No. 876,058.

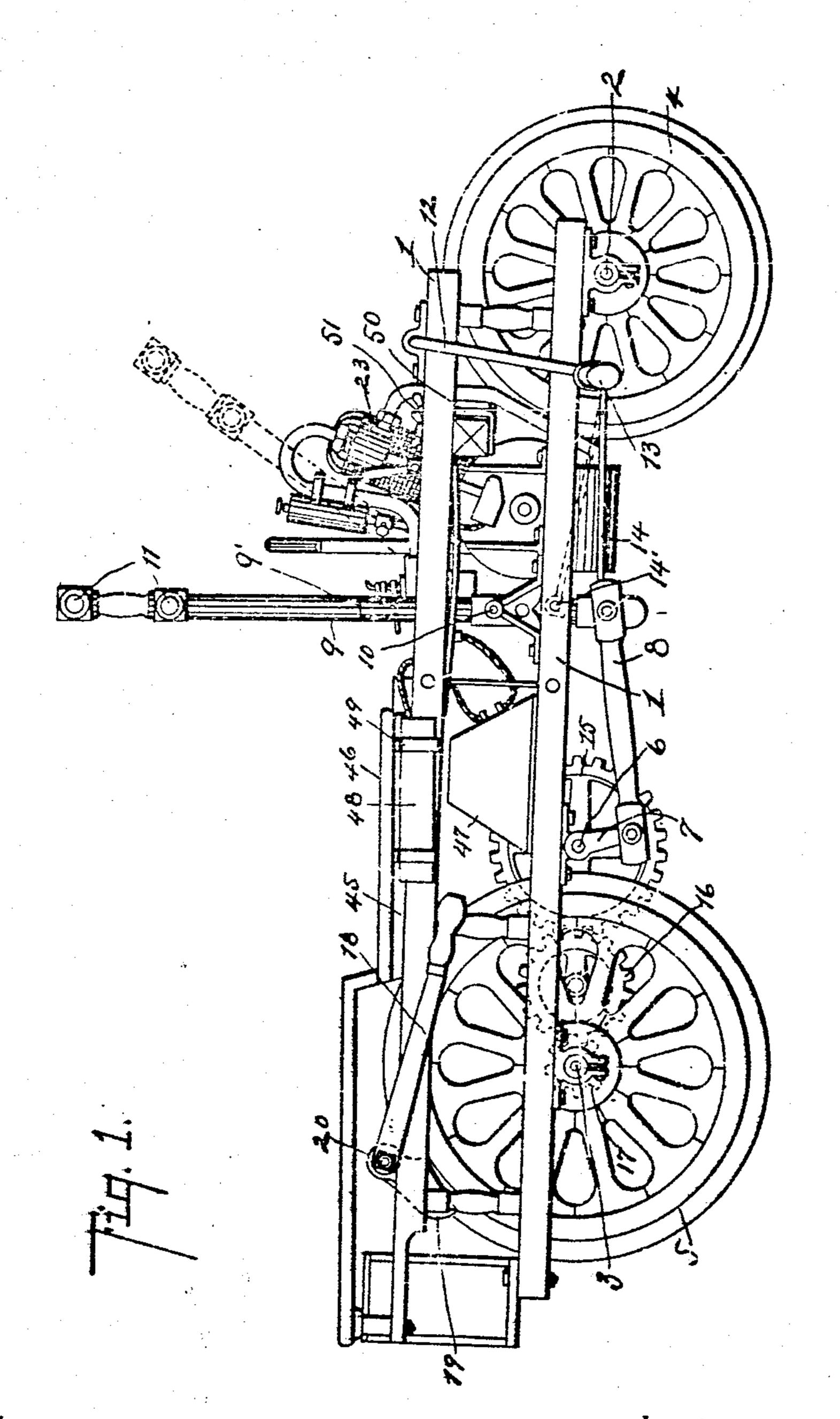
PATENTED JAN. 7, 1908.

W. S. HOVEY.

RAILWAY MOTOR VELOCIPEDE.

APPLICATION FILED FEB. 23, 1907.

3 SHEETS-SHEET 1.



Witnesses .

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No. 876,058.

