

No. 622,729.

Patented Apr. 11, 1899.

A. STUTZMAN.  
TRACTION ENGINE.

(Application filed May 13, 1897.)

(No Model.)

2 Sheets—Sheet 1.

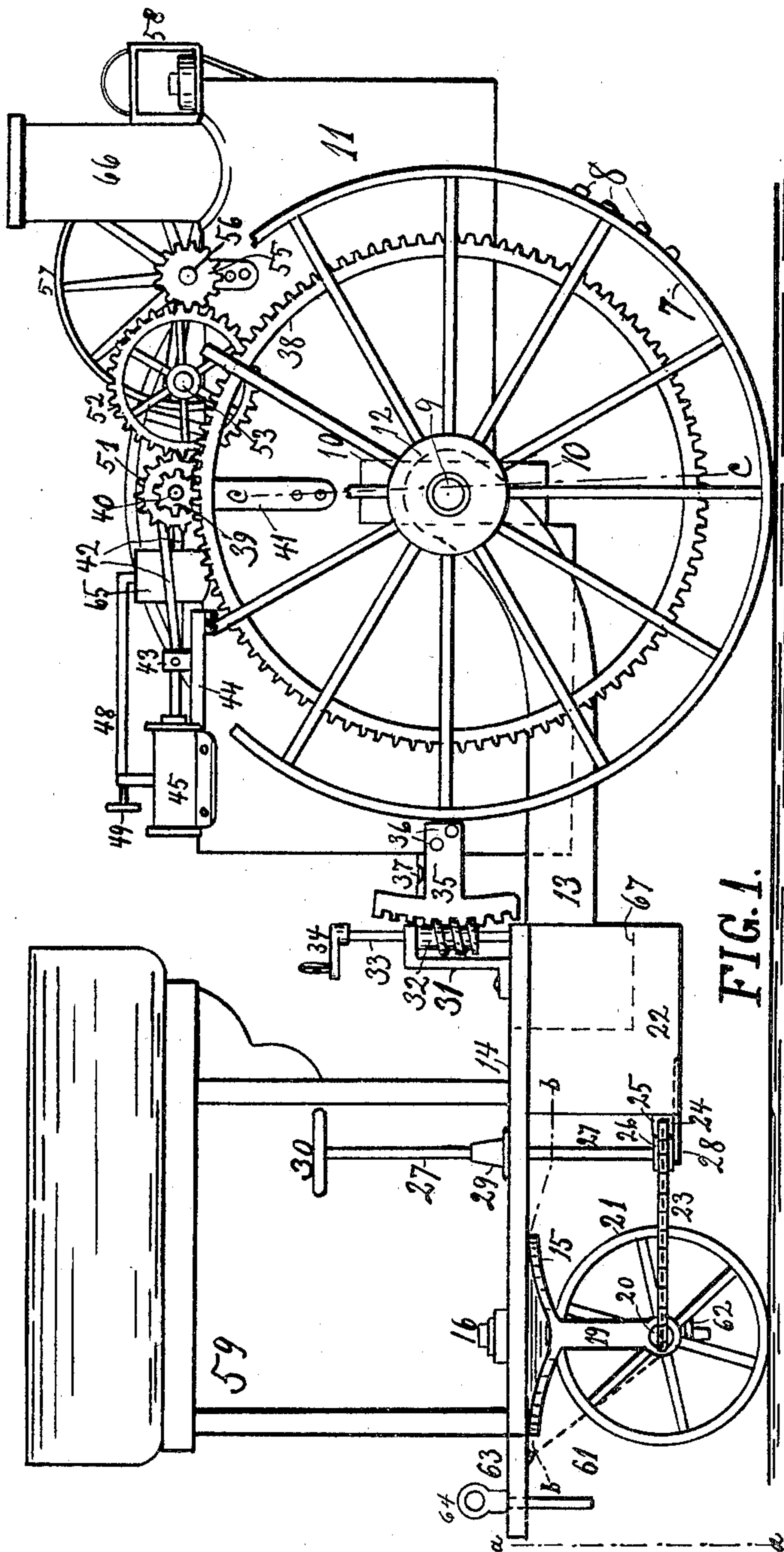


FIG. 1.

