

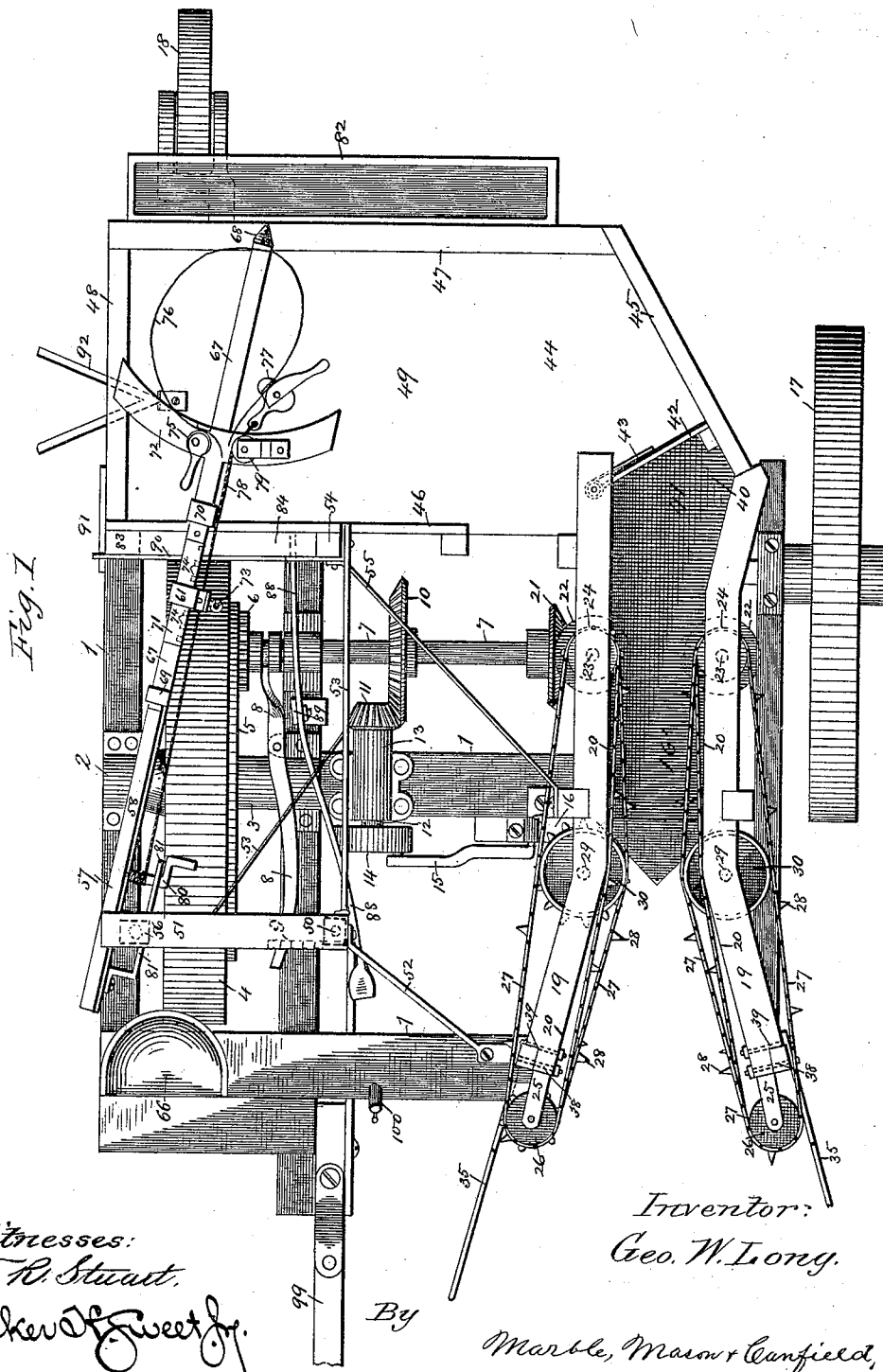
(No Model.)

4 Sheets—Sheet 1.

G. W. LONG.
CORN HARVESTER.

No. 467,110.

Patented Jan. 12, 1892.



Witnesses:

F. R. Stewart.

Parker & Sweet Jr.

By

Inventor:
Geo. W. Long.

Marble, Mason & Canfield,
Attorneys.

(No Model.)

4 Sheets—Sheet 2.

G. W. LONG.
CORN HARVESTER.

No. 467,110.

Patented Jan. 12, 1892.

