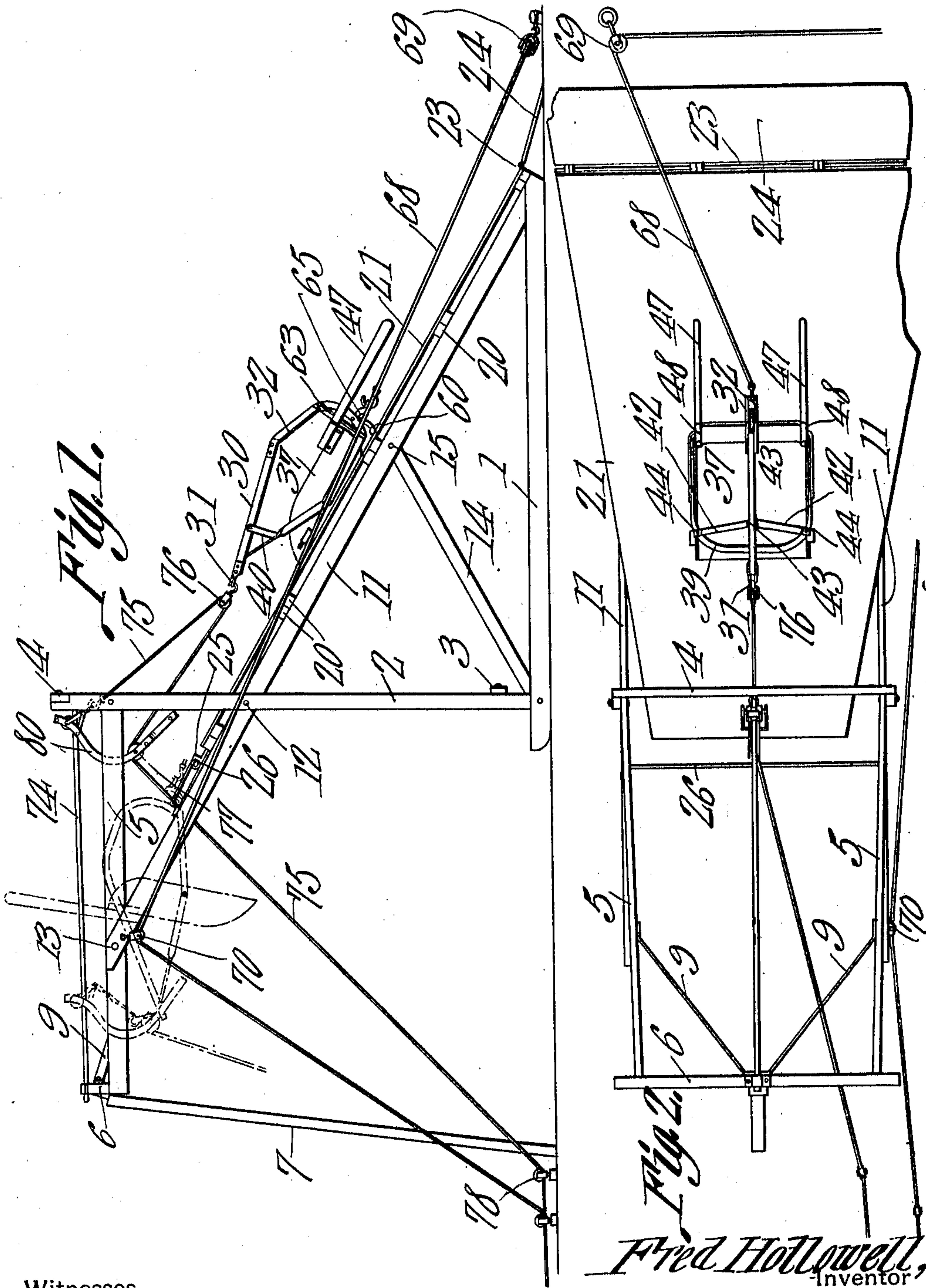


F. HOLLOWELL.  
GRAVEL LOADER AND EXCAVATOR.  
APPLICATION FILED MAY 16, 1910.

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Patented Apr. 11, 1911.

