

No. 765,545.

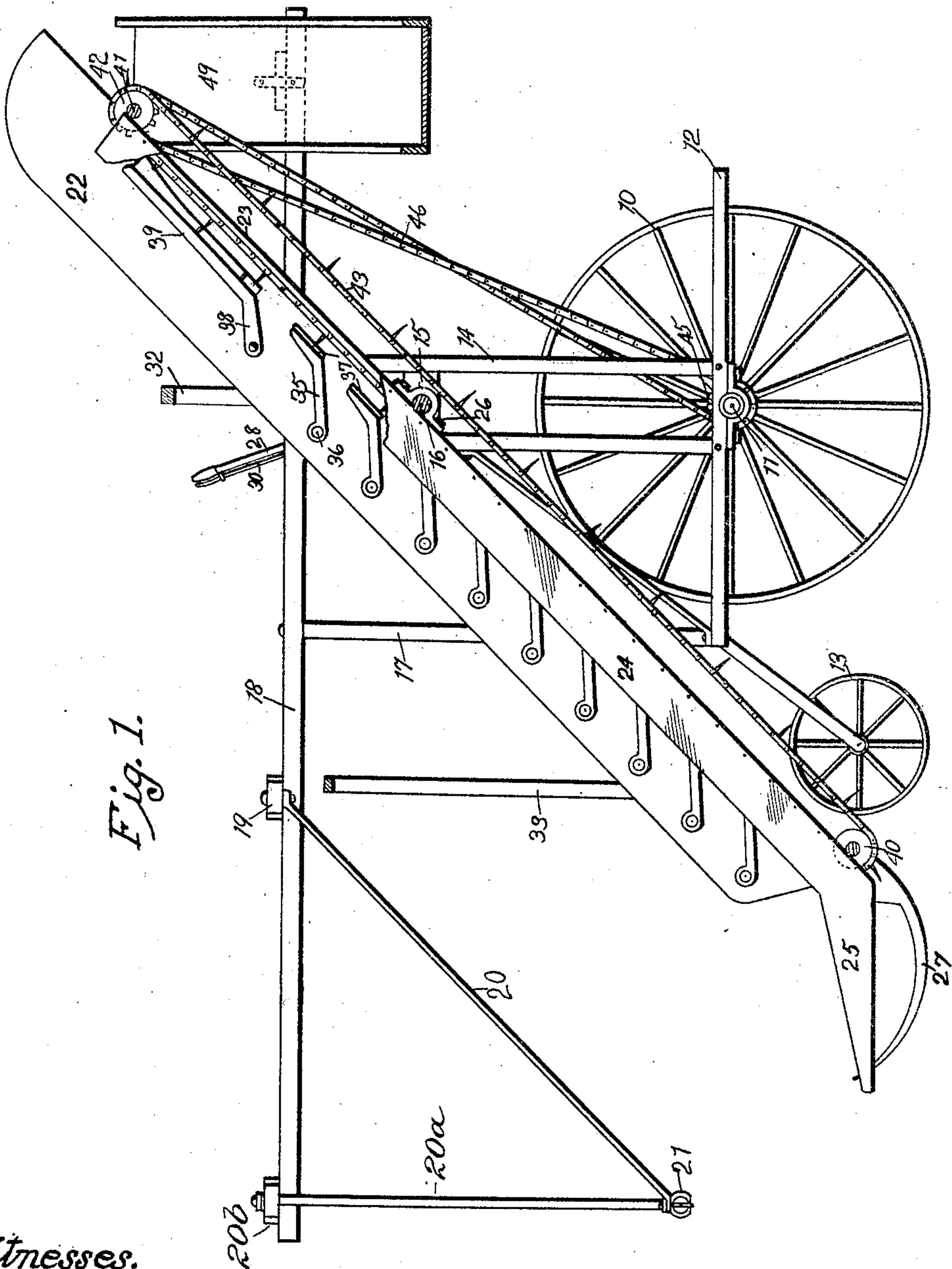
PATENTED JULY 19, 1904.

A. L. BRANDT.
CORN HARVESTER.

APPLICATION FILED JUNE 3, 1903. RENEWED MAY 17, 1904.

NO MODEL.

4 SHEETS—SHEET 1.



Witnesses.

K. K. Keffer.

C. S. Hague.

Inventor, A. L. Brandt.

by Craig Lane Atty's.

