No. 793,801. PATENTED JULY 4, 1905.

G. H. PALLADY.

BROOM CORN OR CORN HARVESTER.

APPLICATION FILED SEPT. 22, 1904.

4 SHEETS—SHEET 1.

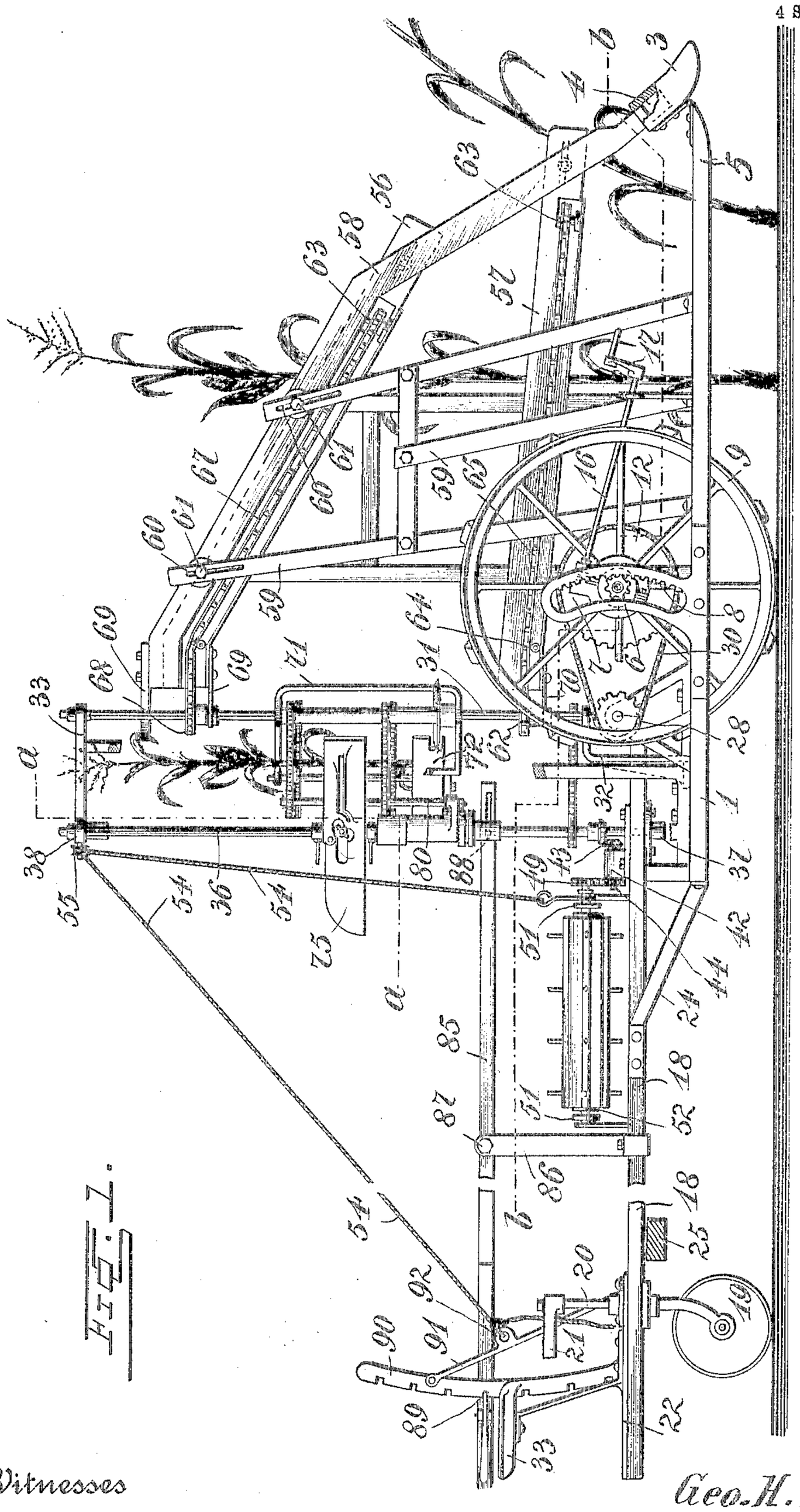

FIG. 1.

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4 SHEETS—SHEET 2.

