

(No Model.)

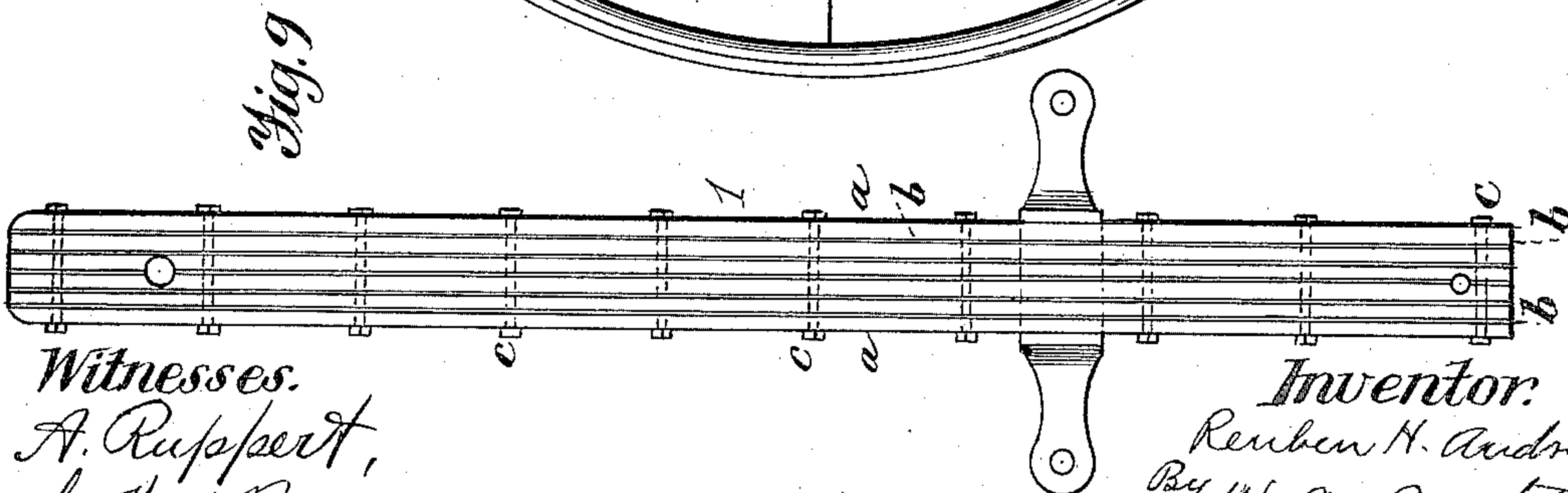
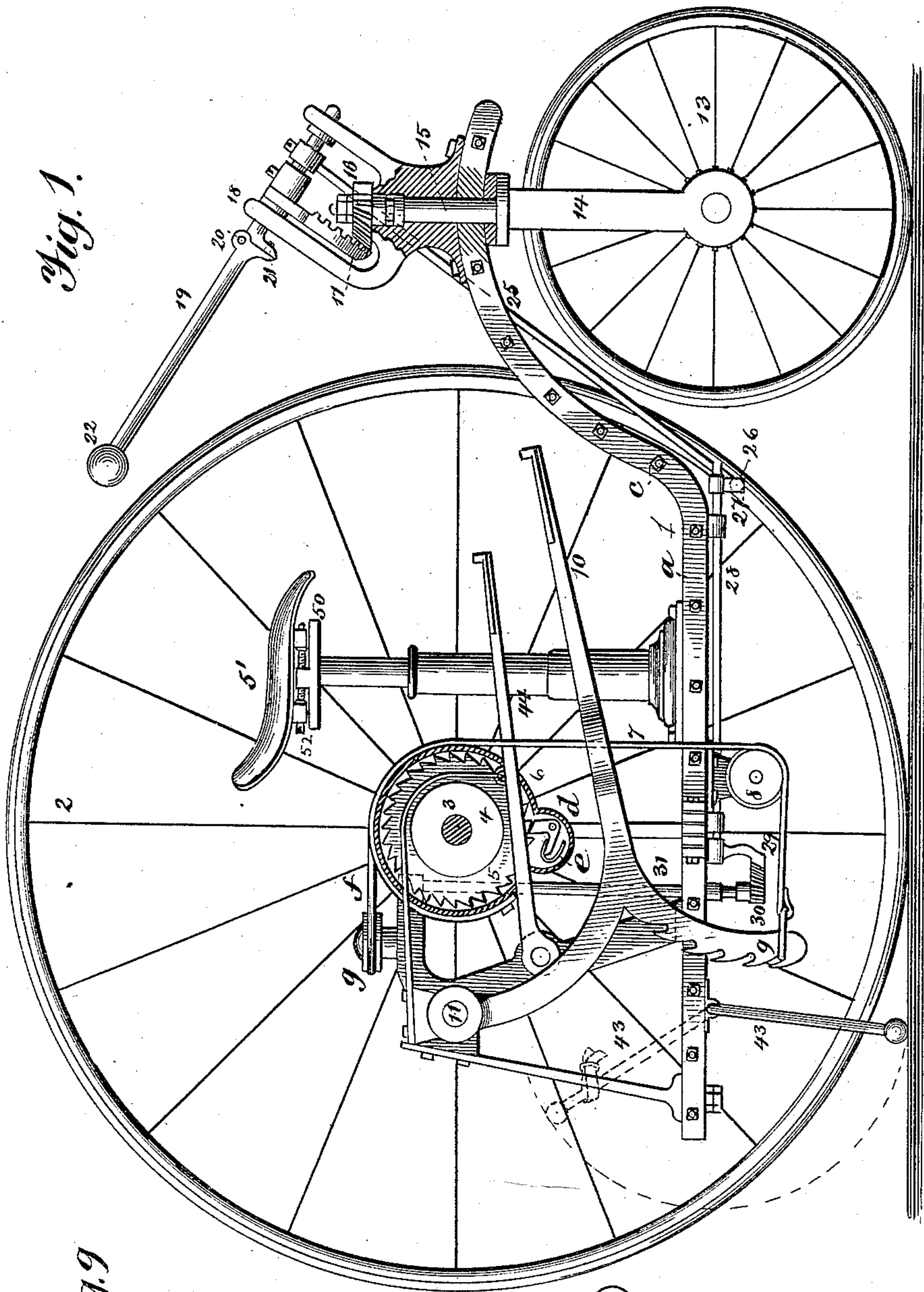
2 Sheets—Sheet 1.