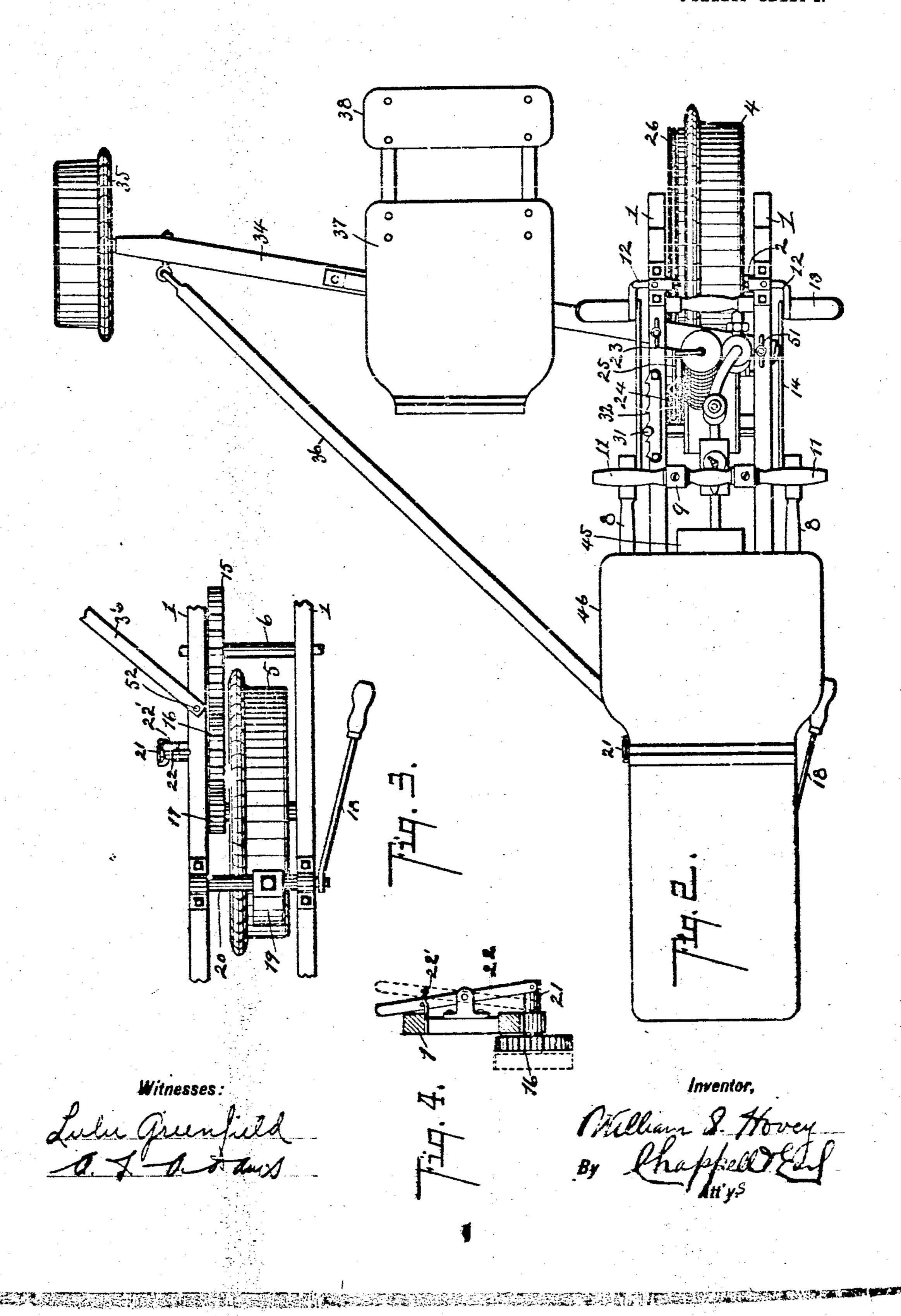
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3 SHEETS-SHEET 2.



