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Patented Aug. 8, 1899.

D. H. PETTINGILL & J. SANDERS.

HARVESTER.

(Application filed Jan. 31, 1899.)

(No Model.)

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Fig. 5.

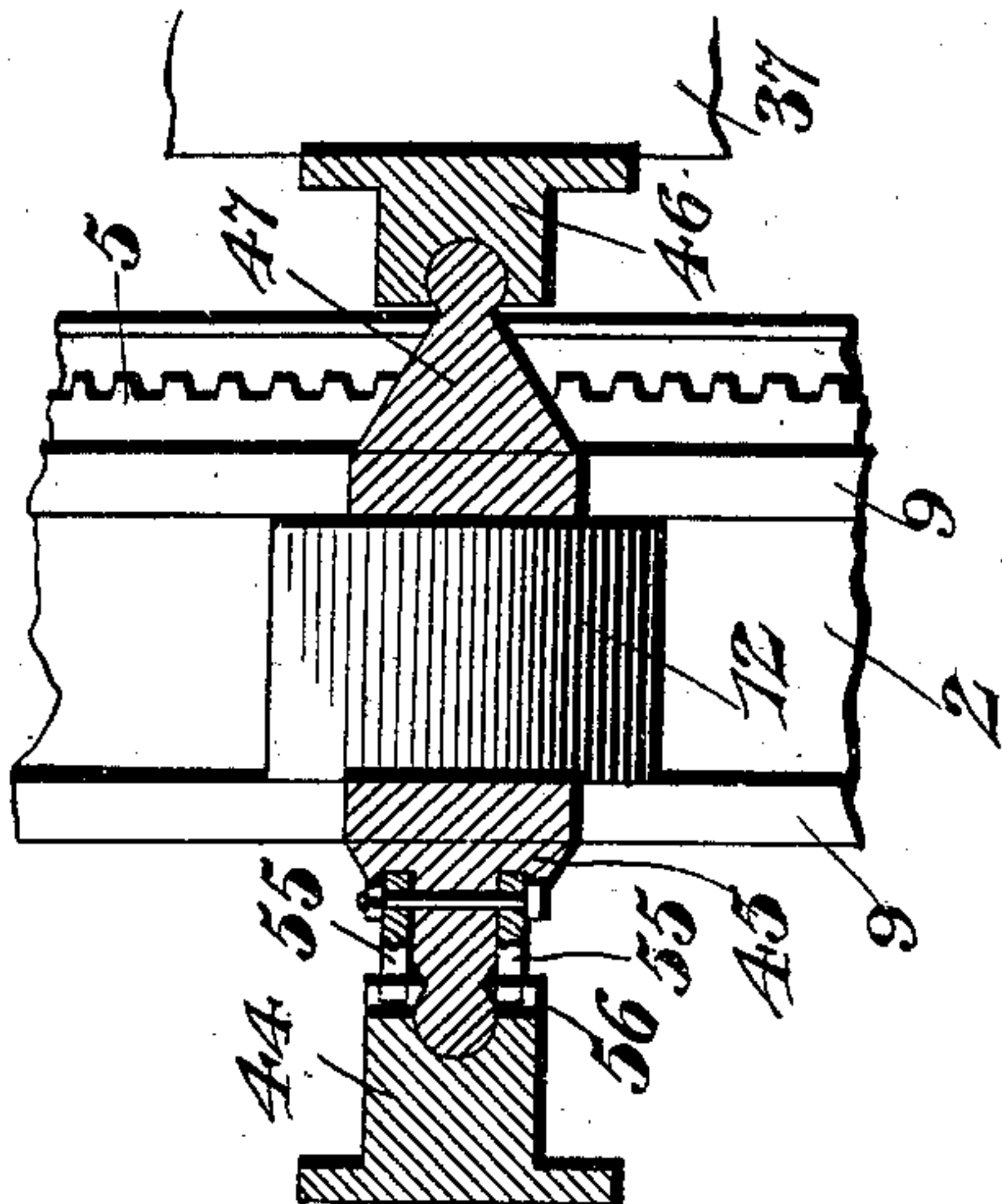
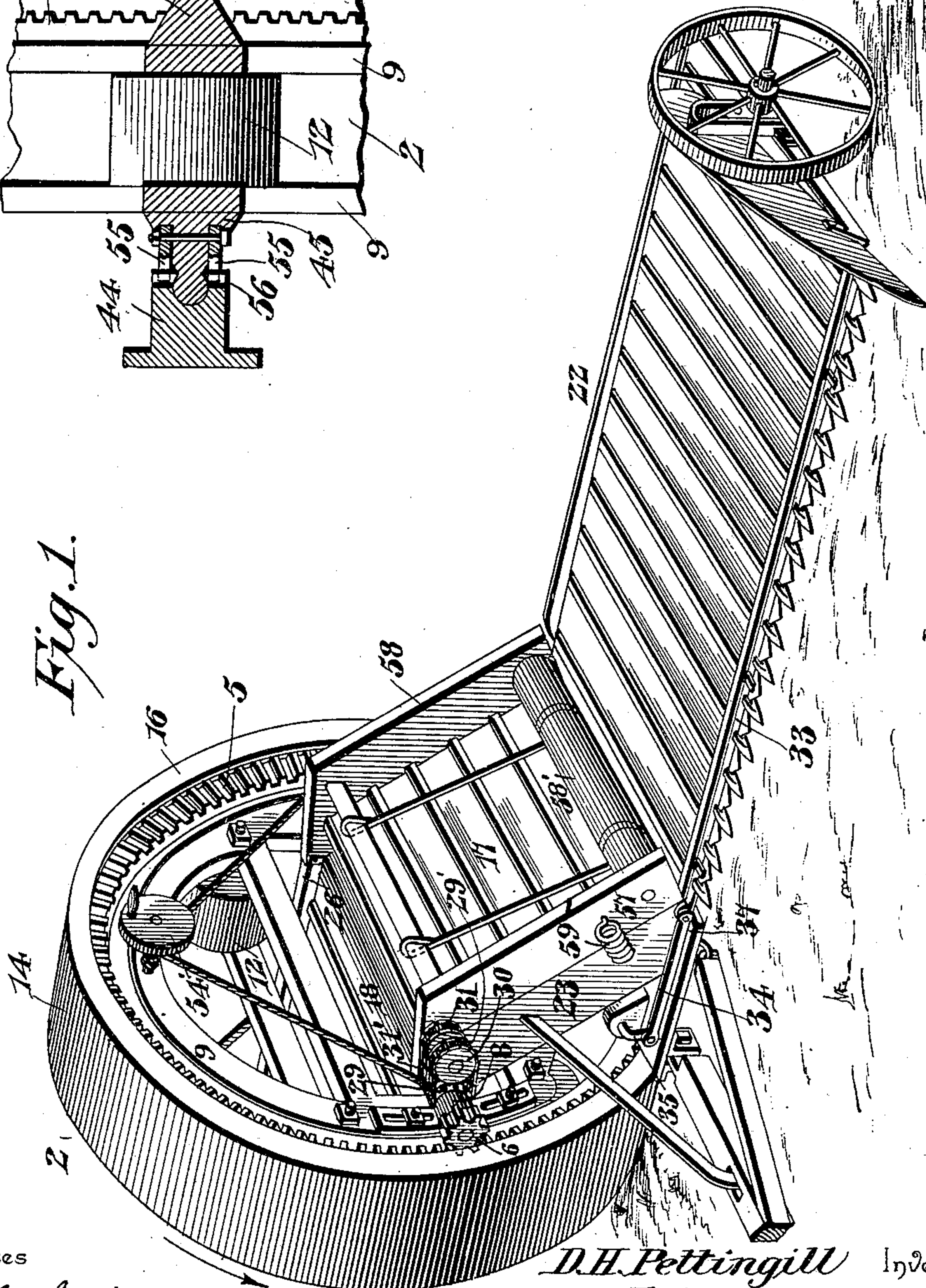


