

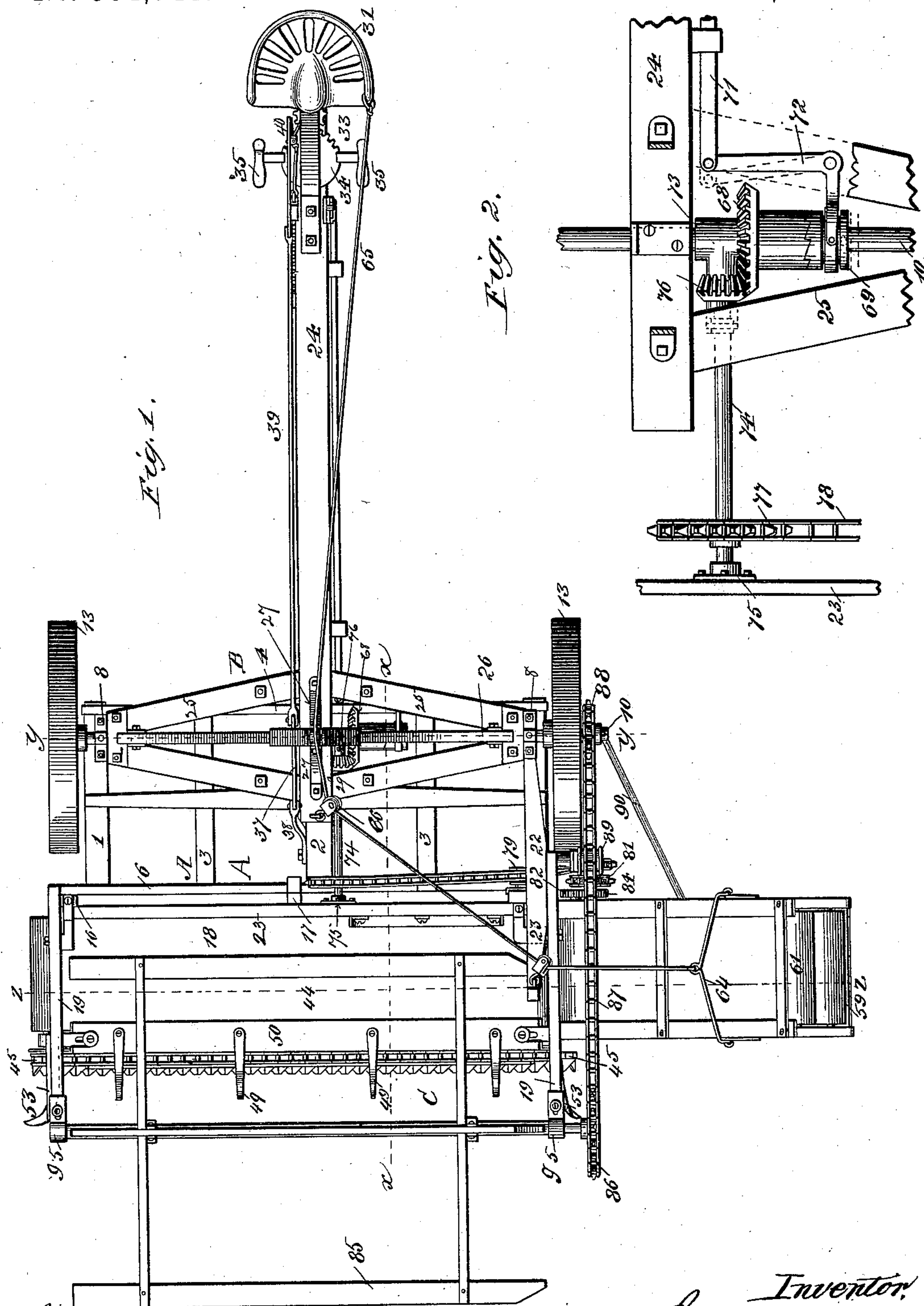
(No Model.)

4 Sheets—Sheet 1.

J. BISSING.
HARVESTER.

No. 364,748.

Patented June 14, 1887.