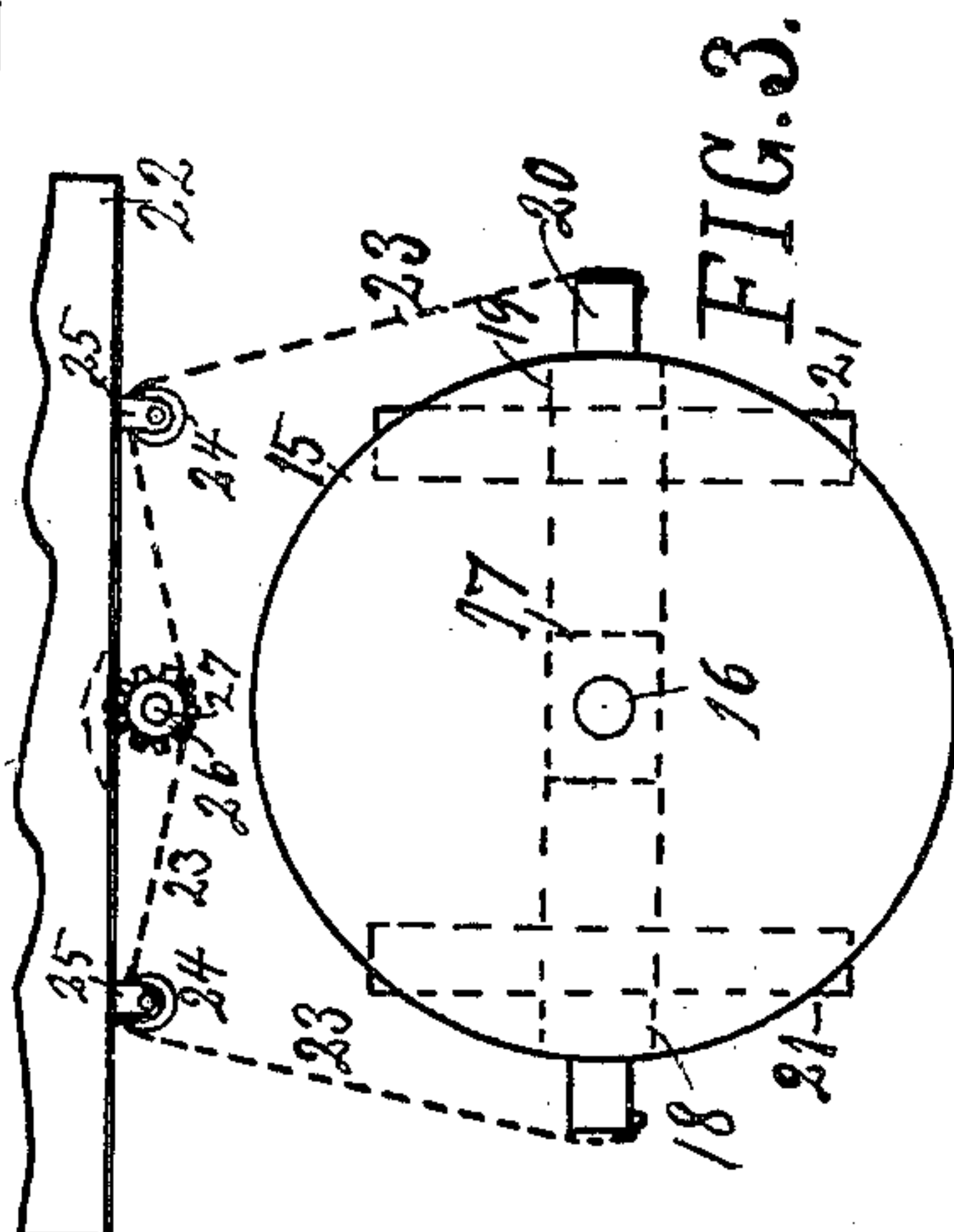


FIG. 3.

