

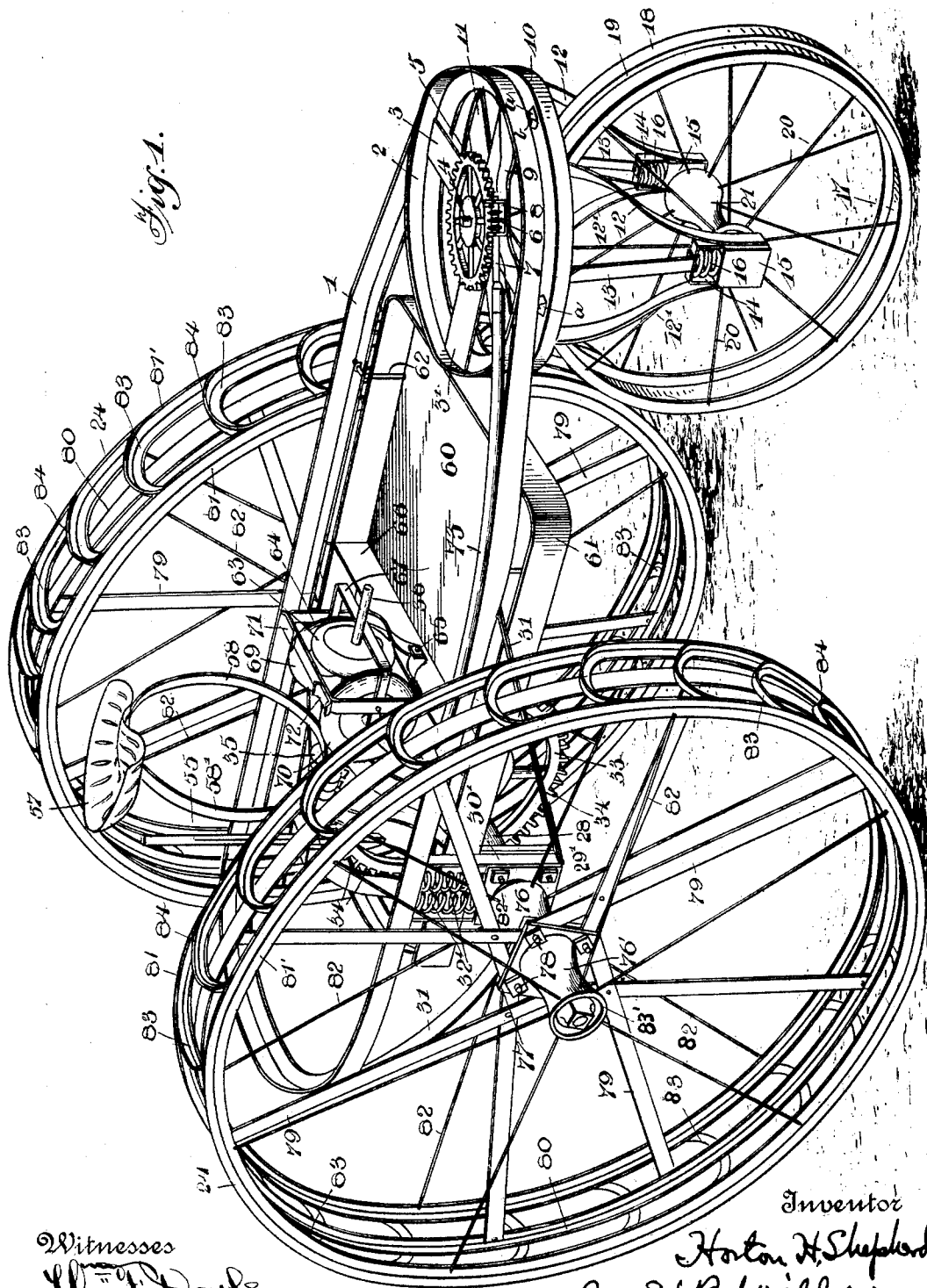
(No Model.)