Fig. 1.



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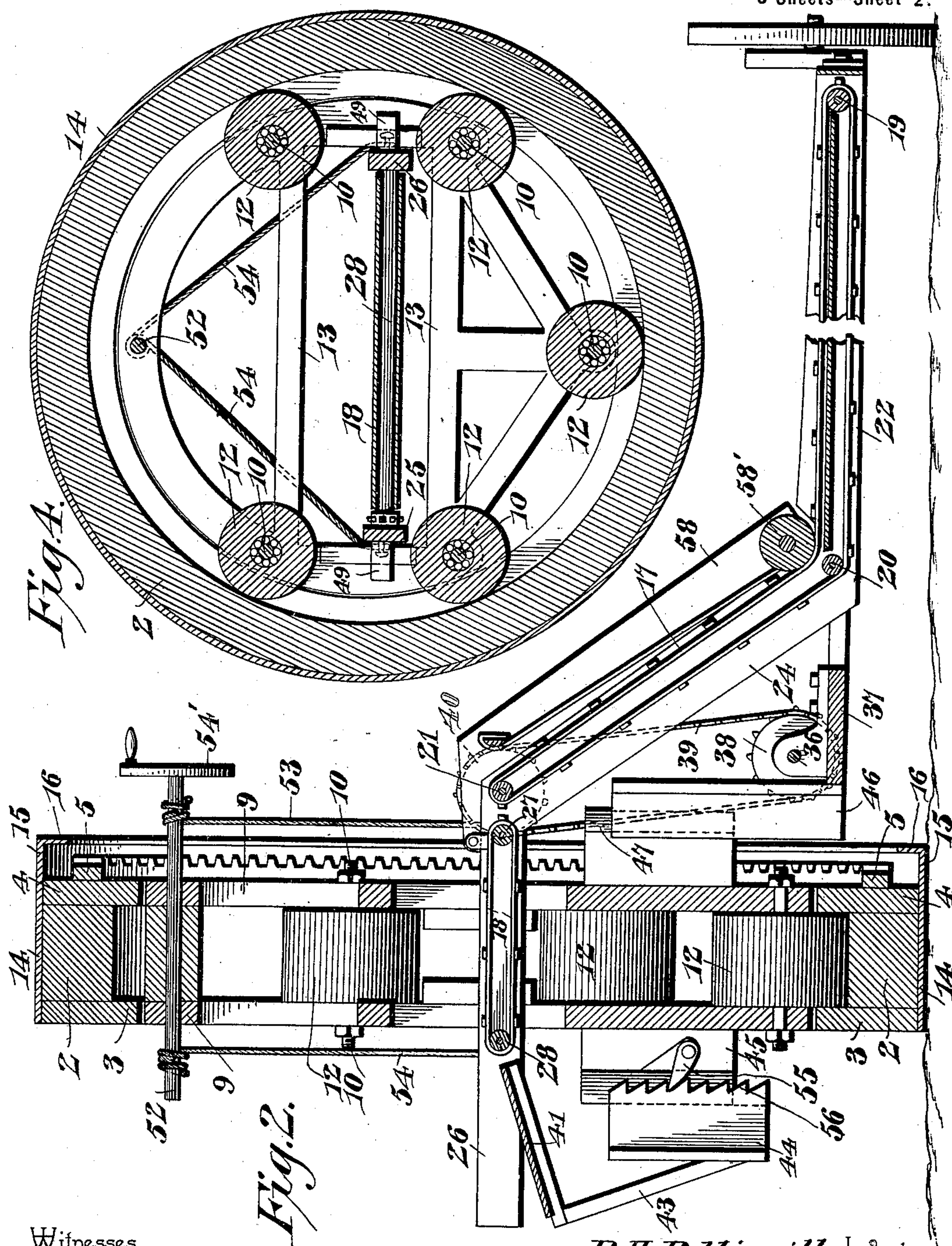
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3 Sheets—Sheet 2.



