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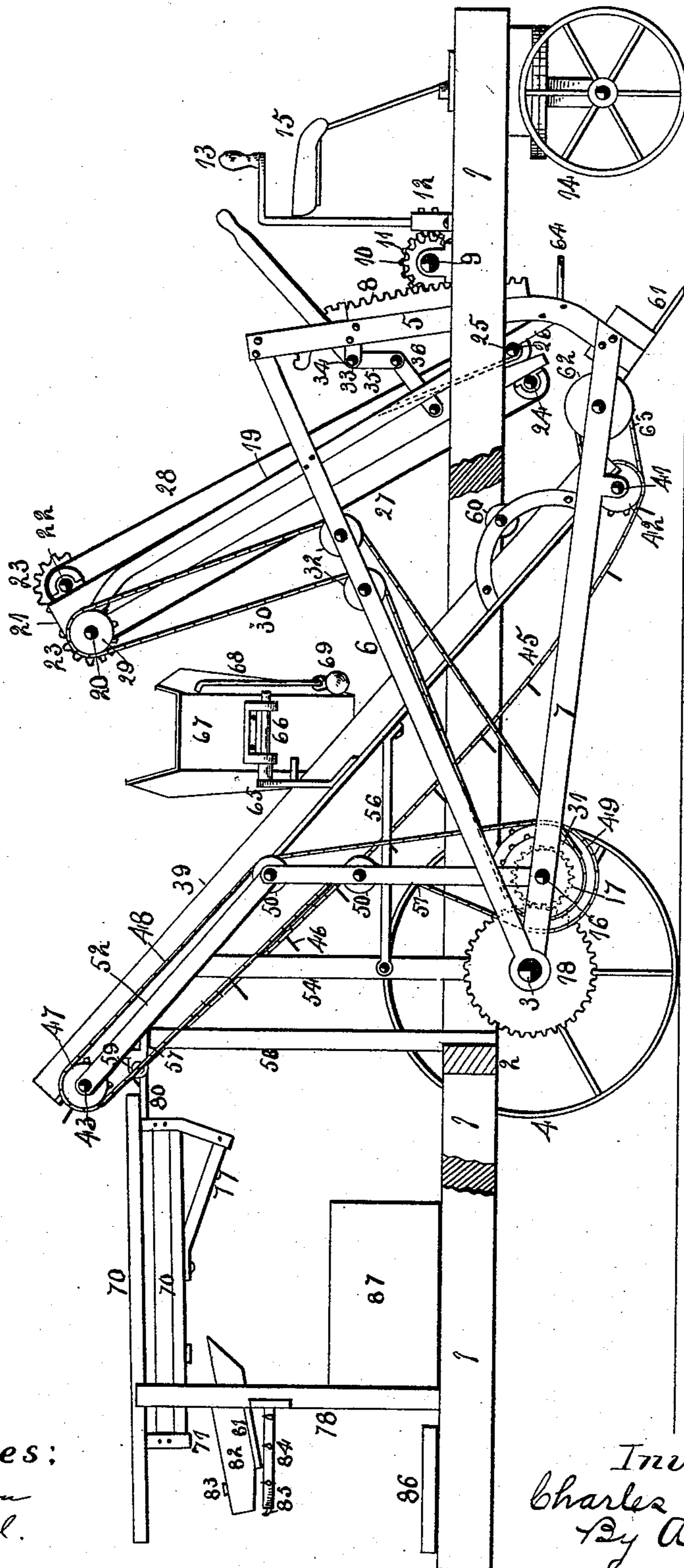
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C. E. JACKSON.
POTATO DIGGER.

No. 539,432.

Patented May 21, 1895.

Fig. 1.



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(No Model.)

