

No. 878,283.

PATENTED FEB. 4, 1908.

W. F. FINK.
GRADER AND EXCAVATOR.
APPLICATION FILED APR. 1, 1907.

4 SHEETS—SHEET 1.

Fig. 1.

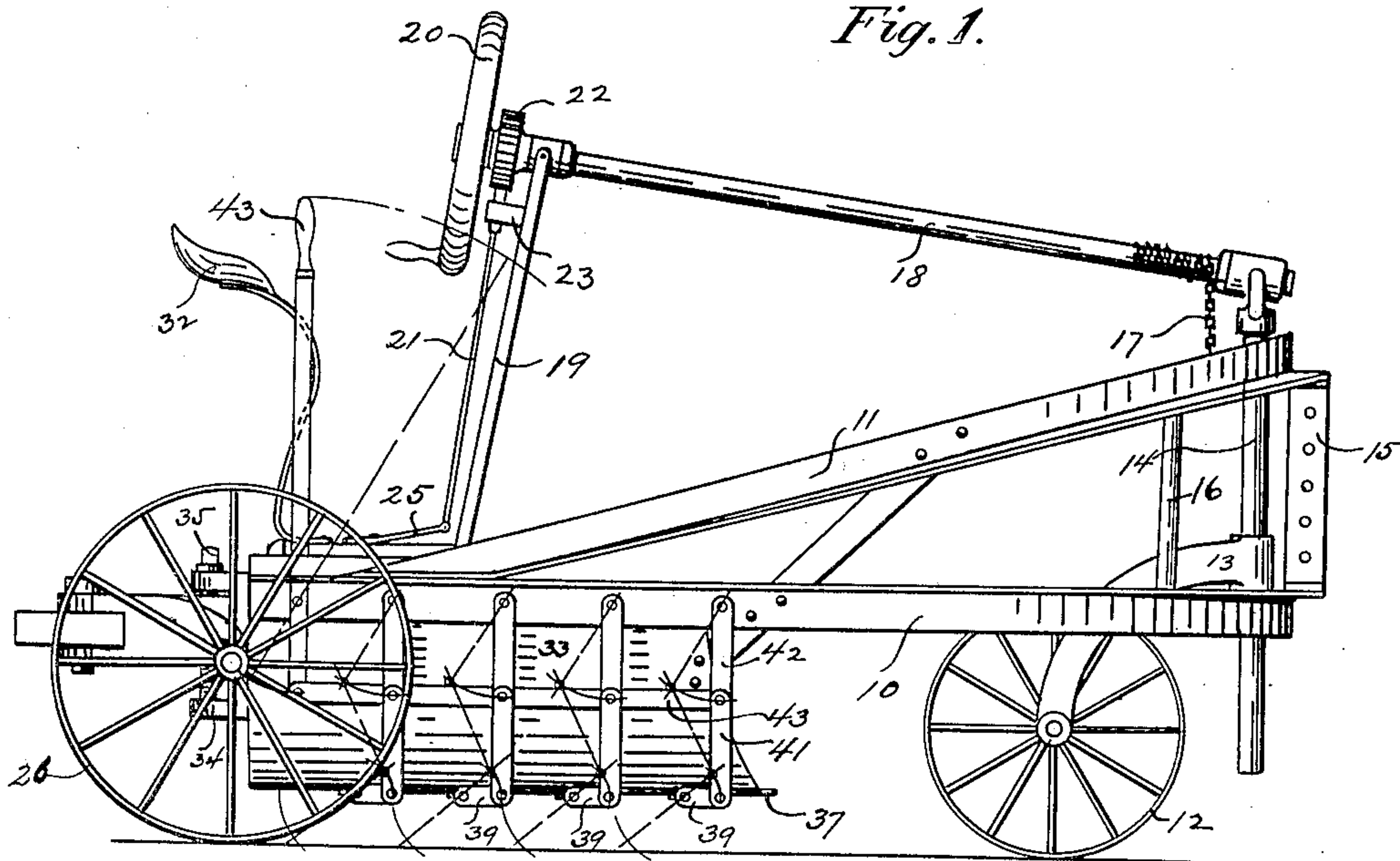
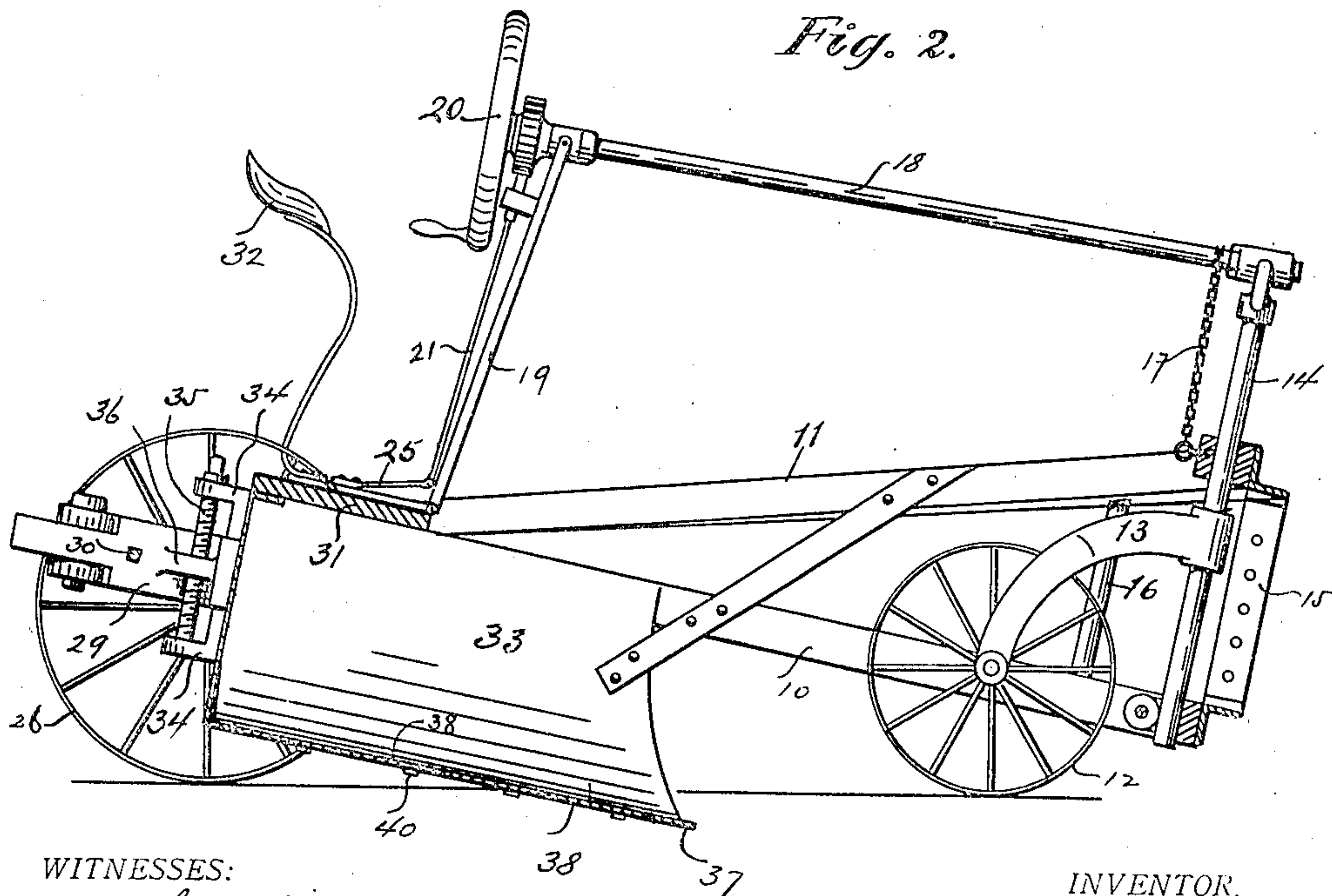


