W. H. TILSON.

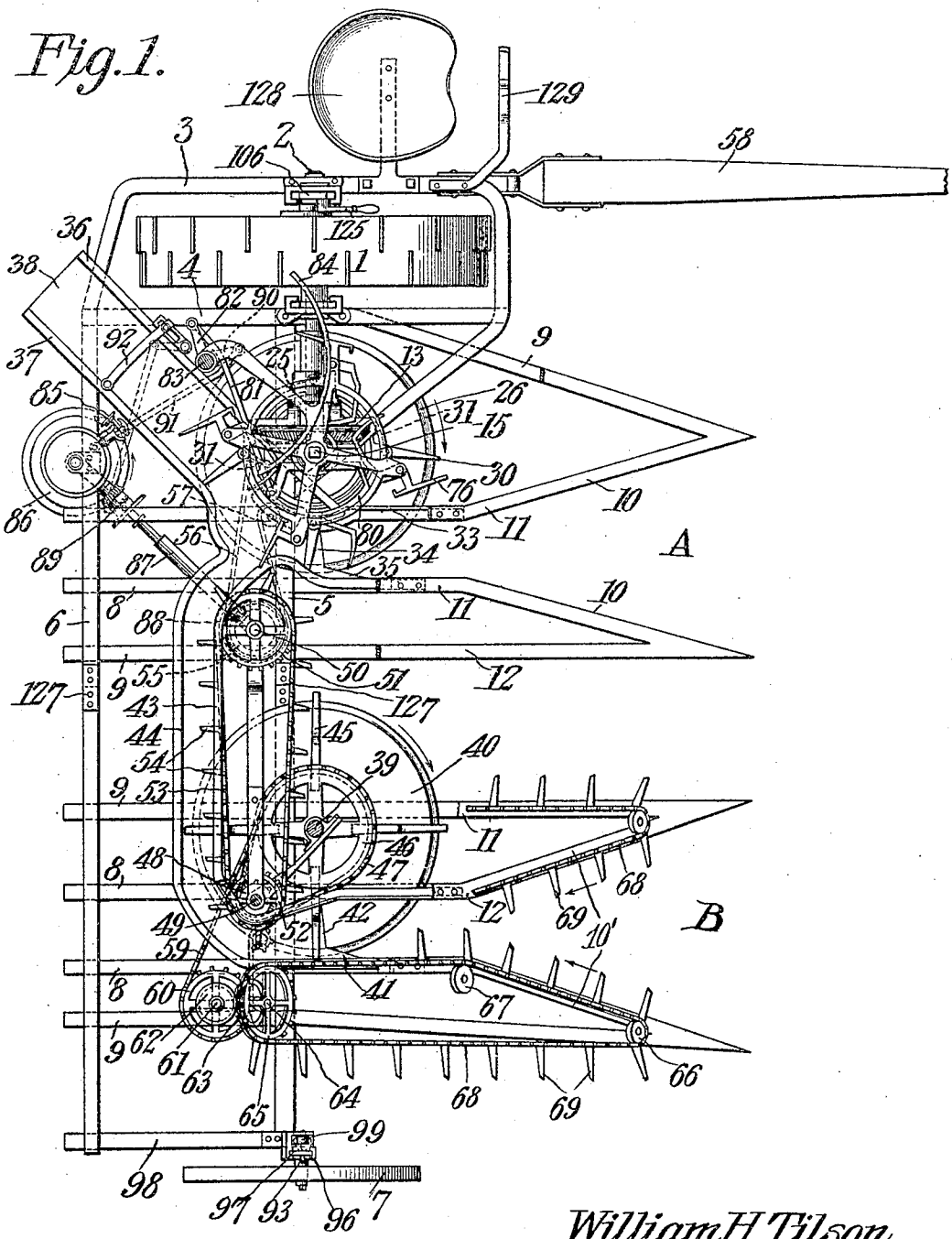
CORN HARVESTING MACHINE.

APPLICATION FILED MAR. 23, 1907.

927,613. Patented July 13, 1909.

4 SHEETS—SHEET 1.

Fig. 1.



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4 SHEETS—SHEET 2.

Fig. 2.

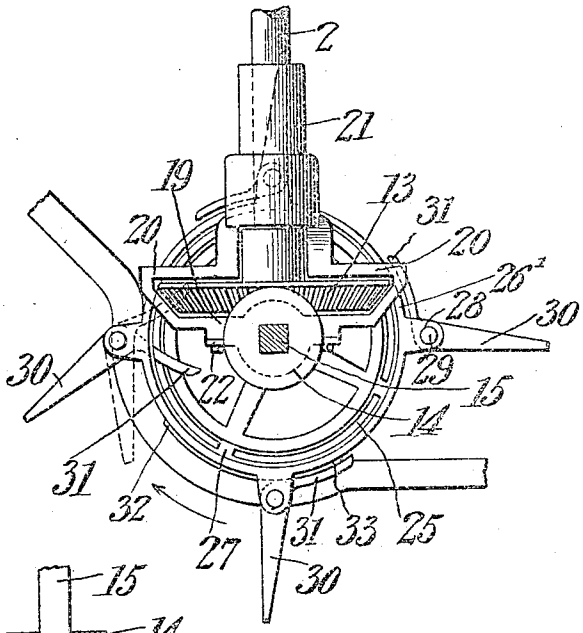


Fig. 4.

