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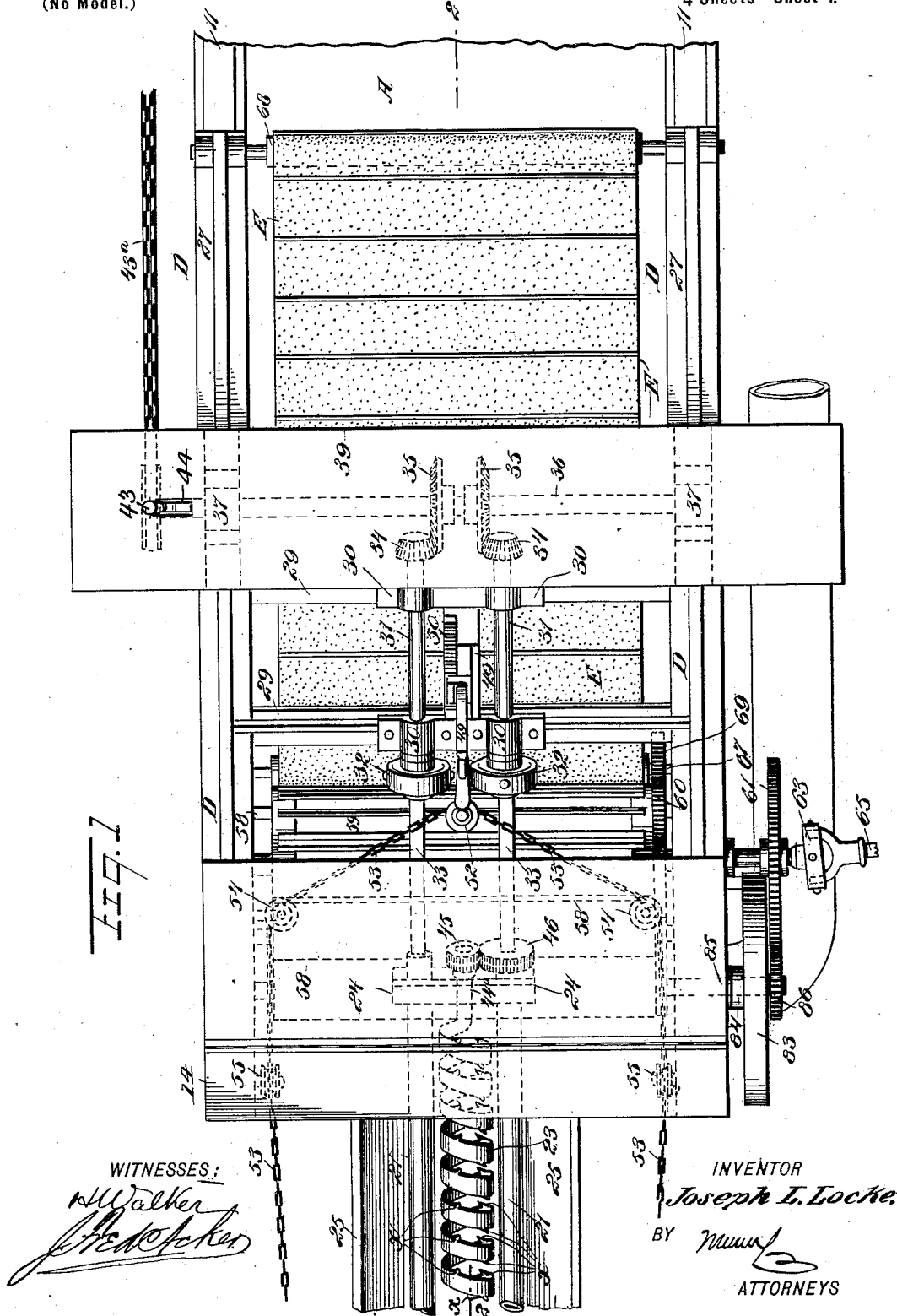
Patented Mar. 25, 1902.

J. L. LOCKE.
CORN HARVESTER.

(Application filed Jan. 17, 1901.)

(No Model.)