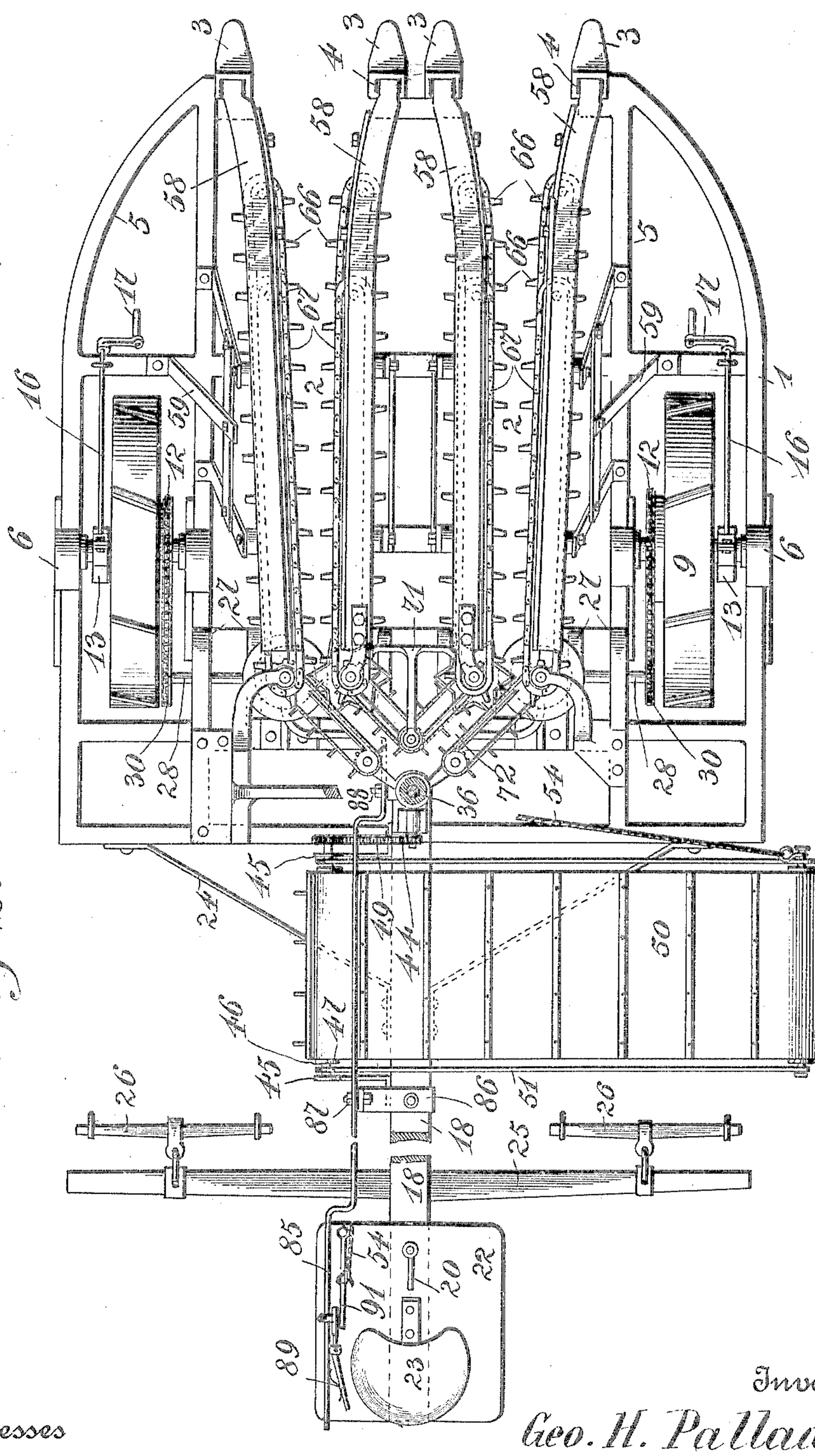

Fig. 2.

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4 SHEETS—SHEET 3.