R. H. ANDREWS.

TRICYCLE.

No. 310,868.

Patented Jan. 20, 1885.



Witnesses.
A. Ruppert,
C. H. H. Brown.

Inventor:
Reuben H. Andrews
By W. A. Barrett
His attorney.

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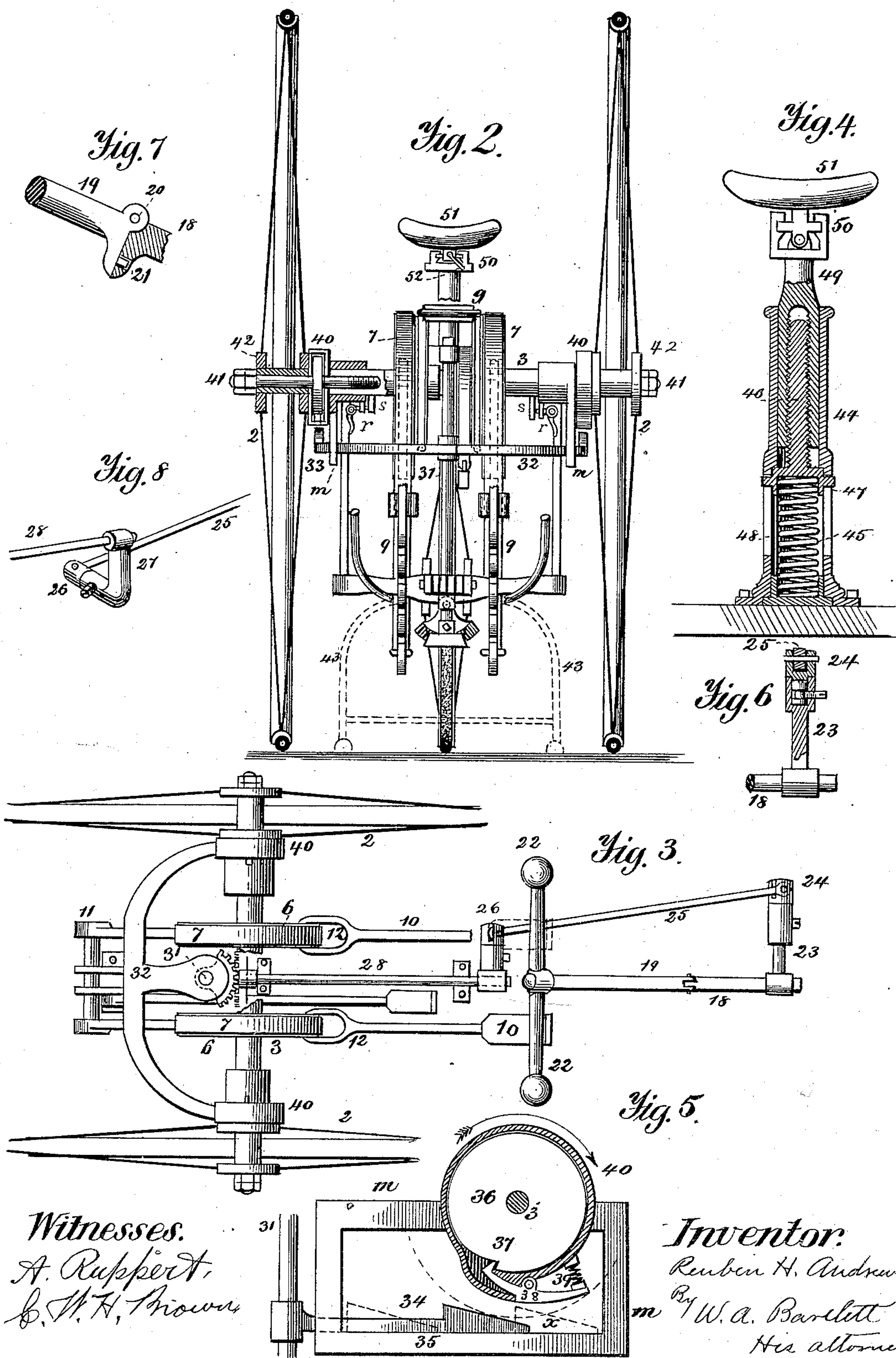
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UNITED STATES PATENT OFFICE.