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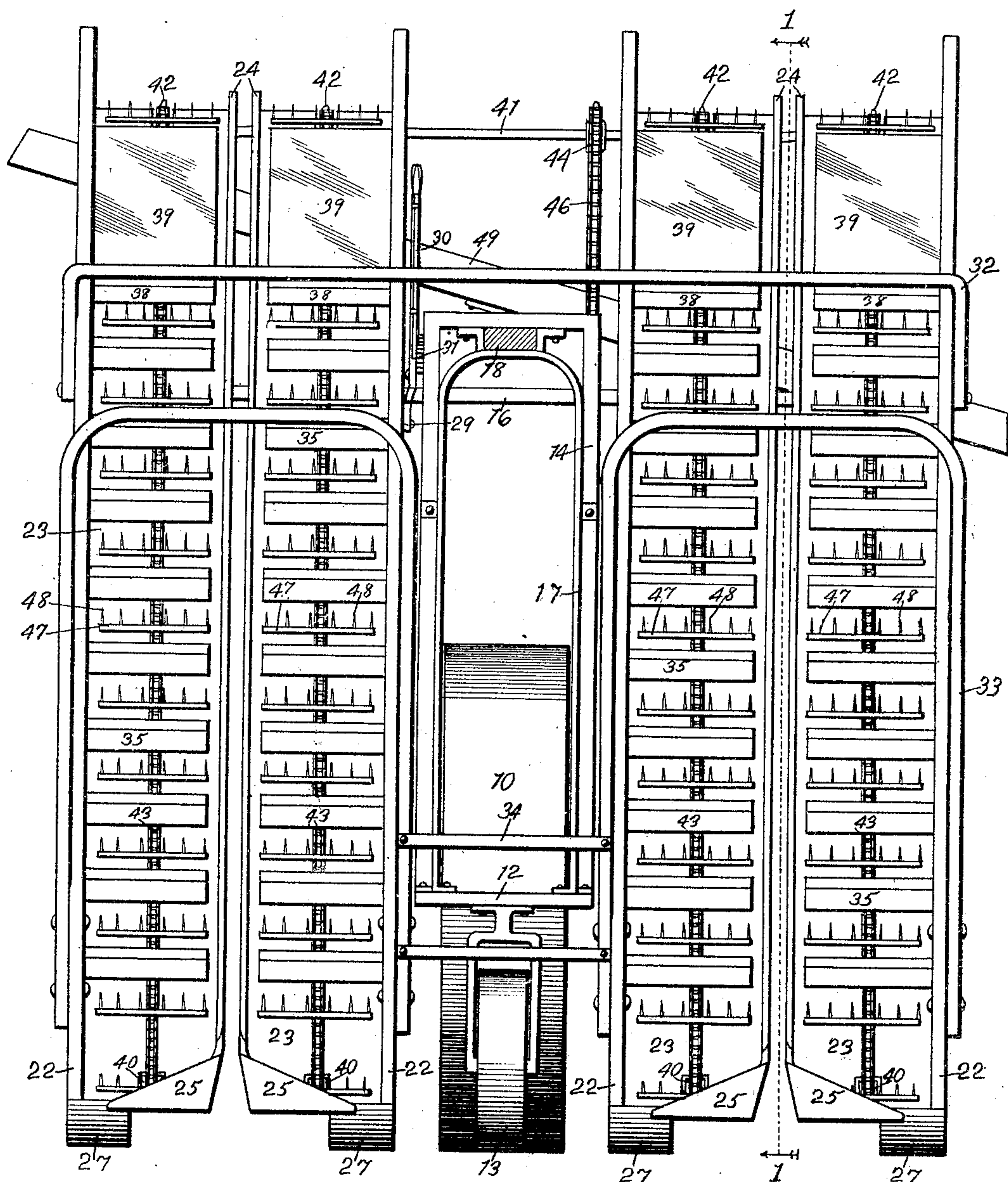
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4 SHEETS—SHEET 2.

Fig. 2.



Witnesses.