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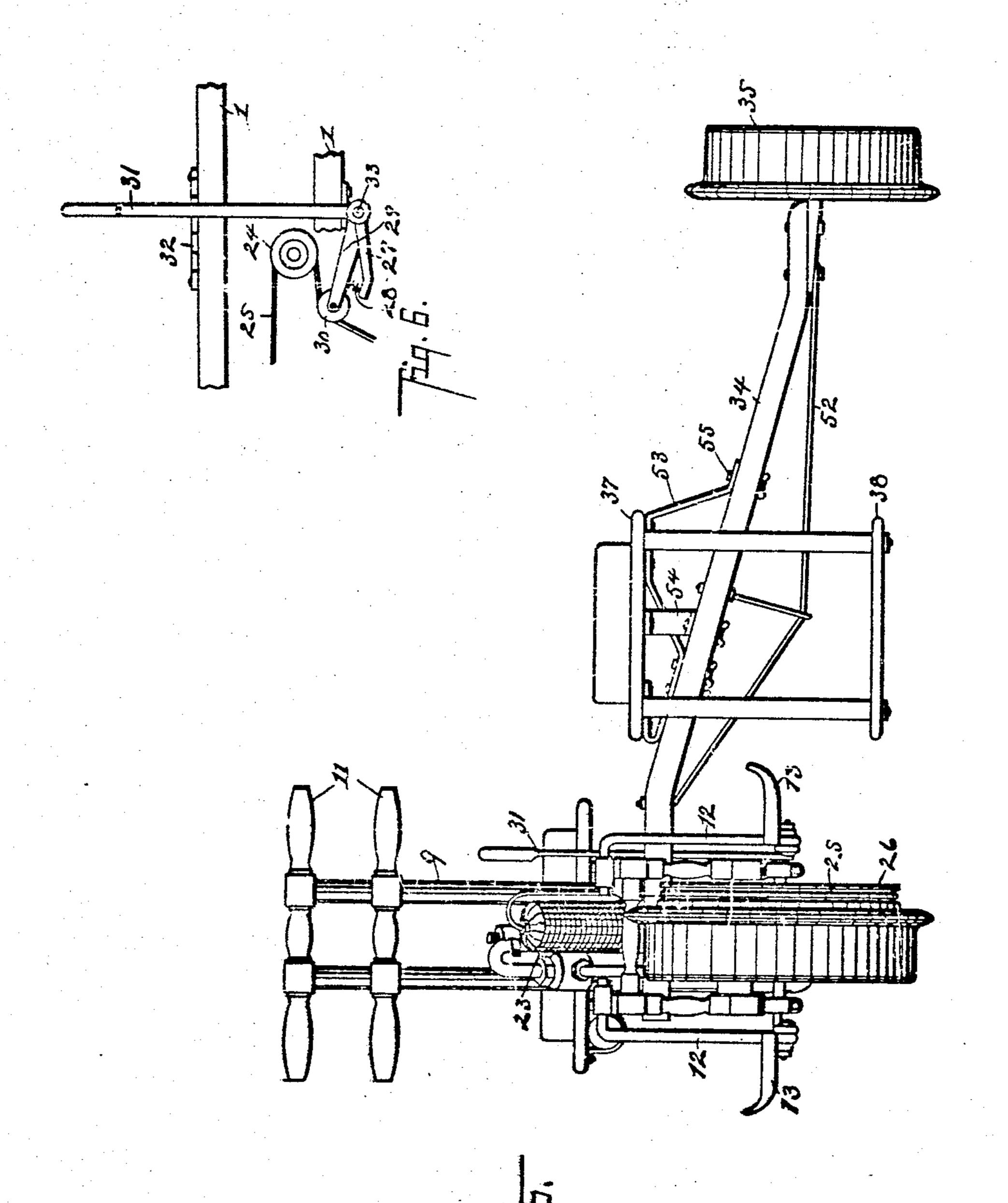
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APPLICATION FILED FEB. 23, 1907.

3 SHEETS-SHEET 3.



Witnesses:

Lule Juenfield

William & Hovey

By Chappell Tearly

THE HORSES PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM S. HOVEY, OF THREE RIVERS, MICHIGAN, ASSIGNOR TO THE SHEFFIELD CAR COMPANY, OF THREE RIVERS, MICHIGAN.

RAILWAY MOTOR-VELOCIPEDE.

No. 876,058.

Specification of Letters Patent.

Patented Jan. 7, 1908.

Application filed February 23, 1907. Serial No. 358,950.

To all whom it may concern:

Be it known that I, WILLIAM S. HOVEY, a citizen of the United States, residing at the 1 connected by suitable vertical and transvillage of Three Rivers, county of St. Joseph, versely-arranged cross-pieces. 5 State of Michigan, have invented certain new and useful Improvements in Railway Motor-Velocipedes, of which the following is a specification.

This invention relates to improvements in

10 railway motor velocipedes.

The main objects of this invention are, first, to provide an improved railway motor velocipede which is very compact and light in weight, and, at the same time, one possessing 15 sufficient strength for the use required. Second, to provide an improved railway motor velocipede, in which the engine, which is of the explosion type, may be readily started. Third, to provide an improved railway motor 20 velocipede which may be connected to be driven either manually or by the engine, and one which may be quickly adjusted for the use of either power. Fourth, to provide an improved railway motor velocipede in which 25 the parts are effectively balanced and the engine located so as to be fully protected.

Further objects, and objects relating to details of construction, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and point-

ed out in the claims.

