(No Model.) 5 Sheets—Sheet 1.

F. S. GARRISON.

CORN HARVESTER.

No. 532,657 Patented Jan. 15, 1895.

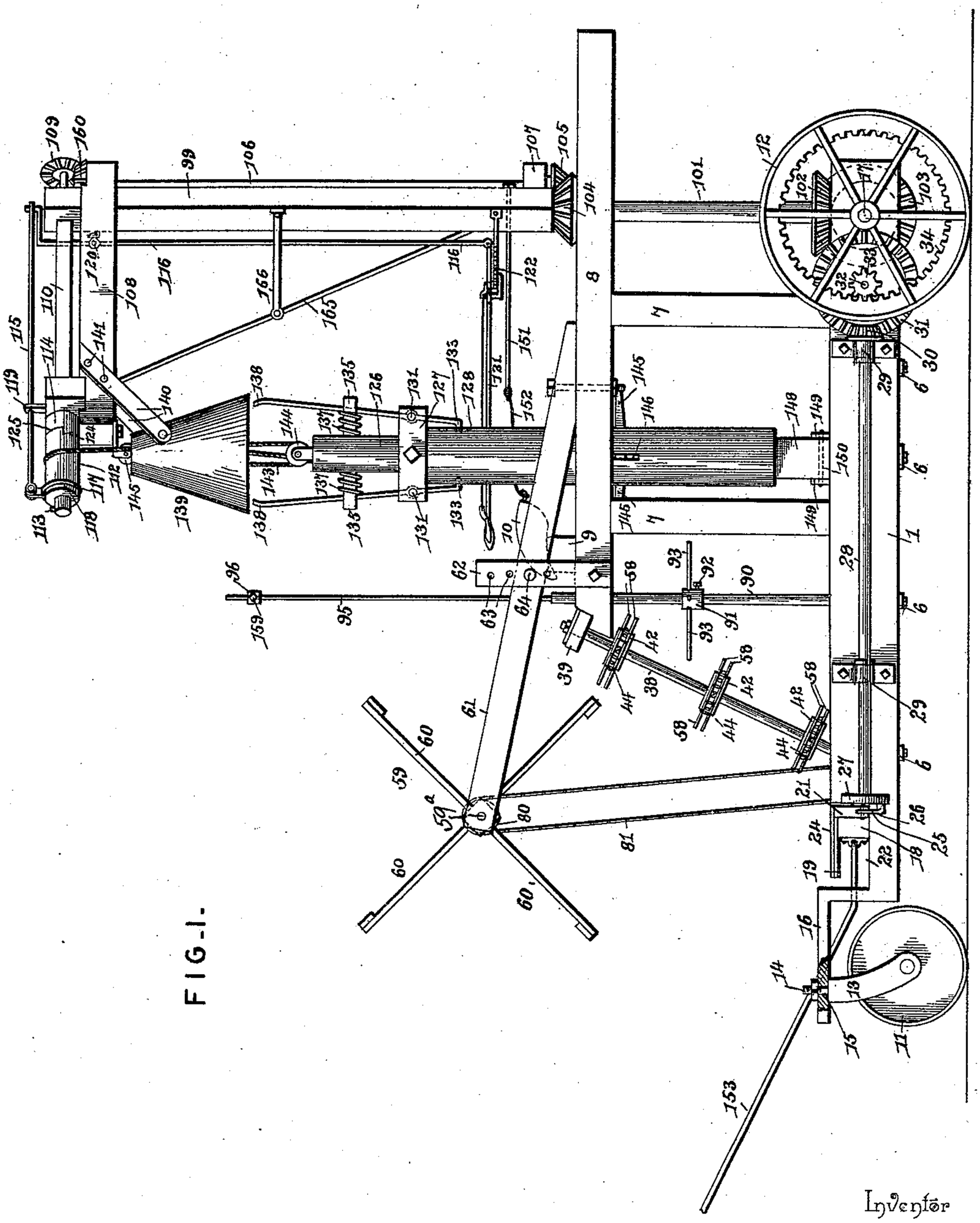

FIG. 1.

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(No Model.)

5 Sheets—Sheet 2.

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CORN HARVESTER.

No. 532,657. Patented Jan. 15, 1895.

FIG. 2.

Witnesses.

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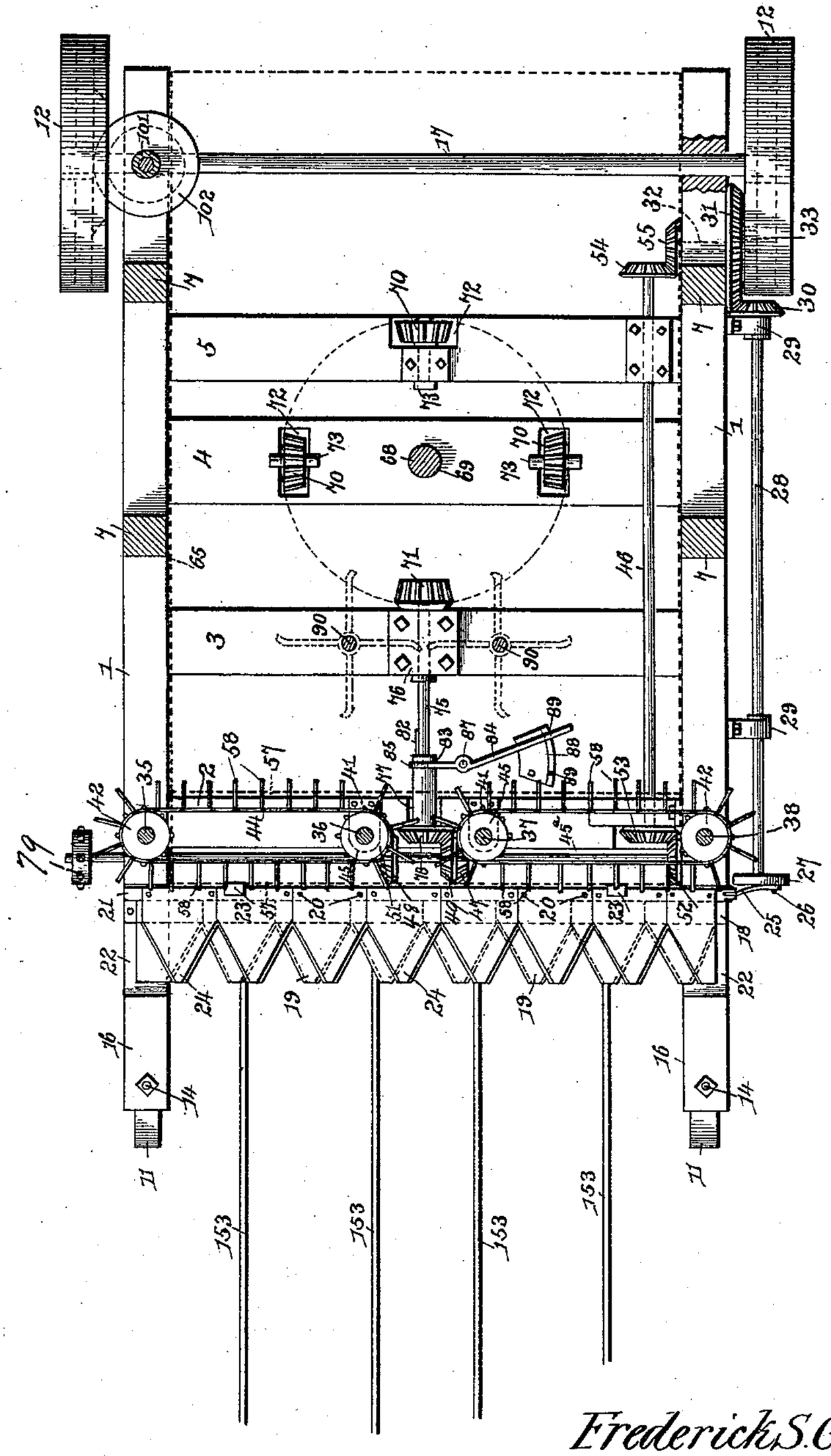
5 Sheets—Sheet 3.