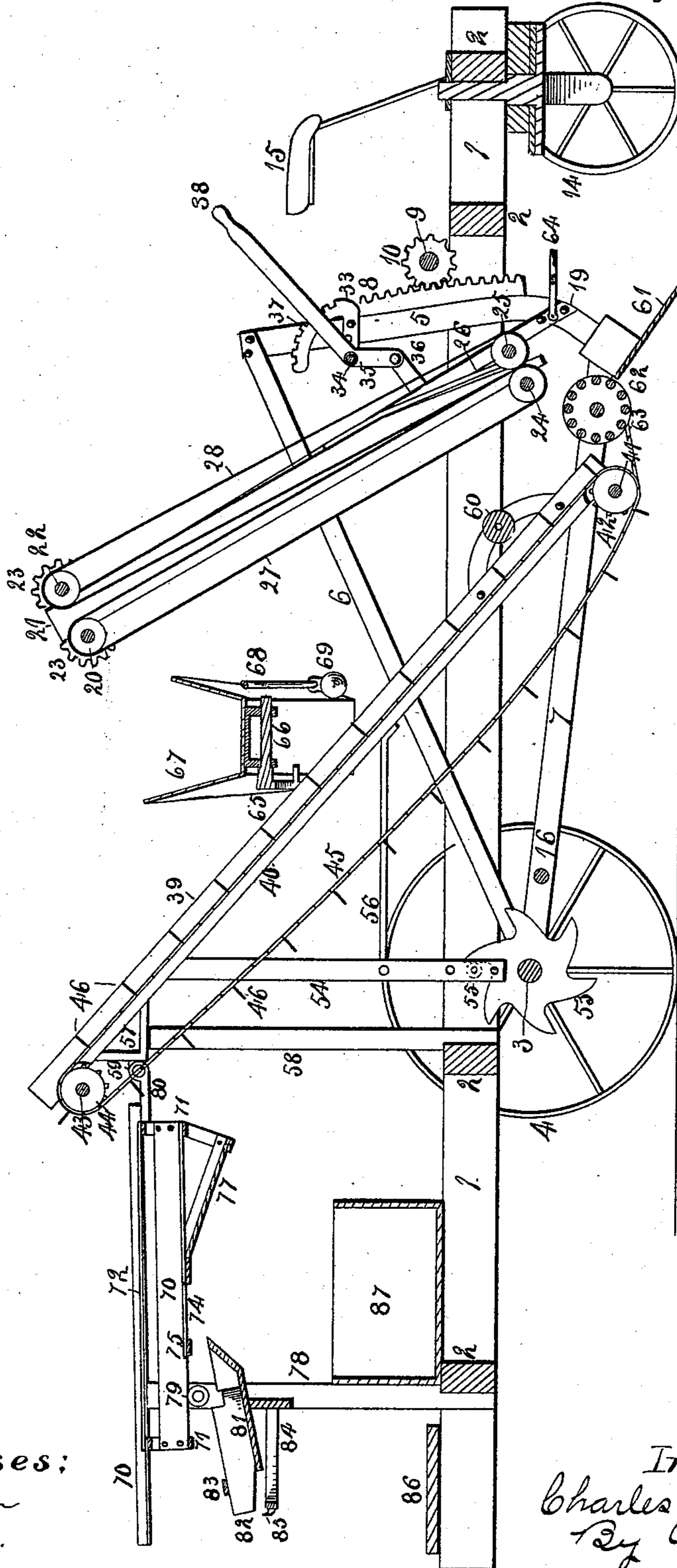
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Fig. 2.