Fig. 2.



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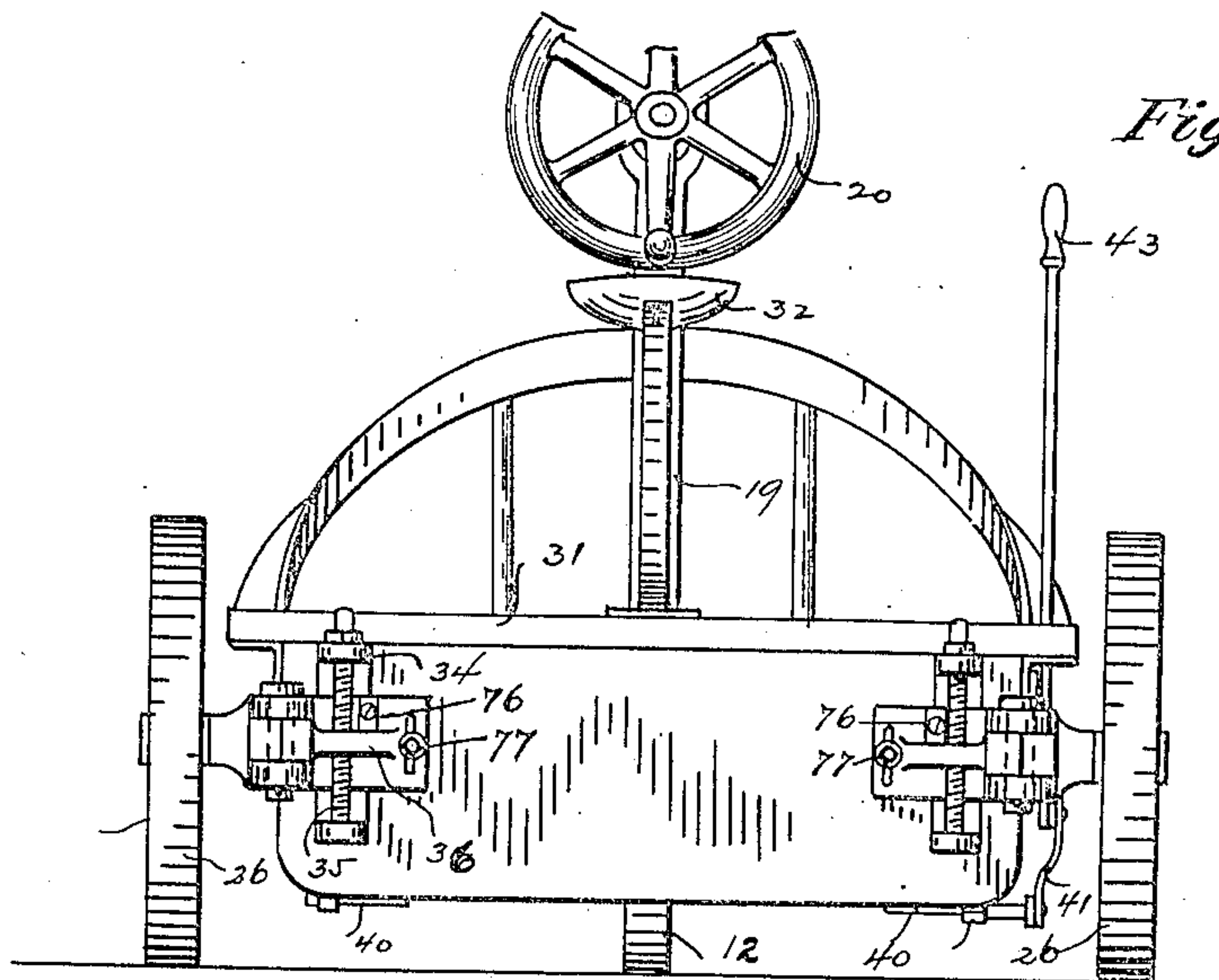
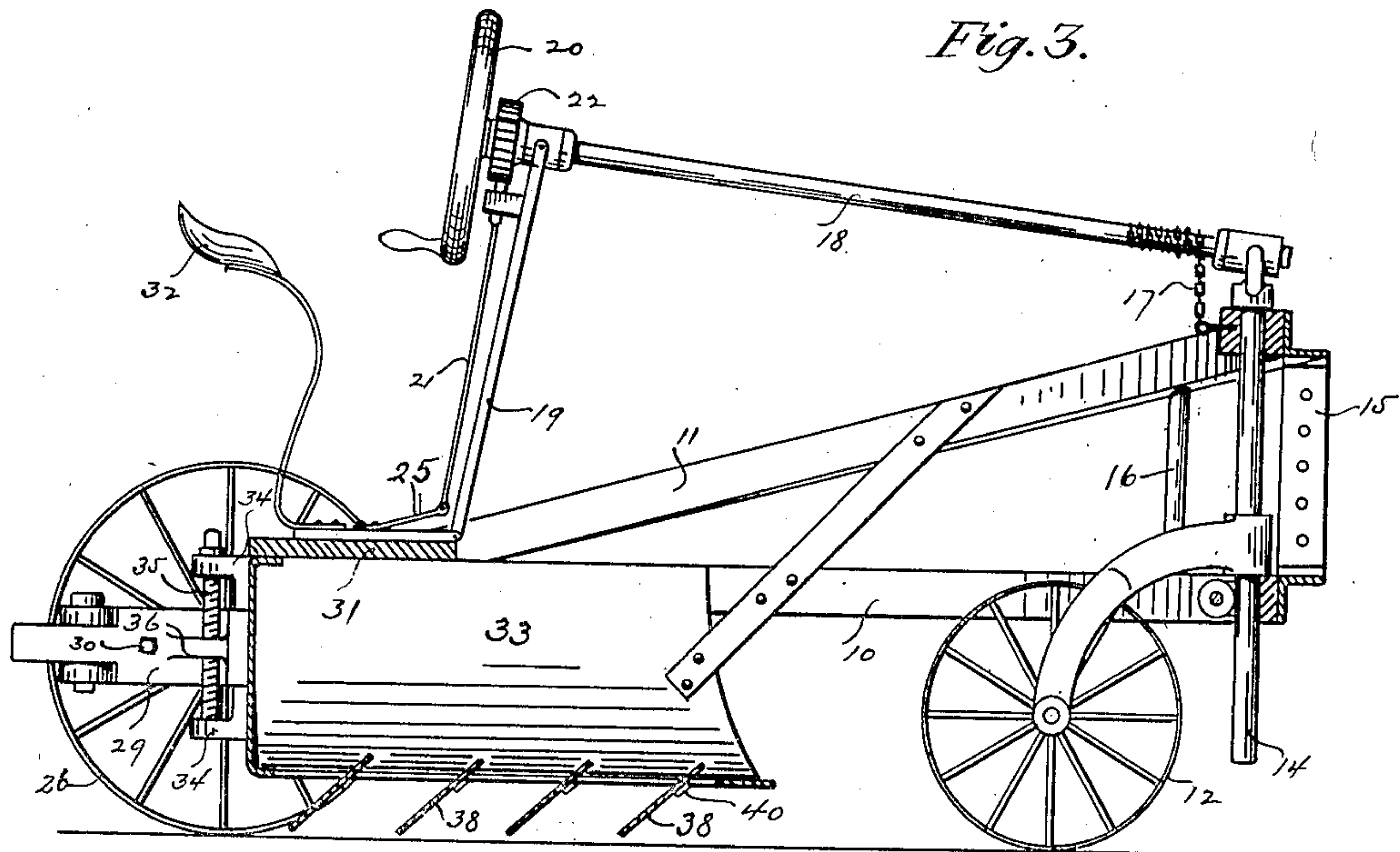
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4 SHEETS—SHEET 2.



