranged one above the other, shafts provided with means for carrying the corn-butters alternately in engagement with the corn, and endless feed mechanism also mounted on the said shafts and operating in the space between the corn-butters and co-operating with the same.

6. In a machine of the class described, the combination with means for removing the ears of corn from their stalks, of corn-butters, means for carrying the same alternately in engagement with the corn, and independently-movable feed mechanism co-operating with the corn-butters.

7. In a machine of the class described, the combination with means for separating ears of corn from their stalks, of spaced corn-butters, and feed mechanism operating between the corn-butters.

8. In a machine of the class described, the combination with means for separating ears of corn from their stalks, of spaced reciprocable corn-butters, and endless feed mechanism operating between the corn-butters.

9. In a machine of the class described, the combination with means for separating the ears of corn from their stalks, of reciprocable corn-butters, means for causing the corn-butters to alternately engage the corn, and feed mechanism movable independently of and operating in conjunction with the corn-butters.

10. In a machine of the class described, the combination with means for separating ears of corn from their stalks, of spaced corn-butters, means for operating the corn-butters for causing the same to alternately engage the corn, and endless feed mechanism operating in the space between the corn-butters.

11. In a machine of the class described, the combination with shafts, of eccentrics arranged in pairs on the shafts and extending in opposite directions therefrom, corn-butters consisting of bars connected with and operated by the eccentrics, sprocket-wheels also mounted on the shafts between the eccentrics, and a sprocket-chain arranged on the sprocket-wheels and provided with means for feeding the corn.

12. In a machine of the class described, the combination with picking devices, and cutting mechanism co-operating therewith to remove the ears from the stalks, of corn-butters spaced laterally from the picking devices and the cutting mechanism to provide a passage for the stalks of corn, and arranged above the said picking devices and the cut-

ting mechanism in position to throw the corn toward the same.

13. In a machine of the class described, the combination of a frame having a passage for the stalks of corn, reciprocable picking devices located at the inner side of the passage, means for causing the picking devices to alternately engage the corn, and independently-operable cutting mechanism also located at the inner side of the passage.

14. In a machine of the class described, the combination of a frame having a passage for the stalks of corn, cutting mechanism located at the inner side of the passage, a pair of reciprocable corn-butters located at the outer side of the passage, shafts provided with means for actuating the corn-butters, and endless feed mechanism mounted on the said shafts.

15. In a machine of the class described, the combination of movable picking devices, means for causing the picking devices to alternately engage the corn, and an endless cutter cooperating with the picking devices.

16. In a machine of the class described, the combination of reciprocable picking devices arranged in spaced relation, means for causing the picking devices to alternately engage the corn, and a cutter operating between the picking devices.

17. In a machine of the class described, the combination of movable picking devices arranged in spaced relation, means for causing the picking devices to alternately engage the corn, and an endless cutter operating in the space between the picking devices.

18. In a machine of the class described, the combination with spaced reciprocable picking devices, of cutting mechanism operating in the space between the picking devices to remove the ears from the stalks.

19. In a machine of the class described, the combination of reciprocable picking devices consisting of toothed blades, means for causing the picking devices to alternately engage the corn, and an endless cutting device provided at intervals with blades.

20. In a machine of the class described, the combination of reciprocable picking devices arranged in spaced relation and provided with converging teeth, means for causing the picking devices to alternately engage the corn, and a cutting device operating between the teeth.

21. In a machine of the class described, the combination of reciprocable picking devices arranged in spaced relation and provided with converging teeth, means for causing the picking devices to alternately engage the corn,

and an endless cutter located between the picking devices and provided at intervals with blades operating between the converging teeth.

22. In a machine of the class described, the combination of a frame having a passage for the stalks of corn, a pair of reciprocable picking devices located at the inner side of the passage, shafts provided with means for carrying the picking devices alternately in engagement with the corn, and an endless cutting device also mounted on the said shafts.

23. In a machine of the class described, the combination of a frame having a passage for the stalks of corn, reciprocable corn-butters located at the outer side of the passage, means for reciprocating the corn-butters and for moving the same laterally of the said passage to alternately carry the corn-butters in and out of engagement with the corn, independently-movable feed mechanism cooperating with the corn-butters, reciprocable corn-pickers located at the inner side of the passage, means for alternately carrying the corn-pickers in engagement with the corn, and an independently-movable cutter cooperating with the corn-pickers.

24. In a machine of the class described, the combination of a frame having a passage for the stalks of corn, reciprocable corn-butters located at the outer side of the passage, shafts provided with means for carrying the corn-butters alternately in engagement with the corn, endless feed mechanism also mounted on the said shafts, reciprocable corn-pickers located at the inner side of the passage, shafts provided with means for carrying the corn-pickers alternately in engagement with the corn, and an endless cutter cooperating with the corn-pickers and mounted on the shafts of the same.

25. In a machine of the class described, the combination of picking devices, cutting mechanism to pick and remove the ears from the stalks, and corn-butters spaced laterally from the picking devices and the cutting mechanism to provide a passage for the stalks of corn, said corn-butters being arranged to operate in planes perpendicular to the planes in which the picking devices and the cutting mechanism operate.

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

MELVIN D. HATCH.

Witnesses:

W. E. KERR,
GEO. GOWING.