

**No. 631,383.**

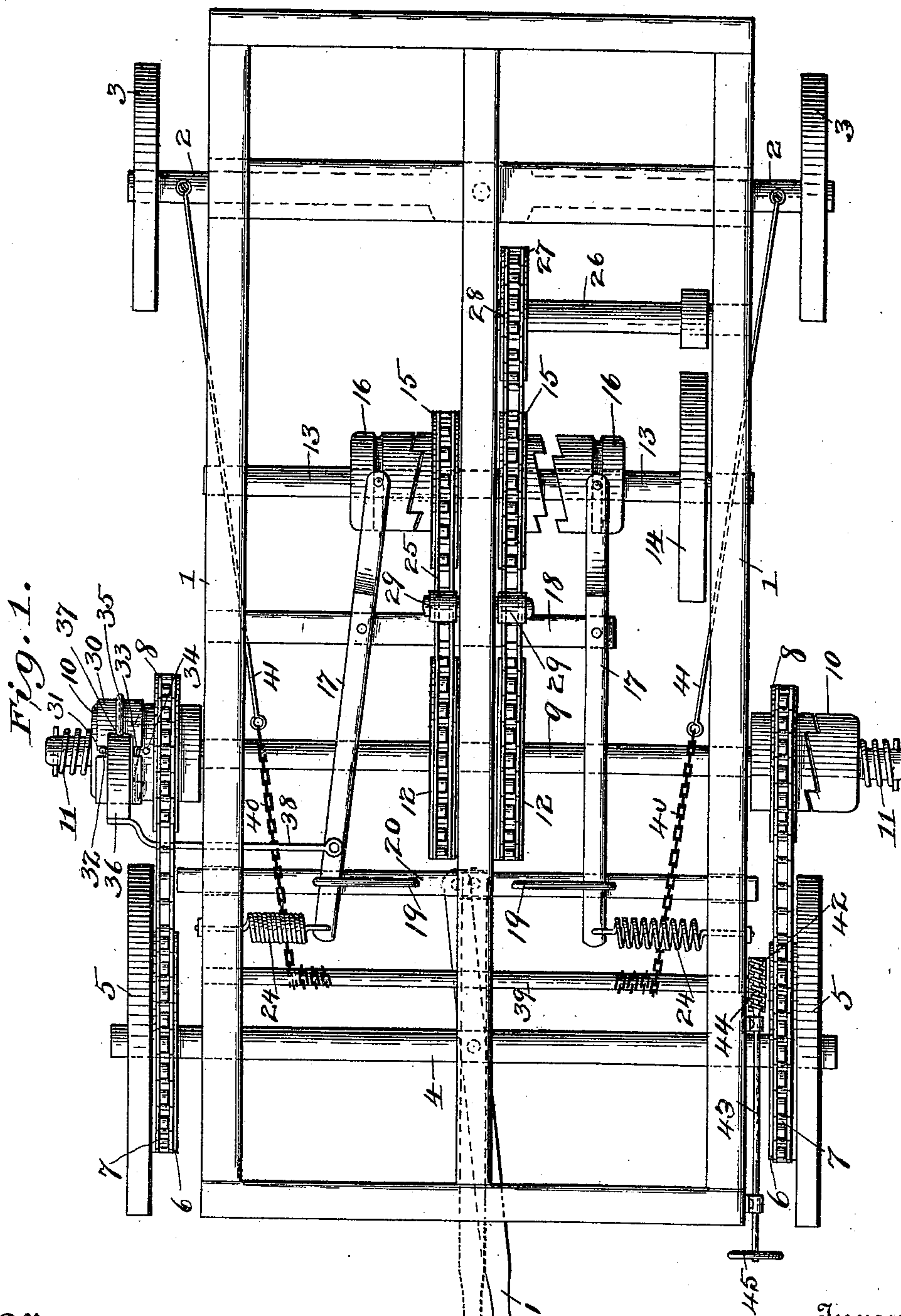
**Patented Aug. 22, 1899.**

**O. RINGHEIM.**  
**TRACTION ENGINE.**

(Application filed Mar. 31, 1899.)

(No Model.)