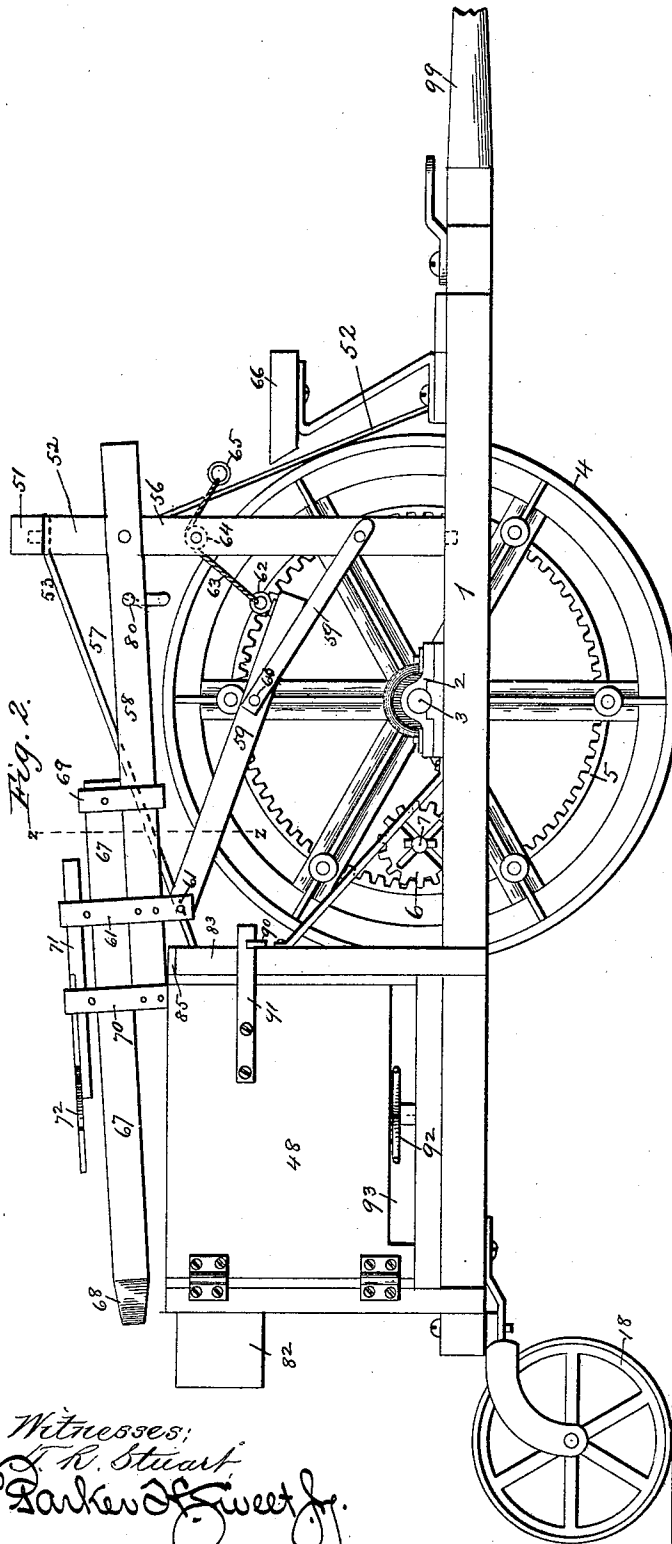
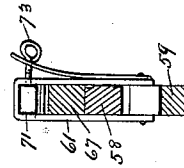


Fig. 2.



Inventor:
Geo. W. Long.

By
Marble, Mason & Canfield,
Attorneys.

Witnesses:
J. R. Stuart
Barker & Sweet Jr.

(No Model.)

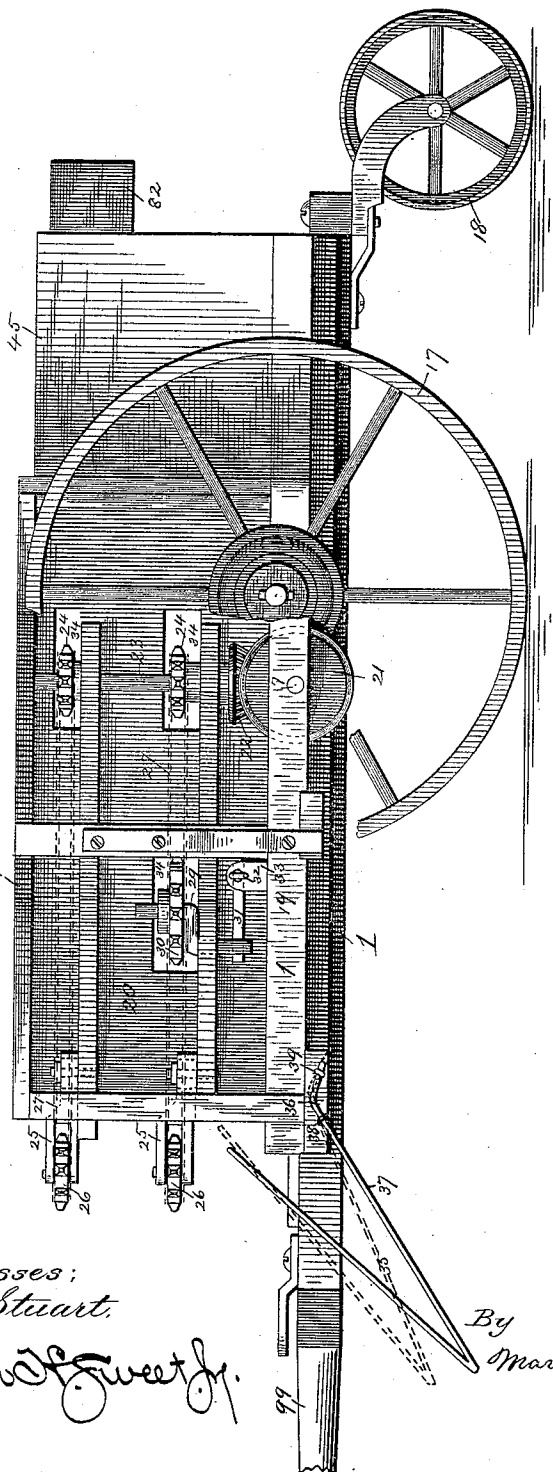
4 Sheets—Sheet 3.