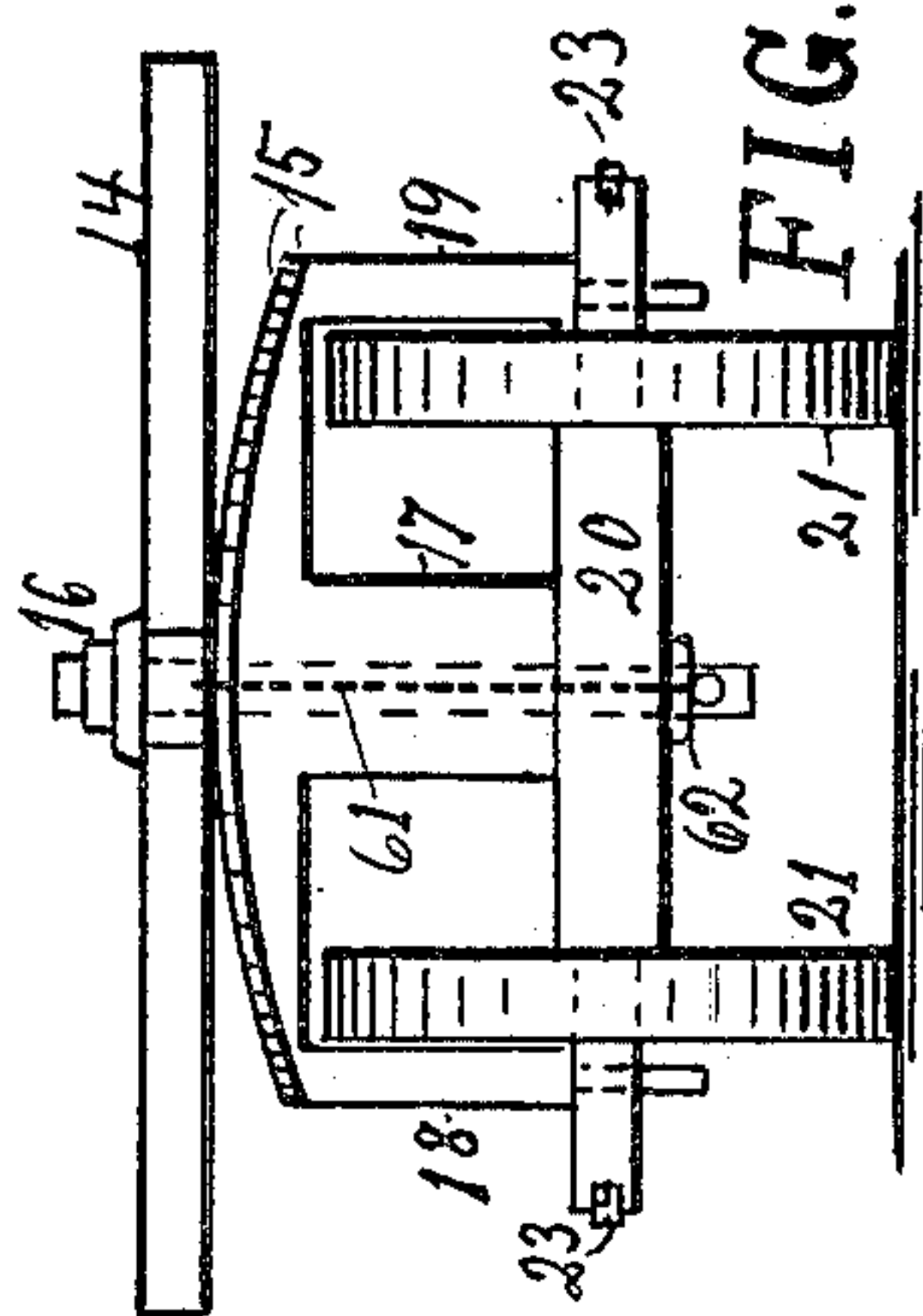


FIG. 2.