35 A structure embodying the feature of my invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which,

Figure 1 is a side elevation of my improved 40 railway motor velocipede. Fig. 2 is a plan thereof. Fig. 3 is a detail plan showing the rear wheels and driving connections thereto, the seat and disk being removed. Fig. 4 is an enlarged detail vertical section showing 45 the shifting or adjustable gear for the driving | Fig. 4. connection to the hand lever. Fig. 5 is a 50 of the belt tightener, by which the engine is | nected or disconnected to the rear traction

refer to similar parts throughout the several some one of the gears of the train.

views.

Referring to the drawing, the frame prefer- 55 ably consists of the top and bottom side rails

The axles 2 and 3 for the traction wheels 4 and 5, respectively, are arranged in suitable 60 bearings carried by the bottom side rails. Arranged across the frame in front of the rear traction wheel 5 is a crank shaft 6, which is provided with a crank arm 7, which crank arm is connected by the pitman 8 to the 65 lower ends of the hand lever 9. This lever is pivoted or fulcrumed at 10.

The hand lever 9 is bifurcated and is provided with two pairs of handles 11 at its upper end; see Fig. 5. The upper portion of 70 the lever is preferably made detachable, coupling sockets 9' being provided, so that it can be removed, if desired, to afford more convenient access to the engine by the operator when occupying the seat behind the 75 hand lever.

The foot rests 13 are carried by suitable pivoted links 12. The foot rests are adapted to be connected to the pitman 8 by means of the links 14, so that the car may be driven 80 entirely by the feet, or by the feet and hands of the operator. The links 14 are detachably connected to the pitman so that they may be hooked upon the pins 14', when it is desired to use the foot rests solely as rests, as is de- 85 sirable when the car is driven by the engine.

The crank shaft 6 is connected to the axle 3 of the rear traction wheel 5 by a train of gears, preferably consisting of the gear 15, mounted on the crank shaft, and the gear 17 90 mounted on the axle, and the intermediate or connecting gear 16. The shaft 21 for the gear 16 is slidably-arranged in its bearings, so that the gear may be shifted into or out of mesh with the gears 15 and 17, to connect or 95 disconnect the drive, as desired. The shaft 21 is preferably shifted by means of the lever 22, connected to the outer end thereof; see

A spring catch 22' is provided for holding 100 front elevation of my improved railway mo- this lever in or out of its operative position. tor velocipede. Fig. 6 is an enlarged detail This affords a convenient arrangement, side elevation showing the structural details, whereby the crank shaft may be readily conconnected to the driving or traction wheels 4. | wheel 5. It is evident that this might be 105 In the drawing, similar reference numerals | effected by a suitable clutch mechanism for

I preferably provide a brake shoe 19 for

the rear traction wheel, the shoe being mounted on the rock shaft 20, which is op-

erated by the lever 18.

To the rear of the front traction wheel and 5 just in advance of the hand lever 9 I arrange an engine 23. The engine is mounted on a suitable cross-piece and is arranged centrally between the side rails of the frame. On the crank shaft of the engine is a belt pulley 24, 10 which I connect by the belt 25 to the belt rim 26 provided on the inside of the front traction wheel. This hand lever 9 is bifurcated, as stated, so that it straddles the engine when in its forward position, which en-15 ables the compact arrangement of the parts.

I provide a belt tightener for the belt 25, preferably consisting of the rock shaft 33, which is operated by the upwardly-projecting hand lever 31, a suitable rack 32 being 20 provided for holding this lever in its adjusted position. On the rock shaft 33 is an arm 29, having a pulley 30 on its outer end adapted to engage the belt. The arm 29 is loosely mounted and is held yieldingly in position by 25 the coiled spring 28, which is carried by the arm 29 fixed to the rock shaft. The spring 28 is thus located at the outer end of the arm 29, close to the pulley 30.

It is evident that the car may be driven 30 through the hand levers and foot rests, or through either means, or by the engine.

In starting the engine, the gear 16 may be shifted into mesh and the car started through manipulation of the hand lever, or by means 35 of the feet, or by pushing the car, as desired. By tightening the belt, the engine is cranked up to start the same, after which the gear 16 may be thrown out of mesh and the car driven entirely by the engine. The upper 40 detachable portion of the hand lever may be removed, if desired, so that the operator has free access to the engine.

I preferably locate the gasolene tank 45 under the seat 46, the same being preferably 45 suspended therefrom. The battery 47 is also arranged under the seat, the same being preferably supported on the bottom frame rails. The battery coil 48 is also located under the seat, the same being preferably sus-50 pended therefrom by the hangers 49.

By arranging the parts as I have illustrated, the engine and driving mechanism is inclosed by the main frame, and is protected

thereby.