Witnesses.
W. R. R. R.
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Inventor.
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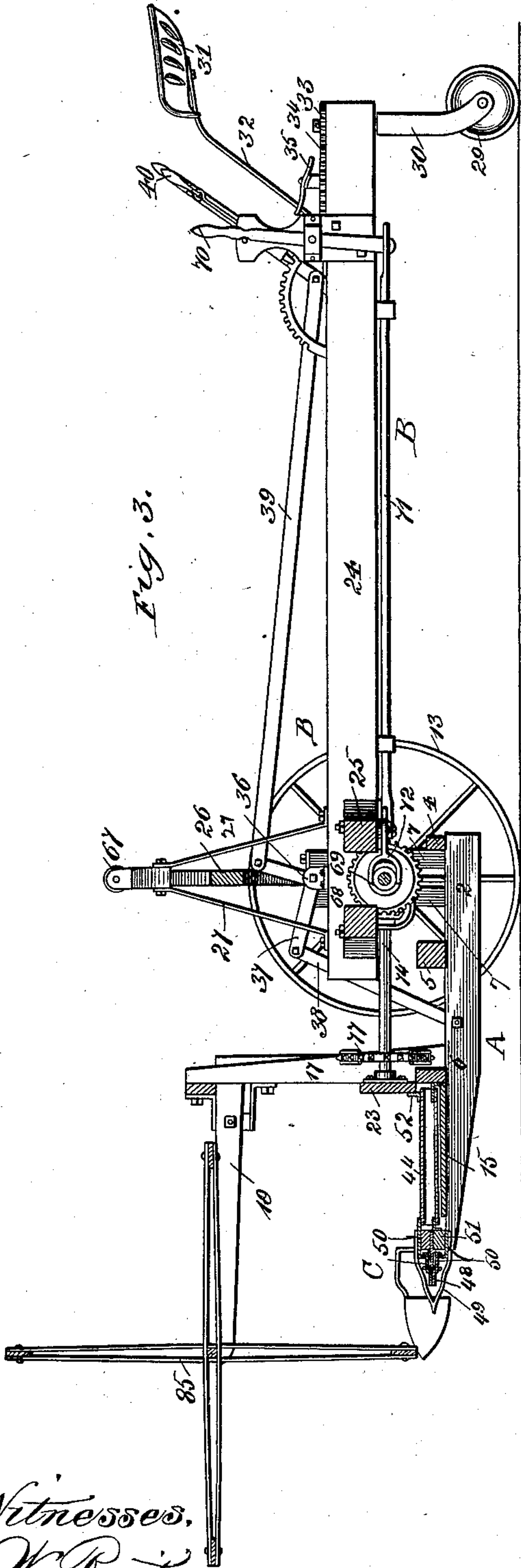