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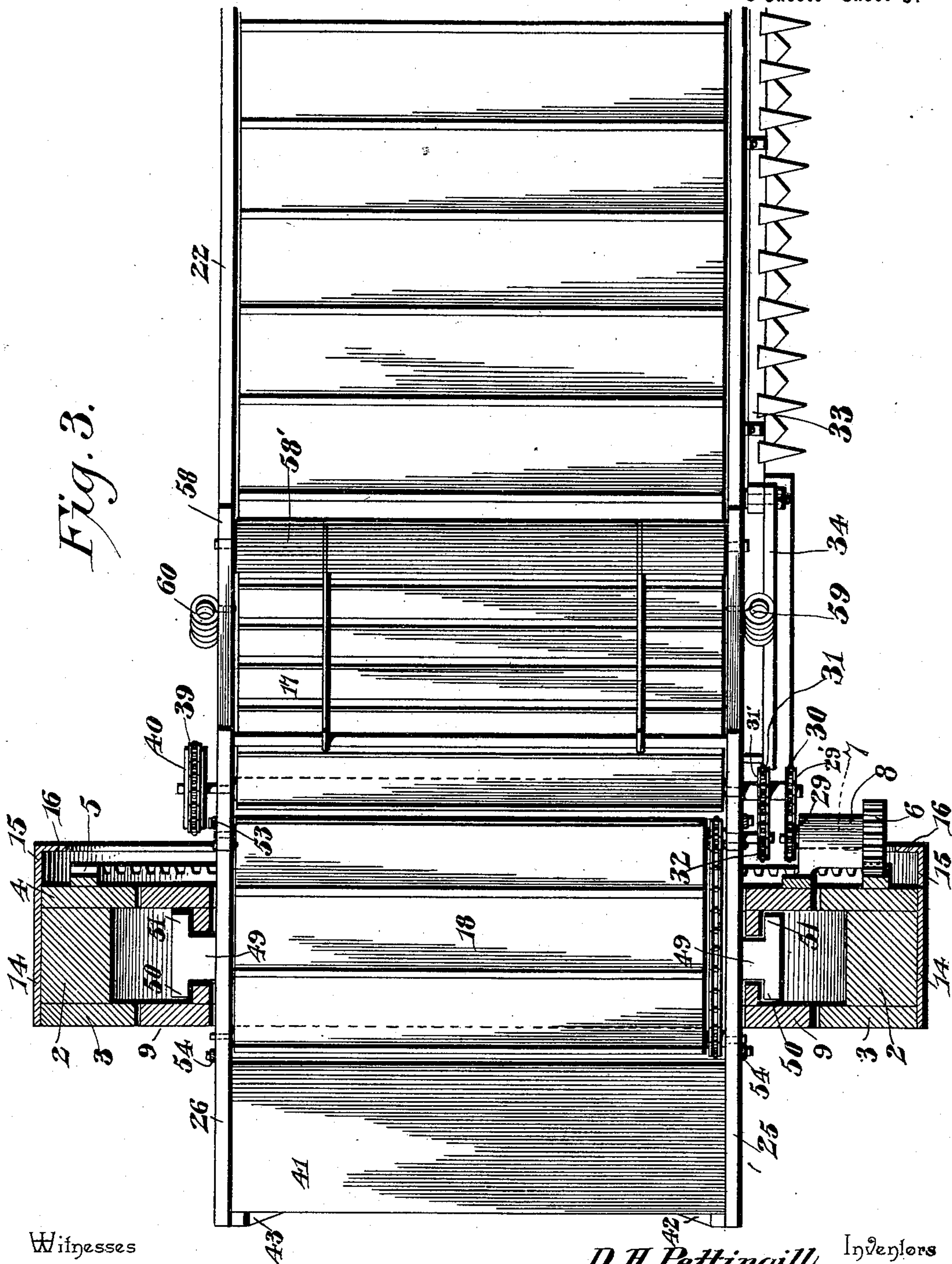
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UNITED STATES PATENT OFFICE.

DANIEL H. PETTINGILL AND JACOB SANDERS, OF NAMEOKI, ILLINOIS.

HARVESTER.

SPECIFICATION forming part of Letters Patent No. 630,404, dated August 8, 1899.

Application filed January 31, 1899. Serial No. 704,000. (No model.)

To all whom it may concern:

Be it known that we, DANIEL H. PETTINGILL and JACOB SANDERS, citizens of the United States, residing at Nameoki, in the county of Madison and State of Illinois, have invented a new and useful Twentieth-Century Harvester, of which the following is a specification.

This invention relates to harvesters; and the object of the invention is to provide a simple and easy-running apparatus of this character in which the working parts are compactly disposed, thereby effecting a saving in space and materials, and in which the cut grain is elevated a short height and passed through the main or driving wheel, and in which the grain cutting and conveying mechanism is adjustable for the purpose of meeting different conditions.

With these ends in view the invention consists in the novel combination of elements and in the construction and arrangement of parts, which will be hereinafter fully described and claimed.

To enable others to understand the invention, the preferred embodiment thereof is illustrated in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view of a harvesting apparatus constructed in accordance with the invention. Fig. 2 is a longitudinal central section of the same. Fig. 3 is a sectional plan view. Fig. 4 is a sectional side elevation, the section being taken through the center of the grain or main wheel and looking toward the right in Fig. 2. Fig. 5 is a sectional plan view showing more especially the guiding means for raising and lowering the conveyor-support in a vertical path.

Like characters denote like and corresponding parts in each of the several figures of the drawings.