3 SHEETS—SHEET 1.



Witnesses

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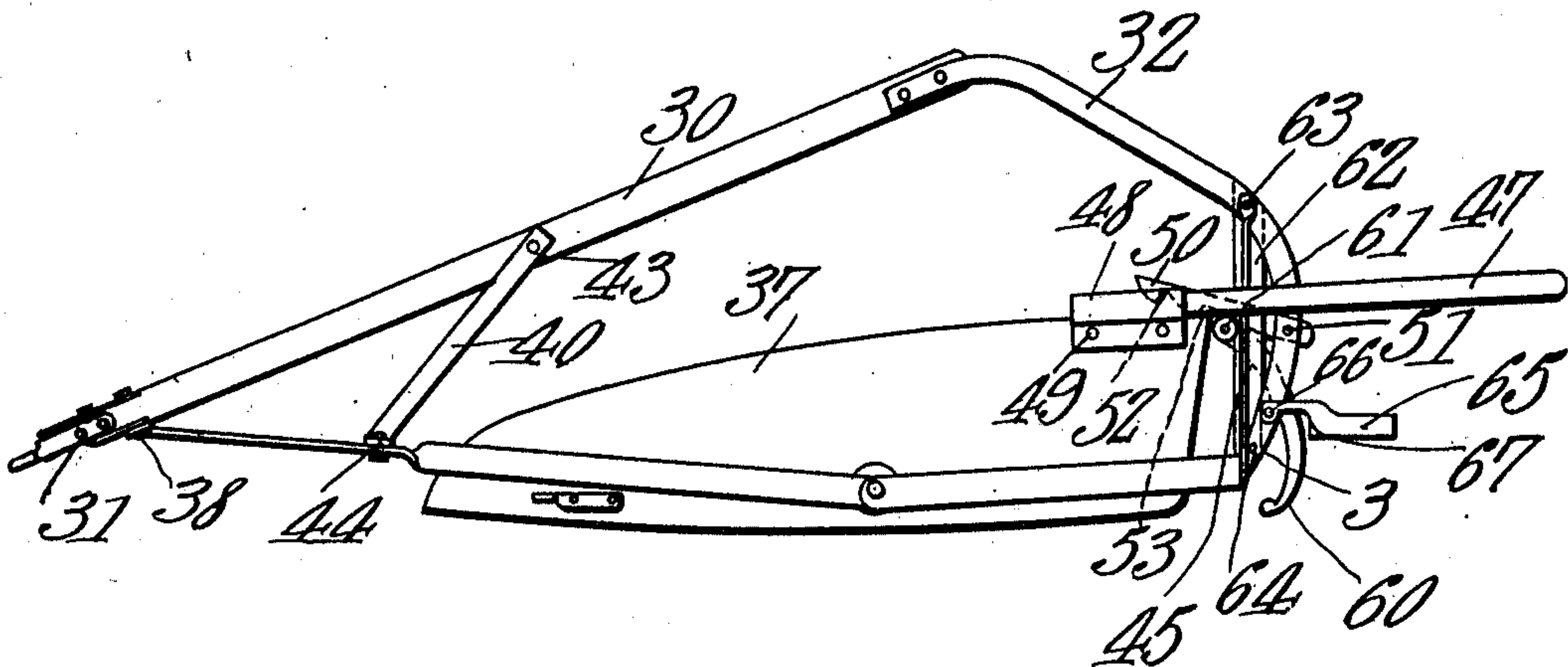