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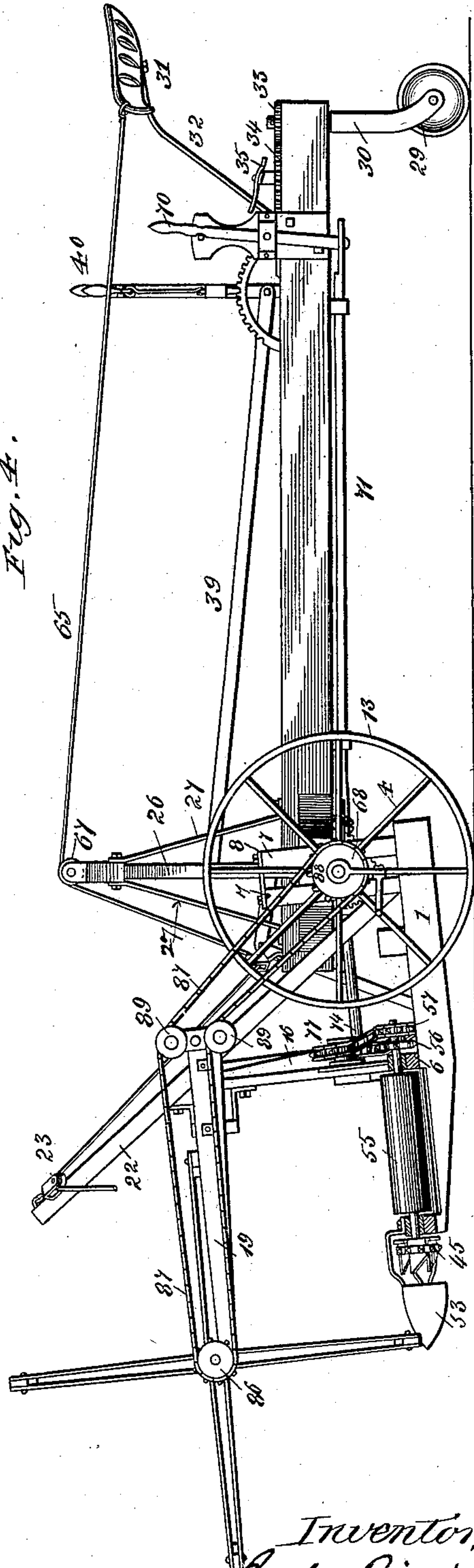
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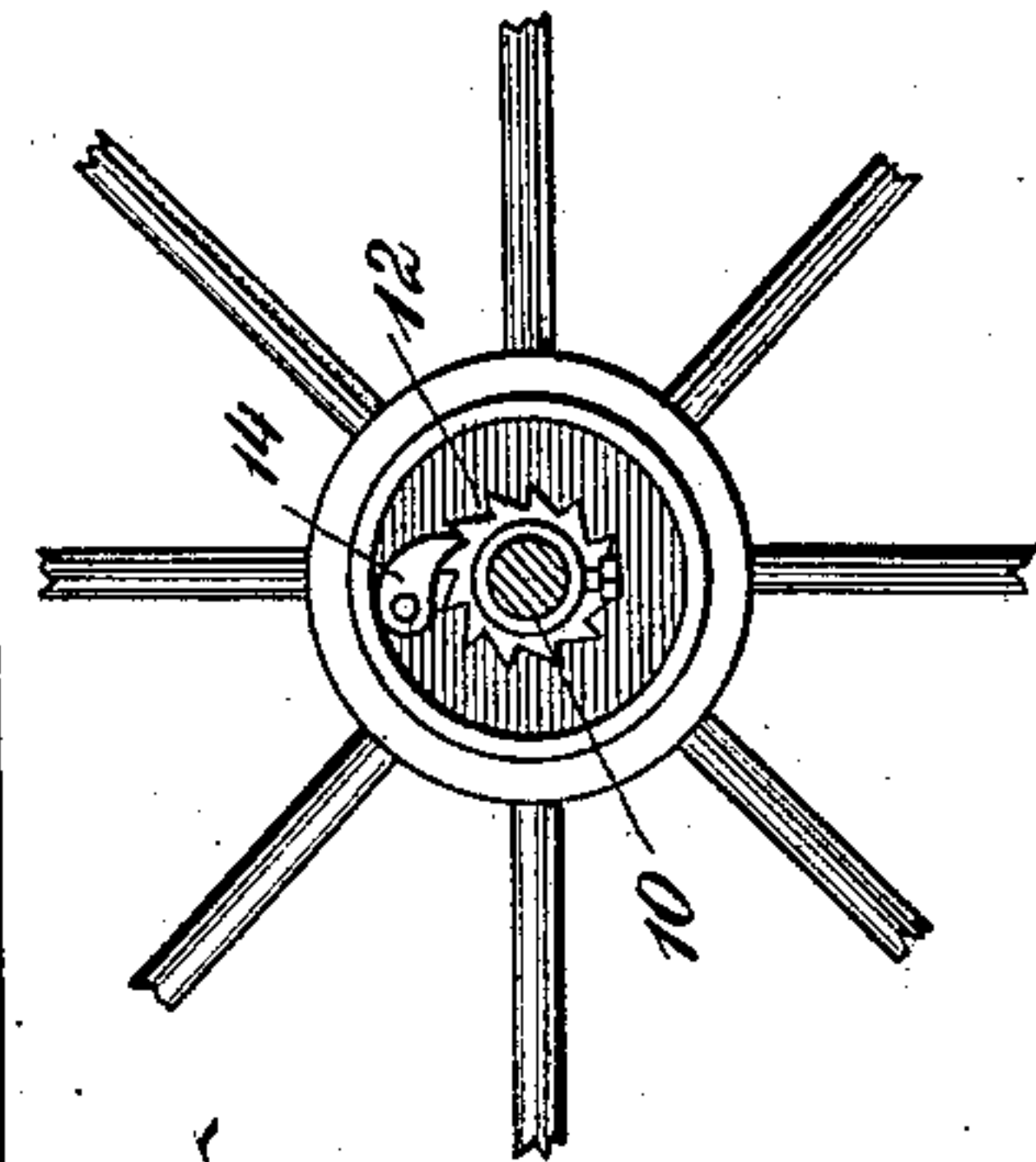