The harvesting apparatus constituting the invention includes in its construction a main or driving wheel 2, to the opposite sides of which the rings 3 and 4 are secured in some suitable manner, the space bounded by the strips constituting the walls of a guideway for preventing sideward movement of anti-friction-rolls or like devices carried by a frame within the said main wheel, as will be hereinafter described, and the inner curved sur-

face of said main wheel constituting a track upon which said rolls can rotate as the wheel turns during the advance of the apparatus when harvesting grain, &c., and preferably the main driving-wheel serves to drive all of the parts, as will be understood, and for the purpose of transmitting its motion to the several operating parts any suitable instrumentalities may be provided; but in the present case said driving-wheel is shown as furnished with an annular master-gear 5, having its inner face toothed or cogged and being secured in some suitable manner to the ring 4. The gear 5 meshes with a pinion 6, fixed to one end of the short shaft 7, carried by the bearing 8 on the frame 9, said frame being parti-annular and being disposed within the main wheel 2 and which is maintained in proper position therein by reason of its weight, together with that of the conveying and other coöperating mechanism connected thereto. It will be evident that on the rotation of the main driving-wheel 2 in the direction indicated by the arrow in Fig. 1 as the apparatus travels forward the master-gear 5 will revolve in a corresponding direction, thereby rotating the pinion 6, and consequently the shaft 7, and from said shaft the different parts of the device receive their power. The outer faces of the frame 9 and the wheel 2 are substantially flush, and said frame consists of two substantially similar sections connected at proper intervals by the bolts 10, which constitute suitable pivots upon which the rollers 12 can turn, said rollers being usually provided with anti-friction-balls between the same and their pivots, serving the usual function. The two sections of the frame 9 are connected by cross-bars 13, which serve to strengthen the same, the frame thus constructed being strong and serviceable. The wheel 2 or rim thereof is covered by a metallic tire 14, which projects beyond the inner edge of the wheel, as at 15, said portion serving to prevent dirt and sticks taken up between the teeth of the master-gear 5, and thereby interfering with the action of the apparatus, and to further insure this result said portion 15 of the tire is provided with an inverted radial flange 16, which extends in-

ward sufficiently far as to guide the particles taken up by the wheel away from the master-gear.

The apparatus involves in its construction the primary and secondary conveyers 17 and 18, respectively, both of the endless type and constructed, preferably, of canvas or other suitable material, the primary conveyer being carried by the rolls 19, 20, and 21, the shafts of the rolls 19 and 20 being carried by the platform 22, while the shaft of the roll 21 is supported between the inclined frame-sections 23 and 24, fixed at their lower ends to the platform and at their upper ends to the cross-bars 25 and 26, said cross-bars resting against and being suitably secured to the transverse pieces 13 of the inner frame 9 and constituting a convenient means for supporting the shafts of the rolls 27 and 28 of the secondary conveyer 18, which, it will be observed, extends through the frame 9, and consequently through the wheel 2, carrying the same, and said conveyer receives the cut grain from the primary conveyer. The shaft 7 is provided at its inner end with a sprocket-wheel 29, connected by the sprocket-chain 29' with the sprocket-wheel 30 on the shaft of the upper roll 21 of the primary conveyer, the mechanism thus described constituting a convenient means for operating the primary conveyer in the proper direction, and said roll-shaft carries a sprocket-wheel 31, around which the chain 31' passes, said chain also passing over the sprocket-wheel 32 on the shaft of the inner roll of the secondary conveyer 18, whereby said secondary conveyer can be simultaneously driven.

The harvesting mechanism includes in its construction the usual reciprocatory cutter 33, supported on the front side of the platform 22 for operation, and which is operated in the present case by the pitman or connecting-rod 34, pivoted thereto, and likewise joined at its opposite end to the crank 35 on the transverse shaft 36, supported upon the extension 37 of the platform, the opposite end of the shaft carrying a sprocket-wheel 38, connected by the sprocket-chain 39 with the sprocket-wheel 40 on the end of the shaft of the roll 21. As the apparatus moves forwardly the cutter 33 is operated through the hereinbefore-described mechanism and the cut grain falls upon the moving conveyer 17 and is conducted thereby to the horizontal conveyer 18 and from the latter to the feed device 41 for delivery to the binding or other mechanism, said feed device being supported between the cross-bars 25 and 26, which extend outward from the opposite faces of the wheel 2 and frame 9. The feed device is further sustained by the inclined braces 42 and 43, fastened at their lower ends to the sliding block 44 at opposite sides thereof, said sliding block being adapted to embrace the guide or bead 45 near the lower side of the frame 9 and being adapted to cooperate with