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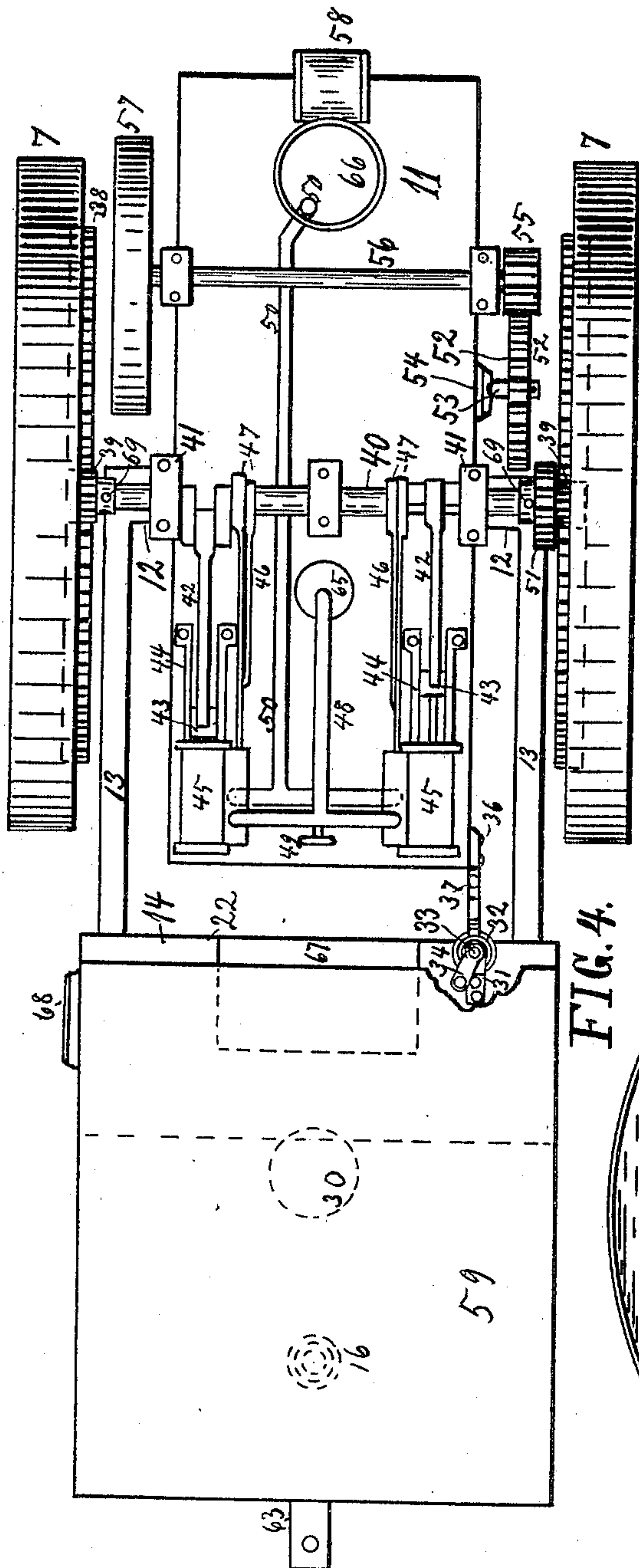


FIG. 4.