G. W. LONG.
CORN HARVESTER.

No. 467,110.

Patented Jan. 12, 1892.

Fig. 3.



Witnesses;
T. R. Stuart.

Darkey & Sweet Jr.

Inventor:
Geo. W. Long.

By
Marble, Mason & Canfield,
Attorneys.

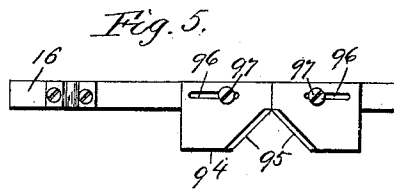
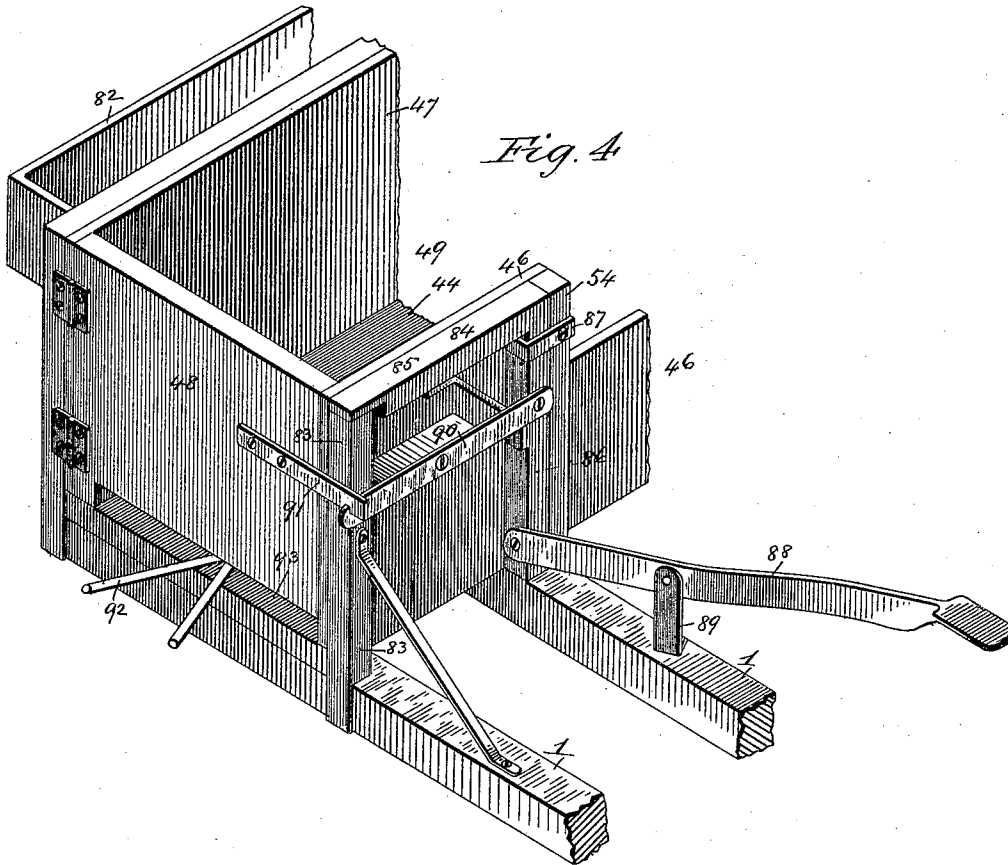
(No Model.)

4 Sheets—Sheet 4.

G. W. LONG.
CORN HARVESTER.

No. 467,110.

Patented Jan. 12, 1892.



Witnesses:

T. H. Stuart

Darker & Sweet Jr.

Inventor:

Geo. W. Long.

By

Marble, Mason & Canfield,

Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE W. LONG, OF DELAWARE, IOWA.

CORN-HARVESTER.

SPECIFICATION forming part of Letters Patent No. 467,110, dated January 12, 1892.

Application filed December 10, 1890. Serial No. 374,169. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. LONG, a citizen of the United States, residing at Delaware, in the county of Delaware and State of Iowa, have invented certain new and useful Improvements in Corn-Harvesters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates, generally, to corn-harvesters, and particularly to improvements in a machine in that class for harvesting, binding, and shocking corn and sugar-cane; and it consists in the improved construction and arrangement or combination of parts, hereinafter fully disclosed in the description, drawings, and claims.