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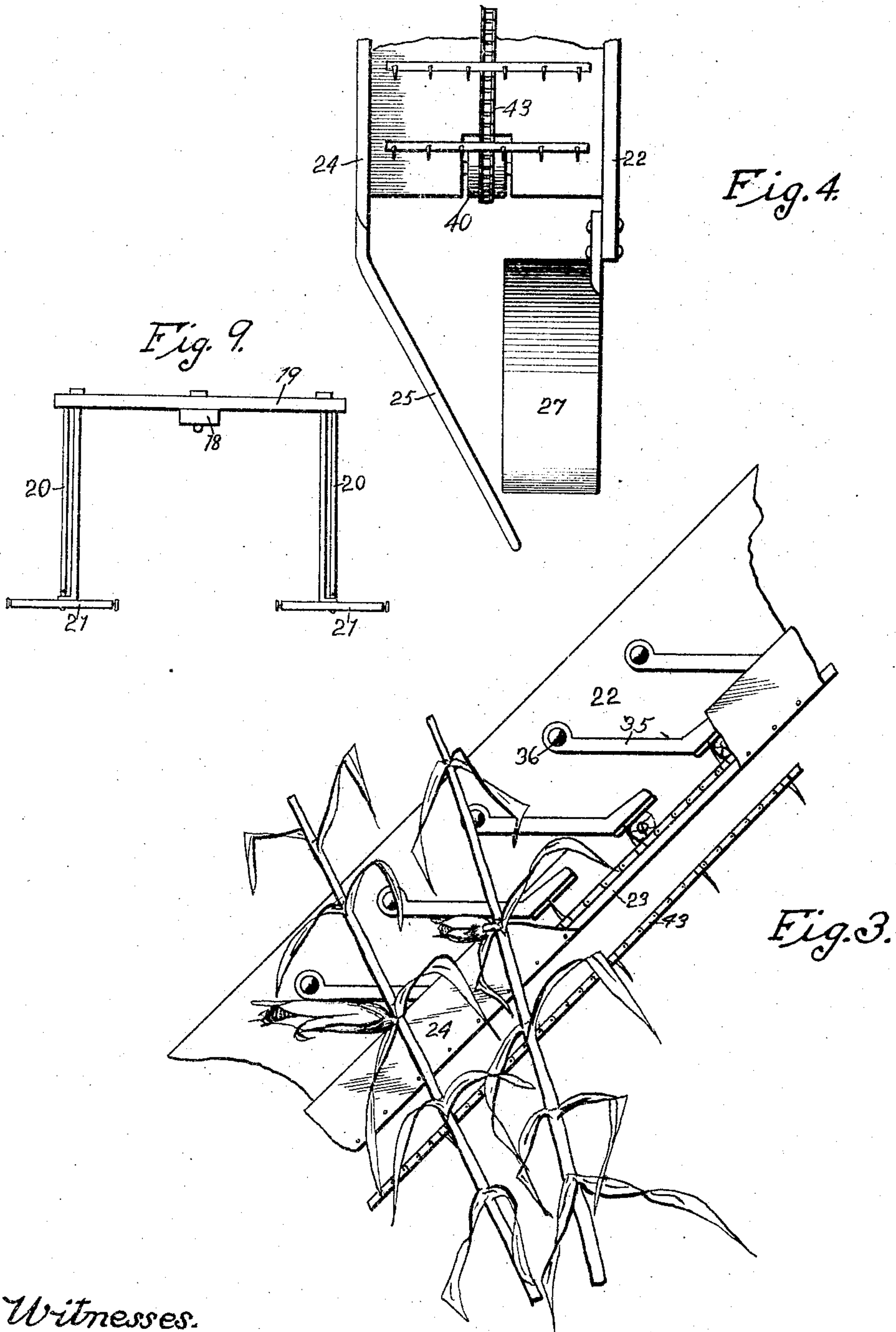
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