**2 Sheets—Sheet 1.**



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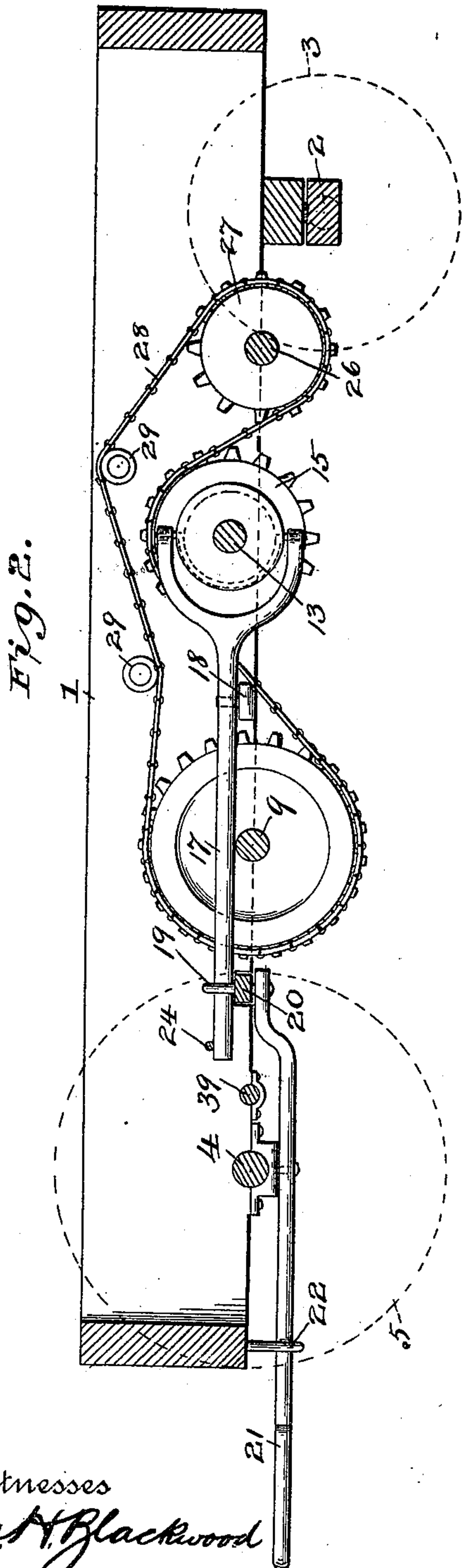