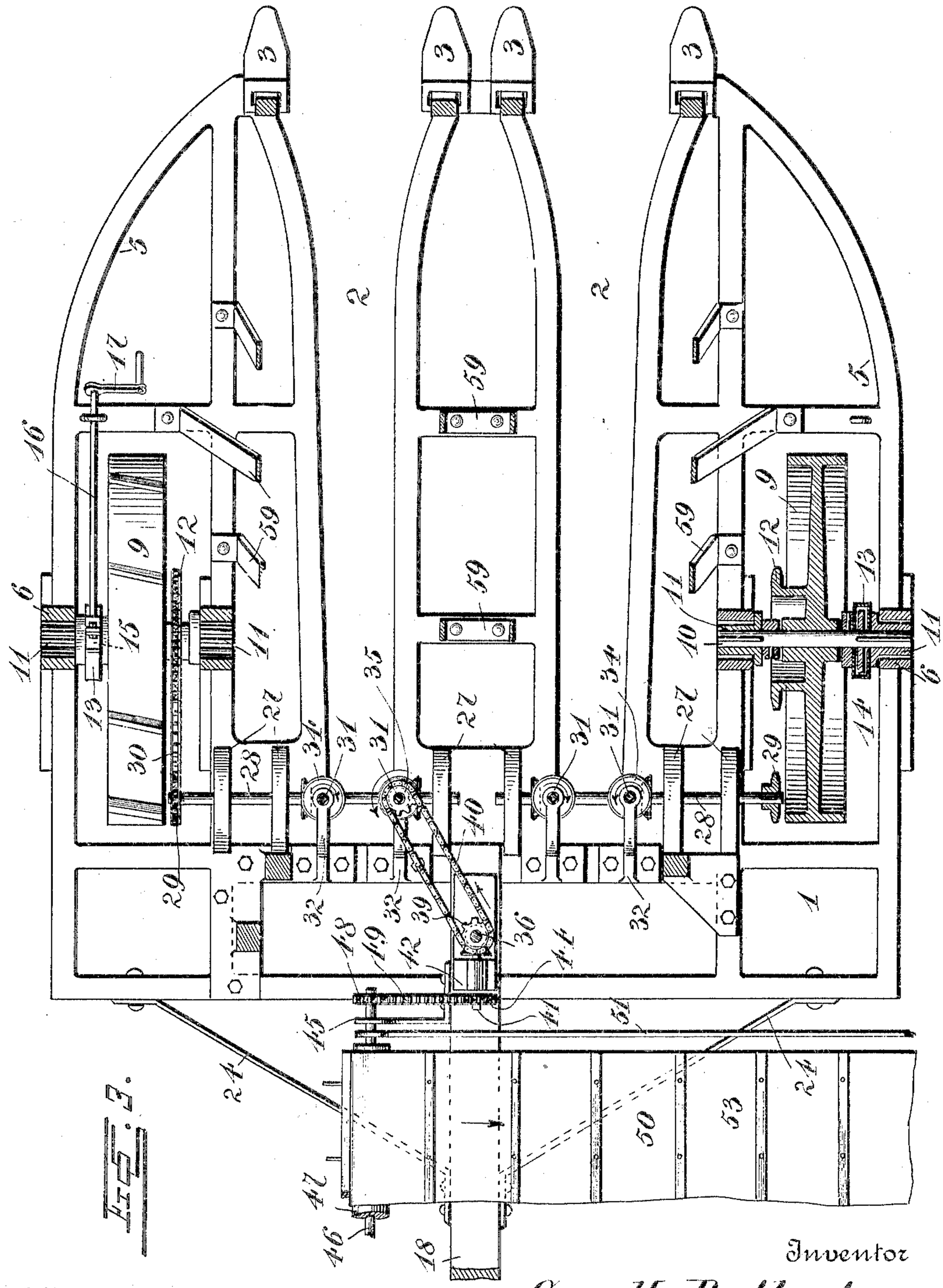

FIG. 3.

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4 SHEETS—SHEET 4.

Fig. 4.