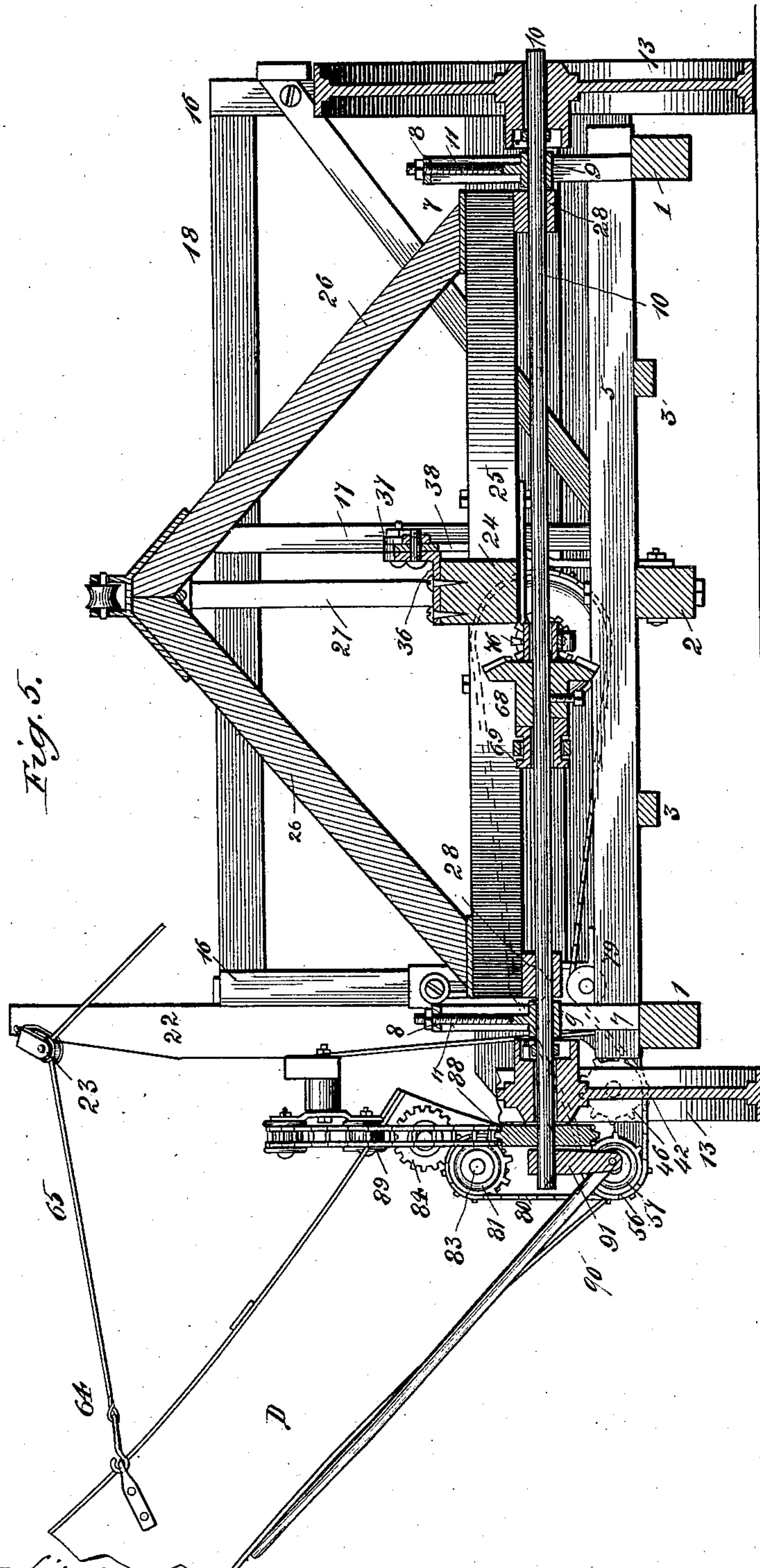
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J. BISSING.
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No. 364,748.