The objects of my invention are, first, to provide a machine of the character named, which will be strong and compact, composed of comparatively few parts and reliable and expeditious in operation; second, to provide improved means for guiding and conveying the stalks to the knife or cutter and for carrying said stalks after they have been severed to what may be termed the "packing-chamber;" third, to provide a box or shocking-chamber at the rear end of the machine for receiving the sheaves of stalks from said packing-chamber; fourth, to provide improved devices for drawing together or binding the shocks in the shocking-chamber; fifth, to provide novel means for discharging the bound shocks from the shocking-chamber, and, sixth, to provide other novel devices and combinations which are accessorial to those thus mentioned. These objects are accomplished by the mechanisms illustrated in the accompanying drawings, forming part of this specification, in which the same reference-numerals indicate the same or corresponding parts, and in which—

Figure 1 represents a top plan view of my improved corn-harvester; Fig. 2, a view in elevation of the right side of the same; Fig. 2^a, a vertical section of the horizontally-projecting arm of the crane, the longitudinally-movable pointed bar mounted thereon, the longitudinally-movable short bar mounted upon the latter, and the adjustable brace-bar, the section being on the line *zz* of Fig. 2, the

two-armed bracket and the spring-pressed pin being also shown therein in side elevation; Fig. 3, a side view of the left side of the machine; Fig. 4, a perspective view of a portion of the shocking-chamber and some of its attachments, and Fig. 5 a detail plan view of an alternative form or construction of the knife or cutter.

Referring to the parts of my invention, as shown in the drawings, the numeral 1 indicates the main frame of the machine, which may be constructed in any suitable or desirable manner, and upon it are secured the journal-boxes 2, in which the shaft 3 of the traction or driving-wheel 4 is mounted. This wheel is provided with the inner cogged rim 5, which meshes with the pinion 6, secured to the power-transmitting shaft 7, which is mounted just in rear of the drive-wheel shaft 3. This pinion 6 is connected to the shaft 7 by a suitable spline or feather, so as to be capable of longitudinal movement thereon. The pivoted shifting-lever 8 is provided for moving said pinion on its spline into and out of engagement with the cogged rim 5, while the notched plate 9 serves to lock the front end of said lever and thus hold said pinion in either position to which it may be adjusted. The bevel gear-wheel 10 is also secured to the power-transmitting or main shaft 7, and is in engagement with the smaller bevel gear-wheel 11 on the rear end of the short shaft 12, which is journaled in the box 13, secured to the main frame at right angles to said main shaft. A crank-disk 14 is secured to the forward end of said shaft 12 and connected by the pitman 15 to the inner end of the knife or cutter-bar 16, which is movable in ordinary guides secured to the front side of one of the cross-beams of the main frame. Projecting from the left side of the machine, slightly in rear of its middle, is an axle upon which is journaled the supporting-wheel 17, and at the rear end and near the right side of the machine is secured the caster-wheel 18.

Along the portion of the left side of the machine and suitably secured to the frame-work thereof are the vertical sprocket-chain-supporting frames 19, which are spaced a proper distance apart, provided with flared or V-shaped forward ends and composed of verti-

cal posts and horizontal beams which are faced on their inner sides with the linings 20 of sheet metal or other suitable material for preventing the silk and blades of the corn from coming into contact with and clogging the gearing and other parts. Along the left end portion of the main shaft 7 are secured two vertically-arranged bevel gear-wheels 21, which engage the horizontally-arranged bevel gear-wheels 22 on the lower ends of the two vertical shafts 23, which are journaled in the rear portions of the vertical frames 19 and provided each with two sprocket-wheels 24. To the front ends of said frames 19 and at suitable vertical distances apart are secured the longitudinally-adjustable supports 25, in which are journaled the idler sprocket-wheels 26. Upon these sprocket-wheels and idlers are mounted and engaged the endless sprocket-chains 27, two upon each frame 19, which are provided with horizontal prongs or spurs 28 of any suitable length. About midway of these frames are journaled the crank-shafts 29, upon which are loosely mounted the large sprocket-wheels 30, which are arranged inside of the lower endless sprocket-chains for keeping them at the proper tension, for bringing them closer together when the corn is light, and for separating them to a proper extent when the corn is heavy. These large sprocket-wheels are arranged above and a little in front of the knife or cutter-bar 16; also, the lower ends of their crank-shafts 29 are slotted and have secured therein the strong flat springs 31, against the rear ends of which bear the thumb-screws 32, which pass through the small standards 33. The tendency of these springs is to constantly press these large sprocket-wheels and the chains passing thereover toward each other and against the corn; but they readily yield when the pressure of the corn is too great; also, the constant tendency of these crank-shafts and their sprocket-wheels to vibrate greatly relieves the strain upon the chains and other parts, but their special purpose is to counteract the friction caused during the cutting of the corn and while the weight thereof rests upon the platform 16' in rear of the cutter-bar 16, and thus permit the lower chains to force the butts of the cut corn along as fast as the tops are moved by the upper chains. In the sheet-metal linings 20 of the chain-frames 19 are formed the horizontal slots 34 for receiving and permitting the free rotation of the sprocket-wheels 24 and 30 while the endless sprocket-chains 27 are moving along the inner sides of said linings.