The third wheel 35 is mounted on the other. end of the bar 34, which is detachably connected to the main frame by means of the clips 50, the clips being provided with suitable winged nuts 51, so that the bars may be 60 readily removed. The brace 36 for the bar 34 is detachably connected to the main frame by the pin or bolt 52; see Fig. 3. The bar 34 is provided with a truss-rod 52.

On the bar 34, I preferably mount a de-65 tachable seat 37, a suitable bracket 53 being

provided therefor. This bracket and also the brace 54 are detachably connected to the bar by means of the bolts 55. The seat 37 is provided with a suitable foot rest 38.

I have illustrated and described my im- 70 proved motor railway velocipede in detail in the form preferred by me on account of the structural simplicity and economy, although I am aware that it is capable of considerable variation in structural details without de- 75 parting from my invention, and I desire to be understood as claiming the same specifically, as illustrated, as well as broadly.

Having thus described my invention, what I claim as new and desire to secure by Letters 80

Patent is:

1. In a structure of the class described, the combination of the frame comprising side rails connected by cross pieces; a pair of traction wheels arranged between the side 85 rails of said frame at the front and rear ends thereof; a crank shaft arranged transversely of said frame in front of the rear traction wheel; a train of gears connecting said crank shaft to the axle of the rear traction wheel, 90 one of the gears of which is adjustably mounted, so that it may be adjusted to connect or disconnect said gears; a bifurcated hand lever arranged between the said side rails of said frame, the upper portion of said 95 hand lever being detachable; a pitman connecting said hand lever to said crank shaft; an operator's seat arranged at the rear of said hand lever; foot rests; supporting links for said foot rests; links whereby said foot 100 rests may be detachably connected to said pitman; an engine arranged between the side rails of said frame at the rear of the front traction wheel and in front of the said seat, the said hand lever being adapted to straddle 105 said engine when in operation; a belt rim on the side of said forward traction wheel; a belt pulley on the crank shaft of said engine; a driving belt; a tightener for said belt; an operating lever for said tightener; a gaso- 110 lene supply reservoir and battery for said engine located beneath said seat; and a third wheel detachably connected to said frame, for the purpose specified.

2. In a structure of the class described, 115 the combination of the frame comprising side rails connected by cross pieces; a pair of traction wheels arranged between the side rails of said frame at the front and rear ends thereof; a crank shaft arranged transversely 120 of said frame in front of the rear traction wheel; a train of gears connecting said crank shaft to the axle of the rear traction wheel, one of the gears of which is adjustably mounted, so that it may be adjusted to con- 125 nect or disconnect said gears; a bifurcated hand lever arranged between the said side rails of said frame; a pitman connecting said hand lever to said crank shaft; an operator's seat arranged at the rear of said 139

hand lever; foot rests; supporting links for said foot rests; links whereby said foot rests may be detachably connected to said pitman; an engine arranged between the side rails of 5 said frame at the rear of the front traction wheel and in front of the said seat, said hand lever being adapted to straddle said engine in operation; a belt rim on the side of said forward traction wheel; a belt pulley on the 10 crank shaft of said engine; a driving belt; a tightener for said belt; an operating lever for said tightener; a gasolene supply reservoir and battery for said engine located beneath said seat; and a third wheel detach-15 ably connected to said frame, for the purpose specified.

3. In a structure of the class described, the combination of the frame comprising side rails connected by cross pieces; a pair 20 of traction wheels arranged between the side rails of said frame at the front and rear ends thereof; a crank shaft arranged transversely of said frame in front of the rear traction wheel; a train of gears connecting said crank 25 shaft to the axle of the rear traction wheel, one of the gears of which is adjustably mounted, so that it may be adjusted to connect or disconnect said gears; a bifurcated hand lever arranged between the said side 30 rails of said frame, the upper portion of said hand lever being detachable; a pitman connecting said hand lever to said crank shaft; an operator's seat arranged at the rear of said hand lever; an engine arranged between 35 the side rails of said frame at the rear of the front traction wheel and in front of the said seat, the said hand lever being adapted to straddle said engine in operation; a belt rim. on the side of said forward traction wheel; 40 a belt pulley on the crank shaft of said engine; a driving belt; a tightener for said belt; an operating lever for said tightener; a gasolene supply reservoir and battery for said engine located beneath said seat; and 45 a third wheel detachably connected to said frame, for the purpose specified.