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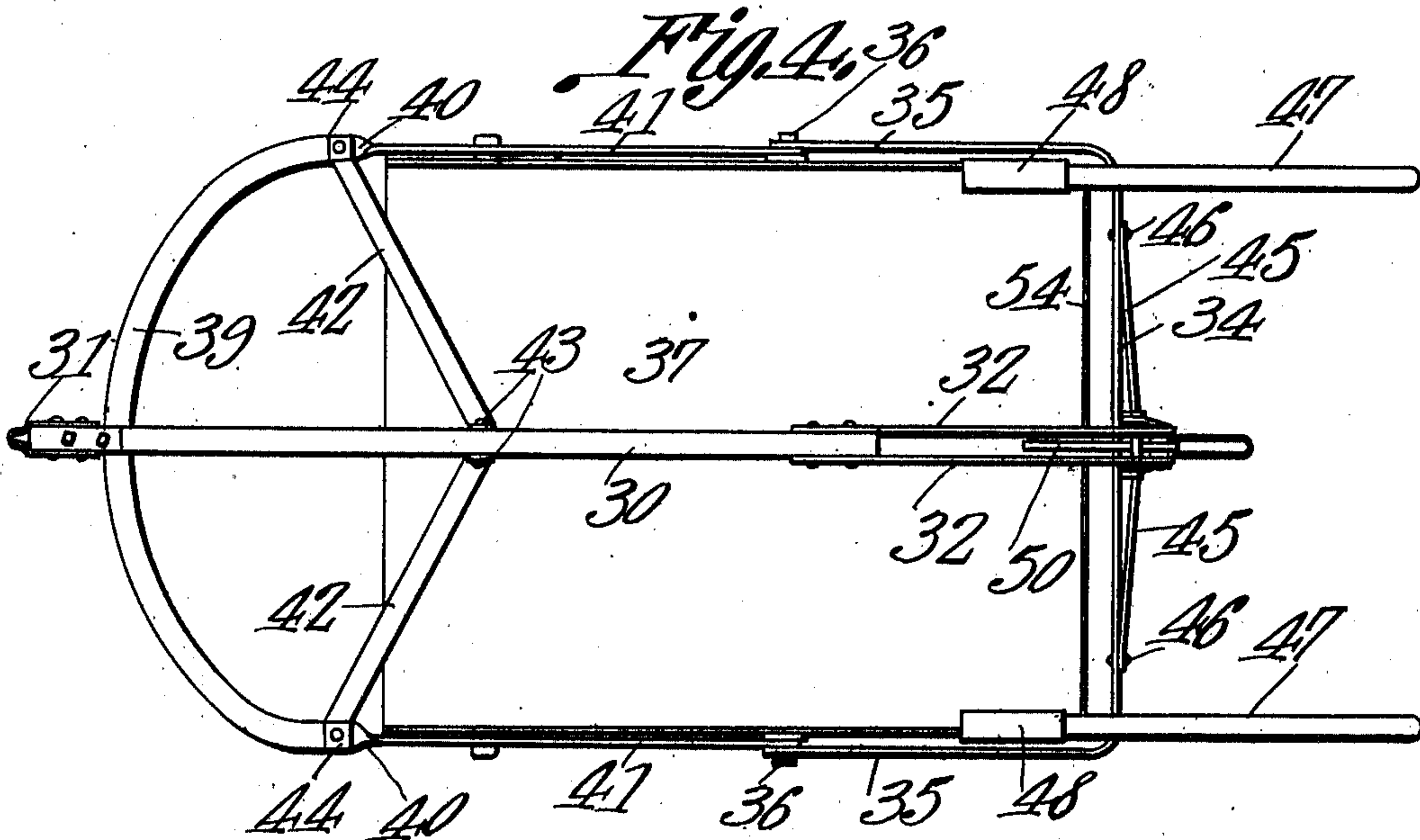
Patented Apr. 11, 1911.