F. S. GARRISON.

CORN HARVESTER.

No. 532,657. Patented Jan. 15, 1895.

FIG. 3.



Witnesses

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(No Model.)

5 Sheets—Sheet 4.

F. S. GARRISON.

CORN HARVESTER.

No. 532,657. Patented Jan. 15, 1895.

FIG. 5.

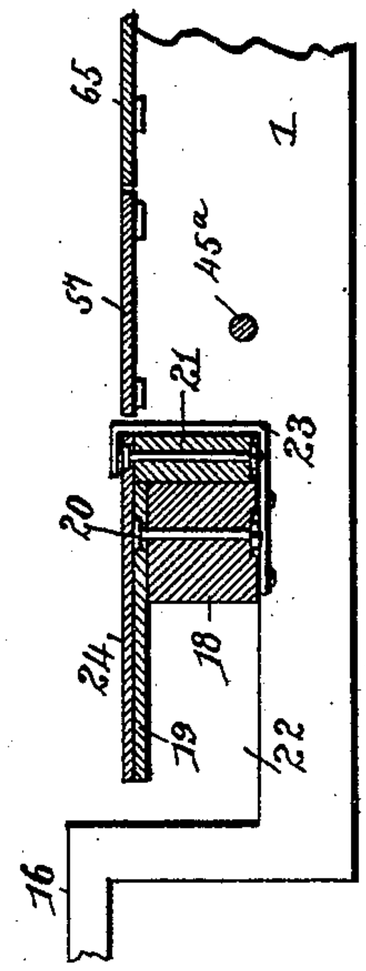


FIG. 10.

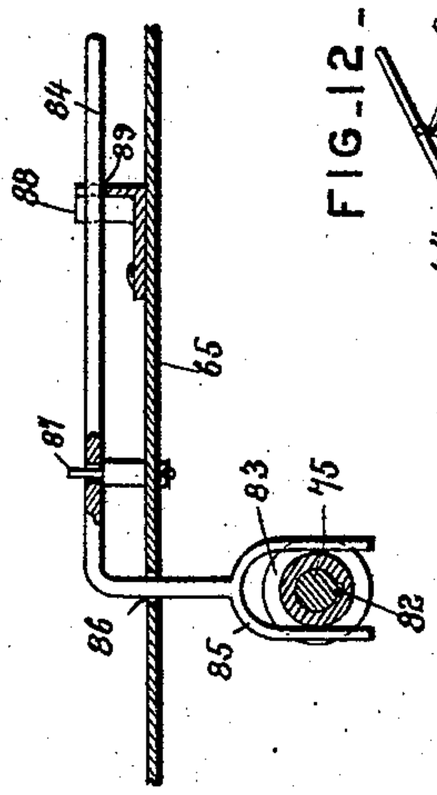


FIG. 12.

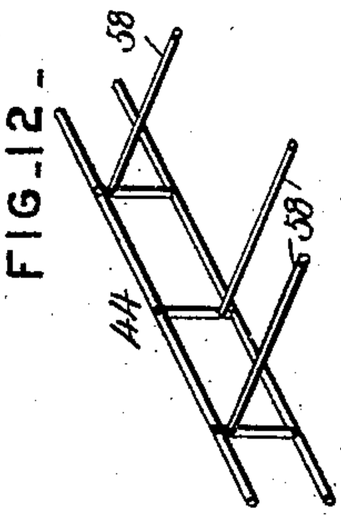
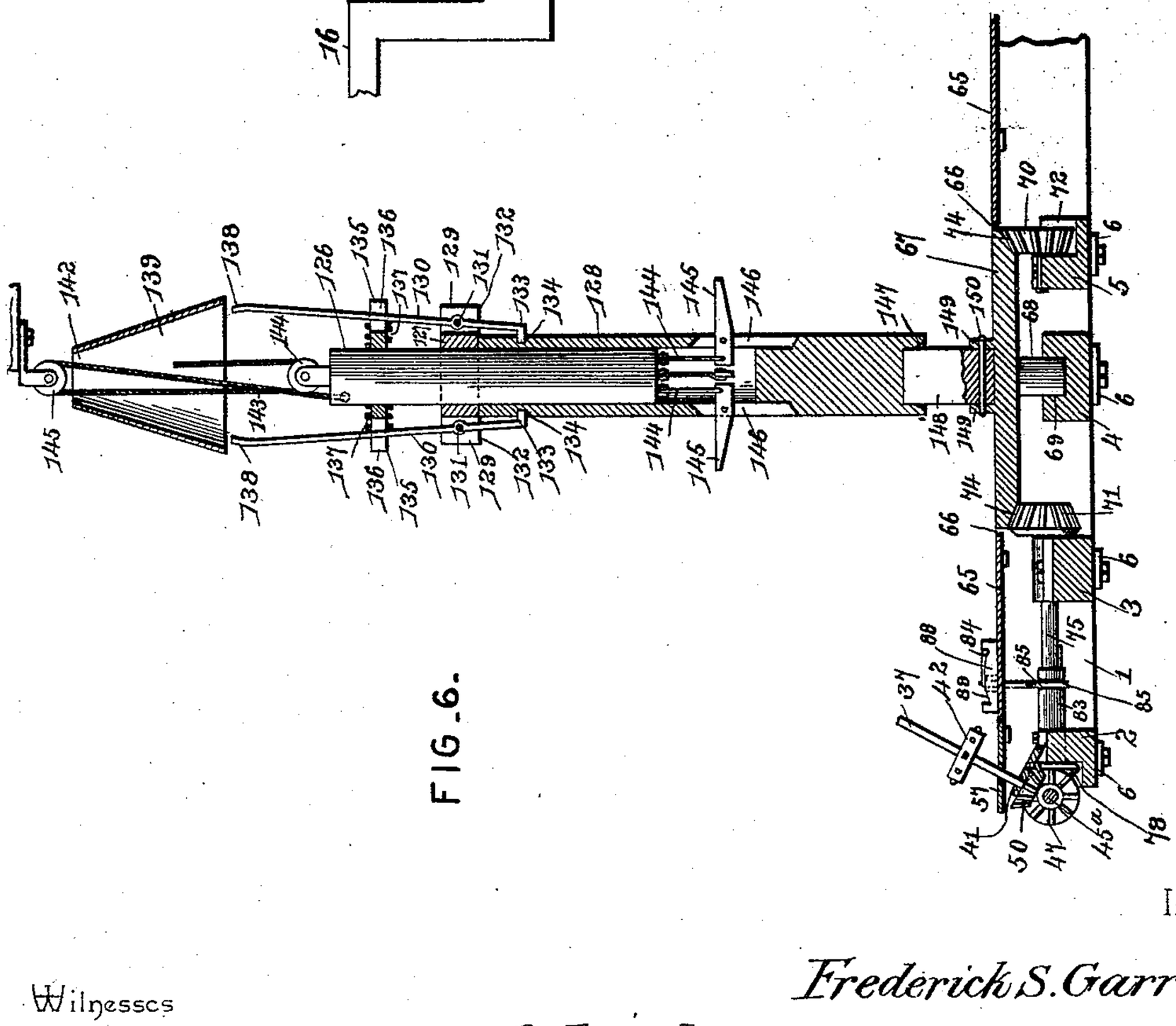