6 Sheets—Sheet 1.

H. H. SHEPHERD.
TRACTION ENGINE.

No. 586,873.

Patented July 20, 1897.



Witnesses

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H. J. Tunis

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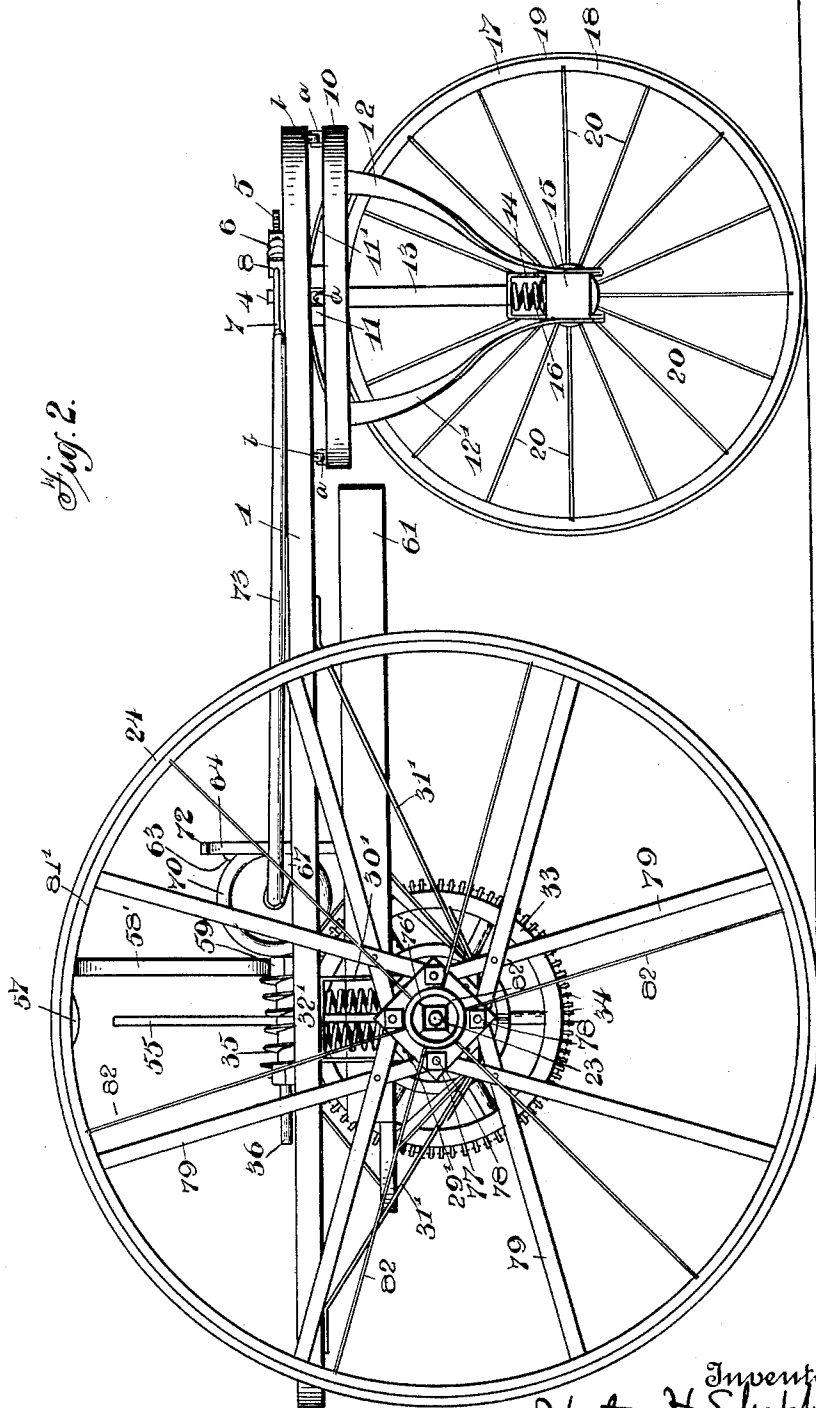
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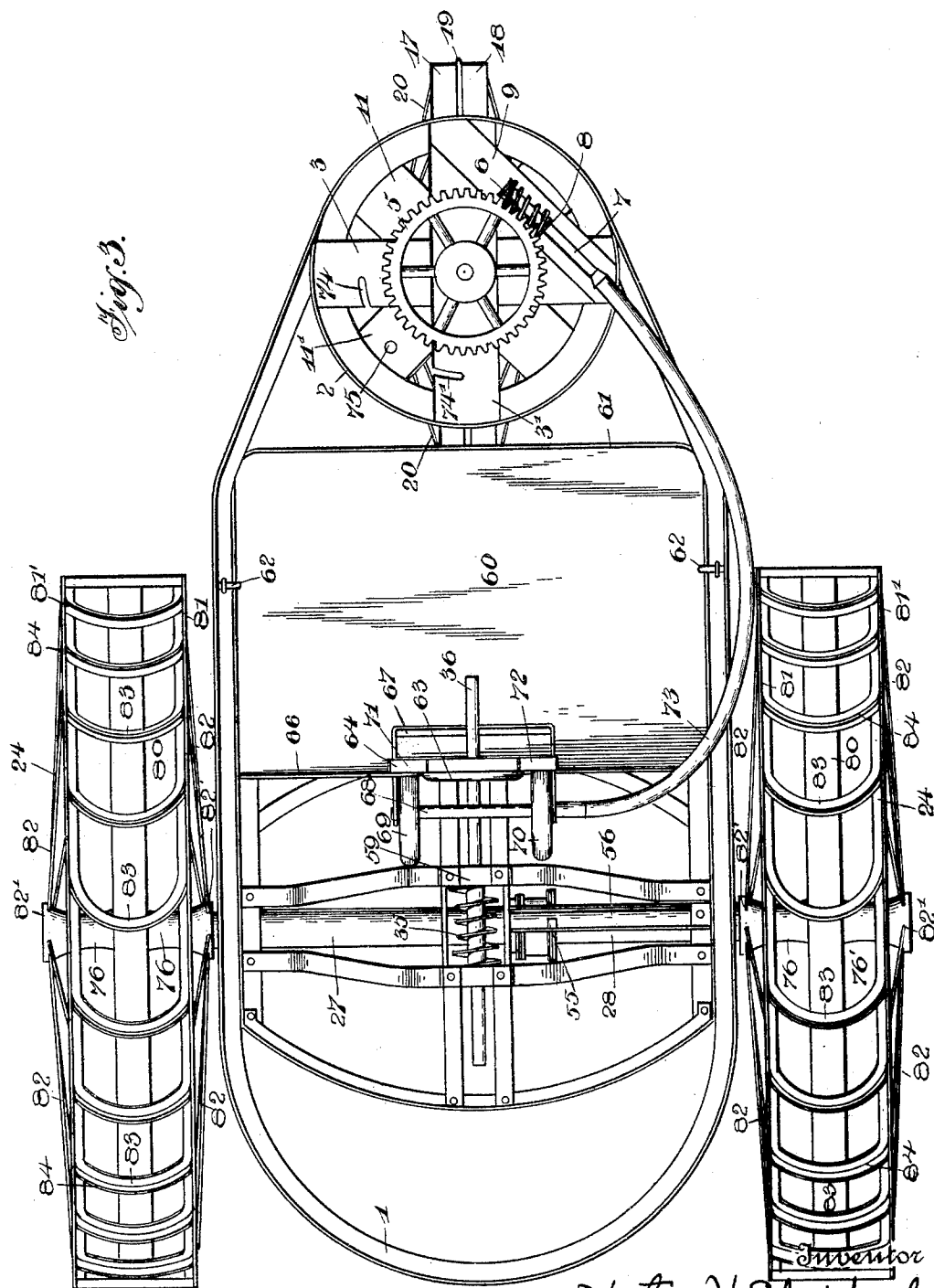