Secured to the main frame just below the front ends of the two vertical chain-frames 19 are the downwardly-inclined V-shaped guide-rods 35, which are employed for lifting or raising fallen and inclined stalks of corn and properly guiding them between the sprocket-chains for being delivered to the cutter. These guide-rods are formed with the curves 36 at the rear ends of their lower arms 37, which

are secured to said main frame by the guide-bolts 38, which are made sufficiently strong to hold said guide-rods firmly; also, said curves pass through the clamp-bolts 39, which permit the front ends of said guide-rods to be raised or lowered and held at any desired distance above the ground. These clamp-bolts are screw-threaded, passed through the sides of the main frame, and secured against the inner sides thereof by means of nuts, as shown by dotted lines in Fig. 1.

Between the rear ends of the vertical chain-frames 19 and in rear of the knife or cutter and its bar 16, with the floor 40 for its bottom, is formed the packing-chamber 41, which receives the stalks as they are cut and holds them as they are moved along and packed closely together by the sprocket-chains. The rear end of this chamber is held normally closed by the gate 42, which is pivoted at its right side and has the spring 43 pressing against its back for holding it closed until enough stalks have accumulated to form a sheaf of size requiring removal. Communicating with this packing-chamber is the wide laterally-extending bottom 44, which is supported upon the main frame and which, in connection with the inclined end wall 45, the front and rear walls 46 and 47, and the door 48, constitutes the shocking-chamber 49, within which the operator stands, receives the sheaves of stalks from said packing-chamber, forms the shocks into the desired size, assists in binding them, and places them in condition for being swung out of or discharged from said chamber and placed in vertical position upon the ground by the mechanism now to be described.

Near the front end of the machine the vertical standard 50 is rigidly secured to the main frame and provided at its upper end with the horizontal arm or extension 51, which projects toward the right side of the machine. This standard and its extension are rigidly held in place by the inclined stay-rod 52, which is attached to the former, and by the forked stay-rod 53 which is connected to the latter, extended rearwardly and secured to the upright 54. From the latter also extends the horizontally-inclined stay-rod 55, which is secured at its front end to the inner vertical chain-frame 19. In the outer end of the extension 51 and in the main frame beneath is journaled or pivoted the vertical post 56 of the crane 57, which is provided with the horizontally-projecting bar or arm 58, which is pivoted to said vertical post near its upper end. The free portion of this arm 58 is adjustably supported by the two-part brace 59, which is jointed at 60 and pivoted at its lower end to the crane-post 56 and at its upper end to the two-armed bracket 61, which is firmly bolted to said arm. The joint in this brace constitutes a toggle connection, which, when extended, holds the arm 58 in horizontal position and which, when bent upwardly, lowers the free portion of said arm for the purpose

hereinafter explained. At the lower end of the upper portion of this brace is secured the loop or eye 62, to which is secured the end of the rope 63, which passes forwardly over the small sheave or pulley 64 on the side of the post 56, and is provided at its front end with the hand-ring 65, which is located near the seat 66 for the driver. Upon the upper side of the crane-arm 58 rests the adjustable or extension bar 67, which is formed with the point 68 at its free end for entering the previously-bound shock and assisting in swinging the same out of the shocking-chamber 49 and depositing it in vertical position upon the ground. This pointed bar is provided at its inner end with the guide-loop 69, which embraces the crane-arm 58 and is longitudinally movable thereon through the two-armed bracket 61 and the guide-loop 70, the latter being bolted to the free end of said arm. Also, upon the upper side of this bar 67, and arranged in the upper ends of said two-armed bracket and the latter guide-loop is mounted the longitudinally-movable short bar 71, which is provided at its free end with the curved or bow-shaped former 72. By the adjustment of this short bar and its former back and forth, shocks of different sizes can be made in the shocking-chamber; also, said bar and its former are held in the positions to which the operator adjusts them by the spring-pressed pin 73, which is attached to the inner side of the two-armed bracket 61 and projections into either of the holes 74, formed in the inner side of said bar, as shown in Fig. 1. Upon the upper surface of the former 72 is secured a pair of ordinary gripping-jaws 75 for holding one end of the cord or wire 76, which is used for binding the shock, the other end of said cord or wire being held by another pair of gripping-jaws 77, similar to an ordinary wire-stretcher, which is secured to the end of the chain or rope 78, which leads forwardly over the small pulley 79, which is also secured upon the upper surface of said former near the jaws 75, and is secured at its inner end to the windlass 80, which is journaled in the crane-arm 58 and in the bracket 81 near the inner end thereof, and which when revolved by the driver draws said chain or rope inwardly, tightens or binds the cord or wire 76 around the shock, and leaves its ends in proper proximity for being tied or twisted by the operator. To the outer side of the rear wall 47 of the shocking-chamber 49 is secured the box 82 for containing the pieces of cord or wire which are employed for binding the shocks.