FIG. 6.



Witnesses

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E. [illegible]

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(No Model.) 5 Sheets—Sheet 5.

F. S. GARRISON.

CORN HARVESTER.

No. 532,657. Patented Jan. 15, 1895.

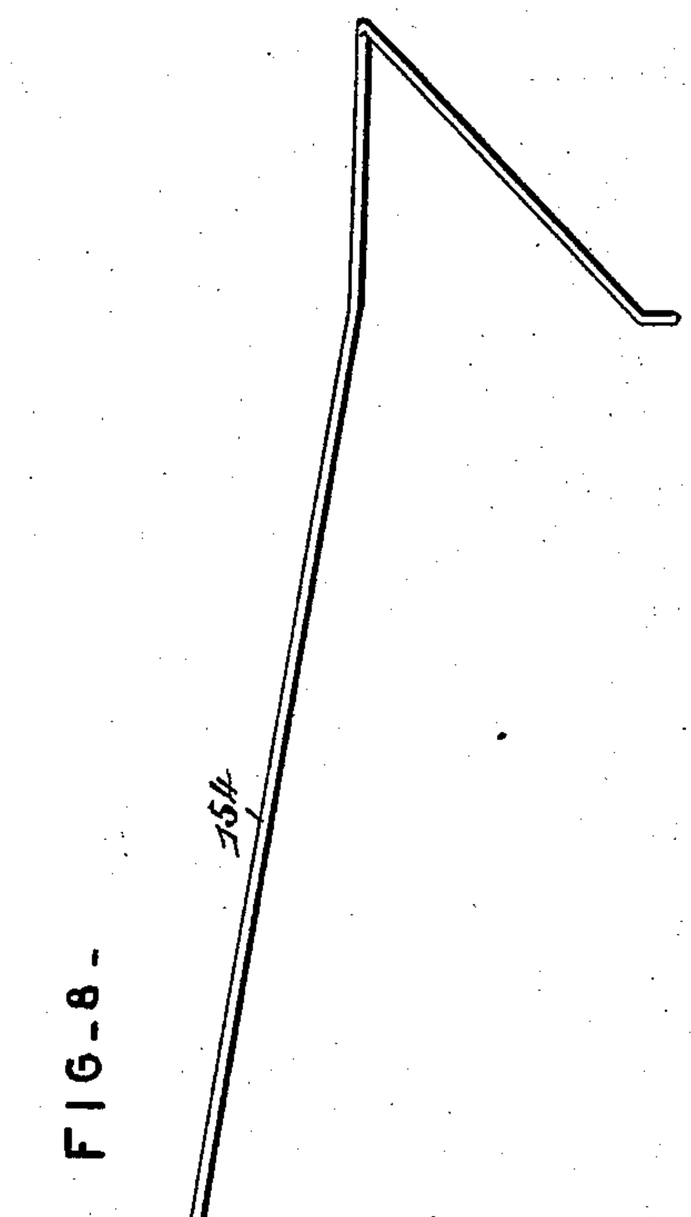

FIG-8-

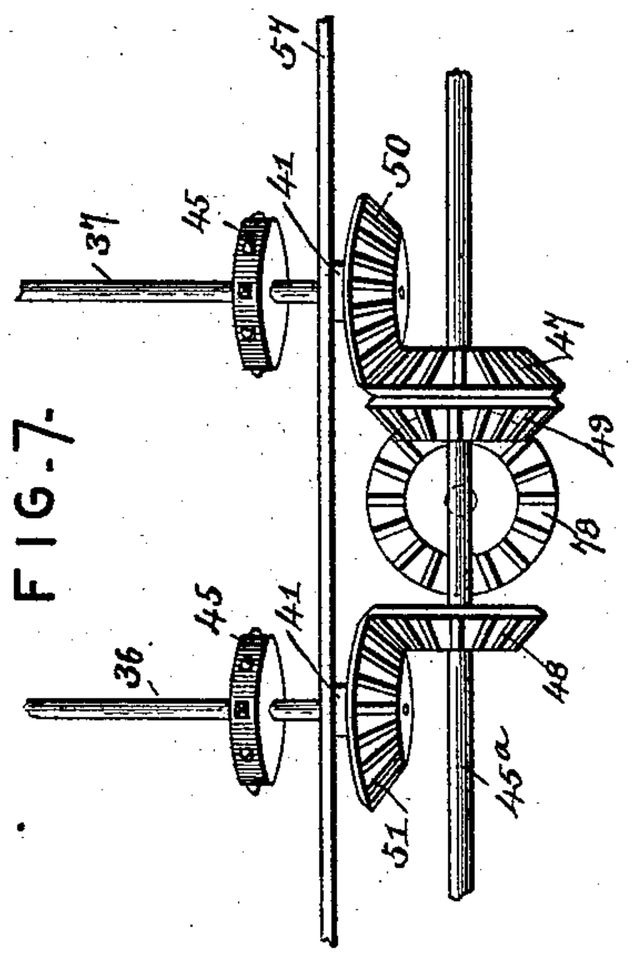

FIG-7-

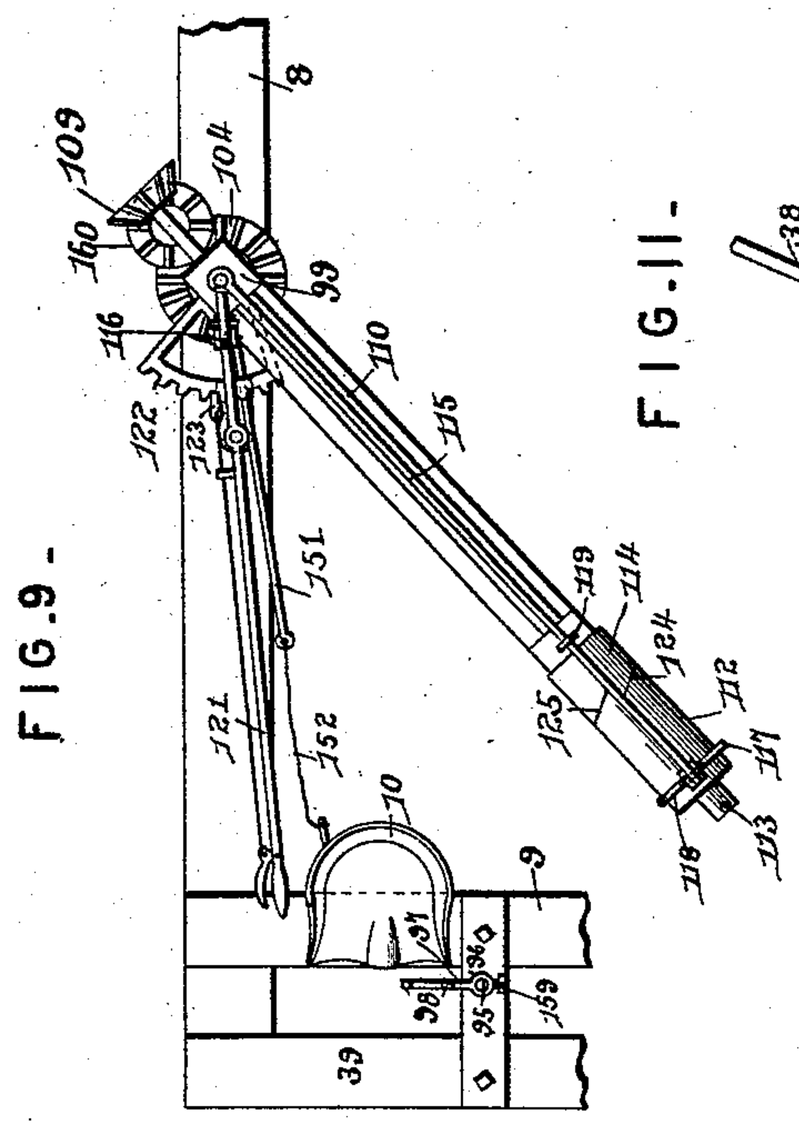

FIG.9.

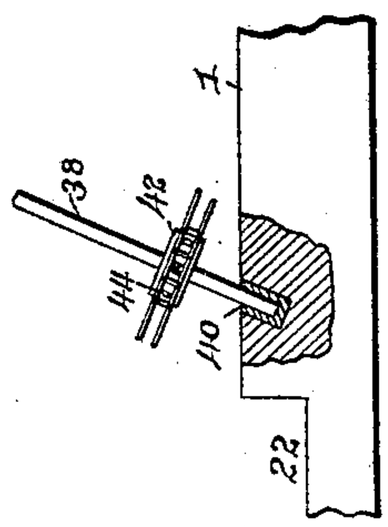

FIG.11.

Witnesses

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UNITED STATES PATENT OFFICE.

FREDERICK S. GARRISON, OF GREEN COUNTY, WISCONSIN.

CORN-HARVESTER.

SPECIFICATION forming part of Letters Patent No. 532,657, dated January 15, 1895.

Application filed April 5, 1894. Serial No. 506,498. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK S. GARRISON, a citizen of the United States, residing in the county of Green (Argyle P. O.) and State of Wisconsin, have invented a new and useful Corn-Harvester, of which the following is a specification.

The invention has special reference to an improvement in that class of corn-cutters wherein the corn is first cut, and subsequently bundled and deposited on the ground in a complete shock; and the invention has for its object to provide certain improvements in the derrick mechanism, by which the corn is shocked and deposited on the ground.

A further object of the invention is to improve on the driving mechanism for the carrier-chain.

A still further object is to produce a shocker which will allow the corn to be bound around it, and which will be capable of elevating it and finally dropping it on the ends and in a vertical position in the field.

