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T. B. JONES.

CORN HARVESTER.

No. 453,907. Patented June 9, 1891.

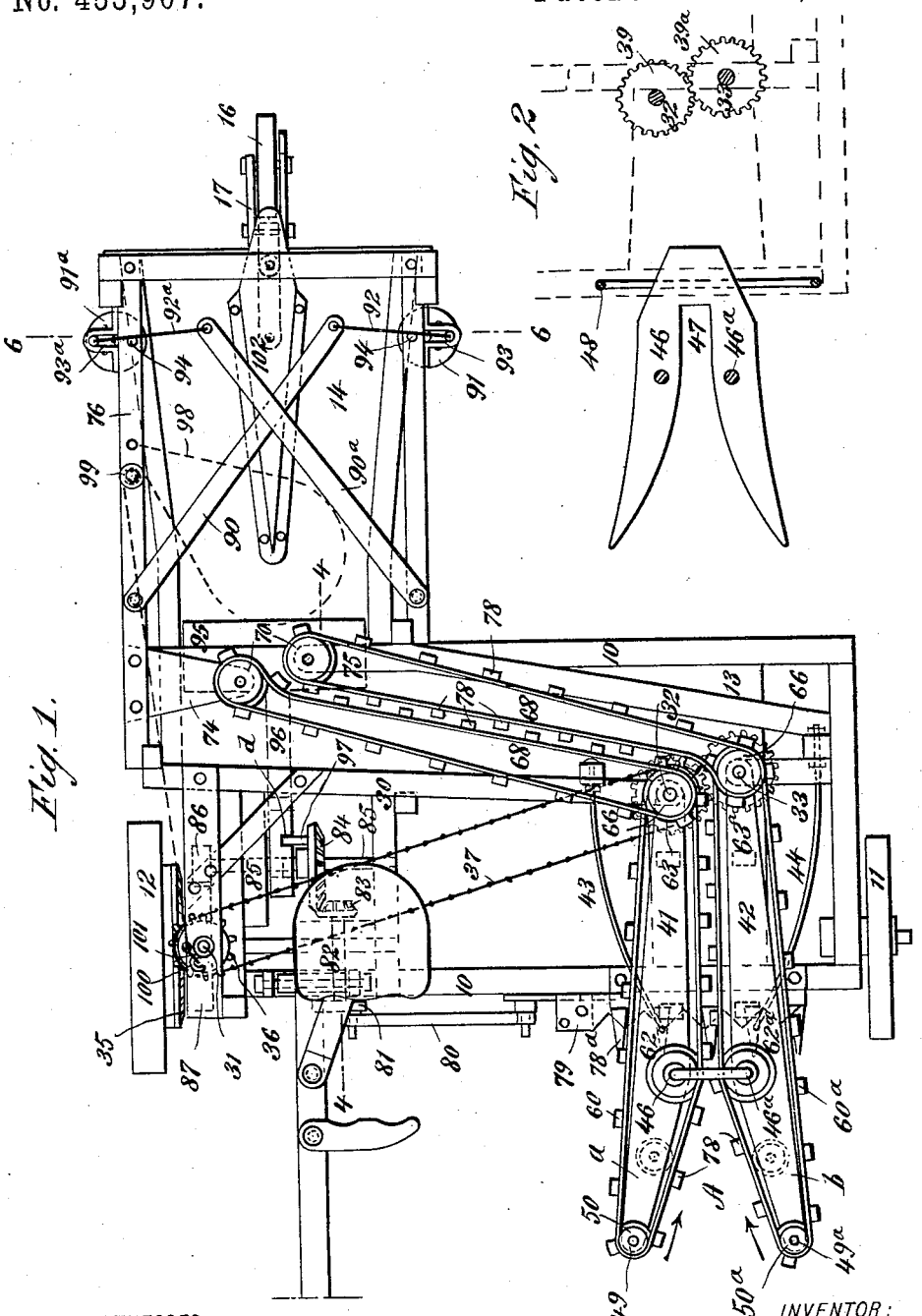

Fig. 1.

Fig. 2.