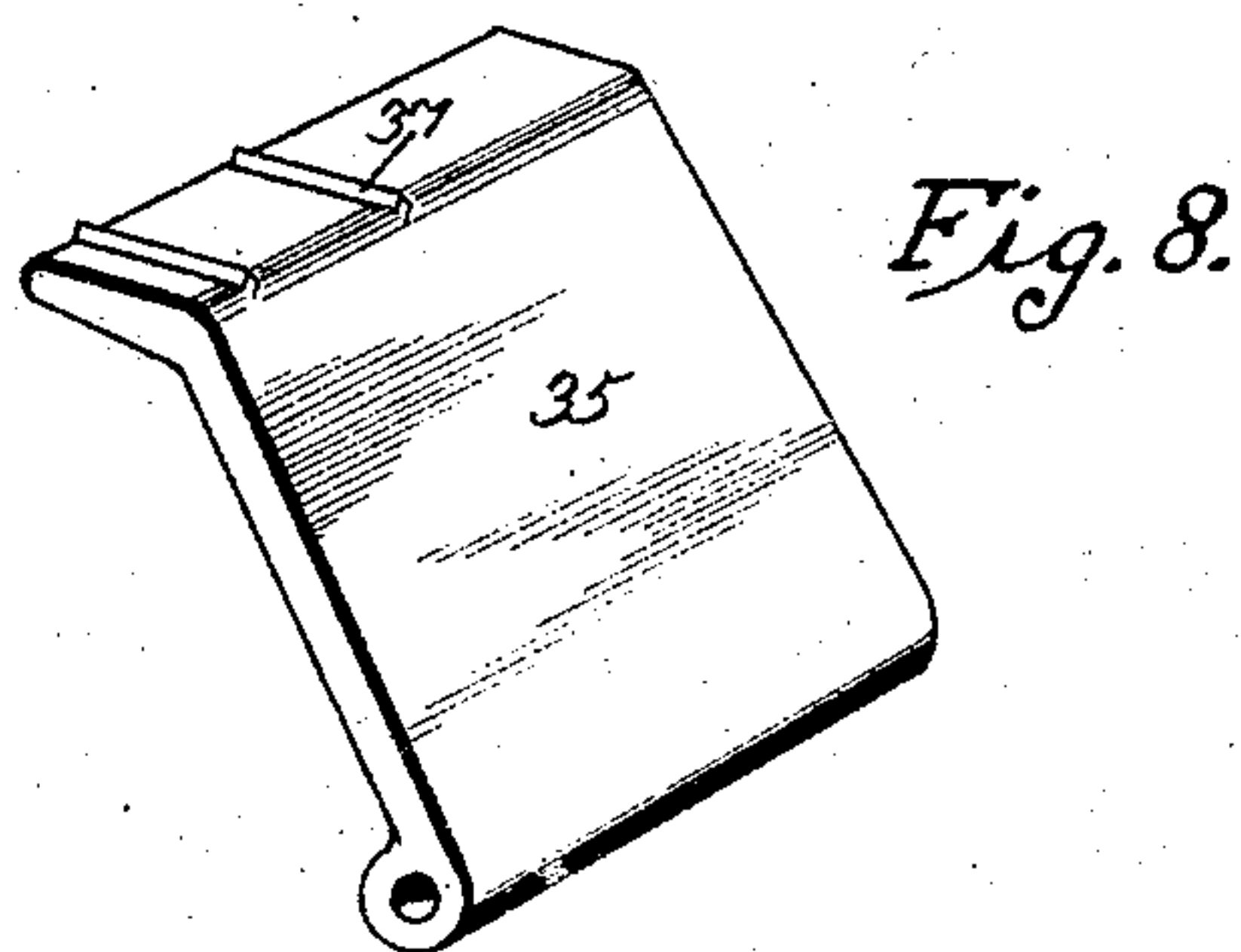
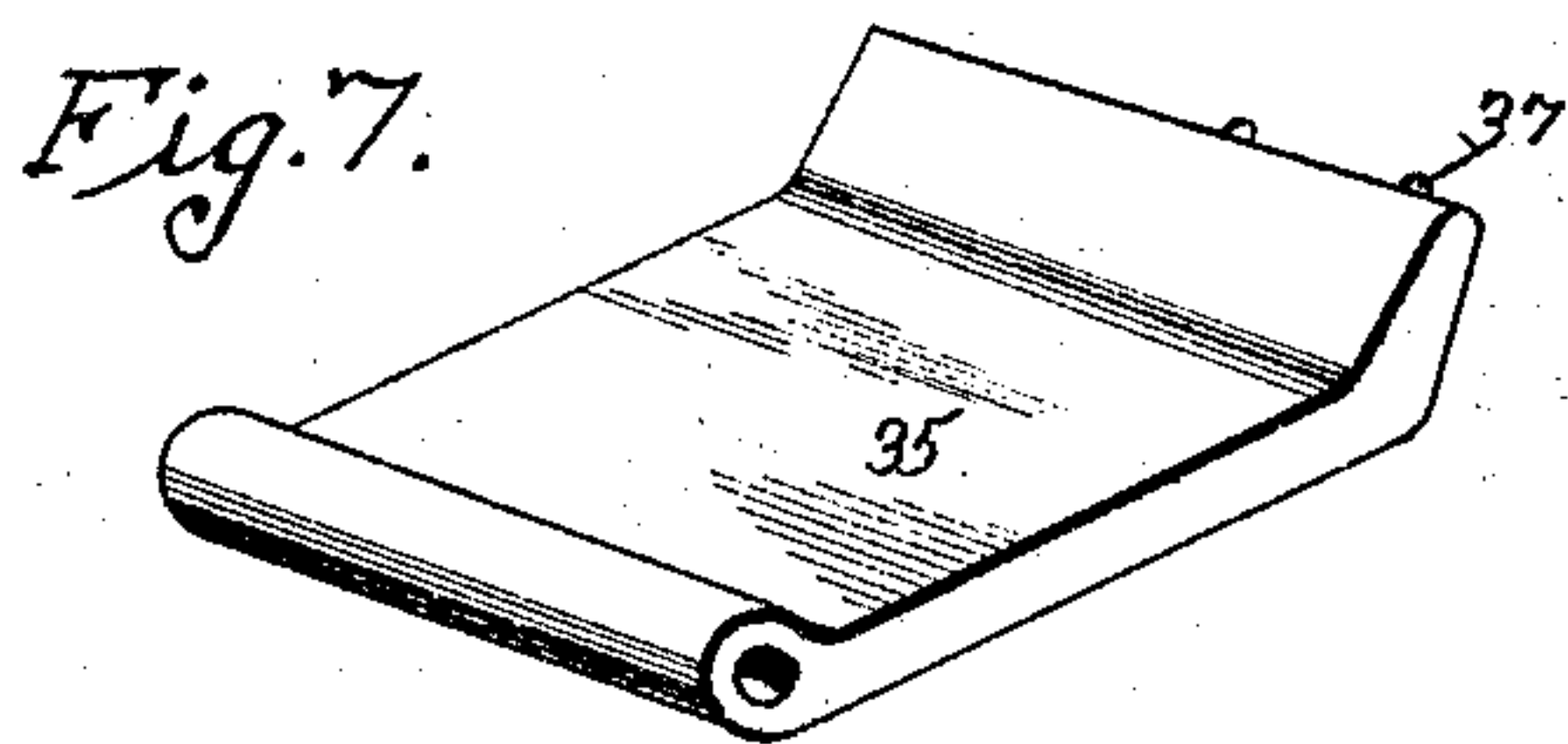
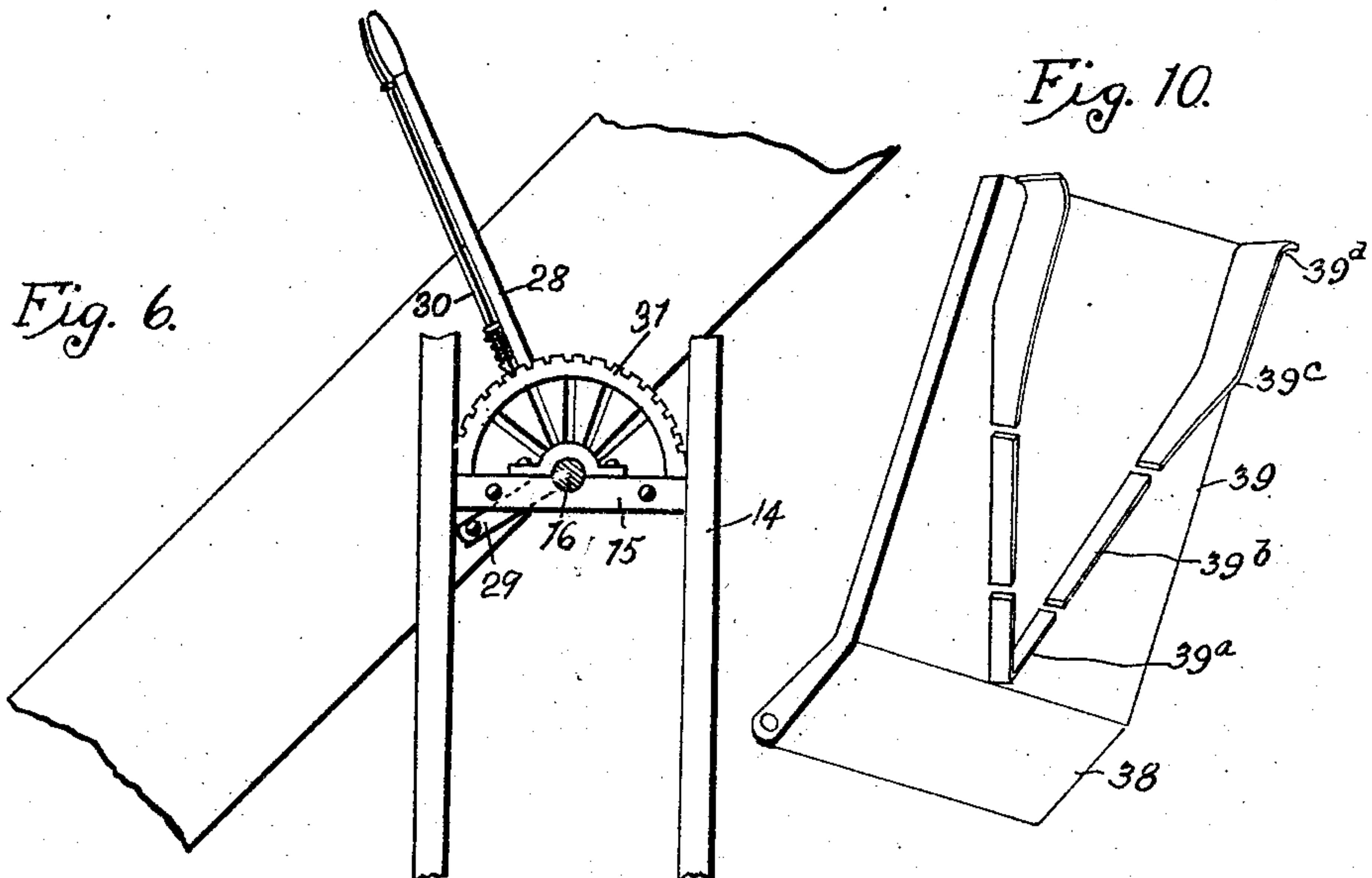