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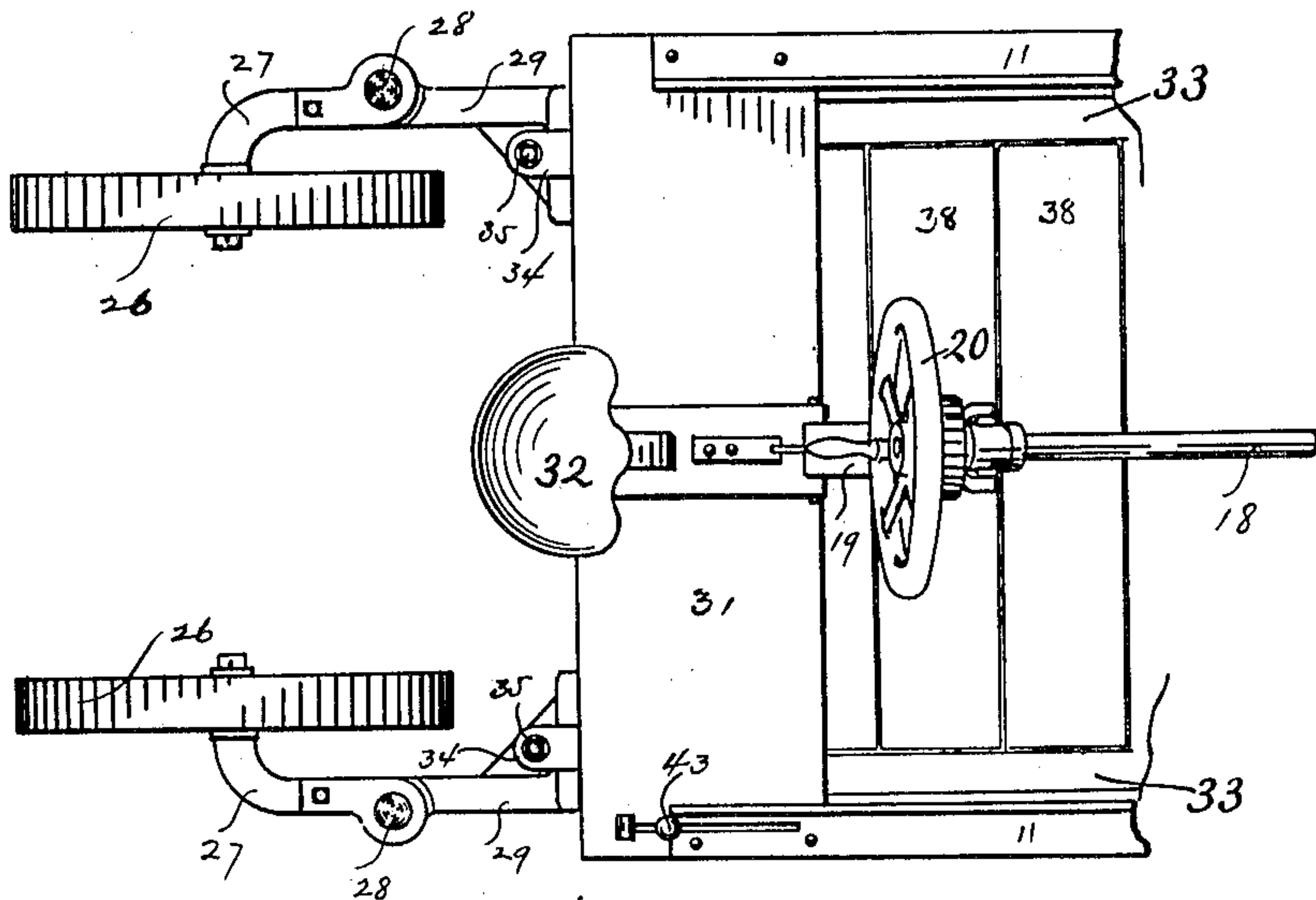
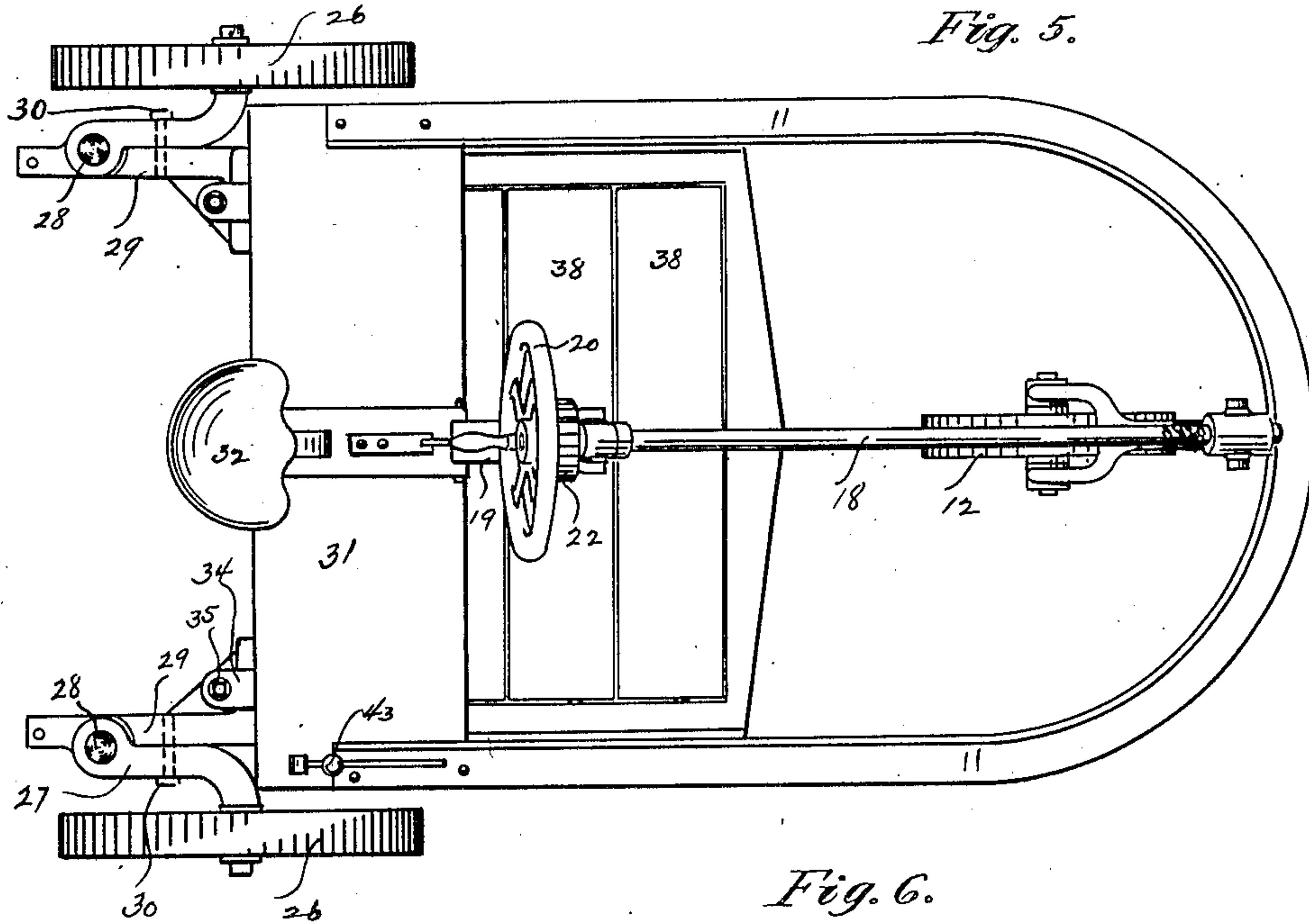
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4 SHEETS—SHEET 3.