To these several ends my invention consists of certain improved features of construction and combination and arrangement of parts that will be more fully described hereinafter and finally embodied in the claims.

In the accompanying drawings—Figure 1 represents a side elevation of my complete machine; Fig. 2, a front elevation; Fig. 3, a horizontal section, taken just below the table of the machine; Fig. 4, a vertical section through the derrick; Fig. 5, a detail sectional view of the cutting apparatus; Fig. 6, a similar view of the shock former; Fig. 7, a detail view of the gearing for driving the carrier and cutting apparatus; Fig. 8, a view of a modified form of draft apparatus; Fig. 9, a detail view of the gearing for winding the drum mechanism; Fig. 10, a view of the clutch for actuating the gearing of the table; Fig. 11, a detail of the bearings for the carrier shafts; Fig. 12, a detail of the carrying-chain.

The frame of the machine consists of two longitudinal beams 1, joined to each other, and the whole made rigid by the cross beams or braces 2, 3, 4 and 5, which beams are joined to the beams 1 by any suitable means, preferably by the lugs 6, projecting inwardly from the beams 1, and having the cross-beams bolted thereto. Arising from the beams 1 are the standards or posts 7, which are four in number, two for each beam 1, and which are rigidly secured to the longitudinal top-beams 8. These beams 8 are one for each pair of standards 7, and extend parallel with the beams 1.