After the shock has been shaped and bound, as described, and it is desired to remove the same from the shocking-chamber the pointed bar 67 is slid outwardly and passed through the shock, after which the latter is raised, swung out of said chamber by the crane 57, and deposited vertically upon the ground by the following mechanisms and operations: Between the uprights 54 and 83, which are

secured to the main frame and support the front wall 46 of said shocking-chamber, is arranged the lifting-slide 84, which is composed of the horizontal and vertical arms 85 and 86, the latter being held in place, so as to permit of its vertical movement by the bracket or loop 87, which is secured to the upright 54 near its upper end. To the lower end of the arm 86 is pivoted the forwardly-extending lever 88, which is fulcrumed upon the short standard 89 and arranged to be operated by the foot of the driver. Pivoted to the vertical arm 86 of the slide 84 is the horizontal lever 90, which is fulcrumed at or near its center and notched at its outer end for receiving the forward end of the latch 91, which is rigidly secured to the outside of the door 48 of the shocking-chamber 49. When the front end of the foot-lever 88 is depressed, its rear end will raise the lifting-slide 84 and the inner end of the lever 90, which will cause the outer end of the latter to be moved downwardly and its notch to be disengaged from said latch, the result being that the door 48 will first be opened and then the shock swung out of said chamber by the crane 57 and the pointed bar 67 and deposited upon the ground.

It has been found necessary to enlarge the bases or bottoms of shocks of corn, so that they will stand firmly when placed upon the ground, and for this purpose the forked spreader 92 is secured to the bottom of the chamber 49 in a slightly-raised position, as shown in Fig. 2, and is so arranged that its arms or forks will project beyond the right end of said bottom and through the recess 93, formed in the base of the door 48, as shown most plainly in Fig. 4. As the shocks are moved out of said chamber the inner pointed end of said forked spreader will enter their bases and widen them to an extent which will insure them firm support upon the ground.

In Fig. 1 of the drawings is shown a double-edged V-shaped knife or cutter attached to the reciprocated bar 16; but it is sometimes desirable, for different kinds of corn, to substitute and use a two-edged knife or cutter 94, of construction shown in Fig. 5, which has a V-shaped notch, and may be either made in one piece or, as shown, in the two sections 95, which are formed with the slots 96, through which the screws 97 pass for adjustably and removably securing them to the reciprocated bar 16. If desired, the edges of these cutters may be reciprocated over steel plates secured to the sides of the timbers forming the lower portions of the chain-frames 19, so as to effect a "shear cut." At the front of the machine is secured the usual pole or tongue 99, and at the rear and to the left thereof is mounted the rein-holder 100.

In addition to what is obvious and above explained in relation to the operation of my improved corn-harvester, it may be further stated that when the same is in action, with the operator standing upon the bottom of the shocking-chamber, and when the driver has

moved the shifting-lever 8 and placed the
 sliding pinion 6 in engagement with the cogged
 inner rim 5 of the traction or drive wheel 4
 motion will be imparted to the power-trans-
 mitting or main shaft 7 and communicated
 through the train of gearing described to the
 reciprocating knife or cutter-bar 16 and to
 the endless sprocket-chains. Then, as the
 machine is advanced, the downwardly - in-
 clined V-shaped guide-rods 35 will raise the
 fallen or inclined stalks of corn and guide
 them between the forwardly-flared frames 19,
 where, with the straight stalks, they will be
 caught by the prongs or spurs 28 on said endless
 sprocket-chains and held for the action of the
 knife or cutter. Then, after the severance and
 during the rearward passage of said stalks, they
 will be received upon the floor 40 and conveyed
 by the spurred chains into the packing-cham-
 ber 41, in numbers sufficient to form succes-
 sive sheaves, where they accumulate against
 the spring-held gate 42, and act with suffi-
 cient pressure to open the same and enable the
 operator to receive said sheaves intermit-
 tingly and place them against the curved or
 bow-shaped former 72 until enough have ac-
 cumulated to form a shock of the size de-
 sired. Then the cord or wire 76, a portion of
 which, near one end, having previously been
 secured between the gripping-jaws 75, is
 passed around the shock and attached near
 its opposite end to the gripping-jaws 77, which
 are attached to the rear end of the chain or
 rope 78, which extends forwardly to the wind-
 lass 80, which is operated by the driver for
 winding up said chain or rope and thus tight-
 ening said cord or wire around and binding
 the shock. Then the ends of said cord or wire
 are tied or twisted by the operator, when the
 shock will be in condition for removal from
 the shocking-chamber 49, which is effected
 by the operator passing the pointed bar 67
 through said shock, by his removal of the
 gripping-jaws 75 and 77 from the tightened
 cord or wire, by the driver depressing the
 front end of the foot-lever 88, which raises its
 rear end and also the lifting-slide 84, which
 operates the devices for unfastening the door
 48 and raises the rear end of the crane-arm
 58, the pointed bar 67, and the shock impaled
 upon the latter by the operator or driver
 swinging said crane-arm and its attachments
 to the right and the shock out of the shock-
 ing-chamber, the shock during this movement
 having its base spread out or enlarged by the
 forked spreader 92 and by the driver lower-
 ing or inclining the rear portion of said crane-
 arm and the pointed bar for the purpose of
 permitting the shock to slide from the latter
 and drop upon the ground at the right side
 of the machine, which he effects by pulling
 upon the hand-ring 65 of the rope 63 and
 moving the joint 60 of the two-part brace 59
 upwardly. After the shock has been de-
 posited upon the ground the crane-arm and
 its attachments are raised to their horizontal
 position by pressing upon and straightening