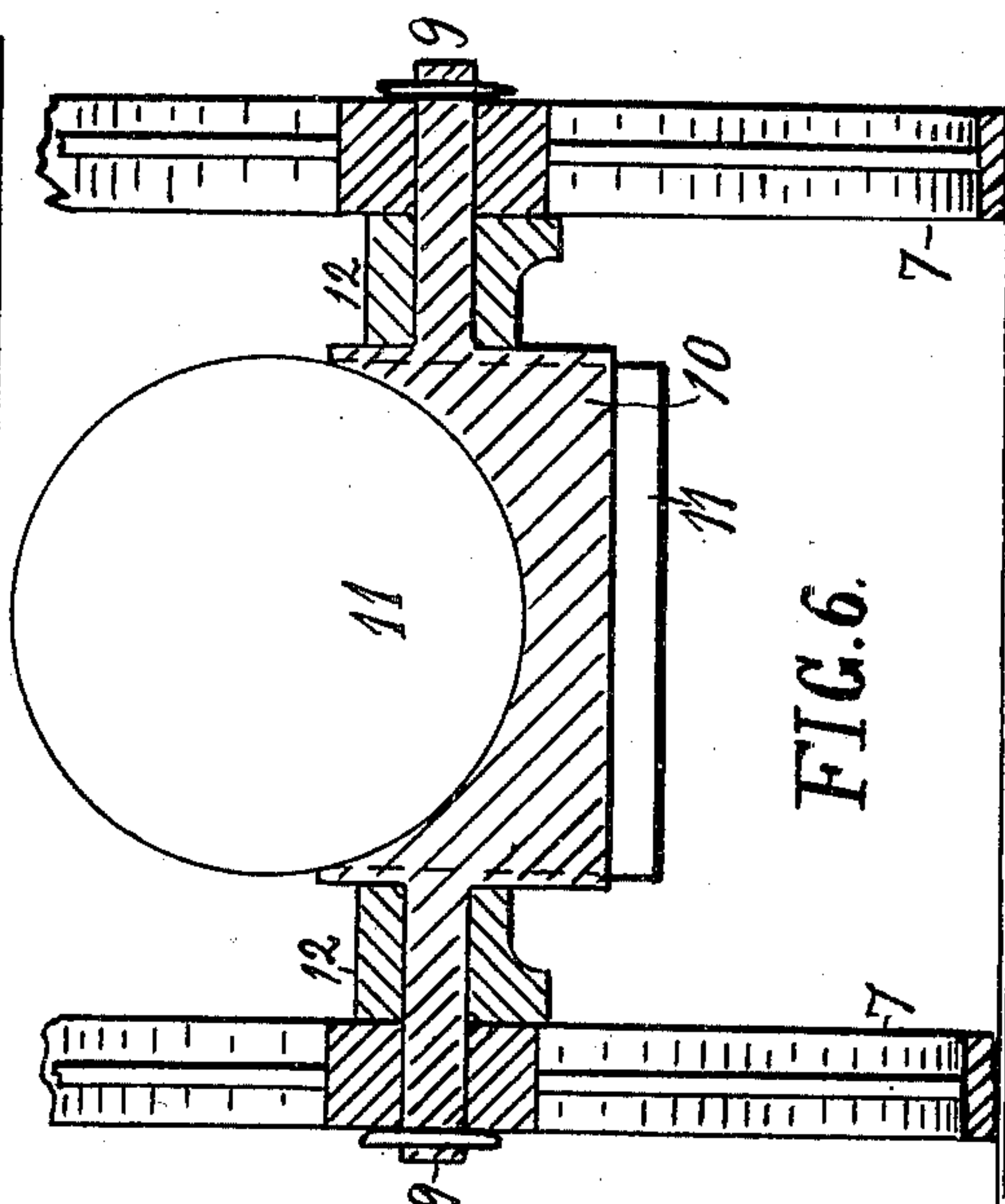


FIG. 6.