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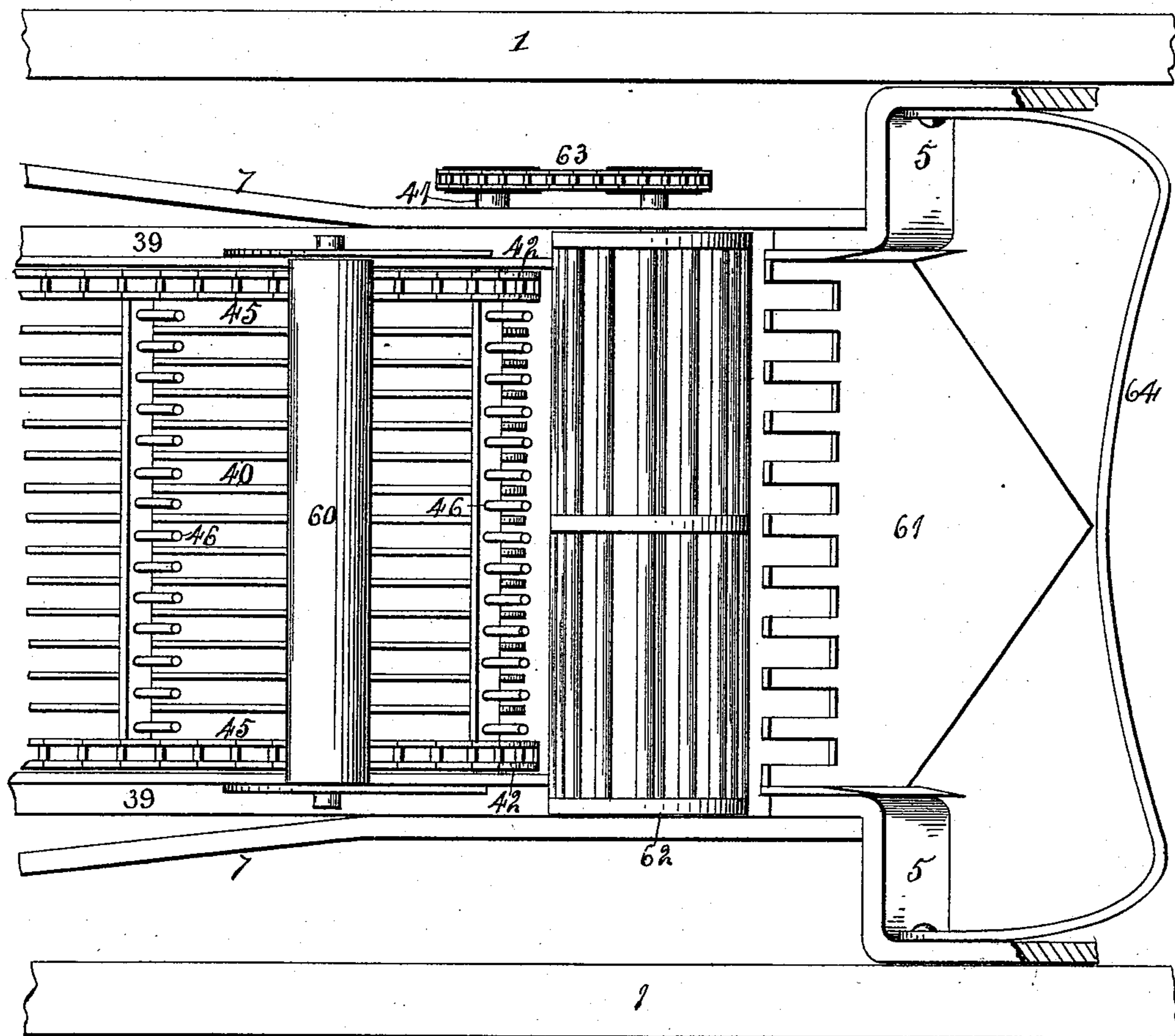
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Fig. 3.