REUBEN H. ANDREWS, OF WASHINGTON, DISTRICT OF COLUMBIA.

TRICYCLE.

SPECIFICATION forming part of Letters Patent No. 310,868, dated January 20, 1885.

Application filed May 16, 1884. (No model.)

To all whom it may concern:

Be it known that I, REUBEN H. ANDREWS, residing at Washington, in the District of Columbia, have invented certain new and useful

5 Improvements in Tricycles, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to tricycles and the appointments and fittings of the same.

10 The object of the invention is to provide a simple changeable gear-driving apparatus; also an improved steering-handle; also a connection from the steering-handle to the drive-wheels, whereby one wheel may be thrown out

15 of gear in rounding a corner; also an improved seat; also an improved device for disconnecting or removing the wheels; also certain details of construction, all of which will be hereinafter summarized in the claims.

20 In the drawings forming part of this specification, Figure 1 is a longitudinal central section of the improved tricycle. Fig. 2 is a rear elevation of the same. Fig. 3 is a plan, some of the parts not essential to the illustration being omitted. Fig. 4 is a vertical section of the

25 adjustable spring-seat. Fig. 5 is a side elevation, partly sectioned, of the wheel holding and detaching clutch. Figs. 6, 7, and 8 are details. Fig. 9 is a plan showing construction

30 of frame. The numeral 1 indicates the frame. This frame is constructed of alternate strips *a* of wood and strips *b* of sheet or plate iron or steel cut or bent to the form desired, and alternating with the strips of wood, all the parts of the frame being secured together by a series of cross bolts or rivets, *cc*. The frame is simply a longitudinal central strip, affording a bearing for the steering-wheel, and supported

40 on hangers from the driving-wheel shaft. The driving-wheels 2 2 are mounted on the driving-axle 3. On the shaft 3 the propelling ratchet-wheels 5 are secured. These wheels 5 are within casings 6, which casings contain the pawl-connections between the casings and the ratchet-teeth. The casings are partially rotated in forward direction by the belts 7, which pass round idlers 8, and are hooked to the arc-levers 9, forming extensions of the ped-

50 als 10. The pawls *d*, within the casings 6, are operated to engage with the teeth on the

ratchets by spring *e*, as usual, to move the ratchet-wheels forward. As one of the ratchet-casings moves forward, a belt-connection, *f*, passing round idler *g*, tends to draw the other casing backward, so that the pawl therein contained will be in position to move its ratchet forward in its turn. The pedals 10 are pivoted at 11, and the arms 9 have a series of hooks, to which loops on the ends of the straps or chains 7 7 may be connected, thus enabling the rider to quickly change the "gear" of the machine to "fast" or "slow," as may be desired. The belts may pass down through loops 12 in the pedal-levers, if a straight connection is desirable. The steering-wheel 13 is journaled in yoke 14, as usual, which yoke has a spindle, 15, and may be turned by the oscillation of the bevel gear or sector 16. This gear 16 is engaged by the teeth on the sector 17 on shaft 18, which shaft is journaled in suitable bearings on the frame. The shaft or bar 19 is hinged to shaft 18 at 20, (see Fig. 7,) and a pin, 21, on bar 19 enters a hole in the head of bar 18 at the side opposite the hinge. Thus bar 19 and its handle 22 can be lifted and thrown out of the way in mounting and dismounting, but when brought into line with shaft 18 will have a firm connection therewith. The partial rotation of shaft 19 by handles 22 will, through the connections described, turn the steering-wheel and guide the vehicle. The shaft 18 has an arm, 23, projecting therefrom, which arm bears a swiveled coupling, 24, connecting the draw-bar 25 to the steering-bar. The bar 25 is joined by a loose coupling to the end 26 of the rock-arm 27, which is secured to torsion-rod 28. The partial rotation of rod 28 turns with it the segmental gear 29, which engages the gear 30 on vertical shaft 31. By this train of connections the shaft 31 is rocked simultaneously with the rocking of the steering-bar. Shaft 31 bears a yoke, 32, which swings with the rocking of said shaft. A wedge, 34, at each end of this yoke has a support on the bar 35 at bottom of frame or casing *m*, so that the wedges may move along said support.