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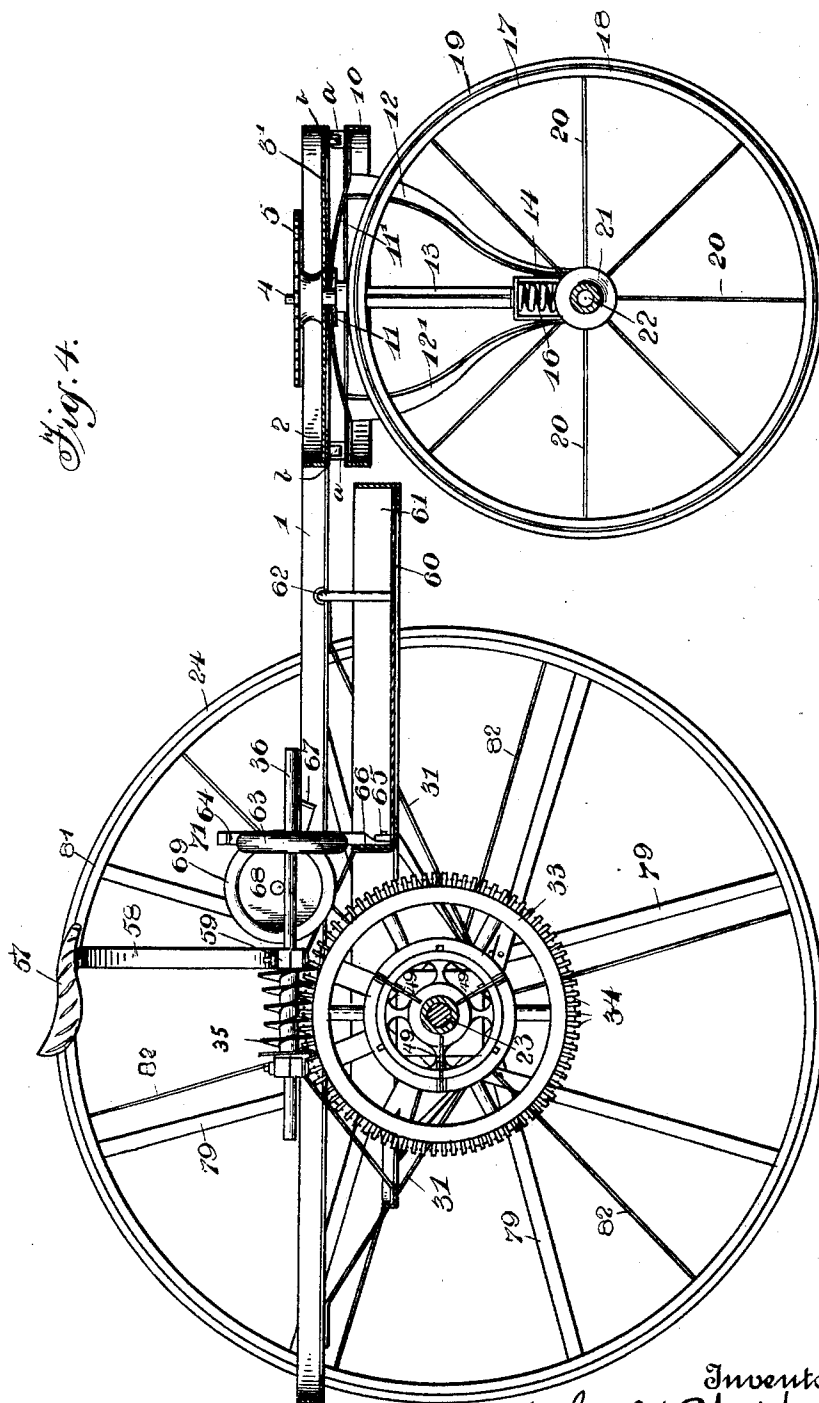
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TRACTION ENGINE.