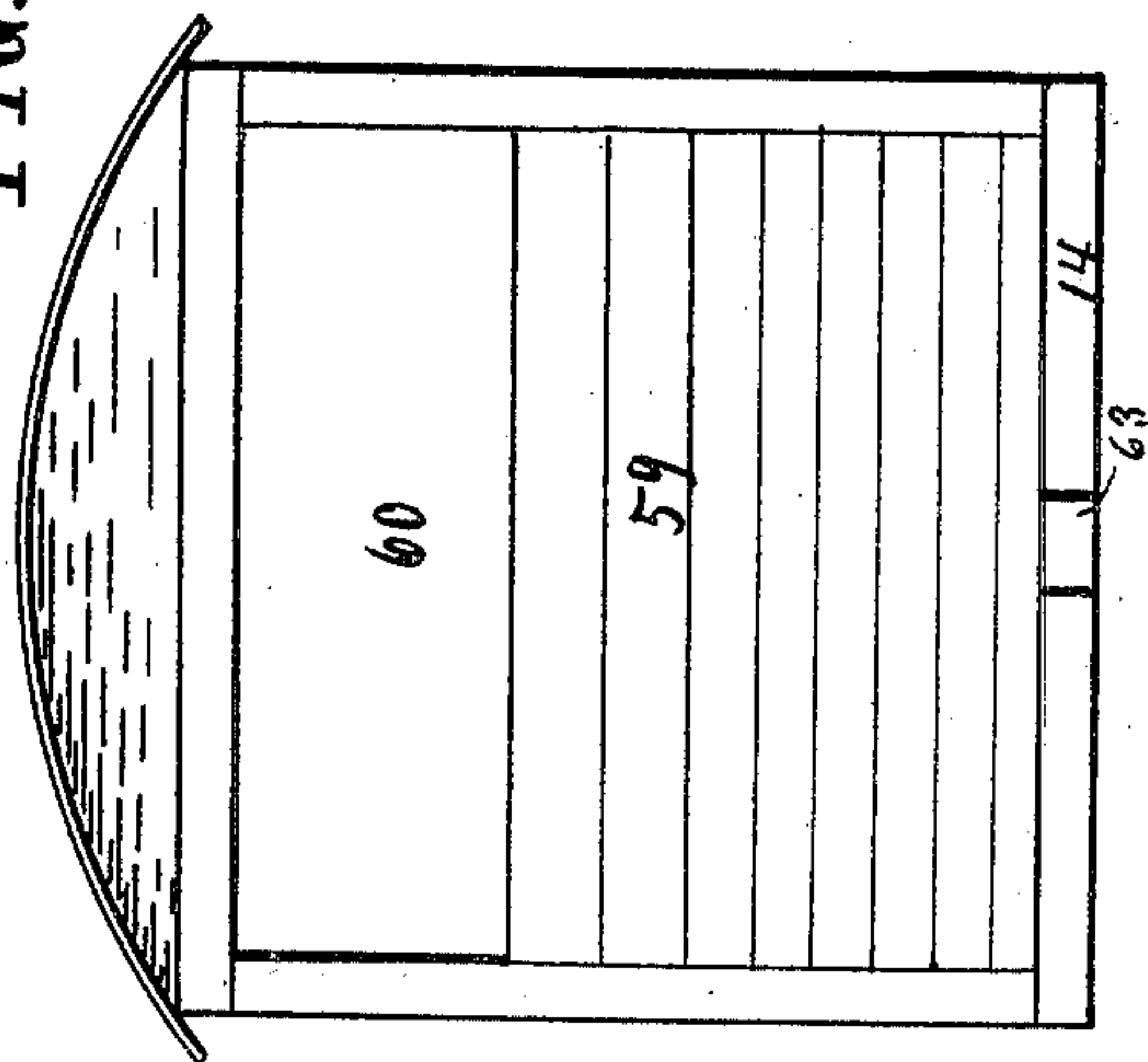


FIG. 5.

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# UNITED STATES PATENT OFFICE.

AUGUST STUTZMAN, OF ST. PAUL, MINNESOTA.

## TRACTION-ENGINE.

SPECIFICATION forming part of Letters Patent No. 622,729, dated April 11, 1899.

Application filed May 13, 1897. Serial No. 636,382. (No model.)