4. In a structure of the class described, the combination of the frame, comprising side rails connected by cross pieces; a pair of 50 traction wheels arranged between the side rails of said frame at the front and rear ends thereof; a crank shaft arranged transversely of said frame in front of the traction wheel; a train of gears connecting said crank shaft to 55 the axle of the rear traction wheel, one of the gears of which is adjustably mounted, so that it may be adjusted to connect or disconnect said gears; a bifurcated hand lever arranged between the said side rails of said frame; a 60 pitman connecting said hand lever to said | the rear of the front traction wheel and in crank shaft; an operator's seat arranged at the rear of said hand lever; an engine arranged between the side rails of said frame at | on the crank shaft of said engine; a driving the rear of the front traction wheel and in | belt; a tightener for said belt; an operating

front of the said seat, the said hand lever being 65 adapted to straddle said engine in operation; a belt rim on the side of said forward traction wheel; a belt pulley on the crank shaft of said engine; a driving belt; a tightener for said belt; an operating lever for said tightener; a 70 gasolene supply reservoir and battery for said engine located beneath said seat; and a third wheel detachably connected to said frame, for the purpose specified.

5. In a structure of the class described, the 75 combination of the frame comprising side rails connected by cross pieces; a pair of traction wheels arranged between the side rails of said frame at the front and rear ends thereof; a crank shaft arranged transversely of said 80 frame in front of the rear traction wheel; a train of gears connecting said crank shaft to the axle of the rear traction wheel, one of the gears of which is adjustably mounted, so that it may be adjusted to connect or disconnect 85 said gears; a hand lever arranged between the said side rails of said frame, the upper portion of said hand lever being detachable; a pitman conneding said hand lever to said crank shaft; an operator's seat arranged at 90 the rear of said hand lever; foot rests; supporting links for said foot rests; links whereby said foot rests may be detachably connected to said pitman; an engine arranged between the side rails of said frame at the 95 rear of the front traction wheel and in front of the said seat; a belt rim on the side of said forward traction wheel; a belt-pulley on the erank shaft of said engine; a driving belt; a tightener for said belt: an operating lever for 100 said tightener, and a third wheel decachably connected to said frame, for the purpose specified.

6. In a structure of the class described, the combination of the frame comprising 105 side rails connected by cross pieces; a pair of traction wheels arranged between the side rails of said frame at the front and rear ends thereof; a crank shaft arranged transversely of said frame in front of the rear traction 110 wheel; a train of gears connecting said grank shaft to the axle of the rear traction wheel, one of the gears of which is adjustably mounted, so that it may be adjusted to connect or disconnect said gears; a hand lever 115 arranged between the said side rails of said frame; a pitman connecting said hand lever to said crapk shaft; an operator's seat arranged at the rear of said hand lever; foot rests: supporting links for said foot rests; 120 links whereby said foot rests may be detachably connected to said pitman; an engine arranged between the side rails of said frame at front of the said seat; a belt rim on the side 125 of said forward traction wheel: a belt pulley

Light exertical sight mer; and a third wheel I said side rails of said frame, the upper porpurpose specified.

7. In a structure of the class described, the 5 combination of the frame, comprising side rails connected by cross pieces; a pair of traction wheels arranged between the side rails of said frame at the front and rear ends thereof; a crank shaft arranged transversely 10 of said frame in front of the rear traction wheel; a train of gears connecting said crank shaft to the axle of the rear traction wheel, one of the gears of which is adjustably mounted, so that it may be adjusted to con-15 nect or disconnect said gears; a hand lever arranged between the said side rails of said frame, the upper portion of said hand lever being detachable; a pitman connecting said hand lever to said crank shaft; an operator's 20 seat arranged at the rear of said hand lever; an engine arranged between the side rails of said frame at the rear of the front traction wheel and in front of the said seat; a belt rim on the side of said forward traction 25 wheel; a belt pulley on the crank shaft of said engine; a driving belt; a tightener for said belt; an operating lever for said tightener; and a third wheel detachably connected to said frame, for the purpose specified.

30 8. In a structure of the class described, the combination of the frame, comprising side rails connected by cross pieces; a pair of traction wheels arranged between the side rails of said frame at the front and rear ends thereof; 35 a crank shaft arranged transversely of said frame in front of the rear traction wheel; a train of gears connecting said crank shaft to the axle of the rear traction wheel, one of the gears of which is adjustably mounted, so that 40 it may be adjusted to connect or disconnect said gears; a hand lever arranged between the said side rails of said frame; a pitman

connecting said hand lever to said crank shaft; an operator's seat arranged at the rear 45 of said hand lever; an engine arranged between the side rails of said frame at the rear of the front traction wheel and in front of the said seat; a belt rim on the side of said forward traction wheel; a belt pulley on the 50 crank shaft of said engine; a driving belt; a tightener for said belt; an operating lever for said tightener; and a third wheel detachably connected to said frame, for the purpose

specified.