3 SHEETS—SHEET 2.

*Fig. 3.*



*Fig. 4.*



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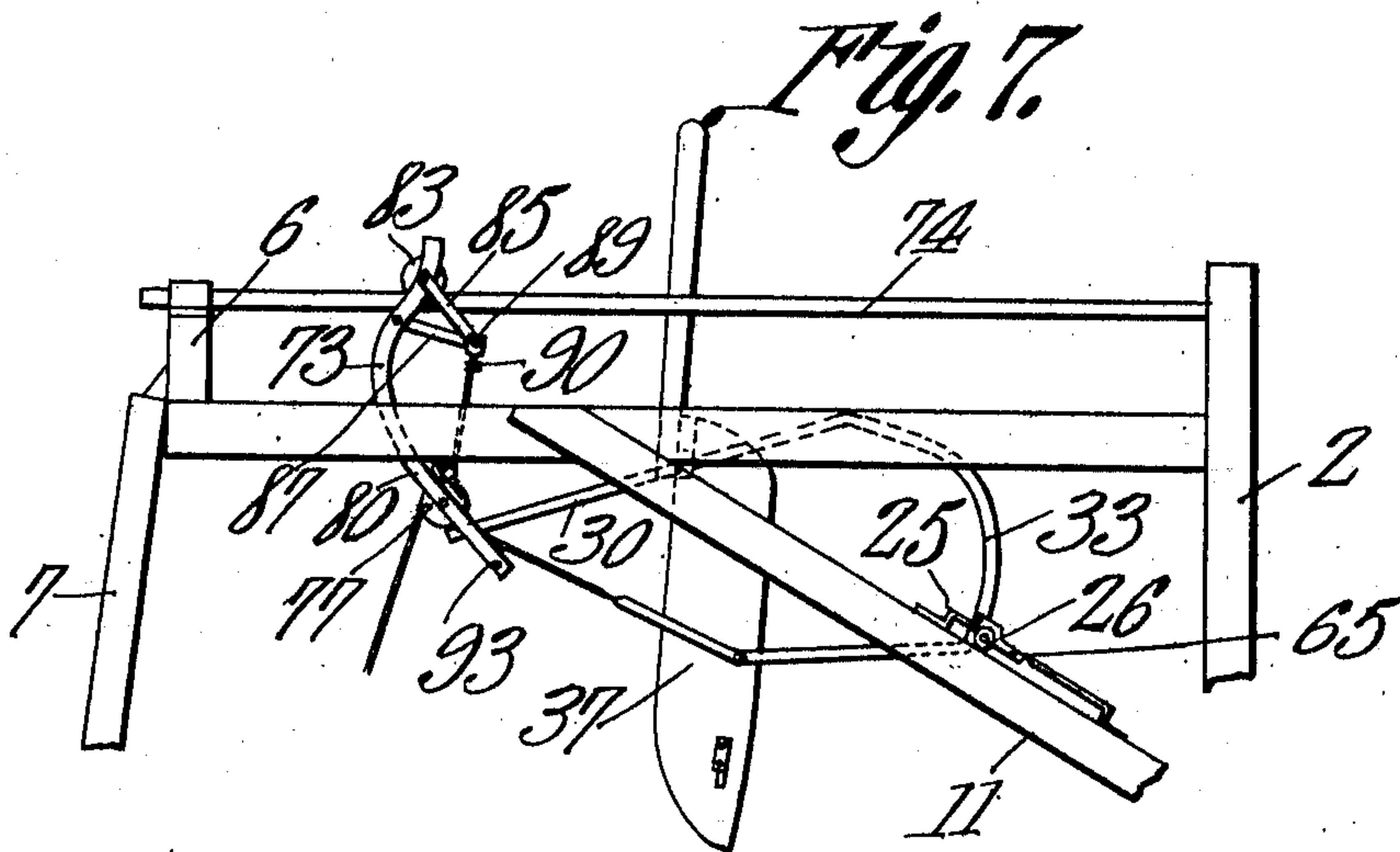
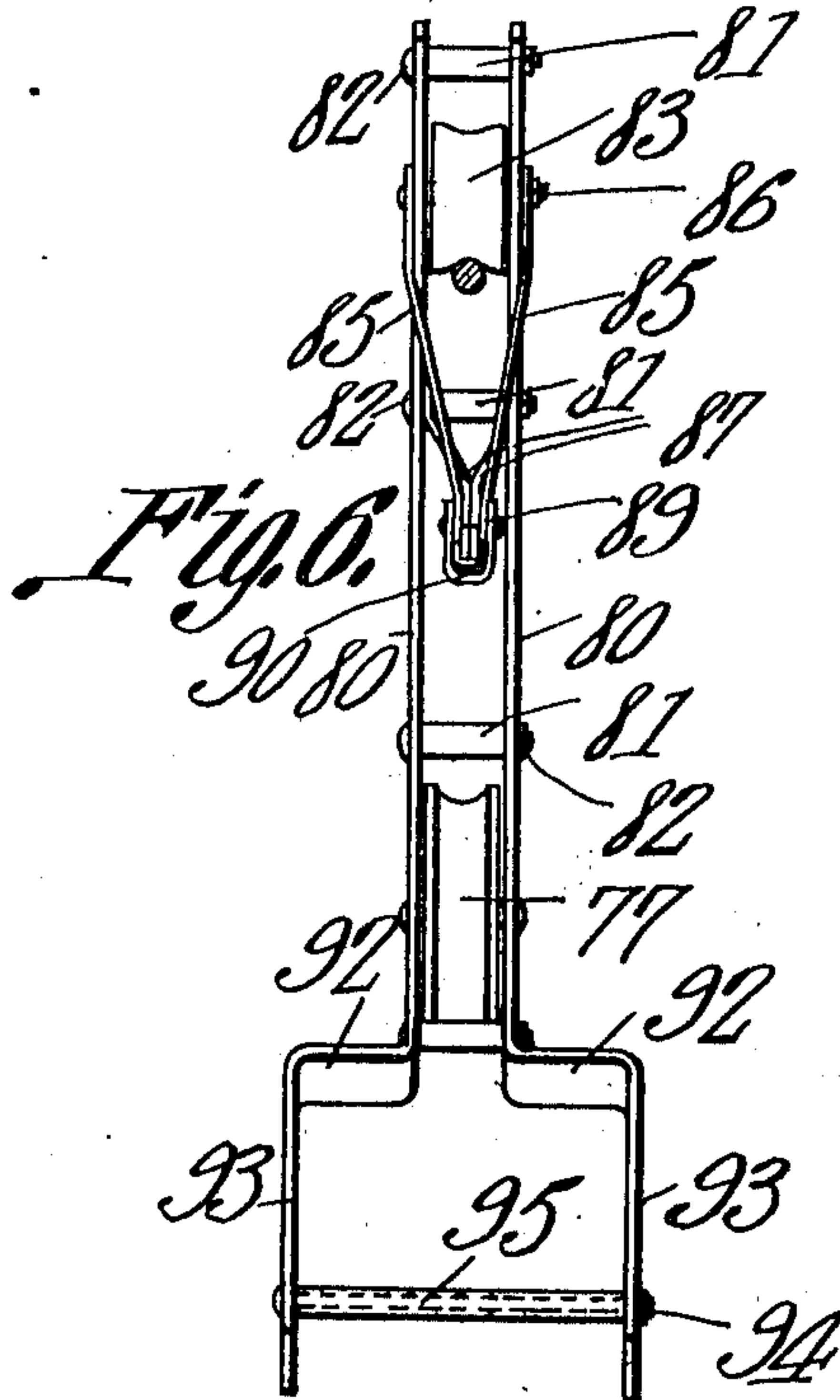