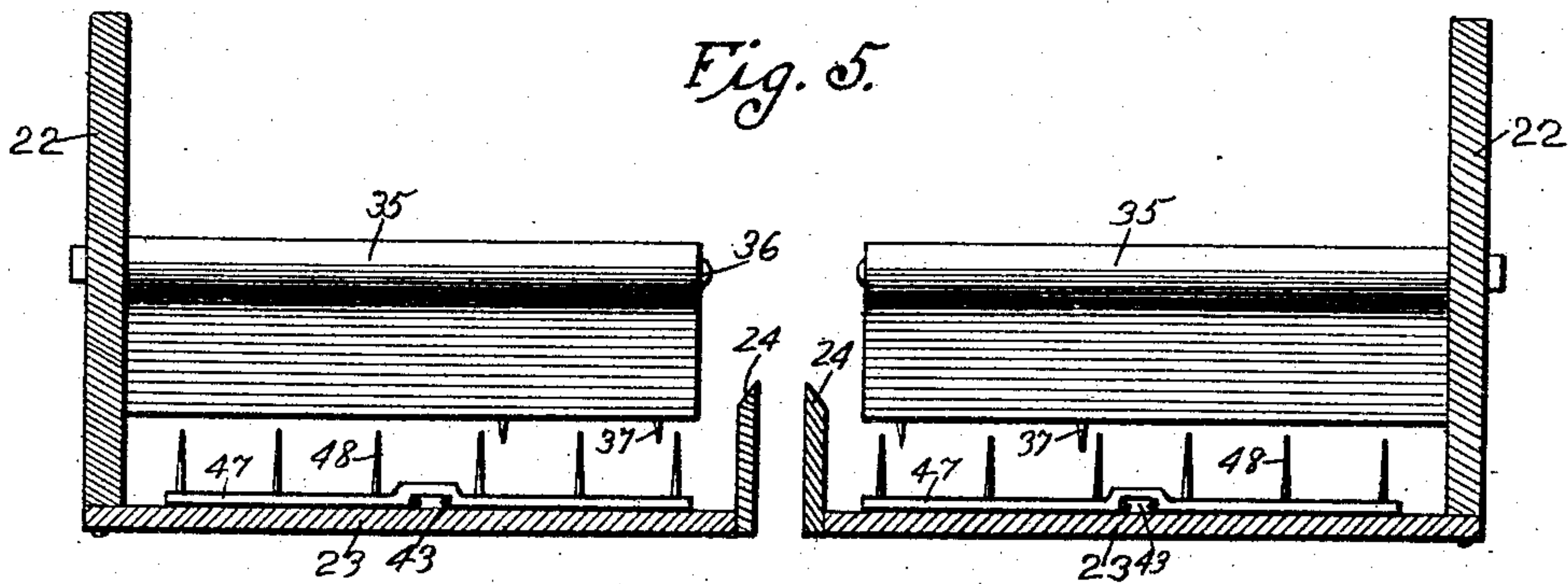
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NO MODEL.