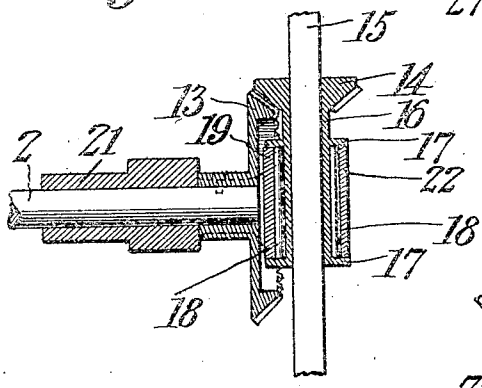
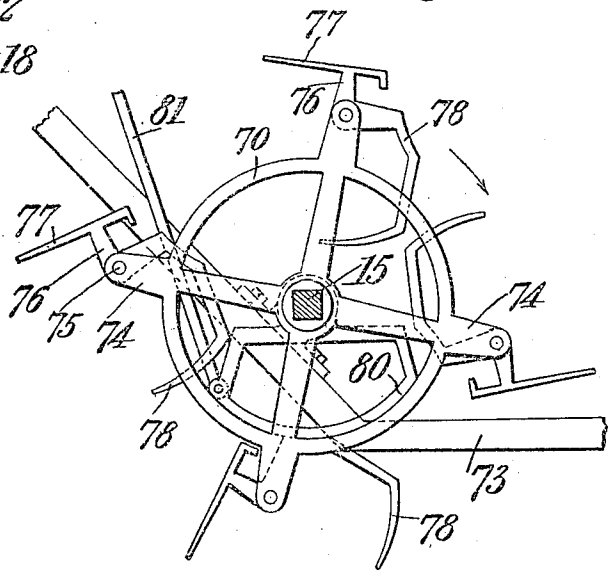


Fig. 3.



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4 SHEETS—SHEET 3.

Fig.6.

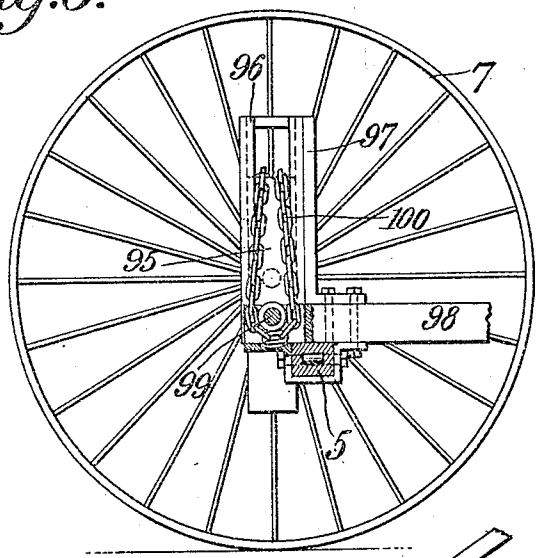


Fig.7.

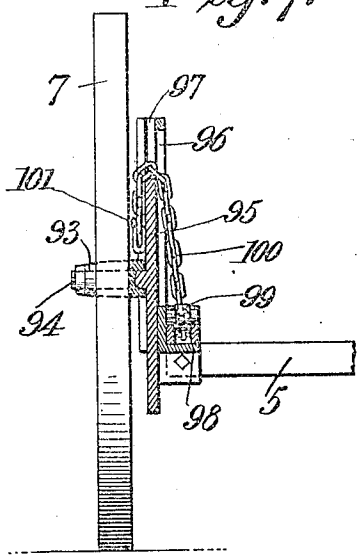
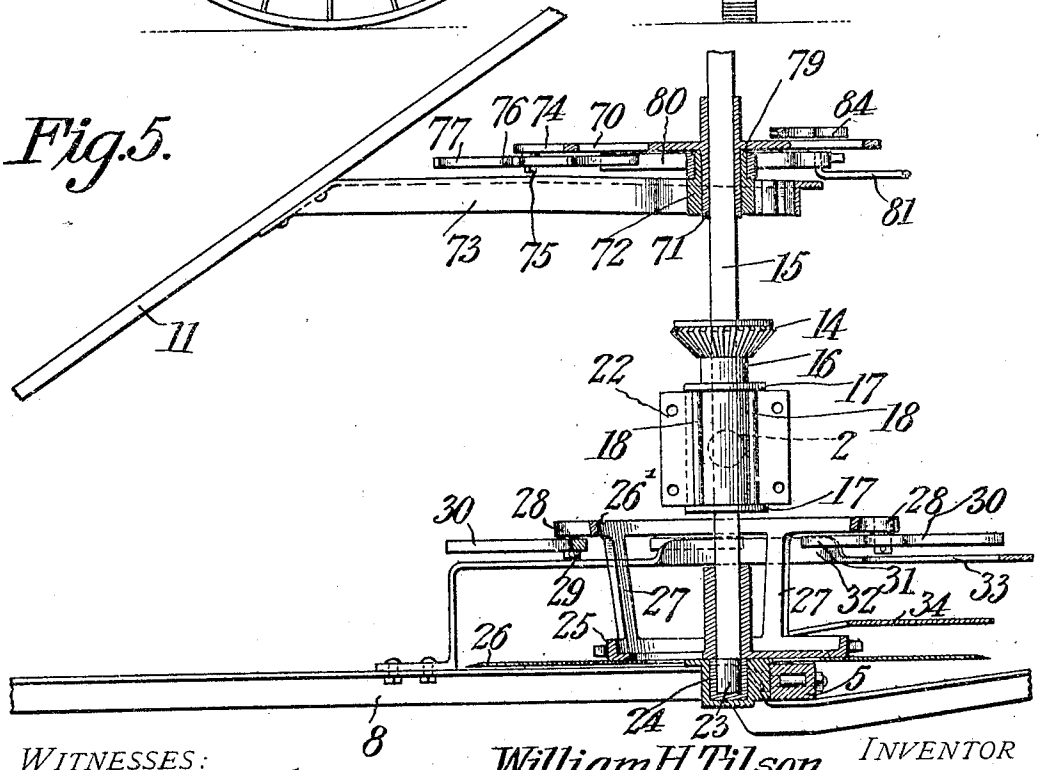