55. 9. In a structure of the class described, the combination of the frame comprising side rails connected by cross pieces; a pair of traction wheels arranged between the side rails of said frame at the front and rear ends there-60 of; a crank shaft arranged transversely of said frame in front of the rear traction wheel; driving connections for said crank shaft to the axle of the rear traction wheel; means for connecting or disconnecting said driving con-65 nections; a hand lever arranged between the | driving belt; a tightener for said belt; an op- 130

tion of said hand lever being detachable; a pitman connecting said hand lever to said crank shaft; an operator's seat arranged at the rear of said hand lever; foot rests; sup- 70 porting links for said foot rests; links whereby said foot rests may be detachably connected to said pitman; an engine arranged between the side rails of said frame at the rear of the front traction wheel and in front 75 of the said seat; a belt rim on the inner side of said forward traction wheel; a belt pulley on the crank shaft of said engine; a driving belt; a tightener for said belt; an operating lever for said tightener; and a third wheel de- 80 tachably connected to said frame, for the

purpose specified.

10. In a structure of the class described. the combination of the frame comprising side rails connected by cross pieces; a pair of trac- 85 tion wheels arranged between the side rails of said frame at the front and rear ends thereof; a crank shaft arranged transversely of said frame in front of the rear traction wheel: driving connections for said crank shaft to 90 the axle of the rear traction wheel; means for connecting or disconnecting said driving connections; a hand lever arranged between the said side rails of said frame; a pitman connecting said hand lever to said crank shaft; 95 an operator's seat arranged at the rear of said hand lever; foot rests; supporting links for said foot rests; links whereby said foot rests may be detachably connected to said pitman; an engine arranged between the side 100 rails of said frame at the rear of the front traction wheel and in front of the said seat; a belt rim on the side of said forward traction wheel; a belt pulley on the crank shaft of said engine; a driving belt; an operating lever for 105 said tightener; and a third wheel detachably connected to said frame, for the purpose specified.

11. In a structure of the class described, the combination of the frame comprising side 110 rails connected by cross pieces; a pair of traction wheels arranged between the side rails of said frame at the front and rear ends thereof; a crank shaft arranged transversely of said frame in front of the rear traction wheel; 115 driving connections for said crank shaft to the axle of the rear traction wheel; means for connecting or disconnecting said driving connections; a hand lever arranged between the said side rails of said frame, the upper por- 120 tion of said hand lever being detachable; a pitman connecting said hand lever to said crank shaft; an operator's seat arranged at the rear of said hand lever; an engine arranged between the side rails of said frame at 125 the rear of the front traction wheel and in front of the said seat; a belt rim on the inner side of said forward traction wheel; a belt pulley on the crank shaft of said engine; a

erating lever for said tightener; and a third | to said crank shaft; an operator's seat ar-

for the purpose specified.

5 the combination of the frame comprising side | ably connected to said pitman; an engine ar- 70 rails connected by cross pieces; a pair of trac- | ranged between the side rails of said frame at tion wheels arranged between the side rails of the rear of the front traction wheel and in said frame at the front and rear ends thereof; front of the said seat; driving connections for a crank shaft arranged transversely of said | said engine to the forward traction wheel; 10 frame in front of the rear traction wheel; and means for connecting or disconnecting 75 driving connections for said crank shaft to said driving connections, for the purpose the axle of the rear traction wheel; means for | specified. connecting or disconnecting said driving con-15 said side rails of said frame: a pitman conan engine arranged between the side rails of | rails of said frame at the front and rear ends said frame at the rear of the front traction | thereof; a crank shaft arranged transversely 20 on the side of said forward traction wheel; a | wheel; driving connections for said crank 85 belt pulley on the crank shaft of said engine; a driving belt; a tightener for said belt; an operating lever for said tightener; and a third wheel detachably connected to said

25 frame, for the purpose specified. 13. In a structure of the class described, the combination of the frame, comprising side rails connected by cross-pieces; a pair of traction wheels arranged between the side 30 rails of said frame at the front and rear ends thereof; a crank shaft arranged transversely of said frame in front of the rear traction wheel; driving connections for said crank shaft to the axle for said rear traction wheel; 35 means for connecting or disconnecting said driving connections; a bifurcated hand lever arranged between the said side rails of said frame, the upper portion of said hand lever being detachable; a pitman connecting said 40 hand lever to said crank shaft; an operator's seat arranged at the rear of said hand lever; foot rests; supporting links for said foot rests; links whereby said foot rests may be detachably connected to said pitman; an engine ar-45 ranged between the side rails of said frame at the rear of the front traction wheel and in front of the said seat, said hand lever being adapted to straddle said engine in operation; driving connections for said engine to the for-

ing or disconnecting said driving connections, for the purpose specified.