*To all whom it may concern:*

Be it known that I, AUGUST STUTZMAN, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Traction-Engines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in traction-engines; and the objects of my invention are, first, to provide a traction-engine in which the boiler may be tilted, so as to retain it in a level position when going up or down grades, as well as when driving on level ground; second, to provide a traction-engine with extraordinarily large traction-wheels, and thereby increase their hold on the surface of the ground; third, to provide a traction-engine with a cheap but effective steering mechanism; fourth, to combine in a traction-engine an engine without dead-center and with a cheap simple gearing for connecting its power alternately with the traction-wheels and with a pulley by which the belt of a threshing-machine or other machinery may be run. These and other minor objects I attain by the novel construction and arrangement of parts illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of my traction-engine with all essential parts shown. Fig. 2 is a rear end elevation of the truck as on the line *a a* in Fig. 1. Fig. 3 is a sectional top view on the line *b b* in Fig. 1. Fig. 4 is a top view of Fig. 1. Fig. 5 is a rear end elevation of the cab or house-like portion occupied by the engineer or operator of the machine. Fig. 6 is a transverse sectional front view, as on the line *c c* in Fig. 1, showing the relative position of the traction-wheels, the main axle, the main frame, and the boiler. The latter is not shown in section.

Referring to the various parts in the draw-

ings by reference-numerals, 7 7 designate a pair of large traction-wheels provided upon their faces with the usual cleats, as partly shown at 8 in Fig. 1, for taking hold on the ground. In the hubs of the wheels are journaled the ends 9 of the main axle 10, upon which the boiler 11 is supported and secured, so as to tilt with the axle. Interposed between the hubs of the traction-wheels and the boiler and journaled on the axle 10 are the front ends 12 of the side bars 13, which, together with the platform 14 and water-tank 22, make up the truck or frame of the machine. The rear end of this truck is supported on the arched fifth-wheel 15, which swivels on the king-bolt 16 in the platform and is provided with downwardly-projecting arms 17 18 19, secured to the hind axle 20, journaled in the hubs of the two ground-wheels 21, which serve both to support and steer the truck. The steering is effected by the chain 23, secured with its ends to the ends of the rear axle 20 and being passed over the two sheaves 24, held by the hoods 25, secured at the rear side of the water-tank 22, has its middle portion engaged by the chain-wheel 26, secured on the upright shaft 27, journaled in the bracket 28, secured underneath the truck, and the sleeve 29, secured upon the platform 14 and having to its top end secured the hand-wheel 30, which the operator turns, and thereby steers the machine. Upon the front end of the platform 14 I journal in a suitable bracket or frame 31 an upright worm-screw 32, having an upwardly-extended shaft 33, with a hand-crank 34, by which the screw may be turned. With this worm-screw engage the teeth of a toothed segment 35, secured at 36 to the nearest corner of the boiler. The curve of this segment is struck from the center of the traction-wheel, by which the boiler is tiltingly supported, so that by turning the worm-screw 32 the boiler is tilted, so as to retain its level position, which may be ascertained to any desired degree of accuracy by looking at the spirit-level 37, secured upon the horizontal arm of the segment 35, which is fixed in a position corresponding with that of the water-level in the boiler when the water covers all



flues and other surface in the boiler which is exposed to the fire and might get damaged by the heat if not constantly covered with water.

5 To each of the traction-wheels I secure a large spur-gear 38, with the upper edge of which meshes a pinion 39, slidingly keyed on the end of the double crank-shaft 40, which is journaled in suitable journal-boxes 41, se-  
10 cured upon the boiler, and which, together with the connecting-rods 42, cross-heads 43, cross-head guides 44, cylinders 45, eccentric-rods 46, eccentrics 47, steam-inlet pipe 48, throttle-valve 49, and exhaust-pipe 50, and  
15 well-known reversing means, (not shown,) make up a double-acting steam-engine by which the traction-wheels are revolved when the machine is moving. When the machine is to stand still but the engine is to perform  
20 work, the pinions 39 are moved inward, so as to disengage the traction-wheels, while a large pinion 51, secured to one of the pinions 39, is thereby brought into meshing contact with the idler spur-gear 52, revolving on a  
25 stud 53, secured by a bracket 54 upon the boiler. This idler is permanently engaged with the pinion 55, secured on the end of a shaft 56, journaled across the top of the boiler and carrying at its opposite end a belt-  
30 pulley 57, from which belt power may be transmitted to threshing-machines and any other machinery to be run by the steam-power of the engine.