Fig.5.



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APPLICATION FILED MAR. 23, 1907.

927,613. Patented July 13, 1909.

4 SHEETS—SHEET 4.

Fig. 8.

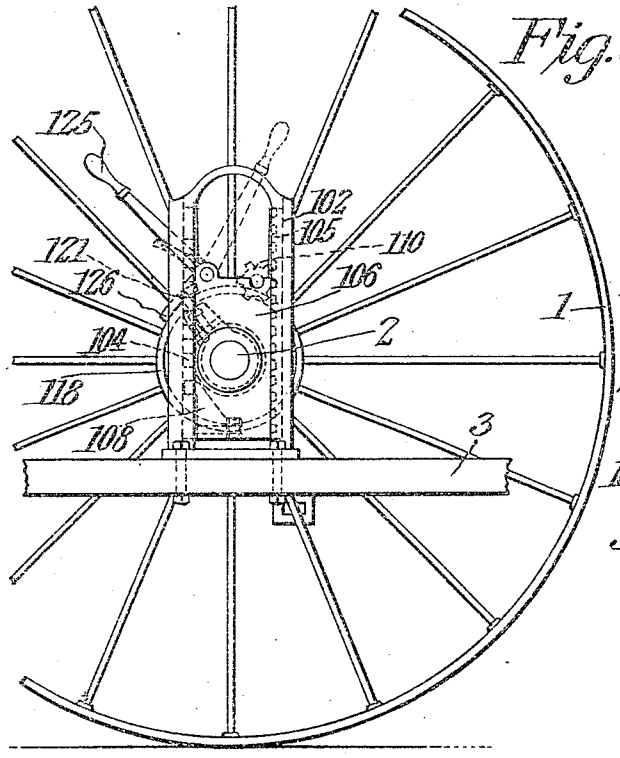

Fig. 9.

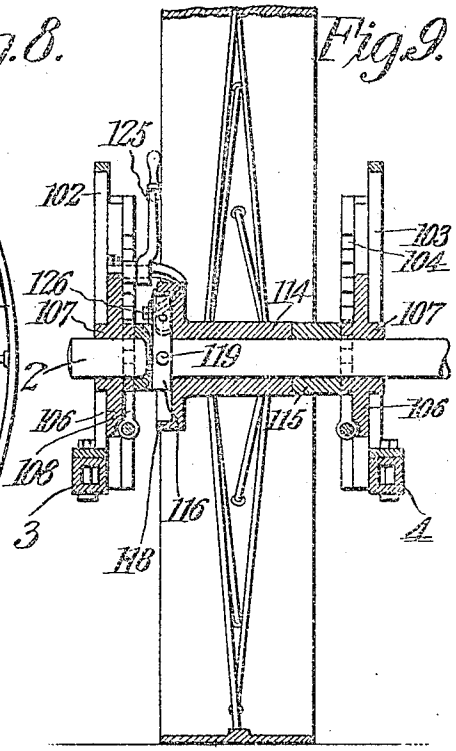

Fig. 10.

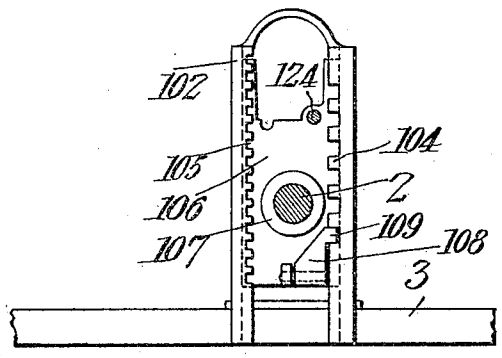

Fig. 11.