4 SHEETS—SHEET 4.



Witnesses,
H. H. Keffer.
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UNITED STATES PATENT OFFICE.

ABRAHAM L. BRANDT, OF HOMESTEAD, IOWA.

CORN-HARVESTER.

SPECIFICATION forming part of Letters Patent No. 765,545, dated July 19, 1904.

Application filed June 3, 1903. Renewed May 17, 1904. Serial No. 208,470. (No model.)

To all whom it may concern:

Be it known that I, ABRAHAM L. BRANDT, a citizen of the United States, residing at Homestead, in the county of Iowa and State of Iowa, have invented certain new and useful Improvements in Corn-Harvesters, of which the following is a specification.

The objects of my invention are to provide a corn-harvester of simple, durable, and inexpensive construction to be advanced by draft-animals through a field of standing corn and to cut the ears from two rows of corn at the same time and carry the severed ears to an elevated point at the rear of the machine and discharge them into a laterally-extending chute, from which they may be dropped into a wagon advanced alongside of machine.

A further object is to provide simple, durable, and inexpensive means for engaging the ears of corn and for bending them to and holding them in position where they will be easily and, quickly, severed by the cutting device and, further, to provide means whereby the husks of the ears are cut transversely in such a manner that the husks may readily be removed from the ears.

My invention consists in certain details in the construction, arrangement, and combination of the various parts of the machine, as hereinafter more specifically set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows a vertical longitudinal sectional view on the indicated line 1 1 of Fig. 2, and the rods 20^a extend straight upwardly to the cross-piece 20^b on the tongue to support the swingletree 21. Fig. 2 shows a front elevation of the complete machine. Fig. 3 shows an enlarged detail view illustrating the devices for engaging the ears of corn and for holding them to position where the cutting-knife will sever them from the stalks and also showing a part of the mechanism for elevating the severed ears and for cutting the husks of the severed ears. Fig. 4 shows an enlarged detail plan view of the front end of one of the troughs to receive the ears of corn. Fig. 5 shows an enlarged transverse sectional view through one of the troughs and the knives for cutting the ears from the stalks. Fig. 6

shows an enlarged detail side view illustrating the means for tilting the troughs relative to the machine-frame. Fig. 7 shows a perspective view of one of the pivoted guide-plates. Fig. 8 shows the same device in an inverted position. Fig. 9 shows a front view of the draft-equalizer. Fig. 10 shows a perspective view of a modified form of one of the upper guide-plates provided with husking-blades.

Referring to the accompanying drawings, I have used the reference-numeral 10 to indicate the traction-wheel, having a broad flat tire thereon, said wheel being fixed to the axle 11. The numeral 12 indicates a supporting-frame mounted upon said axle, and a small supporting-wheel 13 is attached to the front of the frame 12 to hold the frame against tilting movements on said axle. Mounted upon the frame 12 is an upright frame 14, near the upper end of which is a cross-piece 15, in which a rocking shaft 16 is mounted, and this shaft extends completely across the machine, as will hereinafter appear. At the front of the frame 12 is an upright 17, and mounted on top of the upright 17 and the frame 14 is a tongue 18, rigidly secured to said parts. Mounted on top of the tongue 18 is an equalizer 19, and rods 20 extend from said equalizer downwardly and forwardly to the swingletrees 21, to which the draft-animals are attached. The tongue 18 is supported in position above the tops of the cornstalks. Hence the draft-equalizer carried by the tongue will not break off the cornstalks by coming in contact with them, and yet the swingletrees 20 will be supported in position between the rows of corn and at the proper height for use.