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4 SHEETS—SHEET 4.

Fig - 7 -

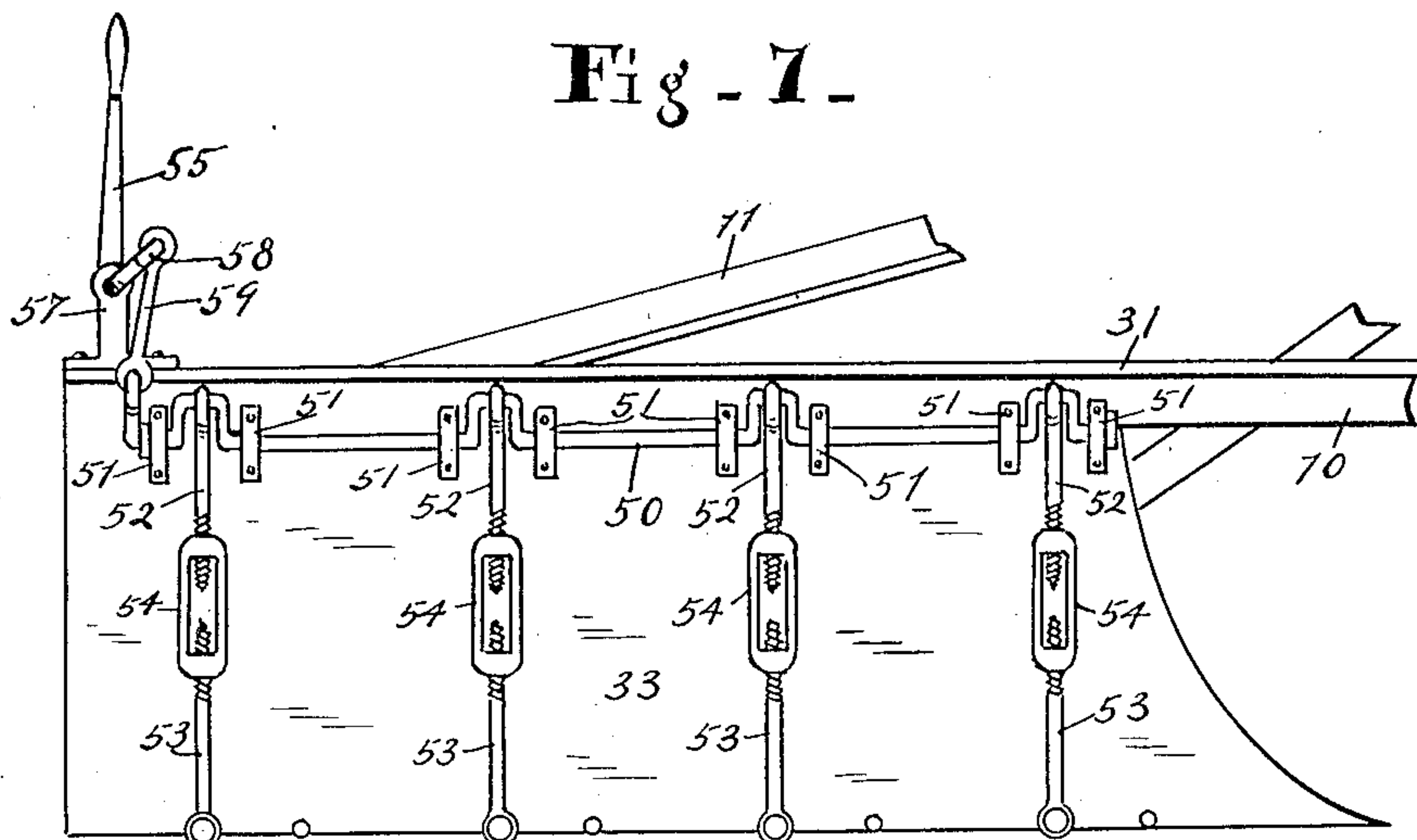