4 Sheets—Sheet 1.



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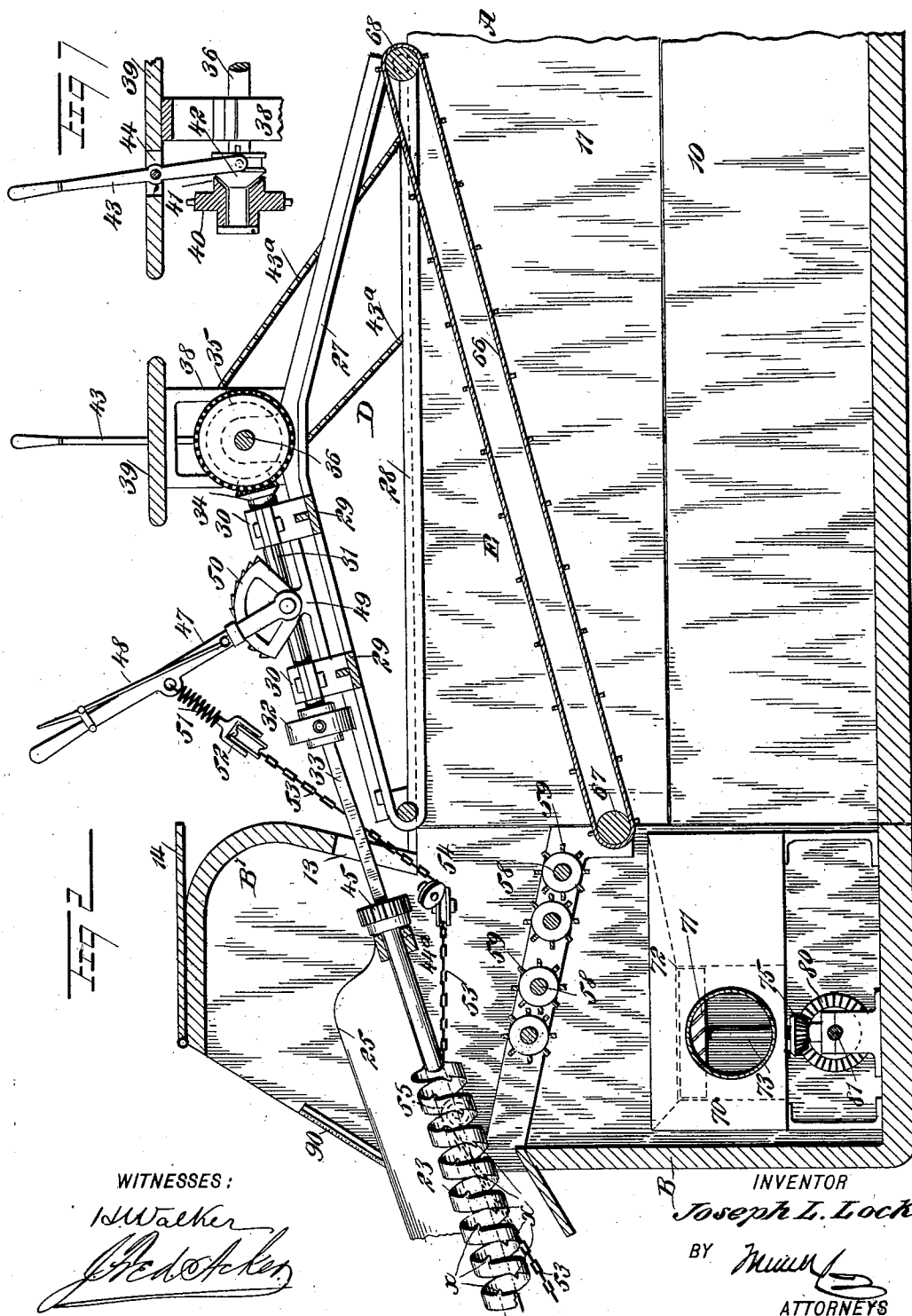
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Fig. 3