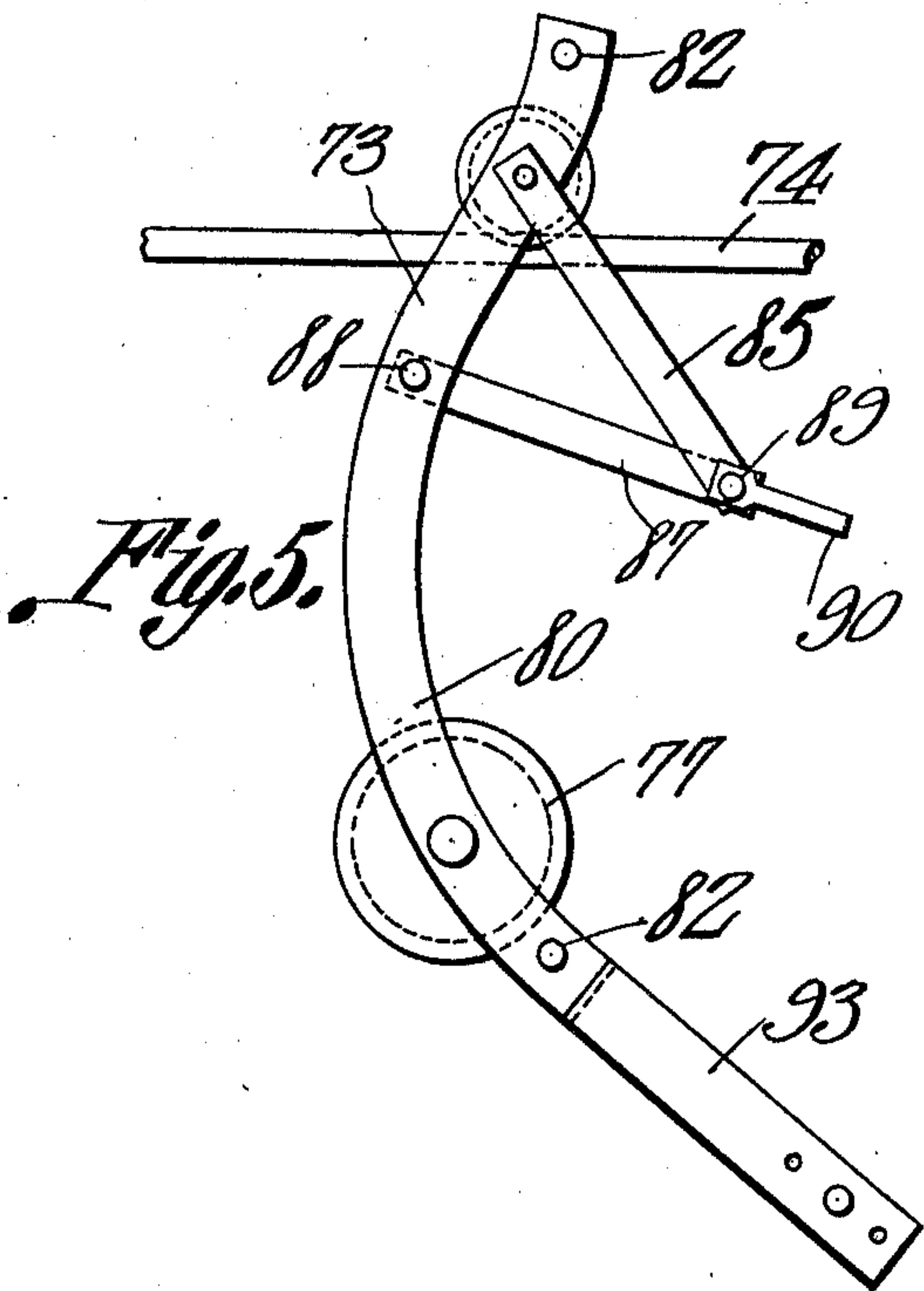
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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