a similar block 46, adapted to embrace and slide upon the bead or track 47, secured to the frame 9 upon the opposite side thereof, the two brackets moving in parallelism and the bracket 46 being secured to the extension 37 of the platform, and it will be evident from this construction that the platform can be raised or lowered for the purpose of adjusting the same to different conditions. The platform is equipped at its extreme outer end with a caster or guide wheel adapted to travel in parallelism with the main wheel 2. The cross-pieces 25 and 26, to which the platform 22 is connected, are provided with the oppositely-disposed and preferably squared lugs 49 and 49, adapted to enter the space between the sections of the inside frame 9, by reason of which said platform can be raised or lowered, and said squared lugs serve to prevent any wobbling motion thereof, this advantage being further enhanced by projections, as 50 and 51, respectively, extending oppositely from the respective cross-pieces and adapted to engage the outer faces of the frame 9. As a means for raising the platform the winding-shaft 52 is provided, and the cords 53 and 54 are adapted to be wound thereupon and to be attached at their lower ends to the cross-pieces 25 and 26 at opposite sides of the frame 9, and by turning the shaft in the direction of the arrow in Fig. 1 the cords will be wound thereupon, thereby raising the cross-pieces, and consequently the platform. Said shaft is provided at its inner side thereof with the operating-wheel 54', which may be actuated in any convenient manner and which is disposed within easy reach of the driver's seat. In this connection it is also understood that the apparatus will be furnished with some suitable draft appliance.

For maintaining the several parts in their adjusted position we prefer to employ a gravity detent or pawl 55, pivoted upon the frame 9, the toe of which is adapted to fall into engagement with the teeth of the rack 56 on the sliding block 44. The roll 21 is located in a plane higher than the cooperating rolls 19 and 20 of the primary conveyer, and as a means for maintaining the latter taut we prefer to employ the yielding frame 58, pivoted upon the framework and having the roller 58', beneath which the cut grain is adapted to pass, and the roller is held in proper position by the coiled springs 59 and 60, connected with said frame and with the main framework, thereby permitting the auxiliary frame to yield when any obstructions are encountered in the traveling mass.

The apparatus is driven forward by horse or other power, and the wheel 2 as it travels in contact with the ground will be caused to rotate, thereby setting in operation the primary and secondary conveyers 17 and 18, respectively, and also the reciprocatory cutter 33, whereby the standing grain can be cut and fall onto said primary conveyer to be

conducted through the main driving-wheel 2 by the secondary conveyer 18 for delivery to the binding or other mechanism.

Changes in the form, proportion, size, and the minor details of construction within the scope of the appended claims may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new is—

1. In a harvester, the combination with a main driving-wheel having a crown-gear upon its face, a tire on said wheel extending beyond the crown-gear and having an inwardly-directed radial flange, said wheel having an inner peripheral groove, a frame having supporting-rolls traveling in said groove, a conveyer carried by the frame and adjustable vertically therein, cutting mechanism, and means for delivering from the cutting mechanism to the conveyer and operatively connected with said crown-gear, substantially as set forth.

2. In an apparatus of the class specified, the combination of a main driving-wheel provided with a master crown-gear on the inner face thereof, of a tire on said wheel continued beyond said gear and having an inwardly-directed radial extension constituting a guard for the master-gear, a frame located inside the wheel and in two connected sections, rollers traveling between said sections and engaging a peripheral groove upon the inner surface of the wheel, a support provided with squared lugs disposed in the space between the two sections of said frame, a conveyer carried by said support, driving mechanism for said conveyer operated from the master-gear, a shaft provided with an operating de-

vice, cords wound upon the shaft and connected with said support, a guide on the frame, a sliding block secured to the support and adapted to embrace said guide and provided with teeth, a gravity-pawl on the frame adapted to engage said teeth, a cutting mechanism connected with the driving-wheel, a primary conveyer adapted to convey the cut material from the cutting mechanism to the first-named conveyer, a swinging frame having a roll journaled in its free end and engaging the primary conveyer to maintain tension thereon, and means for holding said roll yieldably in its operative position, substantially as described.

3. In a harvester, the combination with a main driving-wheel having a crown-gear upon its face, a tire on said wheel extending beyond the crown-gear and having an inwardly-directed radial flange, said wheel having an inner peripheral groove, a frame having supporting-rolls traveling in said groove, a conveyer carried by the frame and adjustable vertically therein, cutting mechanism, means for delivering from the cutting mechanism to the conveyer and operatively connected with the crown-gear, and a swinging frame having a roll journaled in its free end and engaging the primary conveyer to maintain tension thereof.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

DANIEL H. PETTINGILL.
JACOB SANDERS.

Witnesses:

GEO. REINEMANN,
M. PAUL.