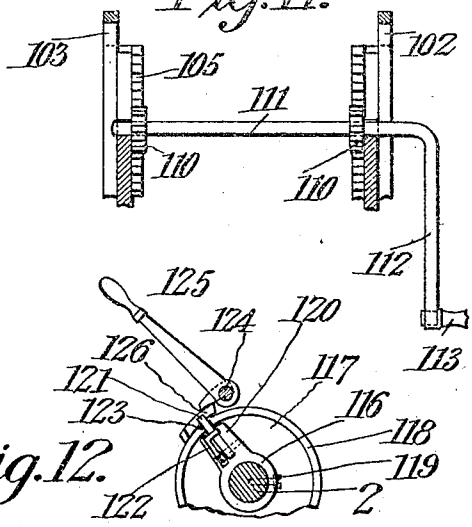

Fig. 12.

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UNITED STATES PATENT OFFICE.

WILLIAM H. TILSON, OF PLAINVIEW, TEXAS.

CORN-HARVESTING MACHINE.

No. 927,613. Specification of Letters Patent. Patented July 13, 1909.

Application filed March 23, 1907. Serial No. 364,149.

To all whom it may concern:

Be it known that I, WILLIAM H. TILSON, a citizen of the United States, residing at Plainview, in the county of Hale and State of Texas, have invented a new and useful Corn-Harvesting Machine, of which the following is a specification.

This invention has reference to improvements in corn harvesting machines, and is an improvement upon the machine shown and illustrated in Letters Patent No. 833,986 granted to me on October 23, 1906.

The object of the present invention is to foreshorten and condense the machine shown and described in the aforesaid Letters Patent and thereby produce a better balance of the parts upon the supporting wheels. To this end, with the present machine, the main drive wheel is so mounted that its axis is in the same vertical plane as the cutter shafts and the parts are, in the main, driven by direct connections with the traction wheel, and otherwise by flexible connections which also are in part utilized for the feeding of the cut stalks to the bundling mechanism.

The invention will be fully understood from the following detailed description taken in connection with the accompanying drawings forming part of this specification, in which,—

Figure 1 is a plan view of the machine with some parts in section; Fig. 2 is a plan view, partly in section, through the cutter and feed shaft adjacent to the main drive wheel, with the cutter and other parts omitted; Fig. 3 is a plan view, partly in section, of a portion of the feeder mechanism for delivering the cut stalks to the bundling mechanism, and mounted on the same shaft as the devices shown in Fig. 2; Fig. 4 is a detail vertical section through the main driving connection to the vertical shaft shown in Figs. 2 and 3; Fig. 5 is a vertical section of the structures carried by the main cutter and feeder shaft, showing the parts illustrated in Figs. 2, 3 and 4 and other adjacent parts; Fig. 6 is a side elevation, partly in section, of the grain wheel and adjacent parts; Fig. 7 is an elevation, partly in section, at right angles to that shown in Fig. 6; Fig. 8 is an end elevation of the main driving wheel and parts coacting therewith; Fig. 9 is a central vertical section through the same; and Figs. 10, 11 and 12 are detail views of the mechanism for adjusting the height of the machine relative to the drive wheel.

Referring to the drawings, the machine shown is a two-row harvester, that is, it is adapted to operate simultaneously upon two rows of corn, but, as will hereinafter appear, the machine may be adapted to work upon one row of corn by removing a portion thereof. As shown, the machine comprises a main drive wheel 1 mounted upon a shaft 2, and through the intermediary of certain devices to be hereinafter described this shaft 2 is mounted upon a main frame comprising two end-beams 3—4 extending lengthwise in the direction of travel and other beams 5—6 secured to the beams 3—4 and extending across the line of travel and supported at the end remote from the drive wheel 1 upon a grain wheel 7 to be hereinafter referred to. Supported by the lateral beams 5 and 6 are bars 8—9 extending longitudinally in the direction of travel from the rear beam 6 to and in front of the front beam 5 to points in advance of the drive wheel 1. The bars 9 extend straight forward while the bars 8 are bent at an angle, as shown at 10, so that while spaced from the bars 9 at the rear of the machine and for a distance in front thereof they ultimately, by means of the bent portions 10, join the bars 9 at the extreme front end. The pairs of bars 8 and 9 are arranged so that two pairs are provided with the inclined portions 10 contiguous, thus forming a constantly narrowing mouth or guide from a point well in front of the machine to the point where the bars 8 are joined by the inclined portions 10. In the machine shown there are two such groups of bars 8—9, one forming a gathering device A for the corn stalks and the other a gathering device B for the corn stalks, suitably spaced apart to accommodate the machine to two contiguous rows of corn; and provision may be made, although not indicated in the present drawings, for the adjustment of the parts A and B to or from each other across the machine in a manner to set the machine for different distances between the rows, as has been set forth in my aforesaid Letters Patent.

Upon the extreme front portions of the gathering devices A and B there are upwardly-slanting bars 11—12 having bars

10′ corresponding to the bars 10 joined to the front of the bars 8. The parts A and B therefore each start at the extreme front near the ground with separated, pointed ends, and the contiguous sides of the parts constituting the structures A and B approach each other not only in a horizontal plane but also in an upwardly-slanting plane until the bars are reached, after which these parts A and B have a clear passage between them of equal width both at the upper part and in the horizontal plane before mentioned.