To the shaft 3, at each side of the machine, a disk, 36, is secured. This disk has one or two teeth or notches, as 37, with which a hook, 38, may engage when thrown into connection

by spring 39. The hook or pawl and spring are carried by a nearly cylindrical casing, 40, which, when the hook is engaged with the notch, is compelled to rotate with the axle.

5 The rear end of hook 38, outside the casing, comes in the path of movement of wedge 34. When this wedge is in the position shown in full lines, Fig. 5, the hook, with its casing, will form a clutch and revolve with the disk 36;

10 but when the wedge is moved toward the position x (in dotted lines) it will throw the hook out of engagement with its notch, and the axle and disk will be free to rotate without rotating the casing 40. The casing 40 is attached

15 to the wheel-hub, and when it rotates the wheel is compelled to rotate with it; but when the casing is uncoupled from the disk 36 the axle is free to rotate without revolving that wheel. As the oscillating yoke 32 moves in

20 one direction to uncouple the wheel it leaves the other wheel coupled to the driving-shaft, so that one driver will act as usual, but the other, being free to turn independently of the axle, will adapt itself to the curve which the

25 vehicle makes. When the machine moves in a straight path both wheels are coupled. Bolts 41, which pass through the hubs 42 of wheels 2, secure the wheels to the shaft 3. These bolts, or either of them, may be unscrewed, and

30 the drive-wheel which it supports may be removed from the vehicle. A pivoted bail, 43, serves to support the rear of the machine when a wheel is removed. This bail may be turned up and secured in that position when traveling.

35 A standard, 44, on the frame serves as a housing for the spring 45, which supports the upright 46. This upright has ears or projections 47, which enter slots 48 in the standard 44. The upright 46 is screw-threaded, and the screw-

40 threaded spindle 49 may be screwed up or down on the same, the upright 46 being held against turning by the lugs before described. A gimbal-frame, 50, supports the seat 51, so that the seat has a universal movement within

45 limits. The seat may be screwed up or down, and in any position will be supported by the spring 45. A screw-bolt, 52, passing through the gimbal-frame, serves to move the seat, when desired, either backward or forward rel-

50 atively to the standard and support. The brake-strap passes over pulley 4 on the axle. This strap is stiff enough to raise itself and its pedal slightly from the pulley when not in use. The axle may be locked to the hangers

on the frame by means of catches r taking into 55 loops or sockets s on the axle.

I claim—

1. The combination, with the driving-shaft of a tricycle, of a ratchet driving-gear, a two-armed pedal-lever, one arm extending to the 60 pivot, the other forming an arc-shaped extension provided with a series of catches, and belt-connections from the ratchet mechanism to the catches on said lever, as set forth.

2. The combination, with the driving-shaft 65 and ratchet-connections, of the pedal-lever having its pivot at 11, and the extension-arm 9, provided with a series of hooks, and a belt connecting the ratchet mechanism around a pulley with one of said hooks, as set forth. 70

3. The combination, with the driving-shaft and a clutch-coupling attached to the wheel, of a wedge which when shifted serves to un- couple the clutch, and a train of mechanism, substantially as described, whereby the wedge 75 is moved by the movement of the steering-bar.

4. The combination, with the steering-wheel of a tricycle, of a steering-bar having a hinge- joint, 20, and a pin, 21, on the side of the bar opposite the hinge, whereby the handle of the 80 bar may be swung in one direction, but have a double bearing when straightened, substantially as set forth.

5. The seat described, consisting of stand- ard or casing 44, having internal spring, 45, 85 the upright 46, the spindle 47, longitudinally adjustable, as described, and the seat 51, all combined and arranged in a vehicle, as set forth.

6. The combination, with the standard 44, 90 of the inclosed spring 45, the upright 46, having lugs which project into slots in the stand- ard, the screw-threaded spindle 49, the gimbal-frame supported thereby, and the adjust- able seat on the gimbal-frame, all constructed 95 and relatively arranged substantially as set forth.

7. The combination, with the frame and re- volving axle, of a catch to lock the two to- gether to prevent rotation of the axle, sub- 100 stantially as described.

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

REUBEN H. ANDREWS.

Witnesses:

PHILIP MAURO,
W. A. BARTLETT.