On each side of the machine-frame I have provided an independent device for removing the ears from the standing stalks of corn. The device on each side is exactly the same, so that but one will be hereinafter particularly described.

The reference-numeral 22 indicates the vertical side pieces of the trough, and 23 the bottom pieces thereof, which extend from the side pieces toward each other to a point near the longitudinal center, and at this point the knife-blades 24 are attached to the bottom

pieces 23 and are sharpened at their upper edges and extend from a point near the top of the bottom pieces downwardly to the lower end of the bottom pieces, and at this point the blades are inclined outwardly from each other to form stalk-gathering arms, (indicated by the numeral 25.) The edges of the gathering-arms are not sharpened. The sharpened edges of the said knives are parallel throughout their entire length and are separated only a slight distance, just far enough to permit the largest cornstalks to pass between them and yet not far enough to permit an ear of corn to pass downwardly between them. The trough thus formed is arranged at an angle of about forty-five degrees and is pivotally mounted upon the shaft 16 by means of the bracket 26. At the lower end of each side of the trough is a curved runner 27 to rest upon and slide along the ground-surface, thus supporting the machine against tilting movements from one side to the other.

I have provided means whereby the troughs may be jointly adjusted relative to the supporting-shaft 16, as follows: The numeral 28 indicates a lever rotatably mounted upon the shaft 16 and having an arm 29 pivoted to one of the side pieces of one of the troughs. Mounted on the lever 28 is a spring-actuated pawl 30 to engage a sector 31, fixed to the cross-piece 15 of the frame 14, so that by a movement of the lever 28 the trough may be tilted and the runners thereon elevated from the ground-surface. These troughs are connected with each other to tilt in unison by means of the cross-bar 32 and also by a shaft projected through the upper ends of both troughs, as will hereinafter appear, so that the troughs will move in unison. I also provide for connecting the two parts of each trough by means of the arches 33, fixed at their lower ends to the sides of the trough and extended upwardly high enough to clear the tops of cornstalks standing in the field. The adjacent ends of the two arches are connected by the bars 34, thus rigidly securing the lower ends of the two troughs together. It is obvious that the machine-frame may be advanced over a field by two draft-animals advancing side by side, and the traction-wheel 10 will run between two rows of corn, and the cornstalks will pass through between the two sets of knife-blades and will remain standing in the field, while the ears will be severed from the stalks by said blades and discharged into the troughs. The forward ends of the troughs may be tilted upwardly by means of the lever 28 to run as closely as may be desired to the ground-surface.

I have provided means for engaging the ears of the stalks of corn and for moving them to and holding them in a substantially horizontal position, so that the knife-blades will sever them from the stalks and so that the stalks themselves will not be pulled up

by the roots, as follows: On each of the side pieces 22 I have mounted a series of flat plates 35, each plate pivoted by pin 36 to the adjacent side piece 22 and each plate being of width to extend to a point near the adjacent knife 24. These plates normally stand in a substantially horizontal position, their rear ends resting on the conveyer, and formed on their rear ends are a number of small blades 37. These blades normally stand parallel with the bottom of the trough, as clearly shown in Fig. 1. Near the top of the trough I have placed a plate 38, similar to the other plates, except that its rear end is inclined upwardly at 39 parallel with the bottom of the trough for a considerable distance and the plate is not provided with blades. The rear ends of all of the plates normally stand at such a distance from the bottoms of the troughs that an ear of corn may roll under them, and the rear ends of the plates are yieldingly held toward the bottoms of the troughs by gravity.

In Fig. 10 I have shown a modified form of the upper guide-plates 38, having the extensions 39, provided with strippers designed to remove the husks from the ears. All of the lower guide-plates of the machine, as before explained, are provided with blades 37, which form circumferential cuts in the husks passed under them, and the stripping devices on the upper plates are only designed to remove the husks. Said strippers comprise a V-shaped blade 39^a on the forward end of the part 39. In line with the ends of the blade 39^a are the blades 39^b, spaced apart from the ends to permit the teeth of the conveyers to pass between them and in line with the blades 39^b are the blades 39^c, with their rear ends inclined outwardly at 39^d. By means of these blades the husks that are cut circumferentially will be engaged by the blades and the husks severed from the ears and forced outwardly over the ends of the ears. At the lower end of each trough-section is a sprocket-wheel 40, loosely mounted, and the reference-numeral 41 indicates a shaft extended transversely of the top of the machine and extending across the entire width of the machine. Mounted upon this shaft 41 are the sprocket-wheels 42 in line with the sprocket-wheels 40 and about the longitudinal center of each section of the troughs, and sprocket-chains 43 are passed over each pair of the sprocket-wheels 40 and 42, said sprocket-chains traveling upwardly on top of the bottom of the trough and returning below the bottom of the trough, as clearly shown in Fig. 1. The shaft 41 is driven during the advance of the machine by means of a sprocket-wheel 45 on the axle 11, said wheels being connected by a crossed sprocket-chain 46. Mounted upon each of the sprocket-chains 43 is a series of cross-bars 47, provided with upwardly-projecting teeth 48.