said two-part brace, after which they are
 moved back into operative position over said
 shocking-chamber, adjusted, and the door of
 the latter closed, when the machine will be
 ready for further operation. While the bind-
 ing and delivery of the shock and the return
 of the crane-arm and its attachments to their
 operative positions are being effected it is
 necessary to temporarily suspend the forward
 movement of the machine.

It will be obvious that many formal changes
 can be made in the construction of my im-
 proved corn-harvester, and that the gearing
 for driving its several parts can be greatly
 varied without departing from the spirit of
 my invention; that the provision of the com-
 paratively large sprocket-wheels 30, which
 are loosely journaled upon the spring-pressed
 crank-shafts 29, is very important, as the lower
 endless pronged or spurred sprocket-chains
 can thereby be kept under proper tension
 and brought nearer together or placed far-
 ther apart, as the corn may be small or large;
 that if the corn has been sowed in drills the
 construction of knife or cutter 94 (shown in
 Fig. 5) can be substituted for the one shown
 in Fig. 1; that many of the parts can be dif-
 ferently arranged, and that they are capable
 of employment in other machines than the
 one I have invented.

Having thus fully described the construc-
 tion and arrangement or combination of the
 several parts of my invention, its operation,
 capabilities, and advantages, what I claim as
 new is—

1. In a corn-harvester, the combination,
 with the main frame, of the vertical frames
 rising from said main frame and diverging at
 their front ends, upper and lower pairs of
 sprocket-wheels journaled in said vertical
 frames and means for driving the same, up-
 per and lower sprocket-chains upon said
 sprocket-wheels, a knife or cutter below said
 chains, and spring-pressed guide-wheels above
 the cutter to normally press the lower chains
 toward each other, substantially as shown
 and described.

2. In a corn-harvester, the combination,
 with the conveying and cutting mechanisms,
 of the packing-chamber, the shocking-cham-
 ber, the spring-actuated gate located at the
 rear end of said packing-chamber and be-
 yond the delivery end of the chains, said gate
 being adapted to be opened by the pressure
 of the stalks and to be closed by the spring-
 pressure thereon, substantially as described.

3. In a corn-harvester, the combination,
 with a shocking-chamber and a curved or bow-
 shaped former against which sheaves of stalks
 are assembled and which is provided with a
 pair of gripping-jaws, of a cord or wire held
 thereby and another pair of movable gripping-
 jaws for said cord or wire, substantially as
 and for the purpose described.

4. In a corn-harvester, the combination,
 with a shocking-chamber and a horizontally-
 adjustable curved or bow-shaped former

against which sheaves of stalks are assembled and which is provided with a pair of gripping-jaws, of a cord or wire held thereby and another pair of movable gripping-jaws for said cord or wire, substantially as described.

5 5. In a corn-harvester, the combination, with a shocking-chamber and a curved or bow-shaped former against which sheaves of stalks are assembled and which is provided with a pair of gripping-jaws, of a cord or wire held thereby, another pair of movable gripping-jaws for said cord or wire, a chain or rope attached to said movable jaws at one end, and a windlass for winding up its other end, substantially as and for the purpose described.

10 6. In a corn-harvester, the combination, with a shocking-chamber and a curved or bow-shaped former, a short horizontally-adjustable bar, to which said former is secured, formed with holes in its side, and a spring-pressed pin arranged to fit in either of said holes, of a pair of gripping-jaws secured to said former, another pair of movable gripping-jaws, and a cord or wire held near its ends by said pairs of gripping-jaws, substantially as and for the purpose described.

15 7. In a corn-harvester, the combination, with a shocking-chamber, of a horizontally-movable crane provided with a horizontally-projecting arm and a pointed bar adapted to slide longitudinally upon said arm, substantially as and for the purpose described.

20 8. In a corn-harvester, the combination, with a shocking-chamber, of a horizontally-movable crane provided with a horizontally-projecting arm pivoted to move in a vertical plane and a longitudinally-movable pointed bar mounted upon said arm, substantially as and for the purpose described.

25 9. In a corn-harvester, the combination, with a shocking-chamber, of a horizontally-movable crane provided with a horizontally-projecting arm pivoted to move in a vertical plane, a longitudinally-movable pointed bar mounted upon said arm, and means for raising the free ends of said arm and bar, substantially as and for the purpose described.