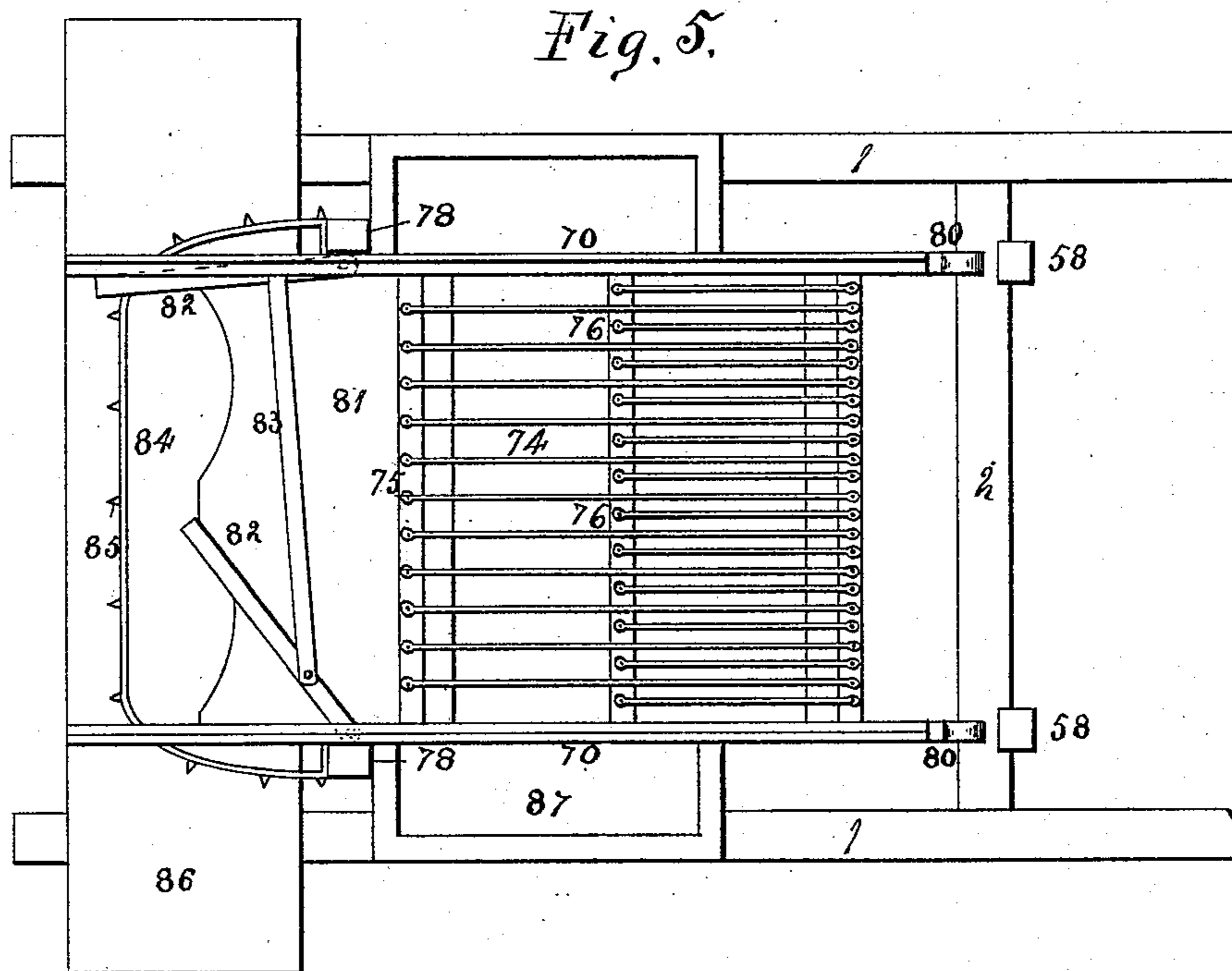
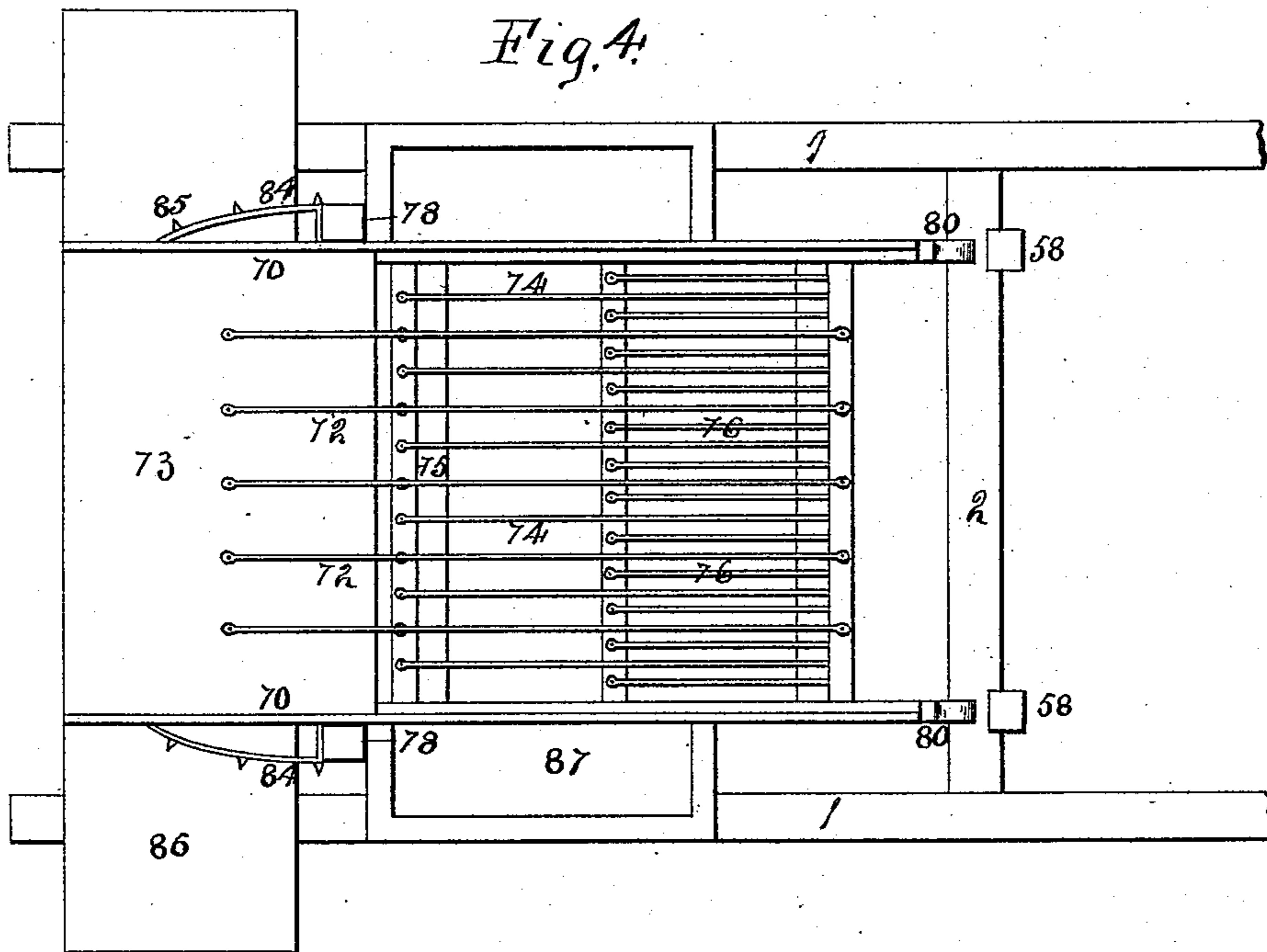
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UNITED STATES PATENT OFFICE.