FRED HOLLOWELL, OF ORLEANS, INDIANA.

GRAVEL LOADER AND EXCAVATOR.

989,263.

Specification of Letters Patent. Patented Apr. 11, 1911.

Application filed May 16, 1910. Serial No. 561,575.

*To all whom it may concern:*

Be it known that I, FRED HOLLOWELL, a citizen of the United States, residing at Orleans, in the county of Orange and State of Indiana, have invented a new and useful Gravel Loader and Excavator, of which the following is a specification.

This invention relates to an improved excavator and loader.

10 The object of the present invention is to provide means for causing an excavator or shovel or the like to be moved across a surface which is to be excavated and to be then raised in loaded condition to a suitable height and automatically dumped into a wagon or other receptacle, means being also provided for withdrawing the excavator shovel or the like to position to receive a new load.

20 Further objects of the invention are generally to improve and simplify the construction of excavating and loading mechanism as well as to increase the efficiency thereof in operation and to decrease the expense attending the manufacture and use thereof; furthermore, to render the same thoroughly practical and easy to manipulate.

30 With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of the claims without departing from the spirit of the invention.

40 In the accompanying drawings forming part of this specification:—Figure 1 is a side elevation of an excavator and loader constructed in accordance with the invention. Fig. 2 is a plan view thereof. Fig. 3 is a side elevation of the carrier or excavator. Fig. 4 is a plan view of the carrier or excavator. Fig. 5 is a side elevation of the traveler or hanger. Fig. 6 is a view taken at a right angle to Fig. 5. Fig. 7 is a detail view of the upper end of the elevating frame and the carrier thereon.

50 Like reference numerals indicate corresponding parts in the different figures of the drawings.

55 The apparatus of the present invention, briefly outlined, comprises a suitable framework having an opening into which a wagon or the like may be driven and an inclined

platform leading up to a point above the wagon or other receptacle into which the material that has been excavated is to be dumped. A shovel or other excavator is connected with the framework in such manner that by means of a draft animal or winch, it may be drawn across the surface of the ground until it has excavated a sufficient amount of material. The excavator or carrier is then drawn by the same motive force up the incline until it occupies a position above the wagon or other receptacle. At this point means are provided for automatically tripping or dumping the carrier so that it will discharge its contents into the wagon or other receptacle. Means are also provided for withdrawing the carrier or excavator from its elevated position and causing it to pass down the incline and into position for another load.

The elevating frame or incline is constructed preferably with a pair of sills or runners 1 which are adapted to be drawn over the ground in moving the device from place to place and which if desired may be provided with wheels for this purpose. Extending upward from the inner end of the sills 1 is a pair of standards or uprights 2 which are connected adjacent their lower ends by the cross piece 3 and adjacent their upper ends by the cross piece 4. Connected with the standards or uprights 2 adjacent the upper ends thereof, are the upper frame bars or arch members 5 which, as shown in Fig. 2, converge slightly with respect to each other and are connected by means of a cross piece 6 which rests upon the upper edges of the upper frame bars 5 and is suitably connected therewith. The cross piece 6 and frame bars 5 are supported by means of an upright 7 which at its upper end is connected in any suitable manner with the central portion of the cross piece 6 and at its lower end is adapted to take a firm grip on the ground. The upper end of the brace or standard 7 is connected in any suitable manner with a pair of bracing rods 9—9, as shown in Fig. 2, said bracing rods converging from the upper frame bars 5 and meeting at the upper end of the standard or support 7.

Extending from the forward end of the runners or sills 1 to a point about midway between the ends of the frame bars 5, is a pair of inclined frame bars 11. The frame bars 11 are suitably bolted to the sills 1 and extend in between the standards or uprights



2, being bolted thereto as indicated at 12. Said bars 11 are bolted to the outer side of the frame bars 5 as indicated at 13. Braces 14 extend from the rear ends of the sills or runners 1 to a point about midway of the lower ends of the inclined frame pieces 11 and the standards 2, said braces 14 being secured to the frame members 11 as indicated at 15.

Extending transversely across the inclined frame pieces 11 is a plurality of sets of cross pieces 20 which preferably are arranged in pairs as shown and serve to brace and support an inclined platform 21 which, as shown in Fig. 2, preferably is flared in shape from its upper to its lower end so as to afford a broad approach. The narrow upper end of the platform 21 extends in between the standards 2 and terminates a short distance beyond the same.

Pivotally connected with the lower end of the platform 21 as indicated at 23 is a foot board 24 which rests against the surface of the ground and facilitates the passage of the excavator from the surface of the ground to the platform.