58 is a lamp or headlight upon the front  
35 end of the boiler, and 59 is a cab or house-like contrivance built upon the platform to shield the operator against the heat of the sun and the weather generally. The sides of this house may be closed the same as the rear  
40 wall, (shown in Fig. 5,) where only the space 60 is left open as a window and ventilator.

In driving on uneven ground one of the hind wheels may get lower than the other. This motion is provided for by having the  
45 top of the fifth-wheel 15 arched, as shown, so that the platform 14 need not rock sidewise with the hind wheel.

61 is a chain extending from the collar 62 on the lower end of the king-bolt to the rear  
50 portion 63 of the platform and serves as a stay for the downwardly-extending parts of the fifth-wheel when the machine is run backward, while the steering-chain 23 does similar service when the machine runs forward.  
55 The projection 63 at the rear end of the platform also serves as a coupling for attaching to the machine threshing-engines, wagons, plows, or anything else to be drawn by it, and is therefore provided with the coupling-pin  
60 64. The dome 65 and smoke-stack 66 are of old and well-known construction.

In the front side of the water-tank 22 is formed the recess 67 for the fireman to stand in while firing the boiler.

68 (shown in Fig. 4) are steps to facilitate 65 the entering of the platform.

69 are set-screws holding the pinions 39, wherever they are set, in or out of gear.

Having thus described my invention, what I claim, and desire to secure by Letters Pat- 70 ent, is—

1. In a traction-engine, the combination with a pair of traction-wheels and a main frame having its front end supported thereby, of a pair of steering ground-wheels mounted 75 in a horizontally-swiveling frame or fifth-wheel, secured underneath the main frame, a pair of chain-guiding sheaves mounted on the main frame, a chain passing over said sheaves and having its ends secured to the 80 swiveling frame or to the axle journaled therein; a chain-wheel engaging the chain between said sheaves and having a shaft extending upwardly through the main frame and provided with a hand-wheel, by which the opera- 85 tor may thus steer the machine, said frame or fifth-wheel being arched at its top on which the main frame rests, substantially as and for the purpose set forth.

2. In a traction-engine, the combination 90 with a pair of traction-wheels and a main frame having its front end supported thereby of a pair of steering ground-wheels mounted in a horizontally-swiveling frame or fifth- 95 wheel, secured underneath the main frame, a pair of chain-guiding sheaves mounted on the main frame, a chain passing over said sheaves and having its ends secured to the swiveling frame or to the axle journaled therein; a chain-wheel engaging the chain 100 between said sheaves and having a shaft extending upwardly through the main frame and provided with a hand-wheel, by which the operator may thus steer the machine, and the central stay-chain 61 secured to a low cen- 105 tral point of the swiveling frame and extending obliquely upward to a central point in the main frame opposite the chain-wheel, operating the steering-chain, substantially as set forth. 110

3. In a traction-engine, the combination with a pair of traction-wheels, a main axle journaled therein and supporting a boiler and engine secured to and tilting with the axle, of a main frame having one of its ends sup- 115 ported by said main axle and its other end by a pair of steering-wheels, of a toothed segment secured to the boiler and an upright worm-screw mounted on the main frame, en- 120 gaging the segment and having a hand-crank with which to turn it and tilt the boiler, substantially as and for the purpose set forth.

4. In a traction-engine having a suitable frame and steering mechanism, the combina- 125 tion of a pair of large traction-wheels and an axle journaled with its ends therein, a boiler supported on said axle and a double-acting engine mounted on the top of the boiler and



having the ends of its shaft extended beyond the sides of the boiler and provided with sliding pinions; the large gear-wheels 38, secured one to each traction-wheel and engaging said 5 pinions, the larger pinion 51, also sliding on the engine-shaft, the idler 52, engaging said pinion 51, and the pinion 55, the shaft 56, extending from the last-named pinion to the other side of the boiler and having there se-

cured to it the pulleys 57, substantially as and 10 for the purpose set forth.

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

AUGUST STUTZMAN.

Witnesses:

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FRANK J. ELLES.