It will be observed that when the machine is moved forward along the rows of corn stalks the latter will be gathered by the expanded ends of the gathering devices A and B and directed to the contracted throat portions thereof.

Referring now more particularly to the drive wheel side of the machine, it will be seen that the shaft 2 is extended inwardly, as shown in Fig. 1, and carries at its end a bevel gear wheel 13 meshing with a bevel pinion 14 mounted upon a square shaft 15 vertically disposed adjacent to but somewhat removed from the bar 8 nearest the drive wheel 1. The bevel pinion 14 has formed on it a sleeve 16 surrounding the shaft 15 and this sleeve has two spaced annular flanges 17—17 between which is mounted a circular series of rollers 18 within a collar 19 surrounding the rollers and sleeve 16 and formed with suitable brackets 20 straddling the gear wheel 13 and fast on a sleeve 21 mounted on the shaft 2. The collar 19 is made of two parts for easy adjustment to the pinion sleeve 16 and the cap portion of this collar is indicated at 22 in Figs. 2, 3 and 5, in which figures, also, the structure just described is best shown. The square shaft 15 is turned into a cylindrical shaft at its lower end 23 (see Fig. 5) and there has a step bearing 24 fast to the longitudinal beam 5 before referred to.

Above the bearing, the shaft 15 carries a sprocket wheel 25 having fast on its lower face an annular cutter plate 26 arranged to extend into the space between the two bars 8 of the gathering device A at a point somewhat to the rear of the junction of the bars 10 with the bars 8. The sprocket wheel 25 supports an annular frame 26′, at a distance above but parallel to it, by means of spacing connectors 27. The frame 26′ has at equidistant points around its periphery radial lugs 28, shown in the drawing as four in number, and these lugs 28 are provided with downwardly projecting studs 29 upon which are pivotally mounted and which pivotally support one end of fingers 30 arranged to normally project radially outward from the annular frame 26′. Each finger 30 has on the other side of its pivot connection a tail-piece 31 and in the path of this tail-piece there is arranged a portion 32 of a bracket 33 fast on the bar 8 in such position that the portion 32 will come into the path of these tail-pieces 31 as they are rotated with the frame 26′ and sprocket wheel 25 at a point which will cause them to project radially from the annular frame 26′ during a portion of its travel about the axis of the shaft 15, for a purpose which will hereinafter appear.

Beginning at a point about in line with the shaft 2 the gathering structure A has in line with its bottom members 8—8 a floor 34 having a side extension 35 coacting with the edge of the annular rotary knife 26 to sever the corn stalks as they are brought to this position, and the severed butts pass upon the floor 34 which from its foremost end is slanted upward, as indicated in Fig. 5, for a purpose which will hereinafter appear. This floor 34 extends backward at an angle to the line of travel, being flanked by side walls 36—37 extending upward as high as the inclined portions 11 of the gathering structures A and B and constituting a means for supporting the stalks after they have been severed and while they are being gathered into bunches and tied, as will hereinafter appear, after which the tied bundles of stalks are discharged through the rear end 38 of the passageway formed by the floor 34 and the two side walls 36—37.

The fingers 30 are so arranged as to enter the passageway leading to the front end of the floor 34 through a curved path of which the axis of the shaft 15 is the center, and these fingers serve to engage the stalks and force them against the cutting portion of the knife or rotary cutter 26 and thence backward into the guide passage of which the floor 34 constitutes the bottom, and ultimately between the walls 36 and 37, which latter are parallel from a point about coincident with the annular frame 26′ to the discharge end 38. When the fingers 30 reach the parallel portion of the passageway for the stalks their tail-pieces 31 escape from the portion 32 of the bracket 33 and are allowed to turn freely on their pivots and be drawn out from behind the stalks by the continued rotation of the frame 26′, to be again brought into engagement with the stalks prior to their being forced against the knife or cutter 26 by the further rotation of the annular frame 26′.

Referring now to the gathering device B, there is provided for this device an upright shaft 39 carrying an annular cutter 40 arranged to engage against an extension 41 of a floor 42 similar to the floor 34 before referred to, and this floor 42 forms the bottom of a passageway the side walls 43—44 of which are appropriately shaped to direct and carry the cut corn stalks toward the back of the machine and then laterally

across the same until the wall 43 is directed forward to form the outer wall of the passageway leading from the gatherer A, while the wall 44 ultimately merges into the wall 37 before referred to. The stalks coming from the cutter 40 over the floor 42 and between the walls 43 and 44 are ultimately directed into the path of the fingers 30 and carried rearwardly thereby together with the stalks that have been cut by the rotary cutter 26 and have been also carried rearwardly by these same fingers. Upon the shaft 39 there is mounted a series of radial arms 45 projecting from a spider 46 and arranged to be carried into the throat of the gathering device B to force the corn stalks into contact with the cutter 40 and its coacting part 41 and ultimately cause the stalks, after being cut, to be fed back through the passageway between the walls 43 and 44 until they are engaged by other carrying means to be described. The spider 46 has formed on it above the arms 45 suitable sprocket teeth for a sprocket chain 47 passing around a sprocket pinion 48 on an upright shaft 49 suitably journaled in the framework of the machine.