Mounted on the inclined frame members 11 just above the upper edge of the incline 21 is a pair of traveler brackets 25 which are suitably bolted to said frame members 11 and serve to hold in place a cross rod 26 which is capable of movement within the traveler brackets 25 for a purpose which will presently appear.

The inclined platform 21 is intended for use in elevating and automatically dumping the form of excavator or carrier illustrated particularly in Figs. 3 and 4 of the drawing. This carrier consists preferably of a main frame piece 30 with the forward end of which is connected a shackle or other suitable device 31 by means of which the carrier may be drawn over the ground. Connected with the rear end of the frame piece 30 is a downwardly extending pair of parallel frame pieces 32 which are bolted to opposite sides of the frame piece 30 and at their lower ends are connected in any suitable manner as indicated at 33, with a cross piece 34 the ends of which are bent forwardly as indicated at 35, and are pivotally connected at 36 with the side portions of the shovel member or carrier 37. Connected at 38 with the forward end of the frame piece 30 is a yoke piece or frame 39 which extends rearwardly and adjacent the sides of the shovel member 37 is twisted as indicated at 40. The rear ends 41 of the yoke member 39 are connected with the trunnions 36 of the shovel member 37. As shown in Fig. 4, the cross piece 34, ends 35, yoke member 39 and ends 41 form a cradle in which the shovel 37 is pivotally mounted. The yoke member 39 is braced adjacent the forward end of the shovel 37 by means such as diagonally extending

braces 42 which at their upper ends are secured at 43 to the frame piece 30 and at their lower ends are secured at 44 to the outer ends of the yoke member 39. The cross piece 34 is braced by means of the straps or hangers 45 which at their upper ends are connected with the frame pieces 32 and at their lower ends are connected at 46 with the cross piece 34. The shovel 37 preferably is provided with rearwardly extending handles 47 which at their forward ends are fitted into socket members 48 secured at 49 to the sides of the shovel member 37.

The means for locking the shovel 37 normally against tilting movement within the carrier frame, preferably consists of a latch member 50 which is pivoted at 51 between the frame members 32 and on the under portion of its forward free end is formed with two notches 52 and 53 which are adapted to engage the rear upper edge 54 of the shovel 37 in order to hold it in position. When the forward notch 52 is in engagement with the rear edge 54 of the shovel, the forward edge of said shovel is projected downward at the proper angle to scoop up earth, gravel or other material as the carrier is drawn thereover. When the carrier is filled with material, the operator grasps the handles 47 and forces them downward until the rear edge 54 of the shovel is engaged by the second notch 53 of the latch member 50, whereby the shovel is held in position to slide smoothly over the surface of the ground.

The means for releasing the catch 50 so as to permit the shovel 37 to dump when it has reached the upper end of the incline 21, preferably consists of a trigger member or releasing device 60 which is pivoted at 61 upon a pair of straight downwardly extending arms 62 which are parallel with each other and are bolted at 63 to the arms 32 and at 64 to the cross piece 34 adjacent the center thereof. The trigger or releasing device 60 is curved rearwardly as shown in Fig. 3 and the curved portion immediately in rear of the pivot 61 acts as a cam member bearing against the lower edge of the locking device or catch 50. The catch 50 remains in engagement with the shovel member 37 until the trigger or releasing device 60, engages the yieldably mounted shaft 26 in the traveler bracket 25 at the upper end of the incline 21. As soon as the shaft 26 engages the upper end of the traveler brackets 25 the continued movement of the carrier causes the trigger 60 to be moved rearwardly with the result that the catch 50 is lifted out of engagement with the shovel 37 and said shovel dumps by moving to the dotted line position in Fig. 1.

The means for drawing the shovel backward down the incline after it has been emptied, preferably includes a shackle member 65 which preferably is U-shaped in form



and is pivotally connected at 66 with the frame members 32. The shackle 65 is hollowed out at its lower edge as indicated at 67 so as to provide a clearance or engaging member for the shaft 25 when the carrier is in its uppermost position. Connected with the shackle 65 is a rope 68 which, as shown in Figs. 1 and 2, extends around a pulley 69 which is suitably anchored. After passing around another pulley similar to 69, the rope 68 is carried upward onto the framework of the machine as indicated in Figs. 1 and 2 and is conducted over a pulley 70 from which it extends to the draft animal or winch or other source of power.