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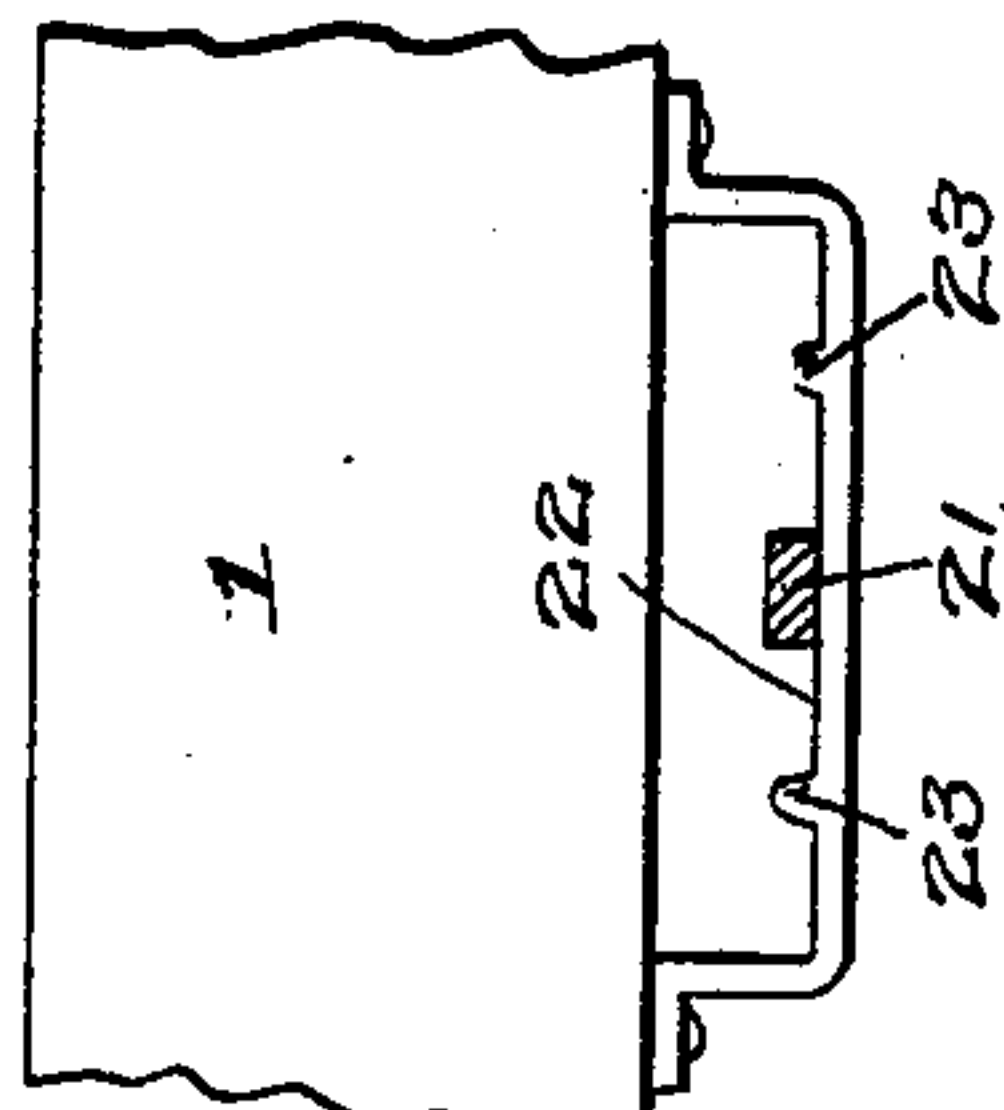
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