CHARLES E. JACKSON, OF KINGS, ILLINOIS.

POTATO-DIGGER.

SPECIFICATION forming part of Letters Patent No. 539,432, dated May 21, 1895.

Application filed October 29, 1894. Serial No. 527,262. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. JACKSON, a citizen of the United States, residing at Kings, in the county of Ogle and State of Illinois, have invented certain new and useful Improvements in Potato-Diggers, of which the following is a specification.

The object of this invention is to construct a potato digger in which a carrier is employed to elevate the vines and weeds, and deposit them at one side of the machine.

A further object of this invention is to construct an endless carrier for elevating the potatoes, and means for imparting a vertically jolting movement to one end of the carrier for the purpose of removing the dirt from the potatoes.

A further object of this invention is to provide a series of rods over which the potatoes pass for the purpose of assorting them as to size, and to one end of which is imparted a vertical jolting movement.

A further object of this invention is to support the vine elevators and the potato carrier in a suitable frame to which is connected a plow, the forward end of said frame having an adjustable connection with the main supporting frame.

A further object of this invention is the location of a reel in rear of the plow, and the location of a roller near the lower end of the potato elevator and upon its upper face; and a further object of this invention is the location of an adjustable chute near the upper end of the vine elevator for the purpose of depositing the vines alongside of the machine.

In the accompanying drawings, Figure 1 is a side elevation of a potato-digger embodying my invention. Fig. 2 is a lengthwise vertical section of the same. Fig. 3 is a plan view of the front portion of the potato-carrier, showing the plow rear and roller. Fig. 4 is a plan view of the potato-assorting device from the rear portion of the digger. Fig. 5 is a similar view in which the upper series of rods of the potato-assorter and their supports have been removed.

The main supporting frame consists of the lengthwise beams 1 connected by cross-bars 2. A main driving shaft 3, is supported by these lengthwise beams and is located about midway of their length, and to the ends of

which outside of the beams are secured supporting wheels 4. A frame for supporting the vine elevators and other parts consists of a forward vertical bar 5, having connected at its upper end a downwardly extending bar 6, and to its lower end is connected a bar 7, each of these bars having their free ends perforated and located upon the main driving shaft 3, inside of the lengthwise beams of the main supporting frame.

To the forward faces of the vertical end bars 5, are secured toothed segments 8, the pitch line of which is struck from the center of the main driving shaft. To the upper face of the side beams of the main supporting frame are secured boxes supporting a transverse shaft 9, to which are connected toothed pinions 10, which engage the teeth of the toothed segment and to this shaft is secured a worm wheel 11, which is driven by a worm 12, supported in a suitable manner and operated by the crank 13.

The forward end of the main frame is supported by a truck 14, to which a tongue is connected, and a driver's seat 15, is supported by the forward cross-bar 2.

A shaft 16, is supported by the bars 7, and is located forward of the main driving shaft and has a connection therewith through the gears 17, and 18.

To the vertical end bar 5, and the upper diagonal bar 6, are connected bars 19, which extend upward and rearward, their upper ends supporting a shaft 20. This shaft is connected to the upper end of bars 21, forming a support for the vine elevators and to the opposite face of these bars is connected a shaft 22. These shafts 20, and 22, have a connection through the medium of the gear wheels 23. To the lower end of the bars and on their under face is secured a shaft 24, and a shaft 25, is supported by spring bars 26, connected to the front face of the bars 21. Each of these shafts 20, 22, 24 and 25, support rollers and are located in pairs, one pair having an endless apron 27, and the other pair an endless apron 28. To the end of the shaft 20, is secured a sprocket wheel 29, over which passes a drive chain 30, which is driven from a sprocket wheel 31, secured to the shaft 16 located forward of the main driving shaft, and idlers 32, secured to the upper bar 6, of the plow

supporting frame, change the direction of the chain.

To the inside faces of the vertical end bars 5, are secured brackets 33, supporting a shaft 34, and to which are connected arms 35, their lower ends having a connection with the vine elevator through the medium of the links 36. One of the brackets 33, has an upward extension in the form of a segment which is provided with teeth 37, and the arm 35, at that end of the machine is continued to form a lever 38, which has an engagement with the toothed segment and by which the lower end of the vine elevator may be raised or lowered, the shaft 20, forming the pivot upon which it moves.