Secured to the forward ends of the beams 8, which ends project slightly beyond the front standards 7, is the cross-beam 9. This beam 9 is rigidly secured to the beams 8, and provided with the seat 10, upon which the driver of the machine may be seated. These parts, excepting, of course, the seat 10, form the main framework of the machine; and this frame is mounted upon the wheels 11 and 12. The wheels 11 are mounted in the frames 13, which are provided with the upwardly-extending spindle 14, and these are in turn journaled in the vertical passages 15, of the forward extremities of the beams 1. The forward extremities of the beams 1 are bent first upwardly and thence forwardly, so that the forward portion will lie a distance above the main part of the beam 1, and it is in this raised or elevated portion, numbered 16, that the spindle 14 is journaled. By this means it is possible to make the wheels 11 larger than would otherwise be possible, and consequently increase their strength and the ease with which the machine may be drawn. The wheels 12 are fixed to the rear and driving axle 17, so as to revolve therewith, and this is revolubly journaled in the rear ends of the beams 1.

I will now describe the cutting apparatus and the means provided for operating the same. Secured to the beams 1, at a point just rearward of the raised ends 16, is the transverse bar 18, which is arranged in the notches 22 of the beams 1, and which extends from one beam to another and is provided with the stationary cutting teeth 19. These teeth are substantially triangular in shape, and are bolted to the bar 18 by means of the bolts 20, countersunk in the face of the teeth, so as to lie flush with their upper face, and the teeth are arranged with their rear edges in transverse alignment, so that their remaining edges will form V-shaped or flaring recesses, into which the corn is adapted to pass prior to severance.

The upper and reciprocating knife or cutter bar consists of a transverse bar 21, which

lies in the notches 22 in rear of the bar 18. Secured to the under side of the bar 18, and projecting rearwardly and upwardly so as to embrace the bar 21, are the arms 23, which are provided to hold the bar 21 in place and to allow it free reciprocal movement. The upper face of the bar 21 lies slightly above the upper face of the bar 18, and in the same horizontal plane as the upper surface of teeth 19, so that the cutter-teeth 24 will project out forwardly and lie in close engagement with the teeth 19. The teeth 24 and 19 are of the same size, and the cutting-edge of the former are beveled from the upper face down and outwardly to the lower face, thus placing the plain upper faces of teeth 19 and the plane lower faces of teeth 24 adjacent, and, by so doing, making the appliance cut with greater ease and speed.

Pivotally connected to one end of the bar 21, and extending laterally therefrom, is the link 25, which is connected at its outer end to the crank-pin 26, of the disk 27, and the disk 27 is, in turn, fixed to the longitudinally-extending shaft 28. The shaft 28 is arranged on the outside of and parallel with the adjacent beam 1, and is revolubly mounted in the boxes 29, which are fixed to said beam. Fixed to the rear end of the shaft 28, beyond its bearings, is the beveled gear 30, which meshes with the corresponding gear 31, and this is, in turn, fixed to the outer end of the transversely-extending shaft 32. Shaft 32 is journaled in the side beam 1, and projects inwardly therefrom for a short distance, and for a purpose that will hereinafter appear.

Fixed to the shaft 32, and lying flush with gear 31, is the pinion-gear 33, which is adapted to mesh with the internal cog-rim 34 of the adjacent carrying and driving wheel 12. The wheel 12 serves to impart a continuous rotary movement to the shaft 23, said movement being transmitted, through the medium of gears 31 and 30, to the shaft 28, thence to disk 27, and finally to link 25, and cutter-bar 21, resulting in a reciprocation of said bar, which co-operates with the cutter-bar 18.

The carrier mechanism consists, essentially, of four rearwardly-inclined shafts 35, 36, 37 and 38, which are all journaled at their upper ends in bearings 43, in the transverse bars 39, said bars 39 being secured, respectively, to the front ends of the beams 8, and projecting inwardly from the same toward each other. The shafts 35 and 36 are journaled in one bar 39, while shafts 37 and 38 are journaled in the other bar 39. The lower ends of the shafts 35 and 38, or the outer shafts, are journaled in the inclined bearings 40, formed one in each beam 1, and a short distance to the rear of the cutting apparatus, while the inner shafts, or the shafts 36 and 37, are journaled respectively in bearings in the plates 41, secured near the center of the beam 2, and projecting upwardly and forwardly therefrom.

Fixed to the shafts 35 and 38, are the sprocket-wheels 42, there being three for each shaft, and over the same operate the sprocket-chains 44. From the wheels 42 the chains 44 pass to the sprocket wheels 45 of the shafts 36 and 37, three of the wheels 45 being fixed to each of said shafts. The inner shafts 36 and 37 are rotated to cause the front portions of the chains 44 to move toward each other, or inwardly, by means of shafts 45^a, 46, and 32 and attached gears.

The shaft 45^a extends transversely and is journaled in the beams 1, just below the shafts 35 and 38, and is provided with the gears 47, 48 and 49. The gear 47 meshes with a gear 50, which is fixed to the lower extremity of the shaft 37, below the plate 41 in which shaft 37 is journaled; and the gear 48 on the shaft 45^a meshes with a gear 51, on the shaft 36.

Fixed to one extremity of the shaft 45^a, adjacent to one of the beams 1, is a beveled gear 52, which meshes with a gear 53, fixed to a longitudinal shaft 46, journaled in the beams 2 and 5. The rear end of the shaft 46 is provided with a gear 54, which meshes with a beveled gear 55, fixed, in its turn, to the adjacent extremity of the shaft 32. By this means the motion of the shaft 32 is transmitted to the shaft 46, and thence to the shaft 45^a, which will result in a revolution of shafts 36 and 37, and, owing to chains 44, a similar movement of the shafts 35 and 38 or the outside shafts.

57 indicates a plate, which is fixed to the beams 1, in rear of the bar 21, and flush with the upper faces of the knives 24, and from this point the plate extends rearwardly to the chains 44, and slightly past them, whereby the corn is given a smooth and unobstructed path to the chains. Between the shafts 36 and 37 the plate 57 extends rearwardly over the shaft 45^a to the front edge of the platform of the machine, against which it abuts.

The carrier chains are provided with spurs or teeth 58, which are rigidly fixed to, or formed integral with, the links thereof. These spurs 58 are preferably two for each link, though this may be varied at will, and are adapted to engage the corn which is thrown against them, and carry it toward the space between the shafts 36 and 37.

In order to throw the cut corn against the carrier chains 44, I provide the reel 59, which consists of a transverse shaft provided with the arms or wings 60, and journaled in the front extremities of beams 61, which are removably secured to the beams 8, and project forwardly and upwardly therefrom to a point in vertical alignment with the cutting apparatus. It will be necessary to make the reel capable of adjustment in a vertical line, so as to compensate for the difference in the height of the corn, and this is effected by the standards 62, which are fixed to the forward extremity of the beams 8, and are provided with the vertical series of transverse holes 63, through which the bolts 64 are adapted to pass. The bolts 64 pass through the beams 61, and engage the desired openings of said

standards so that by raising and lowering the bolts the reel may be correspondingly adjusted. The reel is driven by the sprocket-wheels 79 and 80, over which the chain 81 operates to transmit power from one to another, the wheel 79 being fixed to the shaft 45^a, while wheel 80 is fixed to the reel-shaft 59^a.