No. 586,873.

Patented July 20, 1897.



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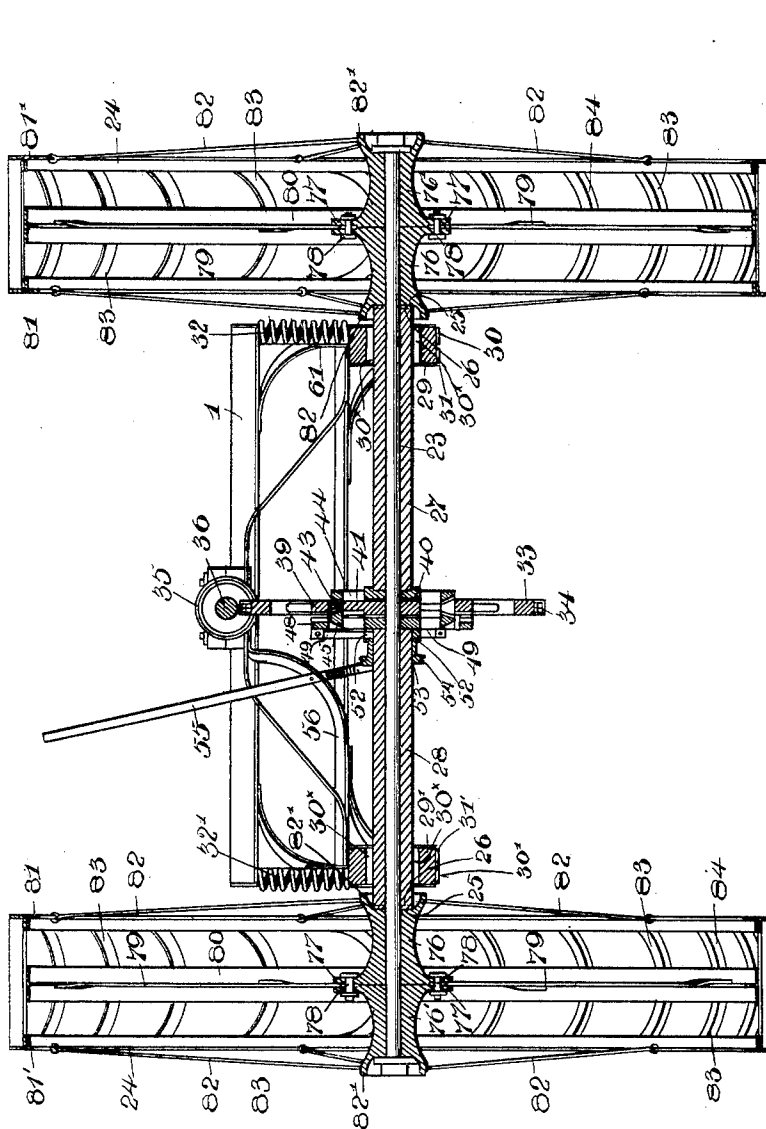
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Fig. 5.