Between the two shafts 15 and 39 but to the rear of the vertical plane cutting these two shafts there is another upright shaft 50 upon which is secured a sprocket wheel 51, and the shaft 49 also carries a sprocket wheel 52. The sprocket wheels 51 and 52 receive a sprocket chain 53 from one side of which project a series of spaced teeth 54 arranged to enter the passageway between the walls 43 and 44 and travel therealong from a point about coincident with the withdrawal of the arms 45 from this passageway to the coalescing of the passageway with the passageway formed between the walls 36 and 37. This sprocket chain 53, besides serving to carry the stalks along the passageway between the walls 43 and 44, also serves as a connection between the shafts 49 and 50. Upon the shaft 50 there is another sprocket wheel 55 receiving motion from a chain 56 passing around the sprocket wheel 25 beneath the floor 34, being suitably diverted for the purpose by an idler 57.

It will now be seen that when the machine is drawn forward by means of the pole 58 provided for the purpose and attached to the beam 3 of the frame, the rotation of the drive wheel 1 will be communicated through the shaft 2 and bevel gear 13 to the pinion 14 and shaft 15 and this latter, through the sprocket wheel 25 and sprocket chain 56, will drive the sprocket wheel 55 and shaft 50, and that the latter will, by means of the sprocket wheel 51 and chain 53, drive the sprocket wheel 52, thus imparting rotation to the shaft 49. The sprocket pinion 48 on the shaft 49 will, by means of the sprocket chain 47, drive the spider 46 and with it the upright shaft 39 and cutter 40 carried thereby. It will also be observed that the direction of rotation of these several parts will cause the cutters and the sprocket chain 53 to travel in the proper direction. From another sprocket wheel upon the shaft 39 there extends a sprocket chain 59 to another sprocket wheel 60 upon an upright shaft 61. This shaft 61 extends upward to near the top of the machine and there carries a bevel pinion 62 meshing with another bevel pinion 63 upon a short stud shaft 64 suitably mounted in the framework and carrying a sprocket wheel 65 set at an incline to the vertical and arranged at the upper rear portion of the slanting part of the gathering structure B. Near the point of the corresponding portion of the gatherer B there is a pulley or sheave 66 and another sheave 67 is arranged on this slanting portion at the incline formed at the rear end of the angle piece 10. Around these sheaves and around the sprocket wheel there passes a sprocket chain 68 having projecting teeth 69 arranged to move into the mouth of the gatherer B and carrying the upper portions of the stalks as the lower portions are fed to the cutters and also into the passageway between the walls 43 and 44. In Fig. 1 the structure just described is shown as applied to the farther half of the gatherer B, and also a portion of the sprocket chain 68 with its fingers 69 is shown as applied to the nearer portion of the gatherer B. It will be understood that this nearer side is complete like the farther side and that the shaft 39 will be provided with a bevel pinion 62 and engaging a bevel pinion on a suitable sprocket such as 65 at the upper end of the inclined portion of the nearer side of the section B. It will also be understood that the gatherer A will likewise be provided with a sprocket chain 68 and fingers 69 and that motion may be imparted to these parts by an upward extension of the shafts 15 and 50.

Having cut the stalks and delivered them to a point leading to the passageway between the side walls 36 and 37, they are now ready to be gathered into bundles and tied. For the purpose of compacting the stalks into shape to be tied, the structure best shown in Figs. 3 and 5 may be employed. The shaft 15, above the pinion 14, carries a spider 70 having a hub 71 which may be made cylindrical and pass through a journal box 72 fast on a portion 73 of the frame of the machine and fast at one end to one of the inclined bars 11. Extending radially from the periphery of the spider 70 are ears 74 on which are carried studs 75 forming pivotal supports for angle arms 76. These angle arms are formed on one side of the pivot support with elongated fingers 77 and on the other side of the support with angular tail-pieces 78, peculiarly bent as shown

to coact with other members of the structure to perform functions hereinafter referred to.

Mounted to turn upon an extension 79 of the journal support 72 there is a segmental frame 80 having portions in the path of the angle tail-pieces 78 of the arms 76. This segmental frame 80 is connected by a link 81 to an arm 82 on a vertically disposed shaft 83, shown in Fig. 1, and this shaft 83 also carries a needle arm 84 arranged to travel across the passageway between the walls 36 and 37 and coact with a knotter structure 85, conventionally shown in Fig. 1 since the structure of this knotter is immaterial to the present invention and therefore need not be described. The knotter-actuating mechanism is indicated at 86 and receives motion through a shaft 87 driven by a suitable gear connection 88 to the shaft 50 before referred to, and a device 89 included in the shaft 87 serves to put this portion of the mechanism into and out of gear. The shaft 83 receives motion by means of an arm 90 and a link 91 connecting it to the knotter-actuating mechanism.