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Fig. 4.

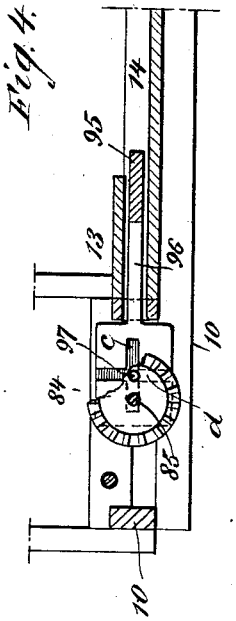

Fig. 3.

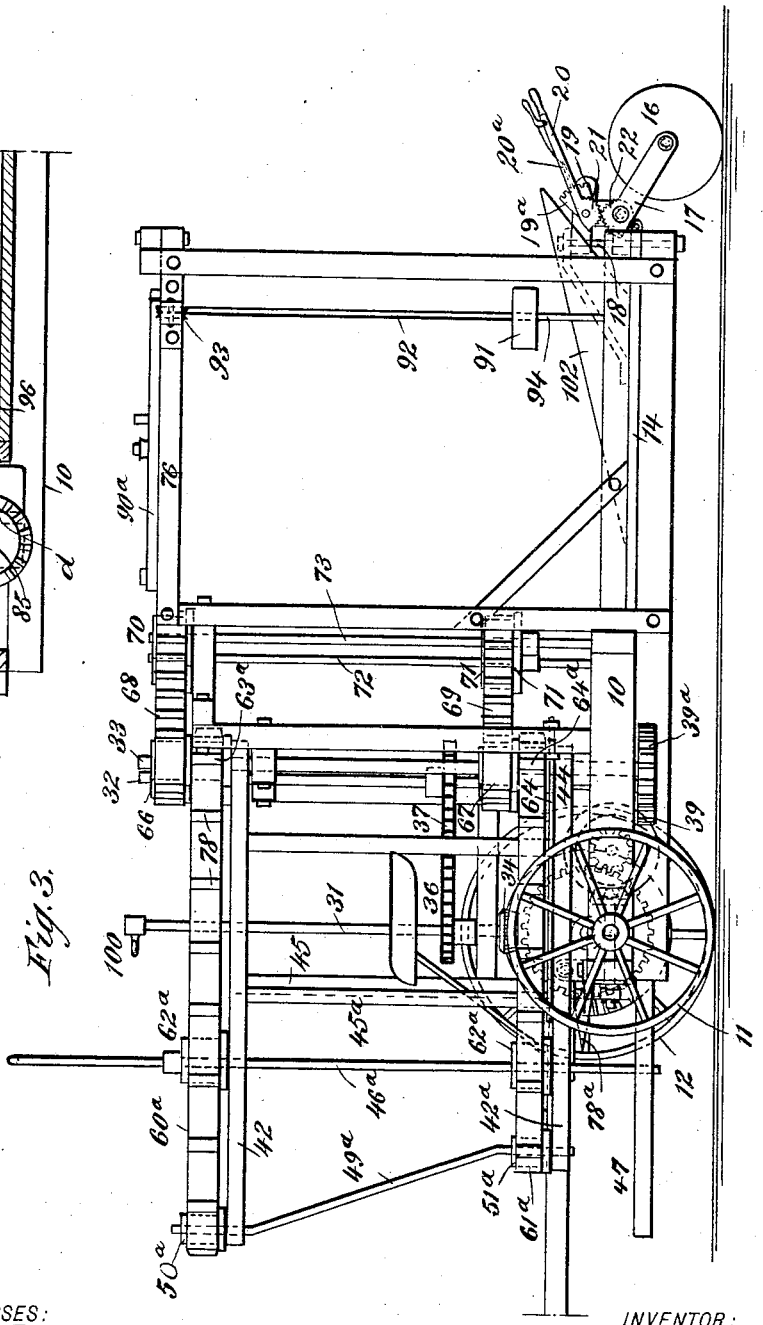

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Fig. 5.