The means for drawing the excavator up the incline 21 preferably includes a traveler 73 which is mounted for sliding movement upon a bar 74 secured at one end to the cross piece 4 in Fig. 1 and at the other end to the cross piece 6. The rope 75 is secured to the traveler 73 in the manner hereinafter described and then passes around a pulley 76 connected with the shackle 31 of the carrier or excavator, then around a pulley 77 carried by the traveler 73, then around a pulley 78 in Fig. 1 and to the draft animal or winch. The traveler 73 preferably is constructed as shown in Figs. 5 and 6 of the drawings. That is to say it is formed with two curved side pieces 80, which throughout the greater part of their length are parallel with each other and are spaced apart by means of the cross pieces or sleeves 81 through which extend the bolts 82. Mounted between the upper ends of the frame pieces 80 is a roller 83 which rolls upon the rod 74 during the movements of the traveler. A pair of converging strap irons 85 are connected with the trunnions 86 of the roller 83. A pair of similar strap irons 87 are connected at 88 with the side frame pieces 80 and at their outer ends are secured at 89 to the strap irons 85 so as to produce a V-shaped structure with which is connected a shackle 90 to which the rope 75 which operates the carrier or excavator is fastened. Below the roller 77 around which the rope 75 extends, the frame pieces 80 are bent outward as indicated at 92 and then into parallelism with each other as indicated at 93 so as to produce a wide space between the members 93 as shown in Fig. 6. The ends 93 are connected with each other by means of a bolt 94 which is provided with a spacing sleeve 95.

When the shovel or excavator is drawn upward into the dotted line dumping position shown in Fig. 1, the frame piece 30 of said shovel drops downward onto the sleeve or cross piece 95 of the follower 73 and is thereby prevented from falling any farther. This follower therefore serves to support the frame of the shovel or excavator while the contents thereof are being dumped. It will be understood that the traveler 73 re-

mains in the full line position shown in Fig. 1 until the carrier or excavator has been drawn to the upper end of the incline 21, after which the action of the draft draws the traveler 73 to the left in Fig. 1 until the point is reached at which the contents of the shovel are dumped or discharged into the wagon or other receptacle which is located therebeneath.

The excavating and loading mechanism of the present invention is strong, simple, durable and comparatively inexpensive in construction as well as thoroughly practical and efficient in operation.

What is claimed as new is:

1. An excavator and loader having an incline, a track beginning at the upper end of said incline and extending away therefrom, a traveler movable on said track and having a pulley connected therewith, and a cable extending over said pulley and adapted to be connected with draft power, and a conveyer movable on said incline and connected with said cable.
2. A loading apparatus comprising an incline, a horizontally movable traveler mounted at the upper end of the incline, a dump carrier, and means connected with said traveler for drawing said carrier up said incline.
3. A loading apparatus comprising an incline, a horizontally movable traveler at the upper end of said incline, a carrier having a frame and a dump receptacle and means connected with said traveler for drawing said carrier up said incline, said traveler being adapted to hold the frame of said carrier while it is dumping.
4. A loading apparatus having an incline, a movable cross bar adjacent the upper end of said incline, a carrier movable on said incline and having a dumping member, and a trigger for releasing said dumping member when it strikes said movable bar.
5. A loading apparatus comprising a frame having lower sills, standards, upper frame pieces, a brace for said upper frame pieces, said upper frame pieces constituting the arch of a wagon opening, a bar extending across said arch, a traveler mounted on said bar and having curved side pieces, and a V-shaped structure projecting therefrom, the lower portion of said traveler being formed with a stirrup member, a carrier comprising a skeleton frame having a main frame piece, a shovel pivotally mounted in said frame and having a handle connected therewith, a latch for holding said shovel in a plurality of positions, a trigger for releasing said latch, an incline connected with said frame for guiding said carrier, a pair of traveler brackets at the upper end of said incline, a cross bar movable in said traveler brackets for tripping the trigger of said carrier, a flexible element for drawing said carrier down the incline, a flexible element



connected with said traveler for drawing the carrier up the incline, the stirrup member of said traveler being adapted to receive the main frame piece of said carrier to support  
5 the same when the carrier is in dumping position.

6. An excavator and loader having an incline, a track extending away from the upper end of said incline, a traveler movable  
10 on said track, a conveyer movable on said incline and normally disengaged from said traveler, said conveyer being adapted to be engaged and supported by said traveler when dumped, and a drag rope engaging the  
15 traveler and conveyer.

7. An excavator and loader having a conveyer provided with a beam and a dumping member, a pulley traveler having a stirrup member adapted to be engaged by said beam for supporting said conveyer when dumped, 20 and a cable connected with said conveyer and said pulley traveler for operating said conveyer.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses. 25

FRED HOLLOWELL.

Witnesses:

THOMAS J. WRIGHT,

OLIVER W. STEPHENSON.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

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