Fig - 8 -

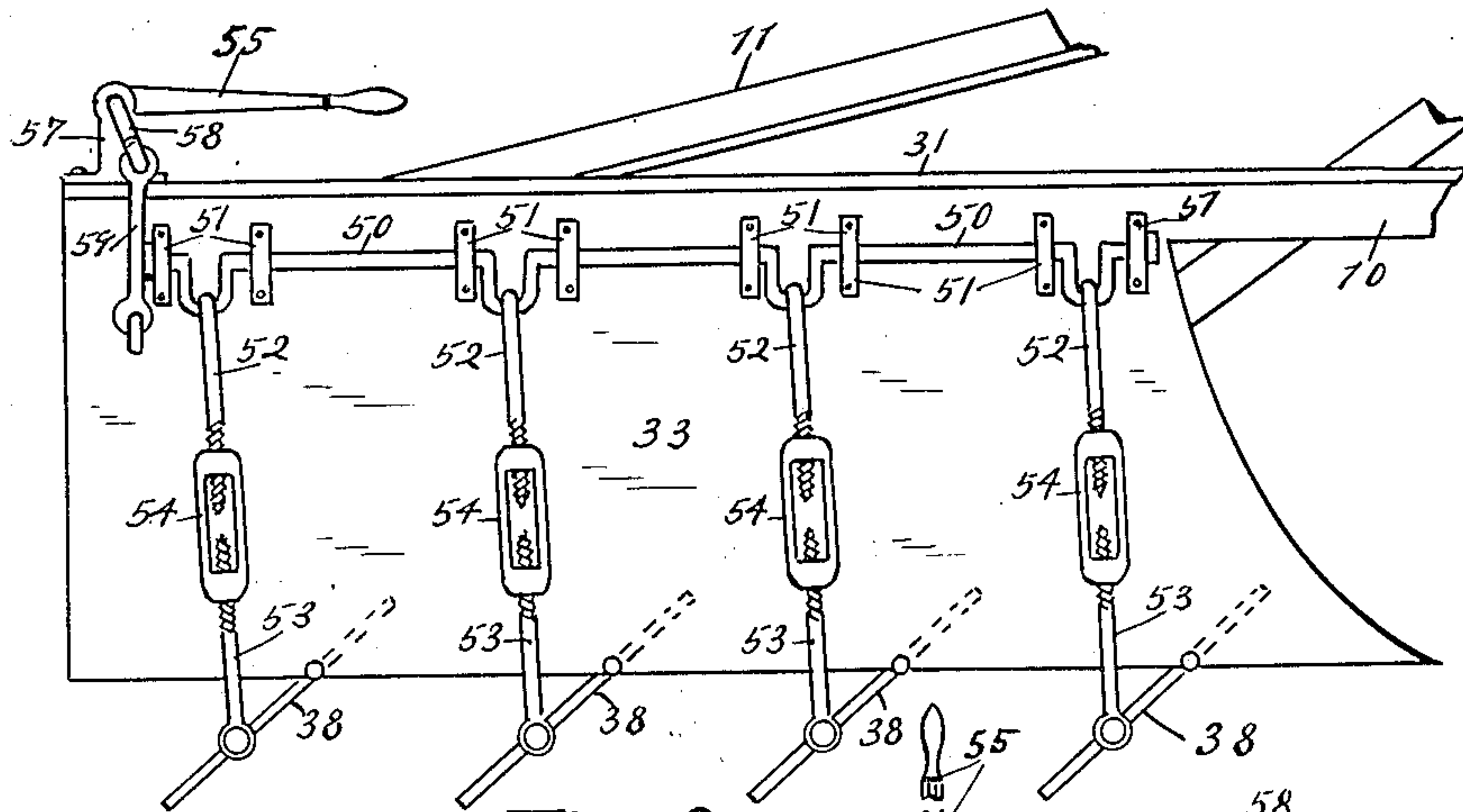
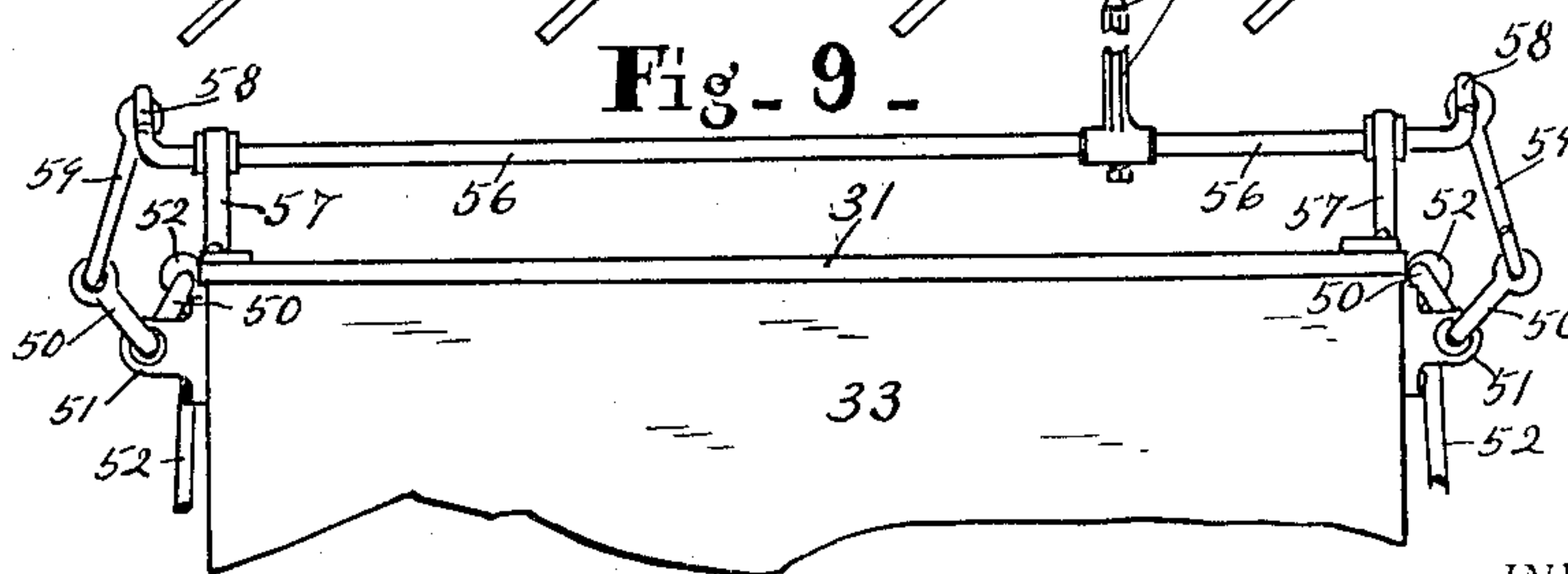