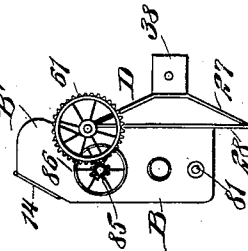
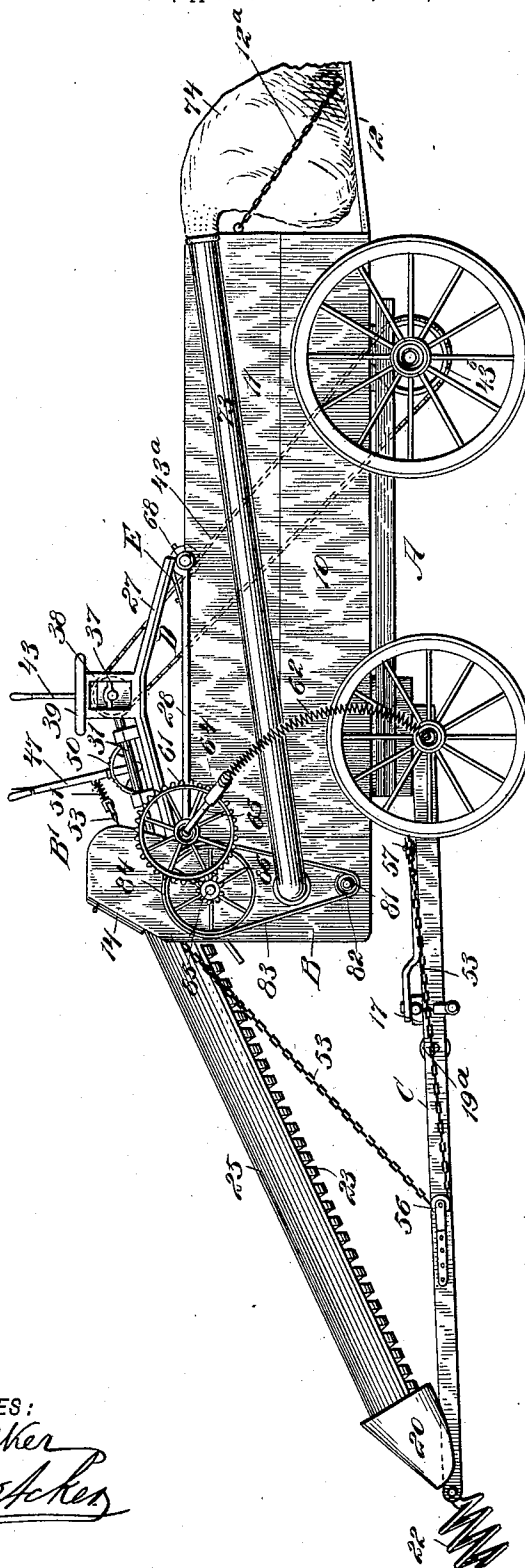


Fig. 4

WITNESSES:
H. Walker
Stetson

INVENTOR
Joseph L. Locke.
BY *Munn*
ATTORNEYS

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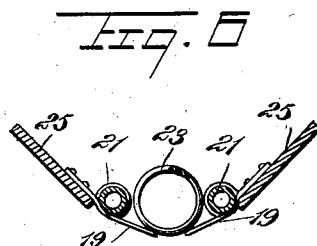
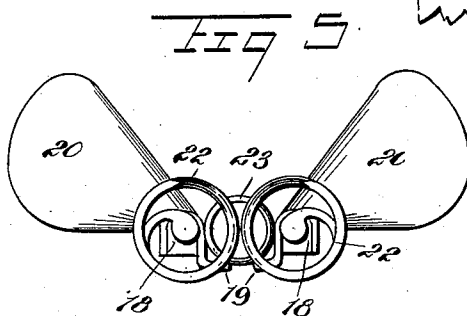
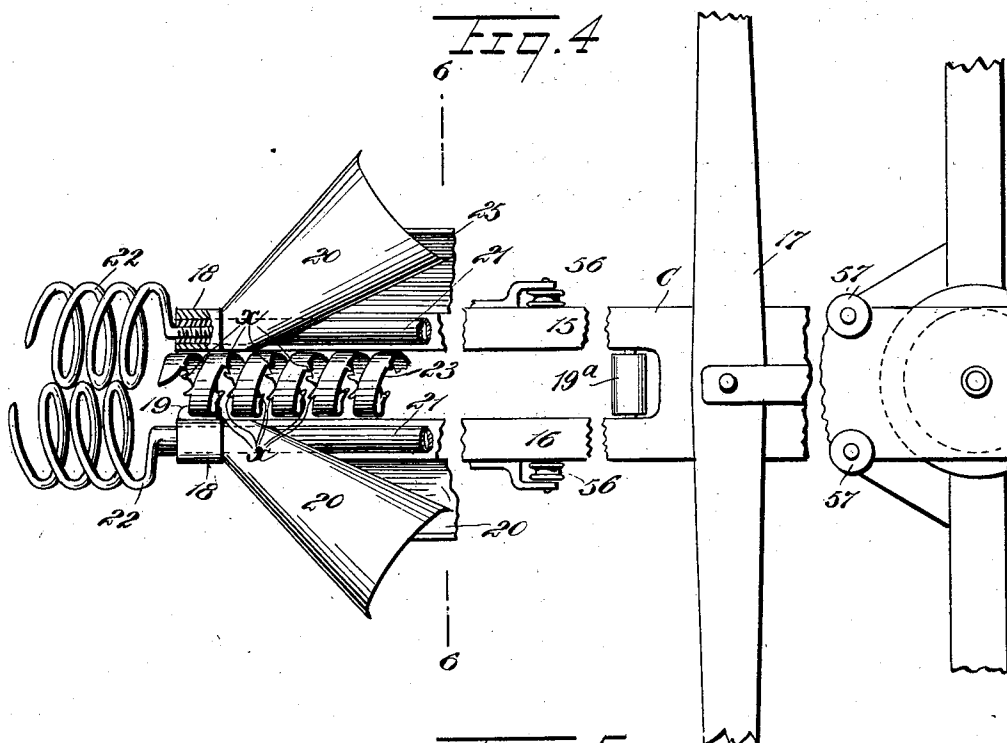
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4 Sheets—Sheet 4.