From the foregoing description it is obvious

that as the machine is advanced over a field the ears of corn projecting laterally from the stalks will be first engaged by the forward ends of the plates 35 and will be inclined to a horizontal position and held against the cutting edge of the adjacent knife and severed from the stalk, the said plates holding the ears downwardly and preventing the knives from pulling the stalks from the ground and also enabling the knife to cut off an ear easily. The severed ear will then fall to the bottom of one of the trough-sections, and one of the toothed cross-pieces of the chain will engage the ear and move it to a position arranged transversely of the trough and will carry it upwardly toward the discharge end of the trough. Then as the ear passes under each successive plate 35 the blades of said plate will cut the husk of the ear, and hence by the time the ear reaches the discharge end of the trough the husks will be easily separated from the ears. At the discharge end of the troughs is a laterally-extending conveyer-chute 49, mounted on the tongue 18 and arranged to receive the discharge from both of the troughs and convey it laterally into a wagon advanced alongside of the machine for receiving the ears.

In practical use and assuming that the machine is being advanced through a field of corn, two rows of corn passing through the central portion of the chutes, any stalks that are lying upon the ground will be engaged and picked up by the arms 25 and directed by them between the knives. As the machine advances any ears projecting laterally from the stalks will be engaged by some one of the plates and by them held to a horizontal position, and when so held the ears will be severed from the stalks. If the ears are directly in line with the rows of corn, they will be severed or pulled from the stalks, because the space between the knives is too small to permit an ear to pass through between the knives. As soon as the ears are severed they will drop into one or the other side of the trough and be carried upwardly to the discharge end of the trough. While being thus carried the husks thereof will be cut in a number of different places, so that the husks may be easily removed.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States therefor, is—

1. In a machine of the class described, the combination of a machine-frame mounted on wheels, a blade carried by the machine-frame having its cutting edge at the top and inclined upwardly and rearwardly, pivoted plates supported at one side of the knife and arranged substantially horizontal, and a trough beneath the pivoted plates.

2. In a machine of the class described, the combination of a machine-frame mounted on

wheels, a knife having its cutting edge on top and inclined upwardly and rearwardly, a trough at the side of the knife, and a series of flat plates pivoted above the trough and extending rearwardly and over the trough for the purposes stated.

3. In a machine of the class described, the combination of a machine-frame mounted on wheels, a knife-blade carried by the frame and inclined upwardly and rearwardly, a trough at one side of the knife, a number of flat plates pivotally supported above the troughs and extending rearwardly, and a plate near the top of the trough, pivotally supported, projecting first rearwardly and then upwardly and rearwardly, parallel with the trough.

4. In a machine of the class described, the combination of a machine-frame mounted on wheels, a knife having the cutting edge on top and inclined upwardly and rearwardly, a trough at the side of the knife, a series of flat plates pivoted above the trough and extending rearwardly and over the trough, and a number of blades on each plate adjacent to the trough for the purposes stated.

5. In a machine of the class described, the combination of a frame mounted on wheels, two troughs carried by the machine-frame extending upwardly and rearwardly, runners on the lower ends of the troughs, means carried by the machine-frame for jointly tilting the troughs, two knives in the longitudinal center of each trough spaced apart far enough to permit cornstalks to pass between them, two sets of pivoted plates in each trough adjacent to the knife-blades and held toward the troughs by gravity, and a conveyer in each side of each trough running under the said pivoted plates substantially as and for the purposes stated.

6. In a machine of the class described, the combination of a frame mounted on supporting-wheels, a tongue at the top of the frame, two parallel troughs at the sides of the frame, runners at the lower ends of the troughs, means for jointly tilting the troughs relative to the frame, a pair of knives in the longitudinal center of each trough having their edges sharpened and their lower ends shaped to form gathering-arms, an arch connecting the lower end portions of each trough, a cross-bar connecting the upper end portions of both troughs, a shaft extended across both troughs at the top, a sprocket-chain in each side of each trough, all driven from the said shaft, cross-pieces on said sprocket-chains and teeth on said cross-pieces, means for driving said shaft during the advance of the machine, a series of pivoted plates on each side of each trough, arranged substantially horizontal, their rear ends held by gravity toward the bottom of the trough, a number of blades on the rear end of each plate and a chute at the rear end of

the machine to receive the discharge from said troughs, substantially as and for the purposes stated.

7. In a machine of the class described, the
5 combination of a machine-frame mounted on wheels, a trough inclined upwardly and rearwardly, two knives in the longitudinal center of the trough sharpened at their upper edges and spaced apart far enough to permit a stalk
10 of corn to pass between them and to prevent the passage of an ear of corn between them,

two independent conveyers in the opposite sides of said trough to carry the contents of the trough upwardly to discharge at the upper end thereof, a number of pivoted plates 15 above each conveyer extending rearwardly with their rear ends resting on the conveyers.

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Witnesses:

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W. R. LANE.