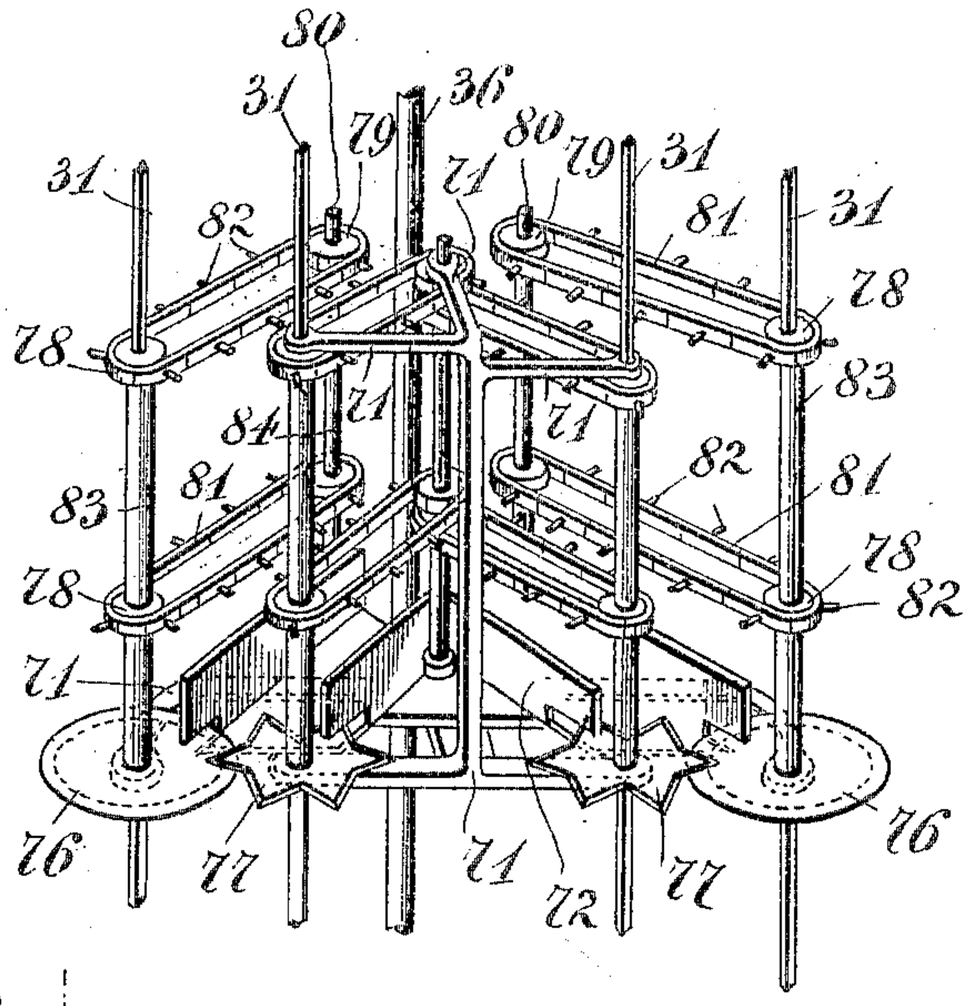

Fig. 5.