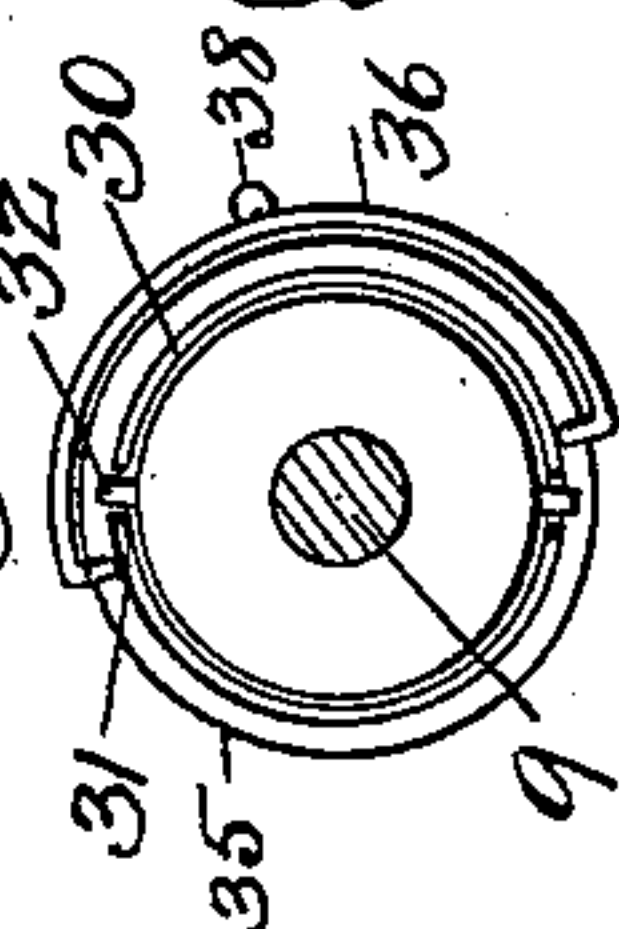
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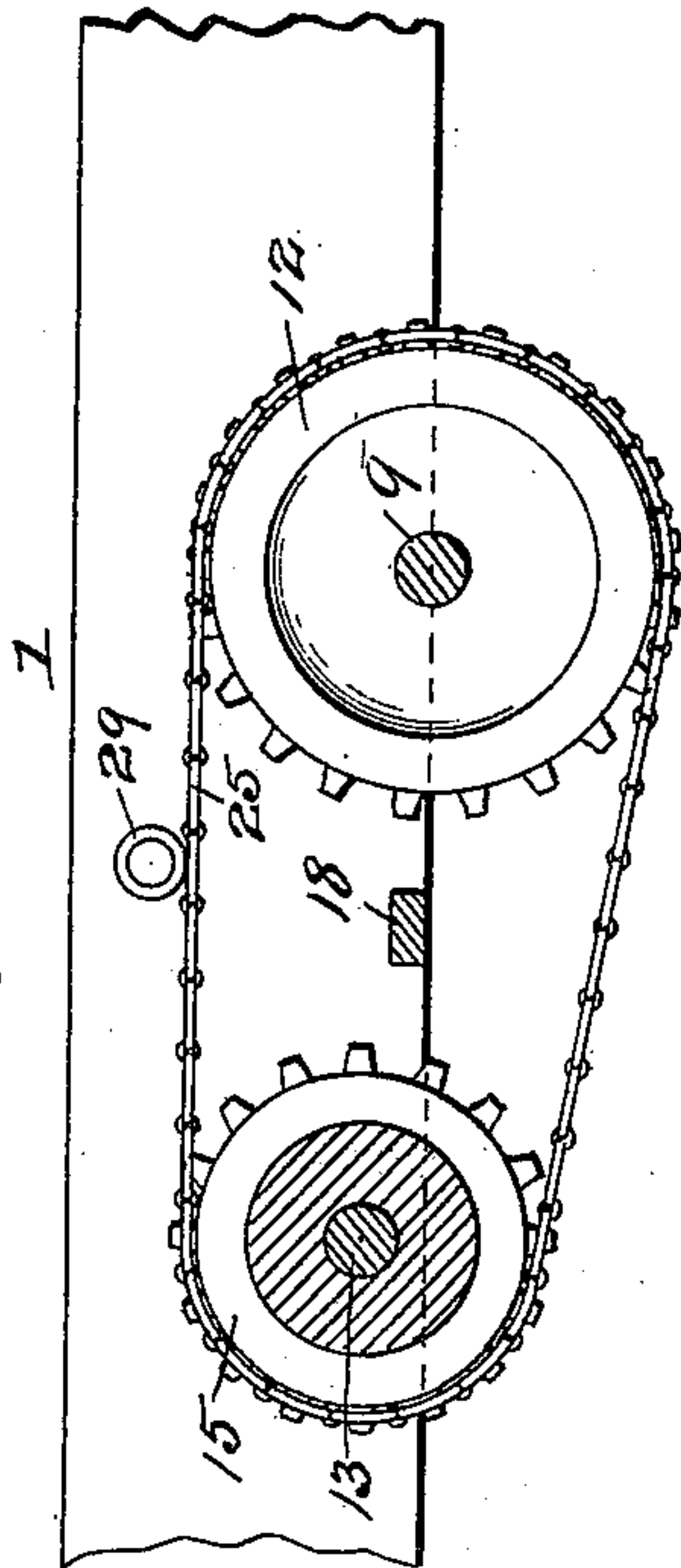
*Fig. 5.*