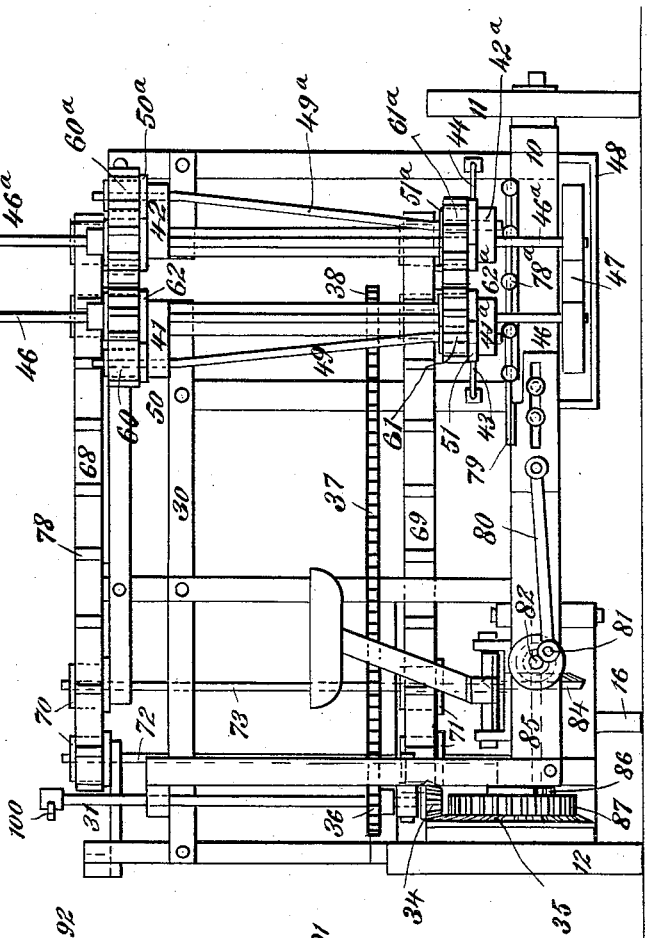
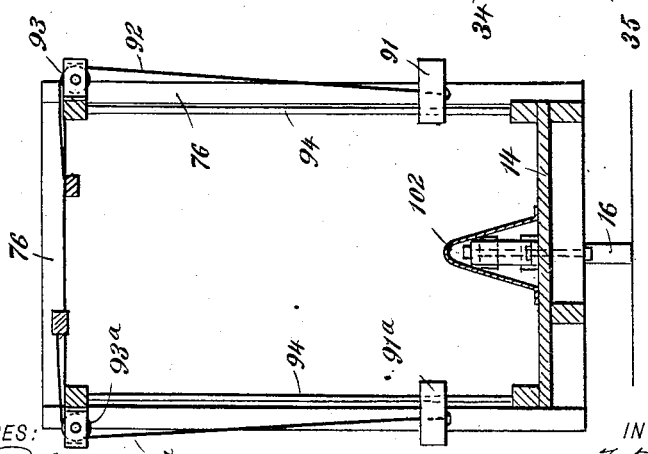


Fig. 6.



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(No Model.) 4 Sheets—Sheet 4.