65 indicates the machine platform, which is to be constructed, by preference, of a wrought-iron framework, covered with galvanized sheet-iron, and the platform extends forwardly from the rear axle of the machine to the rear edge of the plate 57, as before indicated. Formed in the center of the platform 65, is the circular opening 66, in which a rotary table 67 is arranged. This table is provided with a vertical spindle 68, which is revolubly seated at its lower end in the cup-bearing 69, of the beam 4. The table 67 is arranged with its upper face flush with the platform 65, and is held from vibration by the carrying wheels 70, and the driving-gear 71. Wheels 70 are arranged two on the beam 4 and one on the beam 5, and all are located in the depressions 72 of said beams, their axles 73 being disposed horizontally, while the wheels themselves are beveled slightly inwardly and adapted to mesh with the cog-rim 74, which is fixed to or formed integral with the under side of the table 67. The driving-gear 71 is fixed to the rear extremity of a shaft 75, and lies flush with the rear edge of the beam 3, the shaft 75 being journaled in the box 76 of the beam 3 and projecting forwardly therefrom to the beam 2, beyond which, after extending through the depression 77 of the beam, it is provided with the beveled gear 78, which meshes with the gear 49 of the shaft 45^a. The gear 78 is mounted on the shaft 75, so as to be capable of a limited longitudinal movement, and this is effected by the longitudinal rib or key 82 which is fixed to, or formed integral with, the front end of the shaft, and operates in a corresponding slot or key-way in the gear 78. Thus the gear is capable of longitudinal movement on the shaft 75, so as to engage or disengage the gear 49. This movement of the gear 78 is effected by means of the grooved sleeve 83, formed integral with the gear and projecting rearwardly therefrom; and the lever 84, which is provided at its lower end with the forked arms 85, fitting in the groove of sleeve 83. From the fork 85 the lever extends upwardly and through the opening 86 in the platform 65, above which it is bent laterally and is fulcrumed to the vertical pin 87, which arises from the platform 65.

88 indicates a plate rigidly fixed to the platform 65, and rising vertically therefrom, and formed in the upper edge of this plate are the two notches 89, which are located one at each end of the plate, and have their inner sides inclined or curved toward each other. The lever 84 is adapted to engage one or the other of the notches 89, whereby it may be held in position. By these means the operator may cause the gears 78 and 49 to be engaged or disengaged, and may lock the parts in either position.

The mechanism for shocking, elevating, and depositing the corn is constructed as follows: Two vertical revoluble shafts 90 are mounted at their lower ends in bearings in the beam 3, respectively, in rear of the shafts 36 and 37, and extend to and are mounted at their upper ends in the beams 39. These shafts 90 serve to brace the beams 39. Arranged on the shafts 90, and capable of a vertical movement thereon, are the collars 91, provided with set-screws 92, whereby they may be secured at any point along the length of the shafts. Rigidly secured to, or formed integral with, the collars 91 are the radial arms 93. The ends of the arms on the left-hand shaft 90 being bent to the left, so that they will be in position to project slightly to the left of the shaft 37, and nearly in transverse alignment therewith, (thus catching the corn as it passes rearwardly from the carrier chains of the shafts 37 and 38,) and the ends of the arms on the right-hand shaft 90 being bent to the right so that they will be capable of operating similarly. Thus, as the corn is cut and carried to the center, it is caught, part by the arms of each shaft 90, and held so until the space between the arm 93, which is directly in the path of the corn, and the arms on the outside thereof, is filled, whereupon an attendant may revolve the shafts 90, so as to place the next arm 93 in position to catch the incoming corn; and so that that already embraced by the first arm may be removed and placed on the table 67.

Formed in the upper end of the right-hand arm 90, is a socket 94, for the reception of the rotatable spindle 95, and secured to the spindle 95, is the slidably adjustable collar 96, provided with a set-screw 159, whereby it may be locked at the desired adjustment. Rigidly fixed to or formed integral with collar 96, is the arm 97, which projects laterally from the spindle 95, and is formed with the upwardly-extending lugs 98. On the arm 97 the reins for controlling the team are adapted to be placed, and by means of the lugs 98 the reins are prevented from falling off the arm during the driving of the team. The arm 97 should be arranged, approximately, in longitudinal alignment with the seat 10, so that they will properly hold the reins, and the mountings of spindle 95 should be such that the shaft 90 below it will be allowed free movement independent of the spindle, since this must remain stationary.

Journaled in bearings in the right-hand beams 1 and 8, is the vertical elevator or derrick-mast 99, which projects a distance above the beam 8 about equal to the distance of beam 8 from the ground, the lower end of this mast being seated in the cup-bearing 100 of the beam 1. The lower portion of the mast 99 is rounded and reduced in size, and the reduced portion is embraced by the hollow shaft 101,

which fits snugly thereon, and passes down through the bearing in the beam 8 to the upper surface of the beam 1. The mast 99 and shaft 101, are capable of independent rotary movement, and the latter, shaft 101, is provided at its lower end with the beveled gear 102, which meshes with the cog-rim 103, of the right-hand carrying and drive wheel 12, whereby the shaft 101 is revolved continuously, and imparts movement to the beveled gear 104, which is fixed to its upper extremity directly under the main portion of the mast 99. From the gear 104 the motion of shaft 101 is transmitted to the beveled gear 105, fixed to the lower end of shaft 106, which is journaled in the box 107, just above the beam 8, and in the extended lower end of the jib 108, of the mast.

165 indicates a brace, which extends from the jib 108 to an intermediate point of the mast 99, and serves to brace and render rigid the former, a counter brace 166 being provided and extended horizontally from the brace 165 to the mast.

To the upper end of the shaft 106, above the jib 108, is fixed the beveled gear 160 which meshes with the beveled gear 109, of the shaft 110. Shaft 110 extends along the upper side of the jib 108, and is journaled in the upper end of the mast 99, and in the box 111, fixed to the outer end of the jib, and the shaft projects out beyond said end of the jib for a distance sufficient to admit the mounting of the winding drum 112 thereon. The drum 112 is slidably and rotatably mounted on the shaft 110, the longitudinal movement on its shaft being limited by the pin 113, on the outer extremity of the jib, and by the stationary clutch member 114. This movement of the drum 112 is effected by the rod 115 and crank-shaft 116, the former of which is provided with a loop 117, adapted to lie in the annular groove 118, at the outer end of the drum, and which extends inwardly parallel with and above the shaft 110, to the upper extremity of the mast 99, and is slidably fitted in the eye 119, fixed to the block 111. The crank-shaft 116 is mounted in a bearing 120, arranged near the upper end of the mast. Attached to the lower end of said shaft is a lever 121, so that by swinging the lever 121 the shaft 116 will be turned and the rod 115 moved longitudinally to engage or disengage the clutch mechanism of drum 112 by reason of the crank at the upper end of the shaft 116 to which rod 115 is connected.