The potato carrier consists of lengthwise side bars 39, and a bottom formed of bars 40, its lower end supported upon a shaft 41, which in turn is supported by the lower bar 7, of the plow supporting frame and to this are connected sprocket wheels 42.

A shaft 43, is supported by the upper end of the potato carrier which supports sprocket wheels 44, being connected by chain belts 45, with the sprocket wheels 42, on the lower shaft of the potato carrier. These chains are connected by cross bars which support teeth 46. The upper shaft of the potato carrier is provided with a sprocket wheel 47, on the opposite side of the frame, and a link chain 48, connects this wheel with a sprocket wheel 49, secured to the shaft 16, located forward of the main driving shaft, and idlers 50, are supported by a vertical bar 51, its upper end having a connection with the upper shaft of the potato carrier through the link 52. These idlers change the direction of the chain 48. To the main driving shaft are secured cam wheels 53, and to the under face of the potato carrier are secured vertical bars 54, their lower ends being located over the center of the main driving shaft and support rollers 55, which engage the upper face of the cam wheels. These bars are braced at their lower ends by the rods 56. To the upper ends of the side bars 39, of the potato carrier are secured angle irons 57, which rest in contact with the upper ends of the vertical posts 58, secured to the main supporting frame, and from the rear face of each of the angle irons extends an eye 59.

To the side bars of the potato carrier on their upper faces near their lower ends is located a roller 60, which moves in close proximity to the teeth of the carrier, and to the lower ends of the vertical bars 5, is secured a plow 61, which extends forwardly and downwardly being pointed in the center, and to the bars 7, is pivoted a reel 62, which is connected with the shaft 41 of the vine elevator through the medium of the sprocket wheels and chain belt 63. This reel is located between the plow and the lower end of the potato carrier beneath the lower end of the vine elevator. A vine depressor 64, is secured to the lower ends

of the vertical bars 5, and extend forward. To the upper face of the potato carrier about midway of its length is secured a brace 65, from the center of which extends a stud 66, upon which is pivoted a chute 67, midway of its length and to the front face of this chute is secured a rod 68, running nearly its length, and a ball 69, is supported by the rod and slides thereon and holds the chute in the direction in which it is tipped.

The potato assorting device consists of a frame work composed of side bars 70, connected by cross bars 71. The upper section has a series of rods 72, running in its lengthwise direction, their rear ends connected to the plate 73, and the lower section has two series of rods, the longer rods 74, connected to the cross bar 75, and the shorter rods 76, extending about half the length of the rods 74, and beneath which is located a trough 77, extending toward the front of the machine.

To the main supporting frame are connected supports 78, which stand in a vertical position and are located near the rear end of the potato assorter, and to their inner faces are secured rollers 79, upon which the lower bars of the frame work rest. To the front end of this frame work are secured brackets 80, having their ends in eye form, and are connected with the eyes 59, extending from the rear face of the angle iron 57, of the potato carrier, thereby forming a pivotal connection between the potato carrier and potato assorter.

Beneath the rear end of the potato assorter is secured an inclined board 81, and to its upper face are pivoted vertical bars 82, which have a connection through the medium of the link 83, and below this incline board is located a bail 84, provided with a series of hooks 85.

As the potato digger is drawn over the ground the driving wheels will impart a rotary movement to the main driving shaft, and a rotary movement will be imparted to the shaft having a gear connection with the main driving shaft and which is located in front thereof, and by reason of the chain belt connection with one of the upper rollers of the vine elevator and its gear connection with the other roller a movement will be imparted to the endless apron of the elevator, and by the chain connection with the upper roller of the potato carrier the fingers of the carrier will be moved upward along the upper surface of the carrier, and the rotary movement of the main driving shaft will cause the cam wheels to rotate, and when they come in contact with the rollers 55, they will elevate the rear end of the potato carrier, and the front end of the potato assorter, until the highest point of the cam is reached when they will drop, the angle irons forming a stop for the downward movement when resting upon their supports, the rollers supporting the rear end of the potato assorter allowing this movement to be imparted thereto. The extent of this verti-

cal movement is regulated by the position of the rollers 55, in their connection with the bars 54.