The heads 77 of the arms 76 are carried by the rotation of the spider 70 into the path of the stalks contained between the walls 36 and 37 and force the stalks rearwardly toward a latch or gate 92, packing them closely preparatory to their being tied into bundles. When the needle travels across the passageway between the side walls 36 and 37 the segmental frame 80 is moved in a direction to allow the heads 77 to disengage from the stalks so that they will no longer at this time force the stalks toward the gate 92, nor do they again engage the stalks to force them toward the gate 92 until the bundle has been suitably tied in the usual manner and the needle has been withdrawn from the path of the oncoming stalks. It will be understood that the gate 92 is properly actuated to permit the tied bundles to pass to the rear or discharge end 38 and to be again returned into position before the oncoming stalks are forced far enough to the rear to engage this gate, but since this mechanism forms no part of the present invention and may, if desired, be similar to that shown in my aforesaid Letters Patent, the details of construction are not herein shown and no further description of this part of the mechanism is necessary.

In order to adjust the frame of the machine at different distances from the ground so as to cut the stalks longer or shorter as may be desired, provision is made for elevating or depressing the frame relative to the supporting wheels. For the grain wheel the structure best shown in Figs. 6 and 7 may be employed. The hub 93 of this wheel is mounted upon a short stud 94 coming from a plate 95 about midway of its length. This plate is constructed to move vertically in two grooved side bars 96 fast on an upright 97 bolted to an end bar 98 where it joins with the end of the beam 5 of the machine. The end bar carries within suitable bearings a roller 99 and over this roller there passes a chain 100, one end of which may be fast to the plate 95 and the other end of which may be adjustably secured thereto as by passing one of its links over a pin 101, this end of the chain being first passed over the upper edge of the plate 95 and thence downward until in position to engage over the pin 101. Now, by pulling on this chain this end of the frame of the machine may be lifted or lowered to the desired extent, and then by engaging a link of the chain over the pin 101 the machine frame will be securely held in adjusted position.

To adjust the drive end of the machine, the structure shown in Figs. 8 to 11 may be employed. In this case there is fast upon the beams 3 and 4 two upright frames 102 103, each formed on one side with notches 104 arranged in vertical series and on the other side with gear teeth 105 arranged in vertical series. These frames 102—103 are each provided with vertically arranged guide grooves for a plate 106 in which is formed a journal bearing 107 for the shaft 2. Each plate 106 carries at its lower end a pawl 108 having teeth 109 adapted to the notches 104 before referred to, and these pawls serve to hold the frame in the adjusted position with relation to the shaft 2. In order to effect the vertical adjustment of the shaft, each plate 106 has a journal for a pinion 110 meshing with the gear teeth 105 before referred to, and these pinions are arranged fast upon and carried by a shaft 111 terminating in a crank 112 and handle 113 removably insertible through the wheel 1 so that when these pinions are turned by means of the crank 112 the framework will be raised or lowered as desired, the pawls 108 having been first removed from the notches 104.

For the purpose of throwing the drive wheel into and out of gear with the drive shaft, I may use the mechanism illustrated in Figs. 8, 9 and 12. The hub 114 of the drive wheel is mounted to turn loosely on the shaft 2 and is confined between two collars 115 and 116 abutting against the hubs 107 of the plates 106. The outer end of the hub 114 is provided with a circumferential flange 117 terminating in an axially projecting overhang portion 118 forming a housing within which is located the collar 116, which latter is held to the shaft 2 by a set-screw 119 or other equivalent means. The collar 16 is provided with a radial side extension 120 to which is pivoted a pawl 121 constrained to move in one direction by a spring 122. Within the overhang portion 118 of the flange 117 there is provided a notch 123 in which the pawl is adapted to

be seated with its outer end projecting radially beyond the periphery of this overhang.

Pivotally supported upon a stud 124 formed near the upper portion of the plate 106 there is a lever 125 having one end 126 projecting in a direction over the flange 117 and returned on itself so as to constitute a cam extension of the lever. This cam extension may be moved by the lever until it rests upon the overhang 118 in the path of the radially extending end of the pawl 121. So long as the hub 114 is connected to the shaft 2 by means of the pawl 121 and collar 116 these two parts will move together, but when it is desired to uncouple the drive wheel from the shaft the lever 125 is appropriately manipulated to bring the working faces of the cam extension 126 into the path of the pawl 121 where it extends radially beyond the overhang 118. A continued rotation of the wheel 1 will bring the pawl extension against one of the cam faces of the lever arm or extension 126 and the cam action thereof will force this pawl against the action of the spring 122 out of its seat in the notch 123, and it will be held there so long as the cam end 126 is in position to engage the pawl. When it is desired to again couple the wheel 1 and shaft 2 it is only necessary to move the lever 125 until its end 126 is out of the path of the pawl, when the latter will engage the overhang 118 which will ride under the pawl until the notch 123 is reached, when the spring 122 will force the pawl 121 into the notch and the wheel and shaft will then be again coupled together for simultaneous rotation.

In order that the frame of the machine may be separated to remove the gatherer B when it is desired to use the gatherer A only, the beams 5 and 6 are made in two parts and are fastened together by couplings 127.

It will be understood that suitable equalizing mechanism may be applied to the machine to accommodate it to two, three or more horses, but said mechanism is not shown in the drawing. Adjacent to the draft pole 58 there is provided a driver's seat 128 and foot-rest 129, both fast upon the beam 3 of the machine.