*Fig. 4.*



*Fig. 3.*



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# UNITED STATES PATENT OFFICE.

OLE RINGHEIM, OF WATONWAN COUNTY, MINNESOTA.

## TRACTION-ENGINE.

SPECIFICATION forming part of Letters Patent No. 631,383, dated August 22, 1899.

Application filed March 31, 1899. Serial No. 711,261. (No model.)

*To all whom it may concern:*

Be it known that I, OLE RINGHEIM, a citizen of the United States, residing in the county of Watonwan and State of Minnesota, have  
5 invented certain new and useful Improvements in Traction-Engines, of which the following is a specification.

My invention relates to traction-engines, and has for its object to provide a traction-engine which may be made to go forward or  
10 backward or to turn either to the right or left without stopping or reversing the engine. This object I accomplish in the manner and by the means hereinafter more fully described  
15 in detail, and particularly pointed out in the claims, reference being had to the accompanying drawings, in which like figures indicate like parts in all the views.

Figure 1 is a plan view of my invention.  
20 Fig. 2 is a side view from the right, side frame removed. Fig. 3 is a view from left showing gearing. Fig. 4 is a detail view of lock. Fig. 5 is a detail view of guard.

My invention consists of a rectangular  
25 frame 1. The front of the frame 1 rests on a bolster which is connected by a king-bolt to a front axle 2, carried by the wheels 3. The rear of the frame 1 rests on a hind axle 4. Large driving-wheels 5 are mounted on the  
30 hind axle 4, and attached to said driving-wheels 5 on the inner side are sprocket-wheels 6. Chains 7 connect the sprocket-wheels 6 with sprocket-wheels 8. The sprocket-wheels 8 are loosely mounted outside the frame 1 on  
35 a shaft 9. The shaft 9 extends across beneath the frame 1 and is journaled in bearings secured to the bottom of said frame 1. On the ends of the shaft 9, outside the sprocket-wheels 8, are clutches 10, adapted to engage  
40 the sprocket-wheels 8 when the shaft is turned forward and to slip past when the shaft 9 is turned backward, said clutches 10 being pressed against the sprocket-wheels 8 by coiled springs 11, surrounding the shaft 9  
45 and bearing against the outside of the clutches 10. Mounted on said shaft 9 on each side of the central longitudinal beam of the frame 1 are sprocket-wheels 12. A driving-shaft 13 extends under said frame forward of the shaft  
50 9 and is journaled in bearings secured to the frame 1. Mounted on said shaft 13 is a driving-wheel 14. On each side of the central

longitudinal beam of the frame 1 is loosely mounted on the shaft 13 a sprocket-wheel 15. Clutches 16 are fixed on the shaft 13 and  
55 adapted to engage the sprocket-wheels 15 when the shaft 13 is rotated forward. The clutches 16 are operated by the shifters 17, which are pivotally secured to a cross-piece 18, extending partially across beneath the  
60 frame 1 and secured thereto between the shafts 9 and 13. The shifters 17 extend back above the shaft 9 and axle 4, their ends resting under a bar 19, secured to a cross-piece 20, secured to the frame 1 and adapted to  
65 slide back and forth. A lever 21 has its forward end attached to the center of the cross-piece 20 and is pivotally mounted on the central longitudinal beam of the frame 1. The lever 21 extends beyond the rear of the frame  
70 1, passing over a guard 22, attached to the rear cross-piece of the frame 1. Two knobs 23 rise under the rear cross-piece of the frame 1 from the guard 22 and are adapted to hold the lever 21 in place when pushed to one side  
75 or the other. Springs 24 extend from the shifters 17 to the sides of the frame 1 and tend, when the lever 21 is relieved, to draw the shifters 17 outward and throw the clutches 16 into engagement with the sprocket-wheels  
80 15. On one side a chain 25 connects the sprocket-wheels 12 and 15. On the other side forward of the sprocket-wheel 15 a short shaft 26 extends across beneath the central longitudinal beam of the frame 1 and  
85 the side of the frame 1 and is mounted in bearings secured thereto. A traveler sprocket-wheel 27 is mounted on said short shaft 26. A chain 28 extends around sprocket-wheel 12, then over sprocket-wheel 15, and  
90 then around traveler sprocket-wheel 27. Two idler sprocket-wheels 29 are mounted on the side of the central beam of said frame 1, one over and the other under the chain 28, said idlers 29 adapted to carry and tighten said  
95 chain 28. On the side with the direct driving sprocket-wheels 8 and 15, around the clutch 10, is a band 30, with notches 31 in its outer edge, which notches 31 slide back and forth along pins 32, fixed in clutch 10. On the in-  
100 side edge of the band 30 are notches 33, adapted to receive pins 34, fixed in the hub of the sprocket-wheel 8, when the band 30 is moved inward and to lock the clutch 10 and sprocket-



wheel 8 together. This causes the motion given to the shaft 9 backward through chain 28 and sprocket-wheel 12 to be communicated to sprocket-wheel 8. Unless thus locked the clutch 10 would slip past the sprocket-wheel 12 when the shaft 9 is turned backward. Extending around the band 29 in its center is a ridge 35, and a semicircular arm 36, provided at its ends with notches 37 to receive the ridge 35, half surrounds the band 30. Extending inward from the arm 36 is an arm 38, which has its inner end attached to the shifter 17. Extending across beneath the frame 1, between the axle 4 and the shaft 9 and journaled in bearings secured to said frame 1, is a shaft 39, attached to which just inside the frame 1 on each side is a chain 40. The chains 40 are carried over the shaft 9 and connected with rods 41, which extend to and are fastened to the front axle 2. At one end the shaft 39 is provided with a cog-wheel 42. A rod 43, provided at its lower end with a worm 44, which gears with the cog-wheel 42, and at its outer end with a hand-wheel 45, is journaled in bearings secured to the side of the frame 1.