Patented June 14, 1887.



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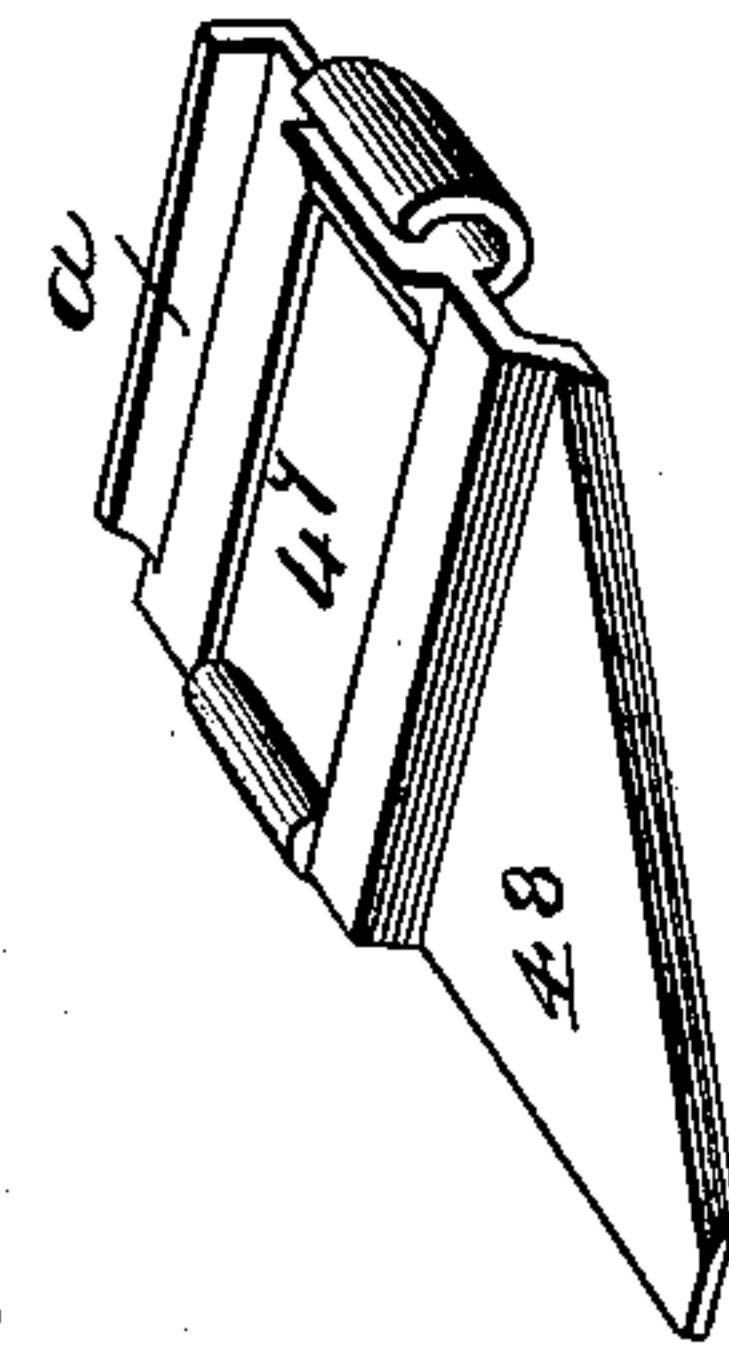