To hold the lever 121 in the proper position I provide the segment 122, secured to the mast adjacent to the plane of movement of the lever, and the pawl 123 on said lever to engage the teeth of the segment. The clutch member 114 is fixed to the shaft 110, so as to revolve therewith, and is provided with the serrated or notched face 124, which is adapted to mesh with the corresponding face 125, of the drum 112, so that by moving the drum on the shaft 110 it may be engaged with the clutch-member 114, and caused to revolve therewith, thus winding the cable 143 upon the drum. The cable 143 is connected at its lower end to the rod or core 126 of the corn-shocker. This rod or core is provided, near its upper end, with a collar 127, which is adapted to engage and rest upon the upper end of the sleeve or shell 128, in which the rod or core 126 is fitted. Both the shell and core are round in cross-section, and the collar 127 is formed with notches 129 on its opposite sides, in which the levers 130 are fulcrumed, by means of the pins 131, which pass through the eyes 132 of the lever and into the collar. The lower arms of the levers 130 are formed with the inwardly-extending lugs 133 to enter the notches 134 in opposite sides of the shell, whereby the collar 127 is held in contact with the upper end of the shell 128. Fixed to the upper part of core 126 are the opposite studs 135, provided with the slots 136, for the reception of the opposite arms of the levers 130, spiral springs 137 being arranged around the studs to give the upper arms of the levers 130 a tendency outward, thus normally holding the studs 133 in engagement with the shell 128. The upper end of each of the levers 130 is formed with an inwardly-inclined portion 138, to engage the inner face of the hollow contracting cone 139, which is rigidly secured to the outer end of the jib, by means of the arms 140; said arms being secured to the jib by the bolts 141, and to the opposite sides of the cone by rivets. The cone 139 is thereby held a slight distance below the plane of the jib, and is formed with the open upper end 142, which is located directly under the drum 112. The rope or cable 143 is connected to the drum 112, and thence proceeds down through the open end 142 of the cone 139; around the pulley 144 on the core 126; up and over the pulley 145 on the outer end of the jib; and finally down to the upper end of core 126, to which it is secured. As the drum 112 revolves, and the cable 143 is wound thereon, the core 126 and shell 128, and the attached parts are elevated, and when the ends 138 of the levers 130 engage the cone 139 they are contracted, thereby disengaging the lugs 133 from the notches 134, and releasing the shell 128.

Pivotally connected to and depending from the lower end of the core 126, are the rods 144, which are pivotally connected at their lower ends to the inner ends of the guide-levers 145. These levers are pivoted in the upper ends of the vertically-elongated slots 146, of the shell 128, so that they will be capable of swinging downwardly, and into the slots, when the core 126 and attached rods 144 are raised. This construction also allows the guide-levers 145 to swing out horizontally when the core 126 is moved downwardly, since the rods 144 will follow it in its movements and cause the inner arms of levers 145 to swing downwardly until the upper face of the lever just beyond the fulcrum engages the upper face of the slot in which it is arranged, and is thus stopped.

The rods 144 and guide-levers 145 are the means of connecting the core 126 and shell 128, and of preventing excessive independent movement, and these parts are so related to the levers 130 that they will not allow the shell 128 enough vertical movement to cause its upper edge to move below the lugs 133, though they will allow the shell to move so as to place the lugs directly adjacent to such edge. Formed in the lower end of the shell 128, and extending upwardly therein, is the square opening 147, which is adapted to receive the vertically-extending standard 148 of the table 67. The standard 148 is mounted on the table by means of the upwardly-extending lugs 149, which are rigidly secured to the center of the table and provided with the stout pin 150, which passes through the two and through the standard 148. By these means the shell and core are supported, when not suspended by the cable 143, and owing to the form of the opening 147 and the standard 148 the shell and core are made to revolve with the table. Fixed to the mast 99 at a point just above the beam 8 is the forwardly-extending arm 151, which is provided with the cord 152, passed forwardly to the vicinity of the seat 10, so that it may be reached by the driver. By drawing the cord 152, the arm 151, and consequently the mast, may be turned or revolved on its mountings, so as to throw the jib from over the table 67 to the rear of the machine, as will be more fully described hereinafter.

153 indicates two pairs of shafts by which the drawing of the machine is effected, and these are arranged so as to allow one row of corn to pass between them, and one on each outer side, a horse being hitched to each pair of shafts. The machine is adapted to cut three rows of corn, and to effect this it will be necessary to have the horses pass one in each row. This may be done by means of the shafts 153, one pair for each horse, or by means of the tongues 154, of Fig. 8. The tongues and shafts are connected to the bar 18 by the usual thill-coupling, and will be well understood.

By reference to the drawings the operation and use of my invention may be traced as follows: The team of horses for drawing the appliance is hitched to the shafts 153, and the machine drawn through the field, longitudinally with the rows of corn, and with three rows in the path of the cutting apparatus. As the cutting mechanism operates to sever the stalks, the arms of the reel simultaneously operate to throw the corn of the outside rows back upon the carrier-chains 44, while the middle row of corn is forced rearwardly between the shafts 36 and 37. Thus the corn is carried from the outer ends of the cutting apparatus to the middle thereof, and through the space between the shafts 36 and 37, where it meets the stalks of the inner rows and is carried therewith into the space between the arms 93 of the standards 90. When the corn has accumulated sufficiently in this space, an attendant turns the standards, so that he may readily grasp the corn, and so that the next arm of the series 93 will be in position to catch the incoming corn as before. After the attendant grasps the bundle of corn it should be lifted upon the table 67, and deposited between two of the guiding-levers 145, and resting upon the surface of the table. This operation should be continued until the spaces between the levers directly adjacent to the attendant are filled, whereupon the lever 84 is swung on its fulcrum so as to engage the beveled gears 78 and 49, thus causing the shaft 75 to revolve, and with it the table 67. In this way the table is turned through a partial revolution to place the remaining levers 130 adjacent to the attendant and in position to be filled with the corn from the standards 90. Thus it will be seen that the corn is placed around the sleeve 128, and held from falling off by the levers 145, and when sufficient corn has been collected to form a shock, the attendant should bind it securely with rope or wire, as preferred, care being taken to get the binding above the levers 145. The driver then moves the lever 121 to the right, and thereby turns the rock-shaft 116 and moves the rod 115 longitudinally to engage the drum 112 with the clutch-member 114. This will wind the cable 143 upon the drum and operate to raise the core 126, shell 128, and the entire shock of corn, which, as before explained, is bound thereto. As soon as the upper ends of arms 130 engage the inclined faces of the cone 139 they will be forced inwardly, thus disengaging the lugs from the notches 134, and releasing the shell 128, when the shell and the shock will drop. As the shell 128 moves on the core 126, the rods 144 will cause the guide-levers 145 to swing on their fulcrums and throw their outer ends downwardly, thereby releasing the shock and allowing it to drop to the ground. This operation must be preceded, however, by swinging the shock rearwardly in order to clear the machine, and to effect this, the cord 152 is grasped by the driver, prior to the engagement of levers 130 with the corn, and drawn toward him, which will throw the arm 151, and consequently the mast 99 and all of its attachments, to the left, and place the jib 108 pointing a quarter rearwardly. The operation of the parts must be so timed that the levers 130 will engage the cone 139 immediately after the jib has assumed this position, so that there will be no delay, and to effect this the drum 112 and arm 151 should be operated simultaneously. When the shock has been dropped the arm 151 should be swung to the right, which will cause the mast to return to its normal position, whereupon the attendant should lift the shell 128 and place it upon the standard 148.