The operation of my invention is as follows: An engine having been placed upon the frame 1 over the axle 4 and connected with the driving-wheel 14, the lever 21 is moved so as to bring the clutch 16 in contact with the direct driving sprocket-wheel 15. The engine is started and the driving-wheel 14 turns the shaft 13, the sprocket-wheel 15, and through the chain 25 the sprocket-wheel 12, shaft 9, sprocket-wheels 8, and through chains 7, the sprocket-wheels 6, and driving-wheels 5, sending the whole forward. If it is desired to go backward, the lever 21 is shifted without stopping the engine, throwing the clutch 16 out of gear with the direct driving sprocket-wheel 15 and bringing the notches 33 around the pins 34 and the clutch 16 into gear with the indirect driving sprocket-wheel 15, which, through the chain 28, turns the sprocket-wheel 12, the shaft 9, sprocket-wheels 8, and through chains 7 the sprocket-chains 6 and driving-wheels 5 backward. If it is desired to turn, the hand-wheel 45 enables the operator to wind up on one side and unwind on the other the chains 40, and thus pull the axle 2 whichever way is desired.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a traction-engine, a shaft provided with two loose sprocket-wheels adapted to be connected with the driving-wheels of said engine, clutches on the ends of said shaft and adapted to gear with said sprocket-wheels when turning forward, springs around the ends of said shaft and bearing against said clutches, two sprocket-wheels mounted on said shaft and adapted to be connected with the motive power one directly by a chain and the other by a chain passing over the driving sprocket-wheel and around a wheel beyond

said driving sprocket-wheel, and means for operating the same, substantially as shown and described.

2. In a traction-engine, a shaft provided with two loose sprocket-wheels adapted to be connected with the driving-wheels of said engine, clutches on the ends of said shaft and adapted to gear with said sprocket-wheels when turning forward, springs around the ends of said shaft and bearing against said clutches, two sprocket-wheels mounted on said shaft and adapted to be connected with the motive power so as to be turned one at a time in opposite directions, a lock adapted to fasten the clutches and sprocket-wheels together when shaft is turned backward, and means for operating the same, substantially as shown and described.

3. In a traction-engine, a lock consisting of a band surrounding the clutch and provided on its outer edge with notches in which pins fixed in said clutch move, and on its inner edge with notches adapted to receive pins fixed in the hub of the sprocket-wheel, said band having a ridge rising from its center, a semicircular arm partly encompassing said band, said arm provided at its ends with notches adapted to receive said ridge, an arm attached to said semicircular arm and extending inward, and means for operating the same, substantially as shown and described.

4. In a traction-engine, a rectangular frame having a central longitudinal beam, the front of said frame supported on a bolster carried by an axle and pair of wheels, and the rear of said frame resting on the axle carried by the driving-wheels, driving-wheels having concentrically secured to their inner sides sprocket-wheels, a shaft mounted crosswise said frame, loose sprocket-wheels on said shaft just outside said frame, chains connecting said loose sprocket-wheels with the driving-wheel sprocket-wheels, spring-pressed clutches on said shaft adapted to gear with said loose sprocket-wheels when turned forward, a sprocket-wheel mounted on said shaft on each side said center beam, a driving-shaft mounted crosswise said frame, a driving-wheel mounted on said driving-shaft, a loose sprocket-wheel on said driving-shaft on each side said center beam, clutches on said driving-shaft adapted to gear with said loose sprocket-wheels, one at a time, shifters connected with said clutches and extending toward the rear of said frame, springs attached to said shifters and opposite sides of said frame, a sliding bar carrying the ends of said shifters, a lever pivotally mounted on said frame and attached to said sliding bar, a traveler sprocket-wheel mounted on a short shaft journaled forward of the driving-shaft, a chain connecting one of the sprocket-wheels on the driving-shaft with the sprocket-wheel on the same side on the rear shaft, a chain connecting the traveler sprocket-wheel and the other sprocket-wheel on the rear shaft said chain passing over the other sprocket-wheel on the driving-shaft,



idler sprocket-wheels mounted on the side of  
the center beam and adapted to carry and  
tighten said chain, and a lock adapted to fas-  
ten the clutch and loose sprocket-wheel on the  
5 rear shaft together when said shaft is turned  
backward, substantially as shown and de-  
scribed.

In testimony whereof I hereto affix my sig-  
nature in the presence of two witnesses.

OLE RINGHEIM.

Witnesses:

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THEO. SONSTEBY.