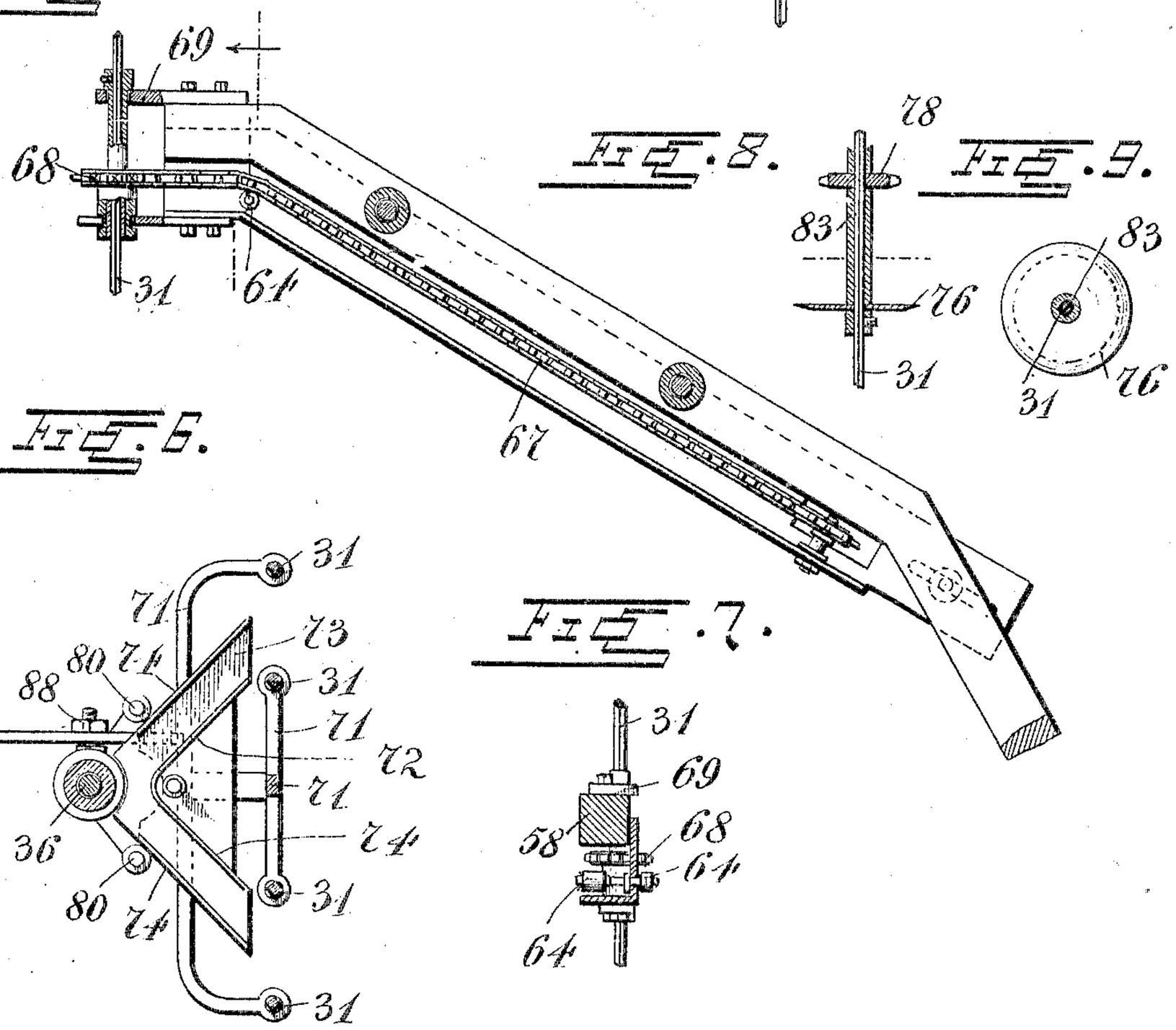

Fig. 8.

Fig. 9.

Fig. 6.

Fig. 7.

Witnesses

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No. 793,801. Patented July 4, 1905.

UNITED STATES PATENT OFFICE.

GEORGE H. PALLADY, OF ALLERTON, IOWA.

BROOM-CORN OR CORN HARVESTER.

SPECIFICATION forming part of Letters Patent No. 793,801, dated July 4, 1905.

Application filed September 22, 1904. Serial No. 225,495.

To all whom it may concern:

Be it known that I, GEORGE H. PALLADY, a citizen of the United States, residing at Allerton, in the county of Wayne and State of Iowa, have invented certain new and useful Improvements in Broom-Corn or Corn Harvesters; and I do 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 is an improved broom-corn harvester, adapted also for harvesting corn and other grain; and it consists in the construction, combination, and arrangement of devices hereinafter described and claimed.

One object of my invention is to provide a machine of this character with a vertically-movable cutting apparatus which is vertically movable independently of the main frame and may be adjusted to cut the grain at any height.

A further object of my invention is to provide a machine of this character with a vertically-adjustable binding mechanism for binding the grain after it has been cut, and which binding mechanism is vertically movable independently of the main frame.

A further object of my invention is to provide a machine of this character with a vertically-adjustable cutting mechanism, a vertically-adjustable binding mechanism, and means to simultaneously raise or lower them.

A further object of my invention is to provide a machine of this character with vertically-adjustable feeders for feeding the standing grain to the cutting and binding mechanism.