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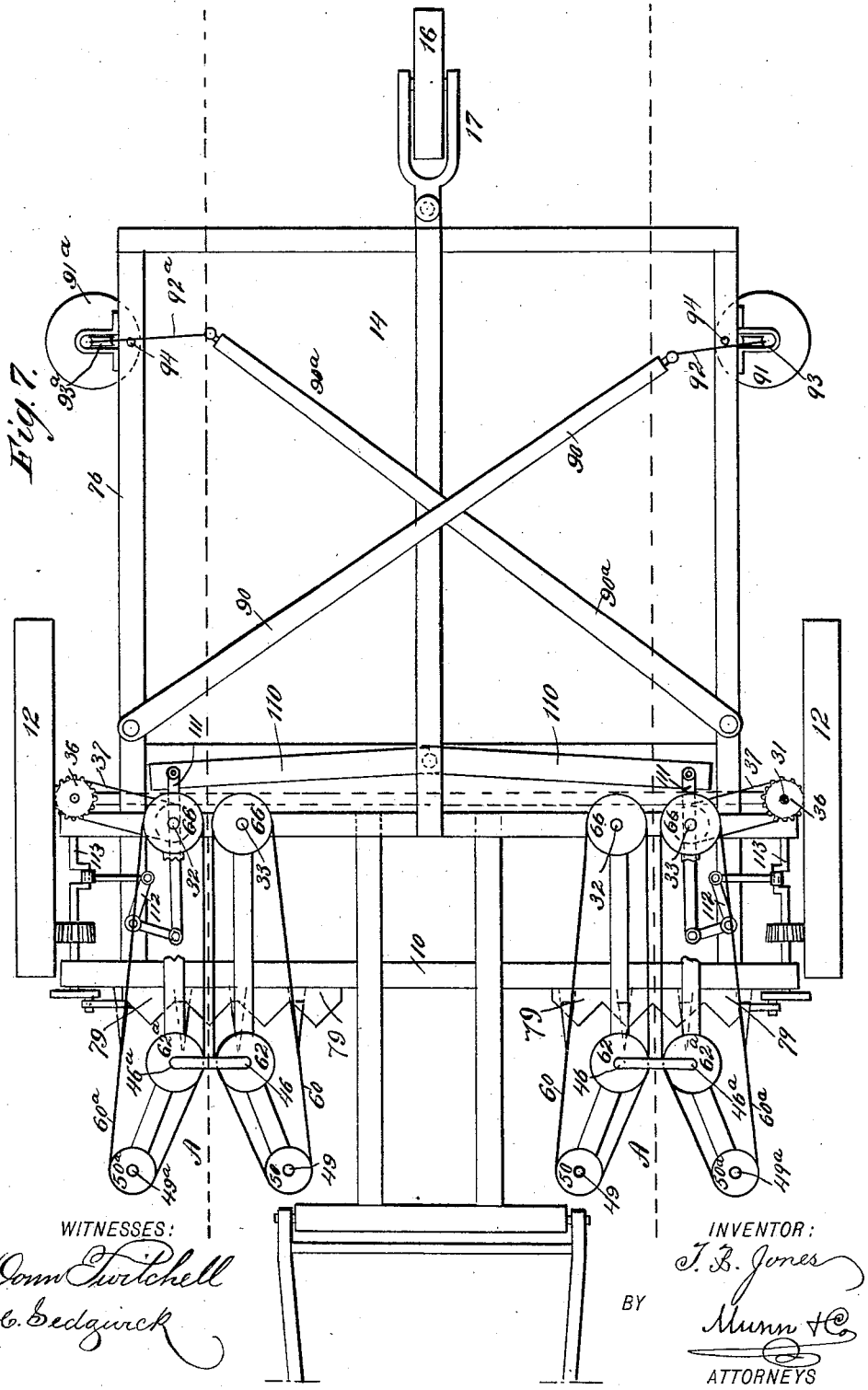
Fig. 7.



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UNITED STATES PATENT OFFICE.

THOMAS B. JONES, OF RADNOR, OHIO.

CORN-HARVESTER.

SPECIFICATION forming part of Letters Patent No. 453,907, dated June 9, 1891.

Application filed December 16, 1889. Serial No. 333,952. (No model.)

To all whom it may concern:

Be it known that I, THOMAS B. JONES, of Radnor, in the county of Delaware and State of Ohio, have invented a new and Improved Corn-Harvester, of which the following is a full, clear, and exact description.

This invention relates to corn-harvesters, the object of the invention being to provide for the holding of the cornstalks in an upright position at the time they are being cut, to provide for the holding of the stalks when they are being compressed, to provide for a lateral transfer of the stalks in case a side-draft machine is employed, to provide for an automatic movement of the stalk-gathering frame, and finally to provide for the spreading of the butt of the shock prior to its delivery from the harvester.