WITNESSES:
H. W. Walker
J. H. Stoken

INVENTOR
Joseph L. Locke.
BY *Mum*
ATTORNEYS

UNITED STATES PATENT OFFICE.

JOSEPH LAFAYETTE LOCKE, OF BEATRICE, NEBRASKA.

CORN-HARVESTER.

SPECIFICATION forming part of Letters Patent No. 696,347, dated March 25, 1902.

Application filed January 17, 1901. Serial No. 43,601. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH LAFAYETTE LOCKE, a citizen of the United States, and a resident of Beatrice, in the county of Gage and State of Nebraska, have invented a new and Improved Corn-Harvester, of which the following is a full, clear, and exact description.

My invention relates to corn-harvesters of that class which gather the ears from standing stalks; and the purpose of the invention is to provide a corn-harvesting attachment which may be applied to any farm-wagon and which will not interfere with the carrying capacity of the wagon.

Another purpose of the invention is to include a husking device in the construction of the harvester and also a conveyer for the husked ears and means for directing the husks to a given point or to a receptacle.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the 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.

Figure 1 is a plan view of that portion of the device which is applied to the body of a wagon, illustrating also a portion of said body and the lid of the device open. Fig. 2 is a vertical longitudinal section taken practically on the line 2 2 of Fig. 1, the lid of the device being open. Fig. 3 is a side elevation of a wagon and the device applied thereto. Fig. 4 is a sectional plan view of the forward portion of the device and a portion of the pole or tongue which supports said portion of the device. Fig. 5 is a front view of the forward portion of the device. Fig. 6 is a transverse section taken practically on the line 6 6 of Fig. 4. Fig. 7 is a detail sectional view illustrating the device employed for carrying the main driving-shaft into or out of action, and Fig. 8 is a side elevation of the front portion and upper frame of the attachment drawn on a small scale and showing the parts removed from a wagon-body and folded one against the other.

A represents an ordinary farm-wagon provided with the usual side-boards 10, upper

auxiliary side-boards 11, and shoveling-board or end-gate 12, which latter is supported by chains 12^a or their equivalents. The body portion B of the attachment is in the form of a box-casing and is adapted for attachment to the forward end of the wagon A when the front boards have been removed, and the said body B of the attachment extends above the upper edge of the upper or auxiliary side-boards 11 of the wagon. The upper portion of said body B of the attachment is in the nature of a hood, designated as B'. This hood is provided with a longitudinal slot 13 in its rear wall, and the front of the hood is partially closed by a hinged door 14, which door may serve to prevent the ears of corn delivered into the hood by mechanism to be hereinafter described from accidentally escaping therefrom and also serves to protect said mechanism from rain and snow.