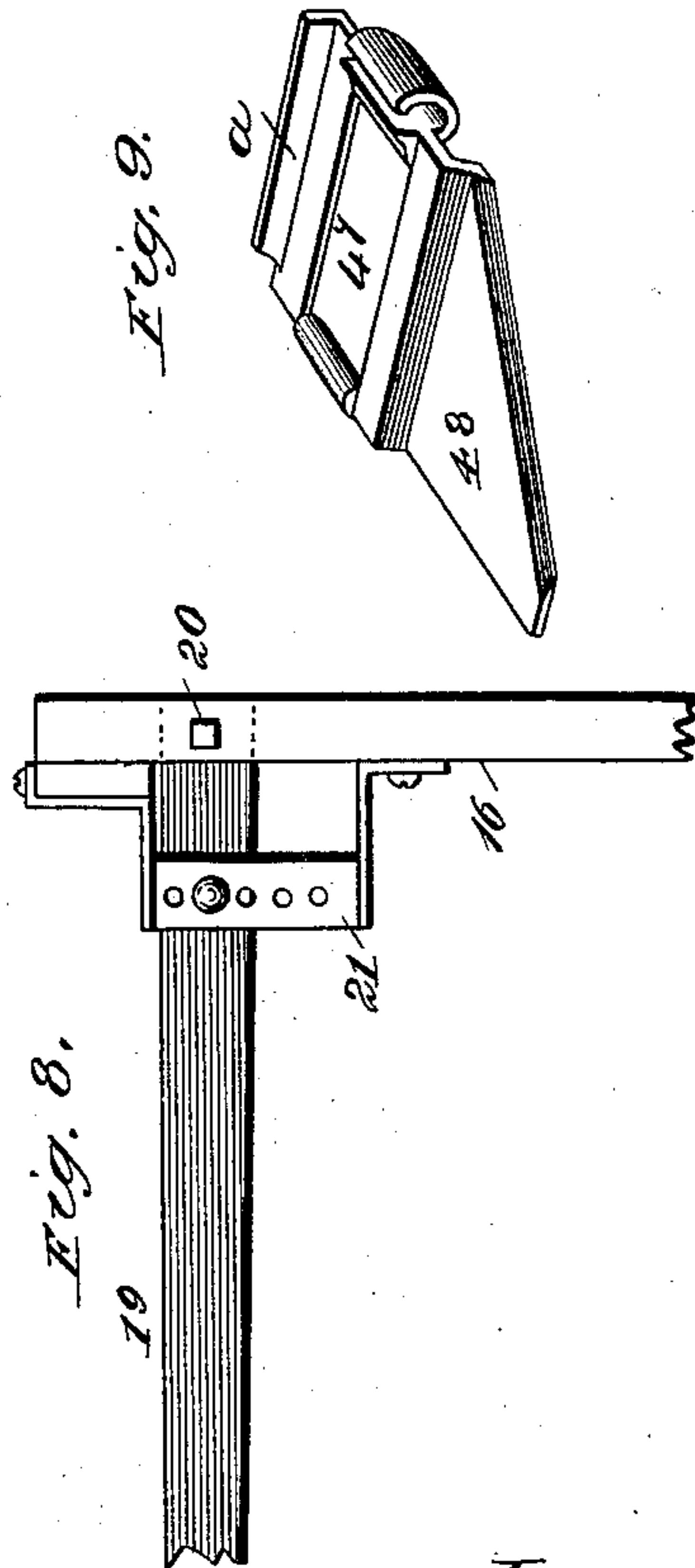
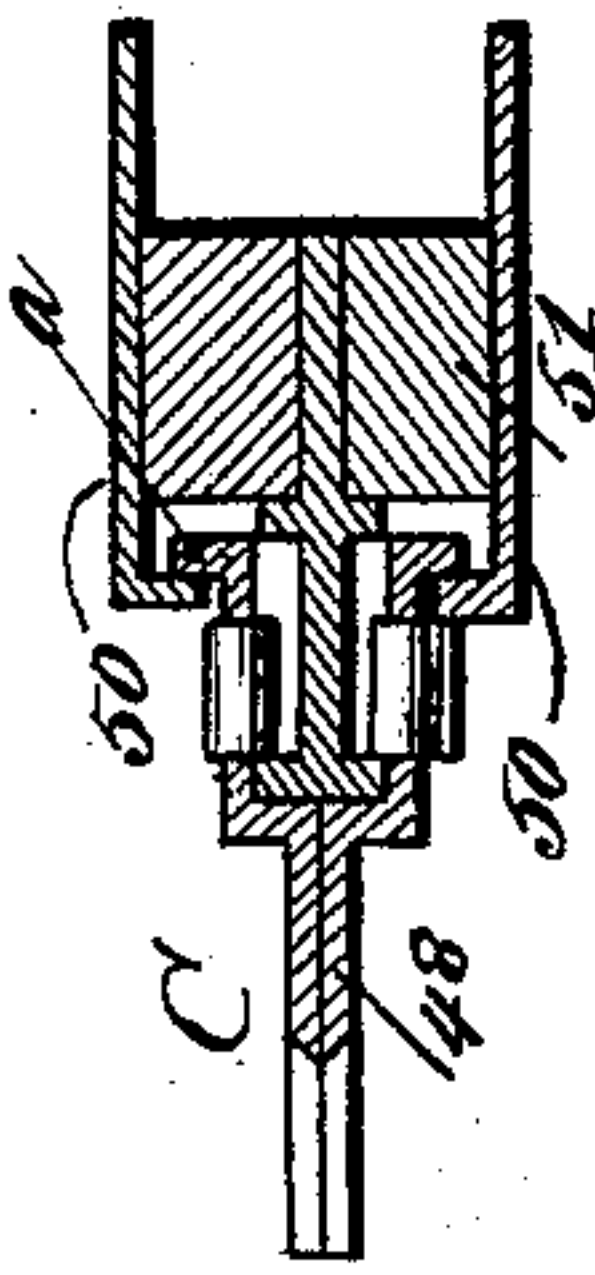
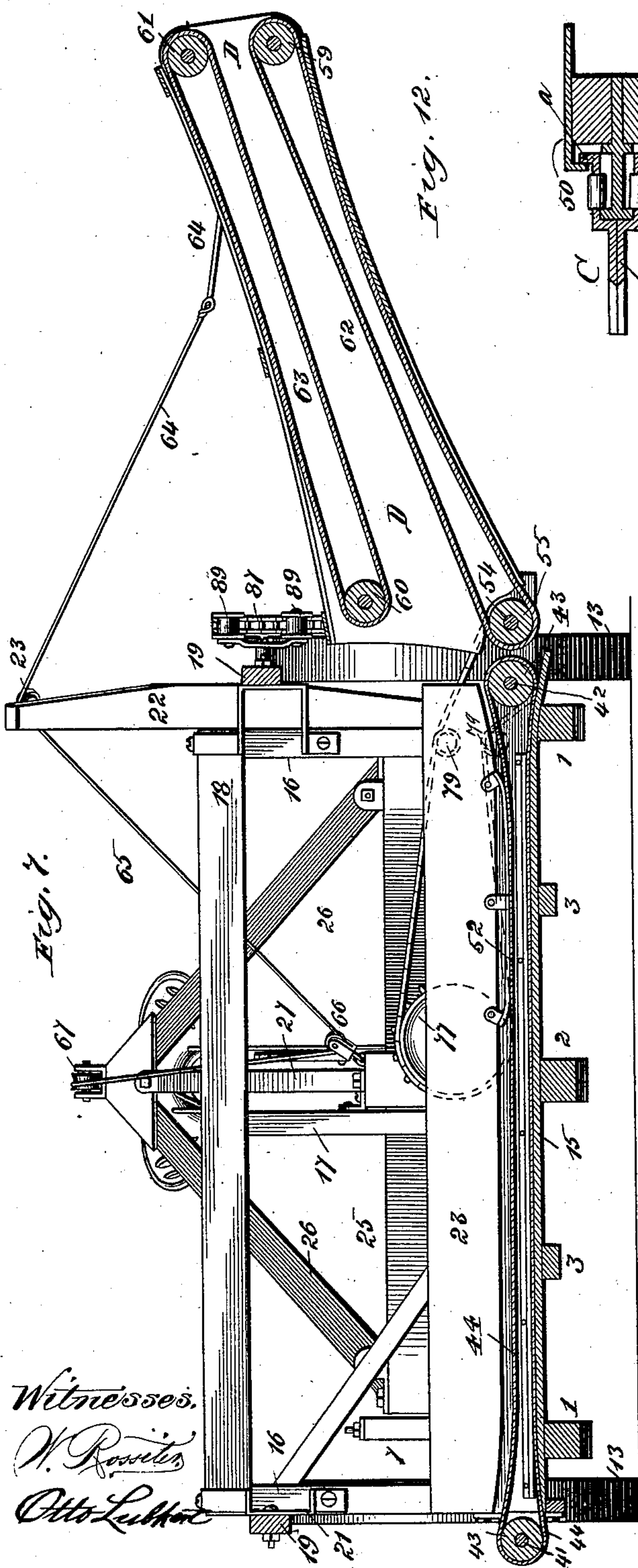
(No Model.)