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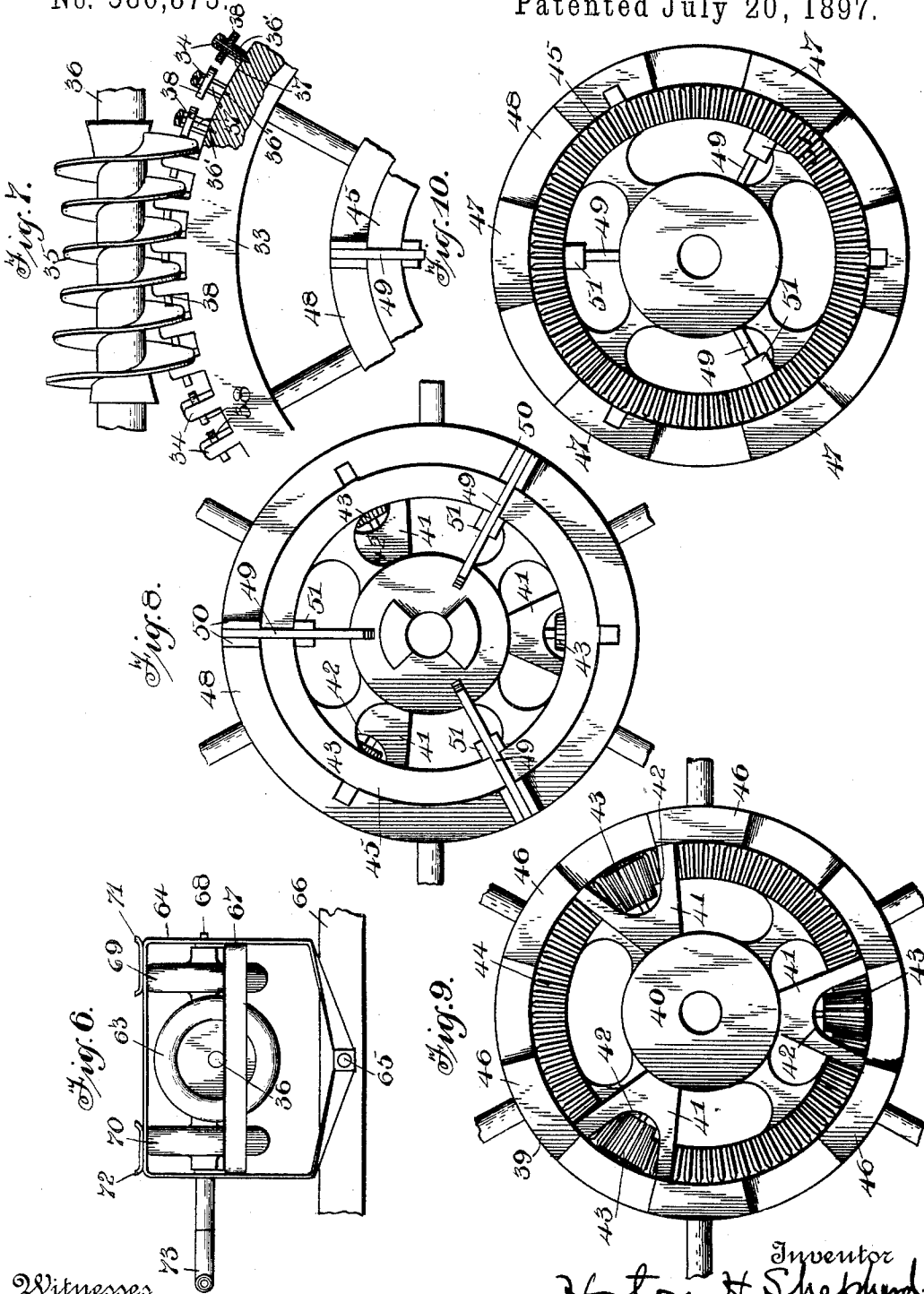
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H. H. SHEPHERD.
TRACTION ENGINE.

No. 586,873.

Patented July 20, 1897.



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UNITED STATES PATENT OFFICE.

HORTON H. SHEPHERD, OF FAIRLAND, INDIAN TERRITORY.

TRACTION-ENGINE.

SPECIFICATION forming part of Letters Patent No. 586,873, dated July 20, 1897.

Application filed October 21, 1896. Serial No. 609,610. (No model.)

To all whom it may concern:

Be it known that I, HORTON H. SHEPHERD, a citizen of the United States, residing at Fairland, in the Cherokee Nation, Indian Territory, 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.

My invention has relation to improvements in traction-engines for farm and road use; and the object is to provide a simple, cheap, and convenient engine of this class.

To this end the novelty consists in the construction, combination, and arrangement of the same, as will be hereinafter more fully described, and particularly pointed out in the claims.

In the accompanying drawings the same letters and figures of reference indicate the same parts of the invention.