The pole or tongue C of the vehicle is provided with two parallel members 15 and 16 of a spring character, which members constitute that portion of the tongue in front of the doubletrees 17, as is especially shown in Fig. 4, and at the forward end of each member 15 and 16 of the said tongue or pole C bearings 18 are located, as shown in Figs. 4 and 5, and inwardly-extending brackets 19 project from the bearings.

Transversely-curved guards 20 are secured to the bearings 18 or to the forward portion of the members 15 and 16 of the tongue or pole. These guards 20 are preferably tapered longitudinally, being of least width at their forward ends, and the guards extend laterally in opposite directions and are given an upward and rearward inclination. The draft animals are placed immediately behind these guards. The members of the tongue or pole are of a spring character, so that in the absence of any distending or separating device their outer ends will closely approach each other and the outer ends of the tongue or pole are permitted to lie as close together as the brackets 19 will allow when the machine is taken to and from the place of operation. At the fork of the tongue a roller 19^a is located, which by bearing upon the stalks serves to draw them from the conveyer and stripper, to be hereinafter described.

A shaft 21 is journaled at its forward end

in each of the bearings 18, and at the forward end of each shaft a metal lifting and conducting coil 22 is removably secured. When these coils are in position, they spread apart the outer ends of the pole or tongue, and they are removed when the machine is not in use. These coils 22 turn in direction of each other when the shafts 21 are revolved. The purpose of these coils is to receive the standing stalks and pick up those stalks which lie close to or upon the ground. The lifting and conducting coils are made of rods of suitable diameter bent to spiral shape.

The stalks received by the conducting-coils are conducted to a combined screw conveyer and stripper 23, located partly in and above the space between the members 15 and 16 of the pole or tongue, and the lower end of the stripper and conveyer rests upon the brackets 19, as shown in Figs. 4, 5, and 6. This combined stripper and conveyer receives the stalks from the conducting-coils and snaps or strips the ears of corn from the stalks and conducts the ears to a husking device in the box-body B of the attachment.

A block 24 is located within the upper portion of the box-body B, as is shown in dotted lines in Fig. 1, and the shafts 21 are mounted to turn in this block 24, as is particularly shown in Fig. 1. Side-boards 25 are located over the tubular shafts 21, one at each side of the conveyer and stripper 23, and the lower ends of these side-boards are usually attached to the members or sections 15 and 16 of the pole or tongue C at points below the shields or guards 20.

A frame D constitutes a portion of the attachment. This frame comprises two arched bars, the lower straight members 28 of which are attached to the upper edge of the wagon-body, as is particularly shown in Figs. 1 and 2, while the upper members 27 of these arched bars are connected at their forward portions by transverse bridge-bars 29, it being understood that the side bars of the frame are of skeleton construction.

Bearings 30 are located on the bridge-bars 29, a bearing being at each side of the center of each bridge-bar, as is best shown in Fig. 1, and these bearings support the end portions of short shafts 31. These shafts 31 are connected with tumbling-shafts 33 by universal couplings 32, as is shown in Figs. 1 and 2, and the tumbling-shafts 33, which are polygonal in cross-section, enter and have end movement in the upper ends of the stripper-shafts 21, the interior portion of the upper ends of the stripper-shafts conforming to the transverse contour of the tumbling-shafts 33. Under this construction it will be observed that the pole or tongue may be raised or lowered, so as to bring the coils 22 as close to or carry them as far from the ground as may be found necessary, since sometimes the coils should travel quite close to the ground to reach stalks which lie on the ground. The combined conveyer and stripper is usually

made of light steel with flat sides. The steel is formed in a coil, and in some of the coils teeth are cut at their forward edges, as shown in Figs. 1, 2, and 4, which teeth serve to release the ears of corn when engaging with the stripper. The space between the coils is not sufficient to permit an ear of corn to pass through.

Motion is communicated to the shafts 21 by securing bevel-pinions 34, for example, to the rear ends of the rear shafts 31, and these pinions 34 mesh with bevel-gears 35, secured upon the main drive-shaft 36. This drive-shaft extends transversely of the central portion of the frame D, and the ends of the shaft are journaled in suitable bearings 37, (shown best in Fig. 1,) which bearings may be made adjustable in extension-frames 38, (shown in Figs. 2 and 3,) and these extension-frames 38 are utilized to support the driver's seat 39.