In the accompanying drawings, Figure 1 is a side elevation of a self-binding broom-corn harvester embodying my improvements. Fig. 2 is a top plan view of the same, partly in section on the plane indicated by the line *a a* of Fig. 1. Fig. 3 is partly a top plan view and partly a horizontal sectional view taken on the plane indicated by the line *b b* of Fig. 1. Fig. 4 is a detail perspective view showing the cutting apparatus, the grain-deck, and the feeders which carry the grain across the deck from the cutters to the binding mechanism. Fig. 5 is a detail sectional view showing one of the cutter-feeders. Fig. 6 is a detail horizontal sectional view showing the construction of the grain-deck and arrangement of the shafts with reference thereto; and Fig. 7 is a detail sectional view of one of the cutter-feeders, taken on a plane at right angles to that of Fig. 5. Figs. 8 and 9 are detail sectional views showing one of the shafts 31, the cutters 76, and the sprocket-wheels 78, which are vertically movable on said shafts.

The main frame 1 may be either of the form here shown or of any other suitable construction. The machine here shown is adapted for cutting two rows of broom-corn or other grain simultaneously, and the frame 1 thereof is provided with a pair of longitudinal runways 2 for the rows of grain, which runways are open at their front ends. On the opposite sides of the front ends of the runways the frame 1 is provided with shoes or dividers 3, which serve to direct the grain into the respective runways, and the said shoes have their upper rear portions provided with inclined upwardly-opening slots or recesses 4. It will be understood that if the machine is designed to cut only one row of grain at a time the frame 1 thereof will be provided with only one runway and will be correspondingly modified in construction. The side portions 5 of the frame are provided with vertical arms 6, which rise from their upper sides and are provided with curved guideways 7. One side of each of the said guideways has a correspondingly-curved rack 8.

A pair of supporting traction-wheels 9 have their shafts 10, which are independent of each other, provided at their ends with pinions 11, which are feathered or splined thereto and which pinions operate in the curved guide-slots 7 and engage the racks 8. To the inner side of each wheel 9 is secured a sprocket-wheel 12. Each shaft 10 has a bearing in a casing 13, in which is a worm-wheel 14, that is feathered or splined on the shaft. Each worm-wheel is engaged by a worm 15 on a shaft 16, mounted in suitable bearings, as shown, and provided with a crank 17. The said crank-shafts, worms, and worm-wheels or gears operate to revolve the shafts 10, and

hence also the pinions 11, to cause the latter by coaction with the racks 8 to raise or lower the frame 1. No novelty is claimed herein for this means for raising and lowering the main frame, as such raising and lowering means is in use on the form of corn-harvesting machines known as the "McCormick" corn-harvester. For the same reason, also, the same is not more particularly described herein.

In the form of my invention here shown the main frame 1 is provided at its center with a rearwardly-extending push-pole 18, the rear portion of which is mounted on a supporting-wheel 19, having a vertical steering-fork 20, provided with a tiller 21, whereby the machine may be directed in any desired direction. A platform 22 for the driver is supported on the rear end of the push-pole, as is also a seat 23. Braces 24 are shown, which connect the front portion of the push-pole to the rear corners of the frame 1, and to the push-pole is attached a doubletree 25, the latter having swingletrees 26, to which the draft-animals may be attached. I do not desire to limit myself to this means for propelling the machine, as the same may be adapted to be drawn by a team on one side of the machine and may be otherwise constructed within the scope of my invention.

The frame 1 is provided with suitable bearings 27 for transversely-disposed shafts 28, which extend across the rear portions of the runways, and each of which shafts is provided at its outer end with a sprocket-wheel 29, connected by an endless sprocket-chain 30 to one of the sprocket-wheels 12. On opposite sides of the runways, at the rear ends thereof, are the vertically-disposed shafts 31, which are mounted in suitable bearings, (shown at 32 and 33.) The lower ends of the said vertical shafts are geared to the shafts 28 by means of miter-gears 34, and the said shafts 31 are revolved in opposite directions, the arrangement of the miter-gears, which causes said reverse rotation of said shafts, being shown in Fig. 3. One of said shafts 31 is provided with a sprocket-wheel 35. At the center of the frame 1, near the rear end thereof, is mounted a vertical binder-shaft 36, its bearings being shown at 37 and 38. The said binder-shaft is provided with a sprocket-wheel 39, which is connected by an endless sprocket-chain 40 to the sprocket-wheel 35. Hence the binder-shaft is rotated when the machine is in motion, as will be understood. A short longitudinally-disposed shaft 41 is journaled in a bearing 42, which is centrally disposed on the rear side of the frame 1. Said shaft has its front end geared to the binder-shaft 36 by a pair of miter-gears 43 and is provided at its rear end with a sprocket-wheel 44.