To the ends named the invention consists of certain novel constructions, arrangements, and combinations of elements, which will be hereinafter described, and specifically pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of my improved corn-harvester. Fig. 2 is a sectional detail view taken on a line just beneath the main frame of the machine. Fig. 3 is a side view of the machine. Fig. 4 is a sectional detail view on line 4 4 of Fig. 1. Fig. 5 is a front view of the machine. Fig. 6 is a cross-sectional view on line 6 6 of Fig. 1, and Fig. 7 is a diagrammatical plan view of a central-draft double-row machine.

Referring now to the construction illustrated in the first six figures of the drawings, 10 represents the main frame of the machine, at one side of which there is arranged a supporting-wheel 11, while at the other side there is a driving-wheel 12. The frame 10 carries a transverse platform 13, to the rear of which platform there extends a delivery-platform 14, the platform 14 being somewhat lower than the platform 13, and the rear end of this platform 14 being supported by a caster-wheel 16, that is mounted in an adjustable bracket 17, said bracket being pivotally connected to a bracket 19, mounted on the vertical shaft 18. To the bracket 19 is fulcrumed a lever 20, formed with a segmental rack 21, which rack 21 engages a rack 22, formed upon the bracket 17, the arrangement being such that by shifting the lever 20 the rear end of the platform 14 may be raised or lowered to suit the requirements of the case. The lever 20 is locked in the position to which it is adjusted by means of the latch 20^a, carried by the lever engaging the toothed segment 19^a on the bracket 19.

The frame 10 carries a frame 30, which frame 30 serves as a support for the upper ends of vertical shafts 31, 32, and 33, the lower ends of the shafts being stepped in the frame 10. The shaft 31 carries a bevel-pinion 34, that engages a gear 35, carried by the wheel 12, and above the pinion 34 there is arranged a chain-wheel 36, that drives a chain 37, said chain running in connection with a second chain-wheel 38, that is carried by the shaft 32, the motion imparted to the shaft 32 being communicated to the shaft 33 through the medium of gears 39 and 39^a, that are arranged as best shown in Fig. 2. A stalk-gathering frame A extends forward from the shafts 32 and 33, the inner ends of the arms 41, 41^a, 42, and 42^a of the frame members *a* and *b* being pivoted upon the shafts 32 and 33, the arms extending forward from the shafts and being normally held in the position in which they are shown in the drawings by springs 43 and 44. The arms 41 41^a 42 42^a are connected, respectively, by vertical struts 45 and 45^a, whereby each frame member becomes a rigid structure capable of independent movement.

In advance of the forward struts 45 and 45^a I mount vertical shafts 46 and 46^a, which shafts are preferably formed by bending a single length of iron to U form. The lower ends of the shafts 46 and 46^a are carried down below the arms 41^a 42^a, there to engage a bifurcated bar or stalk-guide 47, the rear end of said guide being supported by a bail 48.

In advance of the shafts 46 and 46^a there are mounted shafts 49 and 49^a, which carry upper pulleys 50 and 50^a and lower pulleys 51 and 51^a, such pulleys serving as guides for belts 60 and 60^a and 61 and 61^a, which belts

run over guiding-pulleys 62 and 62ª, that are carried by the shafts 46 and 46ª and are driven by pulley 63 63ª and 64 and 64ª, the last-named pulleys being mounted upon the shafts 32 and 33, the arrangement being such that as the machine is drawn forward the belts 60, 60ª, 61, and 61ª will be driven, as indicated by the arrows shown in Fig. 1.

In addition to the driving-pulleys just referred to as being carried by the shafts 32 and 33, said shafts carry an upper set of driving-pulleys 66 and a lower set of driving-pulleys 67, upon which pulleys there are arranged belts 68 and 69, that are carried diagonally across the machine above the platform 13 to pulleys 70 and 71, that are carried by shafts 72 and 73, said shafts being stepped in the platform 13 and being guided by brackets 74 and 75, that extend inward from a receiving-frame 76, that is in turn carried by the platform 14. Upon all of the belts hereinbefore referred to I secure cleats 78.