Figure 1 is a perspective view of my improved traction-engine. Fig. 2 is a side elevation of my improved traction-engine. Fig. 3 is a top plan view of the same. Fig. 4 is a central longitudinal section. Fig. 5 is a transverse section on the line of the main or driving axle. Fig. 6 is a detail view of the steering gear. Fig. 7 is an enlarged detail view of a section of the worm-wheel and screw, and Fig. 8 is a further detail of same. Figs. 9 and 10 are enlarged views of the clutch mechanism.

1 represents the main frame, preferably formed of a continuous piece of angle iron or steel, a circular frame 2 of the same material being rigidly secured in the forward semicircular end of the said main frame. This circular frame 2 is provided with two radial braces 3 3', in the center of which is journaled a vertical steering-post 4, the upper end thereof being provided with a horizontal worm-wheel 5, meshing with a worm-screw 6, mounted on a shaft 7, journaled in a bracket 8, secured to a cross-brace 9 on the radial braces 3 3'.

The lower end of the vertical post 4 is rigidly secured to a circular frame 10 by radial braces 11 11', and on each side of the circular frame 10 is rigidly secured the depending arms 12 12', and between them is a central brace 13. The lower ends of the arms 12 12'

and the brace 13 are secured to a rectangular shoe 14, which forms a vertical guide for the bearing-block 15, and between the top of this block 15 and the top cross-piece of said shoe is located a helical spring 16, which forms a support for the front end of the machine.

17 is the front or steering wheel, comprising an angular sheet-metal tire 18, having a plane tread, and 19 is a ring, circular in cross-section, extending entirely around the outside of the tire 18.

20 represents the spokes, which connect the tire and the hub 21. The hub is mounted on an axle 22, the ends of which are journaled in the bearing-blocks 15 15. A series of brackets *a a* are mounted on the upper side of the frame 10, and in each bracket is mounted a friction-roller *b*, upon which the frame 2 rests and serves as a bearing for the frame 2.

23 is the main axle, upon which the carrying-wheels 24 24 are mounted so as to rotate freely, and the inside of each hub is formed with an integral clutch 25, which engages a clutch 26 on the outer ends of the sleeves 27 28, mounted on the axle 23, these sleeves having their bearings in boxes 29 29' in the rectangular frames 30 30', secured to the main frame 1. These bearing-boxes 29 29' are each provided with an annular series of rollers 30^x, which form an antifriction-bearing for the sleeves 27 and 28. The lower ends of the frames 30 30' are further secured to the main frame by inclined braces 31 31'.

The wheels 24 24 are of novel construction to combine lightness with strength, the hubs 76 76' being formed with contiguous flanges 77, secured together by bolts 78, which also clamp the rectangular tangentially-arranged spokes 79 between them, the outer ends of said spokes being riveted to the T-iron 80, which also forms the central annular brace for the rim.

81 and 81' are annular L-shaped rims, and from these a series of radial wire spokes 82 extend to the flanges 82' on the hubs 76 76'.

83 represents a series of U-shaped shoes secured to the outside of the rim, and they form the tread of the wheels, the transverse flanges 84 giving a firm grip on the ground, somewhat after the manner of a horse's shoe.

32 32' are helical springs placed in the bearing-box frames 30 30', between the bottom of

the main frame and the top of the bearing-boxes 29, and serve to take the main weight of the machine.

33 represents a worm-gear centrally mounted, so as to rotate freely on the main axle, and its periphery is provided with a series of skeleton teeth 34, which mesh with the worm-screw 35 on the main driving-shaft 36. These teeth 34 are each provided with a stationary radial shaft 36', on which is journaled a sleeve 37, provided with an integral roller 38, which forms an antifriction-bearing for the teeth on the worm-screw 35.

The worm-gear 33 is formed with an annular ring 39, connected to the hub 40 by radial arms 41, which are formed with recesses 42, in which are radially journaled beveled pinions 43, which mesh with angle-gears 44 45, the gear 44 being secured to the inner end of the sleeve 27 and the pinion 45 on the inner end of the sleeve 28.