The drive-shaft 36 is provided at one end with a loosely-mounted sprocket-wheel 40, (shown in Fig. 7,) and at the inner end of the hub of this sprocket-wheel a conical cavity or recess 41 is formed adapted to receive the conical face of a clutch 42, mounted to turn with the said drive-shaft and to slide thereon, the clutch being operated through the medium of a lever 43, which is carried through an opening 44 in the driver's seat and is within convenient reach. A belt 43^a is carried over the sprocket-wheel 40 and over another sprocket-wheel 43^b, attached to the hub or to the spokes of one of the rear wheels of the vehicle.

The conveyer and stripper 23 is adapted to be driven at a high rate of speed, and at the inner end of this conveyer, which end is within the box-casing B, a straight section 44^a is formed, journaled in the block 24, as shown in Figs. 1 and 2, and on this straight section of the conveyer a pinion 45 is secured, which meshes with a gear 46, carried by one of the tumbling shafts 33, as illustrated in Fig. 1.

The forward portion of the device or attachment, and consequently the pole or tongue, is raised and lowered by manipulating a lever 47, which is placed in front of the driver's seat, being pivoted on a bar 49, extending from one bridge-bar 29 of the frame D to the other. This lever is provided with the usual thumb-latch 48, adapted for engagement with a rack 50, as shown in Fig. 1. A spring 51 is attached to this lever and is carried in direction of the front of the attachment. A pulley 52 is secured to the forward end of the spring 51. An endless chain 53 is passed around the pulley 52 and thence into the side portions of the upper section B' of the box-body to an engagement with pulleys 54 and 55, located at the sides of such extension, and from the outer pulleys 55 the endless chain is carried down and forward over pulleys 56, secured to the outer faces of the members of the pole or tongue C. Said chain is then carried from the pulleys 56

rearward and over pulleys 57, which are located at the rear portion of the pole or tongue at a point beneath the box-body B of the attachment. Thus it will be observed by manipulating the lever 47 the forward portion of the attachment may be conveniently raised or lowered and held in adjusted position. The spring 51 serves to prevent any jarring motion of the forward portion of the machine being communicated to the lever 47.

A series of husking-rollers 58 is located below the inner or delivery end of the conveyer 23, as is particularly shown in Fig. 2. These rollers are arranged in a longitudinal series, the forward roller being a greater distance from the bottom of the body of the attachment than the inner or rear roller. These rollers may be of any suitable construction. As shown they are provided with longitudinal ribs 59, and the rollers are arranged in pairs. The rollers are connected at one of their ends by a series of gears 60, one of which gears is attached to the journal of each roller, and the gears are arranged to mesh one with another. A journal of one of the husking-rollers is usually carried out through and beyond a side of the box-body B of the attachment, and on this journal thus projected a gear 61 is secured. This extended journal is connected by a universal coupling 63 with a flexible shaft 62, which shaft 62 has likewise a universal coupling with the hub of one of the forward wheels or with any suitable portion of the wheel. Thus the husking-rollers and fan 71 are driven from a forward wheel of the vehicle. In order that the flexible shaft 62 may operate under all conditions, the said shaft at its upper end is provided with a socket 64, which receives a polygonal shank 65, forming a portion of the upper universal coupling 63.

An elevator E receives the stripped ears of corn from the husking-rollers, and this elevator extends from a point below the inner husking-roller to the upper portion of the wagon-body at the front or to the rear portion of the frame D of the attachment. This elevator consists of a suitably-slatted endless belt 66, which passes over a roller 67, located below and at the rear of the line of husking-rollers, and said belt likewise passes over a second roller 68, journaled in suitable bearings carried by the frame D. A journal of the roller 67 of the elevator extends out beyond a side of the box-body B of the attachment and is provided with a gear 69, as shown in Fig. 1, which gear meshes with one of the gears belonging to the husking-rollers. This elevator is driven from the same source of power as the husking-rollers and fan 71.

As the husking-rollers strip the husks from the ears of corn the husks drop into the bottom portion of the box-body B and, in fact, are drawn downward from suction, which is brought about by placing a fan 71 in a suitable box or receptacle 70 in the bottom portion of the box-body B, as shown in Fig. 2, in

which the receptacle appears in end elevation. This receptacle is provided with an open top 72, whereby the husks may enter the said receptacle, and the fan 71, which may be of any approved type, is mounted to revolve within it. This fan not only draws the husks into the receptacle 70, but also forces the husks out from the receptacle into a pipe 73, which is carried to the rear of the box-body and is connected with a bag 74, which bag is supported by the shoveling-board 12. Thus it will be observed that the husks, although delivered from the attachment and from the vehicle-body, may be gathered and used for any desired purpose.