It will be observed that the supporting wheels of the machine are arranged about midway between the front and back portions of the machine and that the various mechanisms are so located as to approximately balance the machine upon the supporting wheels. Also, it will be observed that there is a direct connection between the drive wheel and the major portion of the cutting, gathering and bundling mechanism located adjacent to the drive wheel, and that between these directly connected parts and the other gathering portion of the machine the connections are largely flexible and so arranged as to be easily removable when it is desired to use the machine as a one-row corn harvester.

It is also apparent that in a general way the present machine is an improvement over the machine of my aforesaid Letters Patent in that the entire structure is largely foreshortened and condensed, and that there is provided a much better balancing of the structure upon the supporting wheels. At the same time the machine has been improved in many details and a more certain action of the parts is obtained by the employment of rigid connections in place of the flexible connections found in the structure of the aforesaid Letters Patent.

Since provision is made for the vertical adjustment of the frame of the machine with relation to the wheels, and since the drive wheel is directly connected to the mechanism controlling the operation of the cutter nearest to the drive wheel and the other parts carried by the shaft 15, it will be seen that this vertical adjustment is provided for by making the shaft 15 vertically movable through the pinion 14 and the sleeve 16 formed thereon, and since this shaft 15 is square, as shown, but, if desired, may be made polygonal, the shaft will at all times be rotated upon its axis by the pinion 14 no matter what may be the vertical relations of the shaft and pinion.

I claim:—

1. In a corn harvester, a drive wheel, a drive shaft and a grain wheel, all having their axes in the same vertical plane, a vertical shaft carrying a rotary cutter, a gathering reel close to the cutter, and another gathering reel remote from the cutter, all with their axes in the same vertical plane and in the vertical plane of the axes of the drive and grain wheels and drive shaft, gatherers projecting in front of the drive wheel axle, a bundle mechanism to the rear of the gathering reels, and means for directing the cut stalks from the cutter to the bundling mechanism, the gatherers at the front of said vertical plane and the bundling mechanism at the rear thereof being in substantial balance one to the other.

2. A double row corn harvester including two gathering members, one removable from the other, two cutting members and shafts therefor, there being a cutting member for each gathering member, a single binding member, and means for delivering cut stalks from one of the cutters to the binding mechanism, a drive wheel, direct connections between the drive wheel and one of the cutter shafts, removable flexible connections between the two cutting members for driving the same synchronously, and for permitting the ready separation of the removable gathering member from the main portion of the machine, and means carried by the flexible connections for delivering cut stalks from

the removable cutter to the means for delivering stalks from the other cutter to the binding member.

3. A corn harvester comprising a suitable main frame, a drive wheel, a shaft or axle therefor, a vertical shaft directly connected to the drive shaft through suitable gearing and located in a vertical plane coincident with the axis of the shaft, a cutter carried by said vertical shaft, a guide frame leading to said cutter, a passage-way leading from said cutter, feeding and packing mechanisms also mounted on said vertical shaft and movable into and out of the passage way, an auxiliary frame removably connected to the first-named or main frame, a guide frame carried by said second named frame, another cutter, another vertical shaft carrying the same in operative relation to the last-named guide frame and in the same vertical plane with relation to the axis of the drive wheel shaft as is the first-named vertical shaft, feeding mechanism mounted on the last-named vertical shaft, and flexible connections between the first-named vertical shaft and the second vertical shaft for driving the latter from the main drive wheel and also constituting the means for directing the stalks from the second cutter to the packing mechanism adjacent to the first-named cutter.

4. In a corn harvester, a drive wheel, a shaft or axle therefor, a vertical shaft directly connected to the drive wheel axle in the vertical radial plane thereof, a cutter mounted on said vertical shaft, feeding and packing mechanisms also mounted on said vertical shaft, means for maintaining stalks delivered by the packing mechanism in operative position, and tying mechanism in the path of the stalks for tying the same into bundles, said packing mechanism acting to assemble the cut stalks into bundles prior to the action of the tying mechanism.

5. In a corn harvester, a drive wheel, a shaft or axle therefor, a vertical shaft directly connected to the shaft or axle in the vertical radial plane thereof, a cutter mounted on said vertical shaft, a guide frame leading to said cutter feeding and packing mechanisms also mounted on said vertical shaft, means in the path of the stalks delivered by the packing mechanism for tying the same into bundles, said tying mechanism being located on the side of the vertical shaft remote from the guide frame, another vertical shaft in the same vertical radial plane as the first-named vertical shaft, a cutter and feeding mechanism mounted on said second vertical shaft, a guide frame leading to the last named cutter, said second-named vertical shaft with the parts carried thereby and the guide frame leading to the cutter being removably connected to the structure carrying the other vertical shaft, flexible connections between the two vertical shafts for driving the second shaft from the first shaft provided with means for directing cut stalks received from the second cutter to the packing mechanism carried by the first vertical shaft, and means coacting with the said flexible connections for guiding the cut stalks received from the second cutter to the packing mechanism carried by the first-named vertical shaft.

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

WILLIAM H. TILSON.

Witnesses:
S. I. Fry,
Jno. G. Hamilton.