Fig - 9 -



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UNITED STATES PATENT OFFICE.

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OF LA JARA, COLORADO.

GRADER AND EXCAVATOR.

No. 878,283.

Specification of Letters Patent.

Patented Feb. 4, 1908.

Application filed April 1, 1907. Serial No. 365,666.

To all whom it may concern:

Be it known that I, WILLIAM F. FINK, of La Jara, county of Conejos, and State of Colorado, have invented a certain new and useful Grader and Excavator; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like letters refer to like parts.

The object of this invention is to provide a machine for leveling the surface of the ground and for grading, excavating and digging ditches and trenches.

The nature of the invention will be understood from the accompanying drawings and the following description and claims.

In the drawings Figure 1 is an elevation of the right hand side of the machine with the parts in the transporting position, the altered position of same parts being indicated by dotted lines. Fig. 2 is a central vertical longitudinal section through the same in the excavating position. Fig. 3 is a similar section in the unloading position. Fig. 4 is a rear elevation, parts broken away. Fig. 5 is a plan view of the machine. Fig. 6 is a plan view of the rear portion of the machine with the wheels swung inward to adapt the machine for digging trenches. Fig. 7 is a side elevation of a portion of the machine showing the modified construction, parts being in the loading position. Fig. 8 is the same with the parts in the unloading position. Fig. 9 is a rear elevation of the upper portion of what is shown in Fig. 7, parts being broken away.

In detail a frame 10 is formed of angle iron bent substantially U shaped with the bend to the front. This is supplemented by a similar shaped frame bar 11 secured at its rear end to the frame 10 and extending forwardly at an upward inclination. A team is hitched to the perforated bar 15 that extends between bars 10 and 11. Braces 16 strengthen the frame. The forward end of the frame is supported so as to be vertically adjustable by the wheel 12 mounted in the curved arm 13 that is secured on the rod 14 which is vertically movable in the two frame pieces 10 and 11. The forward portion of the frame is elevated on the rod 14 by the cable 17 that is fastened to frame bar 11 and is wound up on shaft 18, which at its forward end is mounted on the upper end of rod 14 and at its rear end on a bar 19 extending up from the frame. Shaft

18 is actuated by the hand wheel 20 and held in position by the pawl-like upper end of rod 21 engaging the toothed wheel 22. The rod 21 is guided by bracket 23 and forced upward by spring pedal 25.