The fan-shaft is shown as provided with a bevel-pinion 75, meshing with a gear 80 on a shaft 81, which extends out through the box-body B, and this shaft is driven by passing a belt 83 over a pulley 82 on the shaft and over a larger pulley 84, mounted on a stub-axle 85, the said pulley 84 being provided with an attached pinion 86, which meshes with the gear 61.

It is obvious that this attachment may be applied to any ordinary farm-wagon by removing the ordinary pole and substituting the split or bifurcated pole heretofore described and by attaching the frame D to the body of the wagon and making suitable driving connections between the running-gear of the wagon and necessary parts of the attachment.

As shown in Fig. 8, the frame connected with the box attachment may be folded close thereto when not in use. Canvas shields may be placed in the upper section of the body at each side of the side boards to insure the ears dropping upon the husking-rollers.

Many cattle-feeders prefer what is known as "snapped" corn instead of husked corn. When snapped corn is to be the product, the flexible shaft 62 is removed from its position, (shown in Fig. 3,) thus stopping the husking-rolls 58 and the fan 71, and the corn snapped at the spiral elevator will drop unhusked into the wagon-box upon the belt 66. When the corn is simply snapped, the belt 66 is driven by connecting the flexible shaft 62 with the main shaft 36 and the roller-shaft 68, the main shaft turning forward and the roller-shaft backward.

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

1. In a corn-harvester, a support having forwardly-projecting yielding members, revoluble shafts having their front ends mounted in the front ends of the members of the support, and spiral lifting and conducting coils, mounted in the front ends of the shafts, said coils engaging each other and serving to spread apart the members of the support, as set forth.

2. In a corn-harvester, a support having forwardly-projecting members of spring material, revoluble shafts having their front ends mounted in the front ends of the mem-

bers of the support, and spiral lifting and conducting coils detachably secured to the forward ends of the shafts, said coils engaging each other and serving to spread apart the members of the support, as set forth.

3. In a corn-harvester, a support having forwardly-projecting members, each member being provided with an inwardly-projecting bracket, shafts having their forward ends mounted in the front ends of the members of the support, spiral lifting and conducting coils secured to the front ends of the shafts, and an inclined spiral stripper and conveyer having its front end resting upon the brackets of the members of the support, as set forth.

4. In a corn-harvester, a bifurcated tongue, spiral lifting and conducting coils mounted to revolve in the front ends of the members of the tongue, a spiral conveyer and stripper arranged to receive the material from the said coils, curved guards secured to the forward ends of the members of the tongue, said guards extending rearwardly and upwardly, and means for operating the said coils and the conveyer and stripper, as set forth.

5. In a corn-harvester, spiral lifting and conducting coils mounted to rotate opposite each other at the forward end of the machine, a driving mechanism which revolves the coils in direction of each other, a spiral conveyer, and stripper, the receiving end of which closely approaches the coils, an adjustable support for the coils and conveyer and stripper, means for imparting rotary motion to the conveyer, and curved guards extending rearwardly and upwardly from the front end of the conveyer and stripper.

6. In corn-harvesters, a bifurcated tongue or pole, removable revoluble spiral coils mounted to revolve at the forward ends of the members of the tongue or pole, and a spiral conveyer and stripper mounted to turn in the space between the members of the tongue or pole, for the purpose set forth.

7. In corn-harvesters, the combination, with a split tongue or pole, shafts extending over the members of the split tongue or pole, having bearing at the outer ends of said members, spiral lifting and conducting coils secured to said shafts, the coils being opposite each other and in near relation to each other, guards extending from the outer end portions of the members of the tongue or pole, which guards are carried outward in opposite directions and are longitudinally tapered and transversely curved, a spiral conveyer and stripper held to turn between the members of the tongue or pole, the forward end of which spiral conveyer and stripper closely approaches the coils, side guards for the said conveyer and stripper, a support for the upper ends of the shafts of the coils and for the upper end of the spiral conveyer and stripper, a driving connection between one of the coil-shafts and the conveyer and stripper, and means, substantially as described, for driving the coil-bearing shafts, as specified.