One side of the annular ring 39 is formed with clutch-lugs 46, which engage similar clutch-lugs 47 on ring 48 surrounding the gear-wheel 45, and said ring is supported in this position by a series of levers 49, the outer ends of which are pivoted in the arms 50 on the back of the clutch-ring 48, while the levers themselves are fulcrumed in brackets 51 on the gear-wheel 45, their inner ends being pivoted to the lugs 52 on a sliding collar 53, mounted on the inner end of the sleeve 28, so as to slide longitudinally thereon. This collar is provided with a circumferentially-grooved flange 54, which engages the forked end of a hand-lever 55, fulcrumed in a transverse brace 56, its upper hand or end extending upwardly to within reach of the engine-driver on the seat 57. This seat is mounted on C-springs 58 58', secured to a transverse brace 59, which also forms a bearing for the main driving-shaft 36, which extends forward and forms the crank-shaft of the engine. (Not shown.)

The boiler and engine (not shown) are mounted on a base-plate 60, which is supported in the lower frame 61, secured at its forward end to the main frame by bolts 62 62, and its sides near its rear end are further supported by being secured to the axle-bearing boxes 29 29'.

63 is a friction-wheel rigidly mounted on the main driving-shaft 36, so as to rotate continuously with it, and 64 is a rectangular frame vertically pivoted on a bolt 65 to the transverse brace 66. This frame carries a bracket 67, in the rear arms of which is journaled a shaft 68, provided with two friction-wheels 69 70, located on either side of the friction-wheel 63, and when the frame 64 is plumb or vertical the friction-wheel 64 rotates clear of both of the friction-wheels 69 70.

71 72 are stirrups or foot-rests on the top of the frame 64, and when the engine-driver, who sits on the seat 57 with his feet resting 65 on the stirrups, presses down the right-hand

stirrup 72 it throws the frame 64 to the right, bringing the wheel 69 into contact with the friction-wheel 63, and rotates the shaft 68 to the left. The reverse movement of the frame 64 by pressure to the left rotates the shaft 68 to the right, and as this shaft is connected by a flexible shaft 73 to the shaft 7, carrying the worm-screw 6, which engages the worm-wheel 5, the steering-wheel 17 is turned to the right or left to guide the machine.

The radial braces 3 3' in the circular frame 2 are formed with notches 74 74', which engage a stud 75, secured to the radial brace 11' in the steering-frame 10, and serve to limit the motion of the steering-wheel to the right or left.

I do not claim any particular motive power, as any approved form of power may be used.

Although I have specifically described the construction and relative arrangement of the several elements of my invention, I do not desire to be confined to the same, as such changes or modifications may be made as clearly fall within the scope of my invention without departing from the spirit thereof.

Having thus fully described my invention, what I claim as new and useful, and desire to secure by Letters Patent of the United States, is—

1. A traction-engine comprising a main frame carrying a prime motor, a main driving-shaft provided with a fixed friction-wheel, a pivoted frame carrying a fixed shaft provided with two friction-wheels located one on each side of the fixed friction-wheel, a flexible shaft connected to one end of the fixed shaft and having its opposite end connected to a counter-shaft located in a circular frame in the forward end of the main frame, a worm-screw on said counter-shaft, and meshing with a worm-wheel mounted on a vertical steering-post journaled in said circular frame, and carrying a lower circular frame in which the steering-wheel is supported, as and for the purpose set forth.

2. A drive-wheel for farm and road engines, comprising a rim formed of angle iron or steel, a series of semicircular shoes secured to said rim, in combination with a series of tangential braces or spokes having their outer ends secured to the said rim, and secured about midway between the contiguous flanges of the divided hub, substantially as and for the purpose set forth.

3. A traction-engine comprising the main axle, the sleeves 27 and 28 mounted on said axle, in combination with the bearing-boxes 29 29' having antifriction-rollers 30, substantially as and for the purpose set forth.

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

HORTON H. SHEPHERD.

Witnesses:

RILEY MOORE,
ALEX CLAPP.