Just above the stalk-guide 47 is arranged a finger-bar 78ª, of which the cutter-bar 79 is driven by a pitman 80, which extends laterally to a crank 81, formed upon a short shaft 82, that is provided with a bevel-pinion 83, which said pinion is engaged by a bevel-gear 84, carried by a transverse shaft 85, said shaft 85 being in turn provided with a pinion 86, that is engaged by a surface gear 87, made integral with or rigidly connected to the wheel 12, whereby when the machine is drawn forward a reciprocating motion will be imparted to the cutter-bar.

As before stated, the belts carried by the stalk-gathering frame A are advanced in the direction of the arrows shown in connection therewith in Fig. 1, and such being the case it will be understood that if the machine be drawn forward, so that a row of corn will enter the space between the belts carried by the frame A, the stalks will be easily gripped by the belts and firmly held at the time when the cutter-bar 79 is operating upon the stalk-butts, and it will also be seen that the stalks, having been severed from their butts, said stalks will be carried to the rear in a substantially vertical position and will be transferred from the belts carried by the frame A to the belts 68 and 69, there being an opening in the frame 30 between the shafts 32 and 33. After the stalks are in the grip of the belts 68 and 69 they will be carried transversely across the platform 13 and will be delivered to the platform 14, the butt-ends of the stalks dropping down upon said platform, while the upper ends will fall in between bars 90 and 90ª, that are pivotally connected to the frame 76 and arranged to cross, as represented, weights 91ª and 91 being connected to the bars by cords 92 and 92ª, which said cords pass over guiding-sheaves 93 and 93ª, whereby a continual pressure will be brought to bear upon the upper ends of the stalks. The weights 91 and 91ª are guided by rods 94.

After the butt-ends of the stalks have reached the platform 14 it is desirable that said butt-ends be advanced toward the rear edge of the platform, and to this end I mount a follower 95 above the platform 14, and just beneath the platform 13, this follower being provided with a pitman 96, that is slotted, as shown at *c*, to provide for the passage of the shaft 85, the pitman-head being formed in turn with a groove *d*, in which there rides a crank-pin 97, that extends laterally from the side face of the gear 84, or any other proper connection between the shaft 85 and the pitman might be established, the object being to impart a reciprocating motion to the follower, so that the stalks will be forced to the rear over the platform 14. It is also desirable that the upper portion of the shock be compressed prior to the actual binding thereof, and to this end I connect a rope or chain 98 to the frame 76, carrying this rope about a sheave 99 to a hook 100, that is carried by the shaft 31, the chain or rope 98 being in turn provided with a hook 101, which may be brought into engagement with the hook 100. Then as the machine advances the cord or chain 98 will be wound upon the upper end of the shaft 31 and the desired compression of the shock will be brought about.

It is desirable that the butt-ends of the shocks be spread, and to this end I erect a spreader 102 upon the platform 14, said spreader consisting of a metallic plate that is bent to V form in cross-section, as shown in Fig. 6, the forward edge of the spreader being pointed, as shown best in Fig. 1, so that as the shock passes to the rear the stalks bearing against the spreader will be separated and spread out in a manner such that when the shock leaves the platform it will stand on end, the stalks being held together after having been compressed by the action of the rope or chain 98 by a binding cord or rope applied in any desired manner.

To remove the shock from the receiving-frame, one end of a rope is fastened to the said frame a short distance from the platform thereof and then passed around the shock and its other end carried to the rear, where it is held by an attendant or by a stake or post driven into the ground, so that as the machine moves forward, the receiving-frame having been previously lowered by means of the caster-wheel, the shock will be deposited on the ground.

In Fig. 7 I illustrate diagrammatically a two-row or double cutting-machine. In this case the laterally-extending system of belts is dispensed with, the stalks being delivered by the gathering-belts directly to the receiving-frames, and two drive-wheels are employed. Instead of the follower 95 for pushing the butts of the stalks to the rear, two pivoted bars 110 are employed, one for each cutting and gathering mechanism. The bars 110 are pivoted at their inner ends and have their outer ends connected by rods 111 to the bell-crank levers 112, which in turn are con-

nected to the cranks of the shafts 113, which are operated from the drive-wheels 12 and from which the cutter-bars 79 are operated.