8. In a corn-harvester, the combination, with a pole or tongue having its forward portion bifurcated, and a box-casing independent of the pole or tongue, the pole or tongue being adapted for attachment to the running-gear of a wagon and the box-casing being adapted for attachment to the body of the wagon, of lifting and conducting coils located at the forward ends of the members of the said tongue or pole, shafts attached to the said coils, which shafts extend in an upward and rearward direction into the box-casing, a spiral conveyer and stripper located between the shafts attached to the coils, the forward end of which conveyer and stripper is adjacent to the rear portions of the coils, a driving connection between the shafts carrying the coils and the conveyer and stripper, means for driving the shafts carrying the coils from a supporting-wheel of the vehicle to which attachment is made, a lever, a support for the lever connected with the box-body, a pulley connected with said lever, an endless chain passed over said pulley, pulleys in the upper side portions of the box-casing, over which the endless chain likewise passes, and pulleys located at the side portions of the tongue or pole intermediate of its ends and at its rear, over which latter pulleys the said endless chain likewise passes, for the purpose set forth.

9. A corn-harvesting attachment to wagons, consisting of a bifurcated tongue or pole, conducting-coils mounted to revolve at the forward ends of the members of the tongue or pole, a spiral conveyer and stripper mounted to turn above the space and partially within the space between the members of the tongue or pole, the forward end of the spiral conveyer and stripper approaching the coils, shafts connected with said coils, a box-casing into which the shafts of the coils and the rear end of the conveyer and stripper extend, a drive-shaft adapted to be driven from a wheel of the wagon, a driving connection between the drive-shaft and the coil-shafts, a driving connection between a coil-shaft and the conveyer and stripper, and a frame supporting the drive-shaft and bearings for the coil-shafts, which frame is adapted to be secured to the side-boards of the vehicle, as described.

10. A corn-husking attachment to vehicles, comprising a tongue or pole, shafts supported at their forward ends on the tongue or pole, spiral conductors secured to the forward ends of said shafts, a spiral conveyer and stripper located between the conductor-shafts, a box-casing into which the upper ends of the conductor-shafts and the conveyer and stripper extend, a frame connected with the box-casing and adapted for attachment to the wagon-body, a drive-shaft carried by said frame, a husking device located within the box-casing, an elevator having one end beneath the husking device and the other end at the rear portion of said frame,

a receptacle adapted to receive the husks, a suction-fan located within said receptacle, and a delivery-pipe for the husks, connected with the receptacle and extending outside of the box-body, for the purpose set forth.

11. In a corn-harvester, a bifurcated tongue, means for raising and lowering said tongue, spiral conductors located at the forward ends of the members of said tongue, a spiral conveyer and stripper located above and partially within the space between the members of the tongue, the forward end of the conveyer and stripper approaching the conductors, a box-casing adapted for attachment to a wagon-body, a frame connected with the box-casing which secures the box-casing to the wagon-body, a drive-shaft carried by the frame, and a driving and universal connection between the drive-shaft and the conductor-shafts, the rear ends of the conductor-shafts and the rear end of the conveyer and stripper being mounted in a block loosely placed in said box-casing, and a driving connection between the conductor-shafts and the conveyer and stripper, as specified.

12. In a corn-harvester, a bifurcated tongue, and a revoluble spiral lifting and conducting coil projecting from the end of each member of the tongue, as set forth.

13. In a corn-harvester, a bifurcated tongue, a revoluble spiral lifting and conducting coil projecting from the front end of each member of the tongue, and a stripper and conveyer having its front end extending in close proximity to the said coils, as set forth.

14. In a corn-harvester, a bifurcated tongue the members of which are of spring material, shafts mounted in bearings at the front ends of the members of the tongue, and a spiral lifting and conducting coil secured to the front end of each shaft, substantially as described.

15. In a corn-harvester, a bifurcated tongue, the members of which are of spring material, shafts mounted in bearings at the front ends of the members of the tongue, a spiral lifting and conducting coil secured to front end of each shaft, and a conveyer and stripper having its front end extending into close proximity to the said coils, substantially as described.

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

JOSEPH LAFAYETTE LOCKE.

Witnesses:

CHAS. E. BUSH,
J. N. RICHARDS.