The rear end of the frame is carried by two wheels 26 mounted on the axles 27 pivoted at 28 to rearwardly extending arms 29 and so as to be swung or moved into either of the positions shown in Figs. 5 and 6. The axles are held in their position in Fig. 5 by bolts 30.

At the rear end of the frame there is a plate 31 that carries the driver's seat 32. To this plate 31 and to the rear portion of the frame 10 the scoop or excavator 33 is secured. To the rear wall of scoop 33, near each side, there is secured a vertically disposed pair of brackets 34 that carry a screw bolt 35 which extends through the ear 36 extending from the plate 76 to which the arm 29 is secured. By turning the bolts 35 the scoop and rear part of the frame can be elevated or lowered for proper adjustment. The plates 76 are loosened during such adjustment and when adjusted are secured by clamps 77 extending through vertical slots in said plates.

The rear end of the scoop 33 is closed and the forward end open and provided along its lower edge with a knife or cutting edge 37 adapted to cut or scrape up the earth. Behind this cutting edge the entire bottom of the scoop is formed of a series of dumping plates 38 pivoted at each end at points towards their forward edges so that when free, they will tilt down rearwardly under the weight of the dirt and dump it. There are no partitions between these plates, so they will let down all the dirt carried by them, and there is nothing to catch weeds, clods and the like. This is a very important feature for keeping the scoop clear and entirely discharging the load.

The dumping plates are held and actuated by cranks 39 on a cross bar 40 and which are pivoted to connecting bars 41 running to the bars 42 that are pivoted to the frame bar 10. A horizontal bar is pivoted to the adjacent ends of bars 41 and 42, and is actuated by a hand lever 43 so that a forward movement of the hand lever will move the parts to the dotted line positions in Fig. 1 and dump the plates 38, as shown in Fig. 3. After the load of dirt is dumped a reverse movement of

lever 43 will return the dumping plates 38 to their earth holding position, and the bars 41 and 42, being then in a straight line, they will hold the dumping plates rigidly in their closed position.

In operation, the forward end of the scoop is tilted as in Fig. 2 and a load obtained. Then the scoop is raised and the device is transported to the unloading place, where by opening the dumping plates it may be unloaded in a pile or by slowly opening the dumping plates and keeping the team moving, the earth may be distributed. For ditching the rear wheels 20 are thrown around to their inner position, shown in Fig. 6, so they can travel in the trench excavated by the scoop.

In Figs. 7, 8 and 9 a modified form of a portion of the construction is shown. The modification relates to the means for holding the plates 38 in their closed or open position. This modified arrangement consists of crank rods 50 on each side of the scoop 33 mounted in plates 51 secured to said scoop. From said crank rods the rods 52, 53 and intermediate turn-buckle 54 extend to the plates 38. The crank rods are operated by the hand lever 55 that is secured to the cross rod 56 mounted in the post 57 on plate 31 of the machine. The ends of the rod 56 are turned to form cranks 58 and these cranks are connected by the links 59 with the crank ends of the crank rods 50. With this modified construction the plates 38 are held in position positively and the turn-buckles 54 permit accurate adjustment of the means for holding said plates positively in place. The cranks of the crank rods 50, when the plates 38 are closed, pass up and inward beyond the fulcrum lines through the rods 50 so that the plates 38 will thereby be automatically held closed for loading and carrying the earth.

What I claim as my invention and desire to secure by Letters Patent is:

1. A grading and excavating machine including a frame, an excavating scoop mount-

ed in connection therewith, transporting wheels for the frame, and means for mounting said wheels so they may travel beside the frame or behind the frame in the trench made by the scoop.

2. A grading and excavating machine including a frame, an excavating scoop mounted in connection therewith, forward and rear transporting wheels for said frame, means for vertically adjusting the forward end of said frame on its transporting means whereby the forward end of the scoop may be tilted to an excavating position and elevated to a transporting position.

3. A grading and excavating machine including a frame, an excavating scoop mounted in connection therewith, transporting wheels for said frame, and means for vertically moving either or both the forward or rear portions of said frame as desired.

4. A grading and excavating machine including a frame, an excavating scoop mounted in connection therewith, a rod mounted vertically movable in the forward end of the frame, a wheel carried by said rod, a shaft mounted on the upper end of said rod and extending rearward, means for actuating said shaft, and a cable that winds upon said shaft and at its lower end is secured to said frame.

5. A grading and excavating machine including a frame, a scoop with a forward cutting edge and with the remainder of the bottom formed entirely of dumping plates, a crank rod at each side of the machine, means for simultaneously actuating the crank rods, and connecting rods adjustable in length extending from said crank rods to said dumping plates for holding them closed and opening the same.

In witness whereof, I have hereunto affixed my signature in the presence of the witnesses herein named.

WILLIAM F. FINK.

Witnesses:

FRANK H. PHILLIPS,
ROY G. FINK.