30 10. In a corn-harvester, the combination, with a shocking-chamber, of a horizontally-movable crane provided with a horizontally-projecting arm pivoted to move in a vertical plane, a longitudinally-movable pointed bar mounted upon said arm, and means for raising the free ends of said arm and bar, said means comprising a lifting-slide composed of horizontal and vertical arms, and a foot-lever connected to the lower end of the latter arm, substantially as described.

35 11. In a corn-harvester, the combination, with a shocking-chamber provided with a normally-fastened door, of a horizontally-movable crane provided with a horizontally-projecting arm pivoted to move in a vertical plane, a longitudinally-movable pointed bar mounted upon said arm, and means for simultaneously raising said arm and bar and

unfastening said door, substantially as and for the purpose described.

12. In a corn-harvester, the combination, with a shocking-chamber provided with a door having a latch and a horizontal lever having a notch in its outer end for engagement with said latch, of a vertically-movable lifting-slide pivoted to the inner end of said lever for disengaging said latch and notched lever, substantially as described.

13. In a corn-harvester, the combination, with a shocking-chamber provided with a door having a latch and a horizontal lever pivoted to the frame and having a notch in its outer end for engagement with said latch, of a vertically-movable lifting-slide pivoted to the inner end of said lever for disengaging said latch and notched lever, and a foot-lever connected to the lower end of said slide, substantially as described.

14. In a corn-harvester, the combination, with a shocking-chamber, of a horizontally-movable crane provided with a horizontally-projecting arm pivoted to move in a vertical plane, a longitudinally-movable pointed bar mounted upon said arm, and means for lowering said arm and bar for depositing a bound shock in vertical position upon the ground, substantially as described.

15. In a corn-harvester, the combination, with a shocking-chamber, of a horizontally-movable crane provided with a horizontally-projecting arm pivoted to move in a vertical plane, a longitudinally-movable pointed bar mounted upon said arm, and means for lowering said arm and bar for depositing a bound shock in vertical position upon the ground, said means including a two-part brace pivotally connected to said crane, substantially as described.

16. In a corn-harvester, the combination, with a shocking-chamber, of a horizontally-movable crane provided with a horizontally-projecting arm pivoted to move in a vertical plane, a longitudinally-movable pointed bar mounted upon said arm, and means for lowering said arm and bar for depositing a bound shock in vertical position upon the ground, said means including a two-part brace pivotally connected to said crane and a forwardly-leading rope, substantially as described.

17. In a corn-harvester, the combination, with a shocking-chamber, of a horizontally-movable crane provided with a horizontally-projecting arm pivoted to move in a vertical plane, a longitudinally-movable pointed bar mounted upon said arm, means for raising said bar and arm while projecting over said chamber, and means for lowering them while moved from over the same for depositing a bound shock in vertical position upon the ground, substantially as described.

18. In a corn-harvester, the combination, with a shocking-chamber, of a horizontally-movable crane provided with a horizontally-projecting arm pivoted to move in a vertical

plane, a longitudinally-movable pointed bar mounted upon said arm, a lifting-slide for raising said bar and arm while extending over said chamber, and a two-part brace pivotally connected to said crane for lowering them while moved from over said chamber for depositing a bound shock in vertical position upon the ground, substantially as described.

19. In a corn-harvester, the combination, with a shocking-chamber provided with a slightly-raised V-shaped spreader upon its bottom for enlarging the bases of corn-shocks, of a horizontally-movable crane for moving said shocks over said spreader and means for lowering them from said spreader and chamber, substantially as described.

20. In a corn-harvester, the combination, with a shocking-chamber provided with a slightly-raised V-shaped spreader upon its bottom for enlarging the bases of corn-shocks, of means for moving said shocks over said spreader and delivering them from said chamber, said means comprising a vertical rotatable shaft journaled in the frame and an extensible horizontal arm pivoted to said vertical shaft and capable of swinging thereon in a vertical plane and having its swinging end sharpened or pointed, substantially as shown and described.

21. In a corn-harvester, the combination, with a shocking-chamber provided with a spreader upon its bottom for enlarging the

bases of corn-shocks, of means for moving said shocks over said spreader and delivering them from said chamber, said means consisting of a horizontally-movable crane having a horizontally-projecting arm pivoted to move in a vertical plane, a longitudinally-movable pointed bar mounted thereon, a lifting-slide for raising said bar and arm while extending over said chamber, and a two-part brace pivotally connected to said crane for lowering them while moved from over said chamber, substantially as described.

22. The herein-disclosed corn-harvester, comprising the conveying and cutting mechanisms, the packing-chamber, the spring-closed gate at the rear end thereof, the shocking-chamber having a spreader upon its bottom and a door at its end, the binding devices, the horizontally-movable crane having a horizontally-projecting arm pivoted to move in a vertical plane, a longitudinally-movable pointed bar mounted thereon, means for raising said bar and arm while projecting over said chamber, and means for lowering them while moved from over said chamber, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE W. LONG.

Witnesses:

W. H. NORRIS,
A. S. BLAIR.