4 Sheets—Sheet 4

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No. 364,748.

Patented June 14, 1887.



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UNITED STATES PATENT OFFICE.

JUSTUS BISSING, OF CATHARINE, KANSAS.

HARVESTER.

SPECIFICATION forming part of Letters Patent No. 364,748, dated June 14, 1887.

Application filed February 26, 1887. Serial No. 228,932. (No model.)

To all whom it may concern:

Be it known that I, JUSTUS BISSING, a citizen of the United States of America, residing at Catharine, in the county of Ellis and State of Kansas, have invented certain new and useful Improvements in Harvesters, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to the class of harvesters known as "headers," and more particularly to machines of that class having endless sickles for cutting the grain; and it consists of the novel devices and combinations of devices, hereinafter described, and specifically claimed.

In the accompanying drawings Figure 1 represents a plan view of the entire machine; Fig. 2, a detail plan view of the power-transmitting mechanism; Fig. 3, a longitudinal sectional elevation on line *xx* in Fig. 1; Fig. 4, a side elevation, the carrier-aprons being in section; Fig. 5, a transverse vertical section on line *yy* in Fig. 1; Fig. 6, a sectional elevation of the hub of one of the traction-wheels; Fig. 7, a transverse vertical section line *zz* in Fig. 1; Fig. 8, an elevation of one of the reel-carrying arms; Fig. 9, a perspective view of one of the endless chain-sickle links; Fig. 10, a longitudinal vertical section of two adjoining sickle-links; Fig. 11, a transverse vertical section of one of the sickle-links, and Fig. 12 is a detail section of the endless sickle and finger-bars.

Corresponding referential characters in the several figures of the drawings designate like parts.

The main frame A of the machine consists of the end longitudinal beams, 1, the central longitudinal beam, 2, and of two intermediate longitudinal beams, 3, all connected by three transverse beams, 4, 5, and 6, secured thereupon by bolts or screws. Upon each end beam 1 is framed two uprights, 7, being parallel and connected by a cap-plate, 8, and between these uprights are adjustably fitted the journal-boxes 9 for axle 10, each with a screw, 11, which, with turning in one direction or another, will raise or lower such boxes.

Upon the overhanging ends of axle 10 are rigidly mounted the ratchet-wheels 12, and are loosely sleeved the hubs of traction-wheels 13, having pawls 14, that will engage with the

teeth of ratchet-wheels 12, for transmitting the rotating motion of the traction-wheels to the axle only with a forward movement of the same. Upon the forwardly-projecting end of the longitudinal beams is secured the platform 15, and against transverse beam 6 are secured the end standards, 16, and the central standard, 17, all connected on top by a rail, 18. To standards 16 are secured also horizontal arms 19, each by a bolt, 20, and by bracket-castings 21, which latter are provided with a row of vertically-arranged holes for a bolt that holds each arm, so as to provide for angular adjustment. These arms 19 are for carrying the reel, 7 and standard 16 of one side of the machine is also secured an inclined beam, 22, that not only will act as a brace, but its upper extremity will carry a sheave, 23, for the purpose hereinafter described. Against the forward edges of standards 16 and 17 is also fixed a board, 23, joining with its lower edge the transverse beam 6.

The rear frame, B, consists of the longitudinal beam or pole 24, frame 25, truss 26, and braces 27, the said pole 24 being rigidly jointed with its forward end to the transverse double V-shaped frame 25, and between the ends of the timbers forming frame 25 are secured the ends of two timbers, forming a vertical V-shaped truss, 26, braced longitudinally by two inclined bars, 27. The ends of frame 25 are pivotally secured upon axle 10 by boxes 28, embracing such axle. The rear end of pole 24 is supported by a caster-wheel, 29, the standard 30 of which is pivoted in the end of such pole 24.

Upon the rear end of pole 24 is secured the seat 31, upon a rearwardly-inclined spring-bar, 32, and under the rear end of such pole will also be secured the doubletree for hitching the horses—one to each side of such pole—the arrangement for which, being well enough known, has not been shown in the drawings.

Upon the end of the pivot-pin of caster-standard 30 is rigidly secured the segmental pinion 33, which meshes with the segmental gear 34, pivoted upon pole 24, forward of pinion 33, and upon this gear 34 is rigidly secured a transverse bar with foot-rests 35, for the driver's feet, upon its ends in such a manner

that the driver can control the direction of movement of the machine by the pressure of his feet swinging the caster-wheel 29.

About vertically below truss 26 is secured 5 against one side of the forward end of pole 24 a bracket, 36, forming the pivot-bearing for a bell-crank, 37. One arm of this bell-crank 37 is pivotally connected by a link-bar, 38, with beam 2 of frame A, and its other arm by a rod, 10 39, is pivotally connected to a lever, 40, pivoted against the rear end of pole 24, so as to be in easy reach for the driver, and is provided with a spring-bolt arranged to engage with either one of a series of notches of a quadrant in the usual manner for locking such lever 15 in any desired position. By this bell-crank 37 and lever 40 the frame A is adjustably suspended to the axle to hold it to the desired angle for its front end to be in a higher or 20 lower position above the ground, as may be regulated by the driver while the machine is in motion.

Upon the ends of platform 15 are journaled in suitable boxes two shafts, 41 and 42, each 25 having mounted a drum, 43, for an endless apron, 44, and a sprocket-wheel, 45, upon its forwardly-overhanging end for driving the endless-chain sickle-bar C, and the shaft 42 has also mounted upon its rear overhanging end a 30 sprocket-wheel, 46, for driving it by an endless chain.