The plow is lowered into working position 5 by the crank 13, and the position of the lower end of the vine elevator may be properly adjusted by its link connection with the hand lever 38. Bags are placed upon the hooks 85, and rest upon the plank 86, located upon the 10 upper face rear ends of the side beams of the main supporting frame, and the bars 82, are turned to direct the potatoes into one of the bags. The forward movement of the potato digger will cause the plow to raise the earth 15 and the potatoes. The vines and weeds will be caught by the endless apron of the vine elevator and carried upward and any chunks of dirt or potatoes will be pinched off. The vines when discharged at the upper end of the ele- 20 vator will drop into the chute and be carried to one side of the machine. The reel located in rear of the plow will carry the loose earth and potatoes over into the potato carrier the teeth of which will elevate them and the roller 60, 25 will crush all large chunks of earth. During the elevating of the potatoes and earth the carrier is constantly jarred by the movement of the cam wheels which will separate the dirt from the potatoes, the dirt dropping through 30 the bottom of the carrier, and the potatoes will be carried and dropped into the potato assorter, and should any stones or any large pieces of earth be carried up the carrier and thrown onto the assorter they will be discharged onto 35 the ground while the potatoes of all sizes will pass between the rods of the upper section and be received upon the forward end of the lower section which will sift the dirt from the potatoes and discharge it by means of the 40 trough upon the ground. The potatoes will be jarred toward the rear end of the digger and those small enough will pass between the rods 74, will be received in a box 87, located beneath said rods, and the remaining potatoes 45 will descend the inclined board 81, and be directed into one of the bags, which when filled, the bars 82, will be adjusted so as to direct the potatoes into the bag at the opposite side of the machine.

50 It will be noticed that the chute 67, is supported by the potato carrier. Therefore a jolting movement will be imparted to the chute, which will facilitate the discharge of the vines and weeds. The object of pivoting the chute

is to discharge the vines upon the ground 55 from which the potatoes have been dug.

I claim as my invention—

1. In a potato digger, the combination of a suitable frame, a vine elevator supported thereby consisting of two canvas carriers be- 60 tween which the vines are carried, one of the canvas carriers made yielding.

2. In a potato digger, the combination of a suitable frame, a vine elevator pivotally supported thereby consisting of two canvas car- 65 riers between which the vines are carried, and means for vertically adjusting the lower end thereof independent of its supporting frame.

3. In a potato digger, a vine chute having a pivotal connection with a suitable support 70 and movable upon said pivot transversely of the digger.

4. In a potato digger, a vine chute having a pivotal connection with a suitable support and movable upon said pivot transversely of 75 the digger and a movable weight having a connection with the chute for holding it in its adjusted position.

5. In a potato digger, a potato carrier hav- 80 ing a pivotal connection with a suitable support at one end, a potato assorter having a pivotal connection with the potato carrier at its upper end, its other end having a sliding connection with the support.

6. In a potato digger, a potato carrier hav- 85 ing a pivotal connection with a suitable support at one end, a potato assorter having a pivotal connection with the potato carrier at one end, its other end having a sliding con- 90 nection with the support, a cam for raising the free end of the potato carrier near its pivotal connection with the potato assorter and permitting it to drop and a support limiting the downward movement.

7. In a potato digger the combination of a 95 supporting frame, a driving axle, a frame having a pivotal connection with the axle, a vine elevator consisting of two canvas carriers between which the vines are carried, po- 100 tato carrier and a plow supported by this pivoted frame, and means connected with the supporting frame and pivoted frame for vertically adjusting the front end of the pivoted frame.

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