From one side of the push-pole, at the front end thereof, project a pair of bearings or bearing-brackets 45, which also rise from the push-pole and in which is journaled the shaft 46 of a roller 47. The front end of the said shaft has a sprocket-wheel 48, which is connected by an endless sprocket-chain 49 to the sprocket-wheel 44. Hence the said roller is also driven when the machine is in operation, as will be understood. A conveyer 50 has its frame 51 pivotally mounted on the said shaft 46. The outer roller 52 of the said conveyer is mounted in and carried by the said frame, and the endless traveling conveyer belt or apron 53 connects the rollers 52 and 47 and is driven by the latter so that its upper lead moves outwardly, as indicated by the arrow in Fig. 3. This conveyer serves to discharge the bundles of bound grain to one side of the machine and in a suitable vehicle to be driven alongside the machine when the latter is in operation, the conveyer being so disposed as to discharge the bound bundles directly into the said vehicle. Any suitable means may within the scope of my invention be employed to raise or lower the outer end of the conveyer. I here show a rope 54 and a pulley 55 for this purpose.

On opposite sides of the runways are upper and lower guide-boards 56 57, which have their front ends connected together by frames 58. Supporting-frames 59, which rise from the frame 1, serve to support the said guide boards and frames 58, the latter being slidably connected to said supporting-frame. For the purposes of this specification I show the supporting-frames 59 provided with vertical guide-slots 60 and the said frames 58 provided with guide-bolts 61, which operate in said guide-slots, and hence adapt the said frames 58 to be adjusted vertically. Any suitable connection may be employed in lieu of said guide slots and bolts, and I do not desire to limit myself in this particular.

The lower front ends of the frames 58 are socketed in the recesses or sockets 4 of the shoes or dividers 3, and hence the said frames are telescopically or slidably connected to the said shoes or dividers to permit of the vertical adjustment of said frame, the guide-boards, and the cutter-feeders, which I will now describe.

On the vertical shafts 31, driven thereby and vertically adjustable thereon, are sprocket-wheels 62. As here shown, the shafts 62 have angular portions engaged by the said sprocket-wheels to enable the latter to be vertically adjusted. Other suitable means may, however, be employed to adjustably connect the sprocket-wheels to the shafts, and I do not limit myself in this particular. The lower guide-boards 57 are provided near their outer ends with substantially horizontal and transversely-disposed sprocket-wheels 63, which are suitably mounted thereon, and at points near the rear ends of said guide-boards 57 are direction-rollers 64, the shafts of which are

horizontal. Endless feeder-chains 65 connect the sprocket-wheels 62 and 63 and travel over the guide-rollers 64 and are provided with outwardly-projecting feed-spurs 66. These feed-chains are thus disposed on opposite sides of the runways at a suitable height above them and are driven by shafts 31 and sprocket-wheels 62, as will be understood, and serve to engage the lower portions of the standing stalks and to feed the latter rearwardly to the cutting mechanism, hereinafter described. The upper guide-boards 56 are provided with similar feed-chains 67, which are driven by sprocket-wheels 68, which are also revolved by the shafts 31. The said sprocket-wheels 68 are vertically adjustable on the said shafts, and the rear upper ends of the upper guide-boards 56 and of the frames 58 are provided with rearwardly-extending bracket-arms 69, which are connected to the shafts 31 and are slidable vertically thereon. The rear ends of the lower guide-boards 57 are connected to the said shafts 31 by similar bracket-arms 70.

A frame 71, which may be either of the construction here shown or of any other suitable construction, is connected to the shaft 31 and the vertical binder-shaft 36 and is adapted to be adjusted vertically thereon. The lower side of the said vertically-adjustable frame carries the deck 72 for the butts of the cut corn, the said deck in the embodiment of my invention here shown comprising a pair of rearwardly-converging channels 73, formed by the bottom of the deck, and upturned side flanges 74 with which the deck is provided. Said guide-channels meet at a point in front of the shaft 36, which carries the binding mechanism, the latter being vertically movable on the said shaft 36 and operated thereby and being of any suitable type. For the purposes of this specification the binding mechanism is indicated at 75 in Fig. 1 as being of that well-known form of binding mechanism known as the "McCormick vertical binder" in use on the McCormick corn-harvesting machine. Any suitable form of binding mechanism may be employed within the scope of my invention, and I do not desire to limit myself in this particular; but whatever binding mechanism is employed must be so mounted as to be vertically movable.