With a machine such as the one hereinbefore described the stalk-gathering frame will be moved automatically by the standing corn to proper position to receive the stalks, such stalks being firmly held within the grip of the guiding-belts at the time when they are severed from the butts.

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

1. In a corn-harvester, the combination of a gathering-frame hinged to swing laterally and provided with yielding means for holding it normally parallel with the rows of corn, upper and lower endless belts carried by the frame, and a stalk-cutting mechanism below the lower belts for cutting the stalks as they pass between the said belts, substantially as described.

2. In a corn-harvester, the combination, with a laterally-movable stalk-gathering frame, of springs arranged in connection with said frame for holding the frame parallel with the rows of corn, supporting-belts carried by the frame, a means for driving the belts, and a stalk-severing mechanism for cutting the stalks as they pass between the belts, substantially as described.

3. In a corn-harvester, the combination of a hinged frame, springs for holding it normally parallel with the rows of corn, endless gathering-belts carried by the said frame, a cutting mechanism below the frame, a receiving-frame upon which the stalks are delivered with their bases resting upon said frame, a support for the upper ends of the stalks for holding them in a vertical position, and a device for compressing the upper ends of the stalks while being tied, substantially as described.

4. In a corn-harvester, the combination of a hinged frame, springs for holding it normally parallel with the rows of corn, two endless gathering-belts carried by the said frame, a cutting mechanism below the frame, a receiving-frame upon which the stalks are delivered with their bases resting upon the said frame, a yielding support for holding the upper ends of the stalks, a device for compressing the upper ends of the stalks while being tied, and a follower for pushing the lower ends of the stalks to the rear of the receiving-frame, substantially as herein shown and described.

5. In a corn-harvester, the combination, with a supporting-frame mounted on wheels, one of which is a drive-wheel, of a gathering-frame pivoted to the main frame and provided with a stalk-guide, upper and lower endless belts carried by the frame, a cutting mechanism below the lower belts for cutting the stalks as they pass between the belts, a receiving-frame, upper and lower lateral belts extending from the first-named belts to the receiving-frame, and means for operating the cutting mechanism and endless belts from said drive-wheel, substantially as herein shown and described.

6. In a corn-harvester, the combination, with a main frame and a receiving-frame, upon which the cut stalks are delivered, of bars pivoted to the top of the receiving-frame and crossing each other, ropes attached to said bars, and weights on the ends of the ropes, substantially as and for the purpose set forth.

7. In a corn-harvester, the combination, with a main frame and a receiving-frame, upon which the stalks are delivered, of bars pivoted to the top of the receiving-frame and crossing each other, ropes attached to the said bars and provided with weights at their ends, a rotary shaft, a guide-pulley on the receiving-frame, and a rope secured to the receiving-frame and adapted to be connected to the said rotary shaft, substantially as and for the purpose set forth.

8. In a corn-harvester, the combination, with a main frame and a receiving-frame, upon which the cut stalks are delivered, of bars pivoted to the top of the receiving-frame and crossing each other, ropes secured to the bars and provided with weights at their ends, and a follower reciprocating above the receiving-frame to force the butts of the stalks to the rear of the said frame, substantially as described.

9. In a corn-harvester, the combination, with a main frame and a receiving-frame, upon which the cut stalks are delivered, of bars pivoted to the upper part of the receiving-frame and crossing each other, ropes secured to the bars and provided with weights at their ends, a spreader V-shaped in cross-section and having a pointed end secured to the receiving-frame, and a reciprocating follower for forcing the butts of the stalks to the rear of the said receiving-frame and over the spreader, substantially as herein shown and described.

10. In a corn-harvester, a stalk-gathering frame consisting of independent spring-pressed members, vertical shafts upon which said members are pivoted, belts carried by the frame members and said shafts, a guide 47, mounted below the frame members, and shafts connecting the guide 47 and said frames, said shafts being united at their upper ends, substantially as shown and described.

THOMAS B. JONES.

Witnesses:
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SUE CLIPPINGER.