The sickle-bar C, as already stated, is formed by an endless chain composed of links 47, pivotally jointed together in the usual manner, 35 and having angular guide-shoulders, *a*, to one side, and each having attached to its opposite side an obliquely-edged knife, 48, the cutting-edge face of which is flush with the side of the link that with moving bears upon the circumferential faces of the sprocket-wheels 45, and 40 intermediate of sprocket-wheels 45 these chain-links 47 are guided between two bars, 50, having forward angular edges that overlap the angular shoulders *a* of links 47, thereby holding 45 the upper and lower string of links in line with each other, and also holding the knife-edges of the upper and lower links in close contact upon each other in a manner that, with their movement in opposite directions, the cutting-edges, with passing each other, will operate like shears for cutting the stalks. The 50 upper and lower guide-bars, 50, are fixed upon a wooden strip, 51, secured upon the front ends of longitudinal bars 1, 2, and 3 of frame A. 55 The edges of apron 44 are also guided under the rear edge of bar 50 and under a flange, 52, secured against board 23. The two bars 50 are connected by a series of V-shaped fingers, 49, that embrace the cutting-edges of the sickle-chains, and which furnish forwardly-projecting 60 points for dividing the grain-stalks into groups in advance of the shearing-knives, and for holding the stalks laterally while being cut. Forwardly-pointed shoes 53 are so secured to the 65 ends of the platform that they will divide the stalks to clear the sprocket-wheels 45.

Between the end strips, 6 and 51, is also

journaled in suitable boxes a shaft, 54, carrying a drum, 55, and having mounted upon its rearwardly-overhanging end two sprocket-wheels, 56 and 57, and to this shaft 54 is also 70 pivotally connected one end of an auxiliary frame, D, carrying drums 59, 60, and 61, one endless apron, 62, being stretched over drums 55 and 59, and another endless apron, 63, over 75 drums 60 and 61, which aprons are adapted to carry between them the grain delivered by apron 44 and to discharge the same from the elevated end of frame D. This frame D is suspended to a bail, 64, and a rope, 65, passed 80 over sheave 23, thence over sheave 66, coupled to rear of pole 24, thence over sheave 67, pivoted to cap of V-frame 26, and thence it is tied to the driver's seat 31, so that the driver may be enabled to adjust the inclination of 85 frame D without leaving his seat.

Upon axle 10 is loosely sleeved a bevel gear-wheel, 68, coupled with such shaft, to move therewith, by a shifting-clutch, 69, feathered thereon, which clutch can be moved in and 90 out of gear from the driver's seat by lever 70, connected by bar 71 with bell-crank 72, engaging the circular groove of such clutch. Upon the axle 10 is also loosely sleeved a T-piece, 73, furnishing the bearing for one end 95 of shaft 74, the other end of which is pivoted in a bearing, 75, secured against board 23. Upon shaft 74 is rigidly mounted a bevel-pinion, 76, meshing with wheel 68 and a sprocket-wheel, 77. An endless chain, 78, passed over 100 wheel 77, over two guide-rollers, 79, and thence over sprocket-wheels 46 and 57, transmits the motion from the axle to the endless sickle and to the several endless aprons, the apron 63 being driven by an endless chain, 80, passed 105 over sprocket-wheels 56 and 81, the latter being rigid with gear-wheel 82 and pivoted on a stud, 83, that is secured against the side of frame D, such gear-wheel 82 meshing with a gear-wheel, 84, mounted upon the overhanging 110 end of the shaft of drum 60.

A reel, 85, of the usual construction, is pivotally supported in longitudinally-adjustable journal-boxes 95, secured upon arms 19, and upon the overhanging end of its shaft is 115 mounted a sprocket-wheel, 86, driven by an endless chain, 87, from a sprocket-wheel, 88, that is mounted upon the end of axle 10. This chain 87 is passed over guide-pulleys 89.

A brace-rod, 90, connected to an eye-bracket, 120 91, that is sleeved upon the end of axle 10, is connected with its opposite end to frame D, for holding such frame steady.

This harvester being moved over the field, the elevation of the sickle will be adjusted to 125 the proper height, and so the inclination of the discharge-apron frame D, when the reel 85 will push the ears and stalks toward the endless sickle, and, after being cut off, will drop the same upon the endless apron 44, which 130 will carry it sidewise and between the aprons 62 and 63, that may discharge the grain either upon the ground or into a cart or wagon pulled along with the machine.

What I claim is—

1. In a harvester, the combination, with the axle and traction-wheels, of the frame A, having adjustable hangers by which it is pivotally suspended from the axle, the sickle, the endless-apron conveyer and reel held upon said frame A, and means, substantially as described, for operating them, and the frame B, pivoted above the axle, and having the inverted-V-shaped truss 26 and side braces, 27, protecting the parts carried by the axle, the pole 24, and bell-crank lever 37, connected to frame A and pivoted over the axle, all substantially as and for the purpose set forth.
2. In a harvester, the combination, with the axle and traction-wheels, of the frame A, having adjustable hangers by which it is pivotally suspended from the axle, the sickle, the

endless-apron conveyer, and reel held upon said frame A, and means, substantially as described, for operating them, the pivoted frame D, extending obliquely upward from the side of the machine, provided with the endless aprons 62 and 63, and the frame B, pivoted above the axle, and having the inverted-V-shaped truss 26 and side braces, 27, protecting the parts carried by the axle, the pole 24, and bell-crank lever 37, connected to frame A and pivoted over the axle, all substantially as and for the purpose set forth.

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

JUSTUS BISSING.

Witnesses:

HENRY OSHAUT,
C. M. Fox.