On the shafts 31, driven thereby in reverse directions and movable vertically thereon with and by the grain-deck 72, are cutters 76 77, which within the scope of my invention may be of any suitable construction. As here shown, the revoluble cutters 76 are disks which have sharpened peripheral edges, and the cutters 77 have radial spurs with outwardly-converging sharpened edges. These cutters are disposed at the front side of the grain-deck, so that the cut grain as it passes the cutters moves onto the grain-deck, the latter serving to support the cut grain which slides butts down on the grain-deck and is retained in vertical position on the grain-deck and moved rearwardly thereon by the binder-feeders, which I will now describe. These binder-feeders comprise sprocket-wheels 78, which are rotated by and vertically adjustable on the shafts 31, sprocket-wheels 79, which are similarly movable on vertical shafts 80, with which the frame 71 is provided, and endless feeder-chains 81, which connect said sprocket-wheels 78 79 and are provided with outwardly-projecting spurs 82. Within the scope of my invention any construction may be employed which will cause the cutters and the sprocket-wheels of the binder-feeders to revolve with their respective shafts and to move vertically thereon when the grain-deck and the binder are vertically adjusted. As here shown, the cutters and the sprocket-wheels 78 are connected by tubular sleeves 83, which revolve with and are adapted to slide vertically on the shaft 31, and the sprocket-wheels 79 are connected by tubular sleeves 84, which revolve on the shafts 80. Within the scope of my invention any suitable means may be employed for simultaneously raising or lowering the cutters, the grain-deck, the binder-feeders, and the binder. As here shown, I employ a lever 85 for this purpose, which is pivotally mounted on a standard 86, as at 87, is connected, as at 88, to the under side of the frame 71, and has a locking-dog 89 of usual construction, which coacts with a vertical rack-bar 90 to lock the said lever, and hence also the grain-deck, the cutters, the binder-feeders, and the binder, at any desired vertical adjustment. This rack-bar 90 is shown as mounted on the platform 22, and the standard 86 is shown as mounted on the push-pole 18. A rod 91 is shown, which connects the platform and the rack-bar 90, braces the latter, and is provided with an eye 92, to which the conveyer-adjusting rope 54 is attached.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation. Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

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

1. A harvester of the class described, having a main frame, a cutting mechanism and a binding mechanism, said cutting mechanism and binding mechanism being vertically movable independently of the main frame, and means to simultaneously vertically adjust the cutting mechanism and the binding mechanism.

2. A harvester of the class described having a main frame, a vertically-movable cut-

ting mechanism, a vertically-movable binding mechanism, and means to simultaneously raise or lower said cutting mechanism and binding mechanism independently of the main frame.

3. A harvester of the class described having a main frame, a cutting mechanism, a binding mechanism and a feeding mechanism, said cutting mechanism, binding mechanism and feeding mechanism being vertically movable independently of the main frame and means to simultaneously raise or lower said cutting, binding and feeding mechanisms.

4. A harvester of the class described having a main frame, a grain-deck vertically movable independently of the main frame, cutting mechanism, binding mechanism and feeding mechanism to convey the grain from the cutting mechanism to the binding mechanism, said cutting mechanism, binding mechanism and feeding mechanism being vertically movable with the vertically-movable grain-deck independently of the main frame.

5. A harvester of the class described having dividing-shoes, feeders to feed the standing stalks to the cutting mechanism, and vertically-movable frames carrying the feeders and having members slidably connected to the said dividing-shoes.

6. A harvester of the class described having a vertical binder-shaft, a frame vertically movable thereon, a binding mechanism carried by the frame, vertical shafts 31, cutters driven by and vertically movable on said shafts, the said frame being also connected to and vertically movable on said shafts, feeders for the cutters connected to and vertically adjustable on said shafts, and feeders for the binding mechanism also connected to and vertically movable on said shafts, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GEORGE H. PALLADY.

Witnesses:
E. A. REA,
W. H. TEDROW.