It will be obvious that the drum 112 should

be disengaged from the clutch immediately upon the engagement of levers 130 with the cone 139, to avoid injury to the machine.

It will be understood that the hollow shaft 101 and the parts geared thereto, will be revolving continuously during the progressive movement of the machine, and that this will not be affected by the swinging of the mast when operating to deposit the shock.

Having described my invention, what I claim is—

1. In a corn harvester, the combination with a supporting framework, cutting mechanism, and means for operating the same, of a shock-form having a shell, a core slidably fitted in the shell, stalk-holding levers fulcrumed upon the shell in longitudinal slots formed therein and connected to the core inside of their pivots, locking devices for securing the core and shell in their normal positions, elevating mechanism, and means for disengaging said locking devices, whereby, when the locking devices are disengaged, the stalk-holding levers are folded by the downward movement of the shell, and said downward movement is limited by the connections between the core and the stalk-holding levers to prevent separation of the shell from the core, substantially as specified.

2. A corn cutter, comprising the combination of a cutting apparatus, a derrick for raising and depositing the shock, a core suspended from the derrick, a shell fitting over the core and adapted to have the shock bound thereon, a lever fulcrumed to the core and having a spring tendency toward the shell with which it engages so as to hold the shell and core together, a stalk retaining lever fulcrumed to the shell and connected to the core, and an inclined plane on the derrick against which plane the lever for holding the core and shell together is adapted to be raised, whereby the lever is moved to disengage the two parts, and the shell allowed to move on the core so as to disengage the shock-retaining lever and release the shock, substantially as specified.

3. A corn cutter, comprising the combination of cutting apparatus, a derrick for raising and depositing the shock, a downwardly opening hollow cone on the derrick, a core connected to the derrick, a shell movable vertically on the core, two oppositely-arranged levers fulcrumed to the core and provided with springs for pressing them into engagement with the shell, whereby the core and shell are connected, a retaining lever fulcrumed to the shell and connected to the core and adapted to pass into and hold the corn, the shell being adapted to have the corn bound thereon, and the core and its attachments being adapted to be raised until the cone and the two levers of the core engage, whereby the shell and core are disengaged and the retaining lever moved to release the shock and to allow it to drop on the ground, substantially as specified.

4. In a corn harvester, the combination with a supporting framework, cutting mechanism, and means for operating the same, of a shell, a core fitting slidably in the shell, means for limiting the upward and downward movements of the core in the shell and including levers for holding a shock on the shell, said levers being operatively connected to the core, a rotary table supporting said shell and core, spring actuated locking levers for securing the core and shell in their normal relative positions, means for elevating the core, and a hollow cone arranged in the path of said locking levers to disengage the latter and release the shell, substantially as specified.

5. In a corn harvester, the combination with a supporting framework, cutting mechanism, and means for operating the same, of a rotary table, a shell removably stepped at its lower end on the table, a core slidably fitted in said shell, means for limiting the upward and downward movements of the core and including levers for holding the shock on the shell, intermediately fulcrumed locking-levers carried by the core and engaging the shell, an elevating mechanism having a revoluble mast and lateral jib provided with means attached to the core for elevating the same, and a hollow cone secured to and supported by the jib forming a part of the said elevating mechanism, and arranged in the path of the upper extremities of said locking levers to disengage them from and release the shell, substantially as specified.

6. A corn cutter, comprising the combination of a derrick mast mounted on the frame of the machine, a jib affixed to the mast, a continuously-revolving shaft extending parallel with the mast, a second shaft extending parallel with the jib and geared with the shaft on the mast, a clutch member fixed to the shaft on the jib, a drum loosely mounted on the said shaft and capable of positive engagement with the clutch-member, and a shock-form connected to the drum and adapted to be raised thereby, substantially as specified.

7. A corn cutter, comprising the combination of a derrick mast mounted on the frame of the machine and having a jib affixed thereto, a hollow shaft embracing the lower portion of the mast and revoluble thereon, the shaft being geared with the driving mechanism of the machine and thereby revolving continuously, a second shaft connected to the hollow shaft and extending parallel with the jib, a drum mounted loosly on the said second shaft and capable of positively engaging the same, and a shock-form connected to the drum whereby the shock-form may be raised by the revolution of the drum, substantially as described.

8. In a corn harvester, the combination with a supporting framework, of a derrick mounted thereon, a continuously revolving shaft mounted on the derrick, a clutch-member fixed to said shaft, a drum loosely mounted on the shaft and adapted for longitudinal movement

to engage said clutch-member, a rod connected to the drum, a crank-shaft connected to the rod, and means for turning said crank-shaft and securing it in the desired position, substantially as specified.

9. In a corn harvester, the combination with a supporting framework and cutting mechanism provided with suitable operating devices, of conveying apparatus having a plate arranged in rear of the cutting mechanism, opposite pairs of rearwardly inclined shafts, spurred conveyer chains carried by said shafts, means for communicating motion to said shafts whereby the front side of the said chains move inward or toward the center of the machine, and holding devices arranged in rear of the space between the inner or adjacent shafts of said opposite pairs, the same consisting of revoluble vertical shafts, radial arms fixed to said shafts and adapted to be arranged to form rests or pockets for the reception of the corn as it leaves the conveyer chains, and means for adjusting said arms vertically on the shafts, substantially as specified.

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

FREDERICK S. GARRISON.

Witnesses:

JOHN H. SIGGERS,

J. B. OWENS.