14. In a structure of the class described, the combination of the frame, comprising 55 side rails connected by cross pieces; a pair of traction wheels arranged between the side rails of said frame at the front and rear ends thereof; a crank shaft arranged transversely of said frame in front of the rear traction 60 wheel; driving connections for said crank shaft to the axle for said rear traction wheel; means for connecting or disconnecting said driving connections; a bifurcated hand lever arranged between the said side rails of said 65 frame; a pitman connecting said hand lever

50 ward traction wheel; and means for connect-

wheel detachably connected to said frame, ranged at the rear of said hand lever; foot rests; supporting links for said foot rests; 12. In a structure of the class described, links whereby said foot rests may be detach-

15. In a structure of the class described. nections; a hand lever arranged between the the combination of the frame, comprising side rails connected by cross pieces; a pair of 80 necting said hand lever to said crank shaft: | traction wheels arranged between the side wheel and in front of the said seat; a belt rim of said frame in front of the rear traction shaft to the axle for said rear traction wheel; means for connecting or disconnecting said driving connections; a bifurcated hand-lever arranged between the said side rails of said frame, the upper portion of said hand lever 90 being detachable: a pitman connecting said hand lever to said crank shaft; an operator's seat arranged at the rear of said hand lever; an engine arranged between the side rails of said frame at the rear of the front traction 95 wheel and in front of the said seat, said hand lever being adapted to straddle said engine in operation; driving connections for said engine to the forward traction wheel; and means for connecting or disconnecting said 100 driving connections, for the purpose specified.

16. In a structure of the class described, the combination of the frame, comprising side rails connected by cross-pieces; a pair 105 of traction wheels arranged between the side rails of said frame at the front and rear ends thereof: a crank shaft arranged transversely of said frame in front of the rear traction wheel: driving connections for said crank 110 shaft to the axle for said rear traction wheel; means for connecting or disconnecting said driving connections; a bifurcated hand lever arranged between the said side rails of said frame; a pitman connecting said hand lever 115 to said crank shaft; an operator's seat arranged at the rear of said hand lever; an engine arranged between the side rails of said frame at the rear of the front traction wheel and in front of the said seat; driving connec- 120 tions for said engine to the forward traction wheel; and means for connecting or disconnecting said driving connections, for the purpose specified.

17. In a structure of the class described, 125 the combination of the frame, comprising side rails connected by cross-pieces; a pair of traction wheels arranged between the side rails of said frame at the front and rear ends thereof; a crank shaft arranged transversely 130

wheel; driving connections for said crank ation; driving connections for said engine to shaft to the axle for said rear traction wheel: the forward traction wheel; and means for means for connecting or disconnecting said connecting said driving connections, for the 5 driving connections; a hand lever arranged between the said side rails of said frame, the upper portion of said hand lever being detachable; a pitman connecting said hand lever to said crank shaft; an operator's seat 10 arranged at the rear of said hand lever: foot rests; supporting links for said foot rests; links whereby said foot rests may be detachably connected to said pitman; an engine 15 at the rear of the front traction wheel and in | means for connecting or disconnecting said 80 front of the said seat, said hand lever being ; adapted to straddle said engine in operation; driving connections for said engine to the forward traction wheel; and means for con-20 necting or disconnecting said driving con-

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nections, for the purpose specified. 18. In a structure of the class described, the combination of the frame, comprising side rails connected by cross-pieces; a pair of 25 traction wheels arranged between the side rails of said frame at the front and rear ends thereof: a crank shaft arranged transversely of said frame in front of the rear traction wheel; driving connections for said crank 30 shaft to the axle for said rear iraction wheel; means for connecting or disconnecting said driving connections; a hand lever arranged between the said side rails of said frame; a pitman connecting said hand lever to said 35 crank shaft; an operator's seat arranged at the rear of said hand lever; foot rests; supporting links for said foot rests; links whereby said foot rests may be detachably. connected to said pitman; an engine ar-40 ranged between the side rails of said frame at the rear of the front traction wheel and in front of the said seat; driving connections for said engine to the forward traction wheel; and means for connecting or disconnecting 45 said driving connections, for the purpose specified.

19. In a structure of the class described, the combination of the frame, comprising side rails connected by cross-pieces; a pair 50 of traction wheels arranged between the side rails of said frame at the front and rear ends thereof; a crank shaft arranged transversely of said frame in front of the rear traction wheel; driving connections for said crank 55 shaft to the axle for said rear traction wheel: means for connecting or disconnecting said driving connections; a hand lever arranged between the said side rails of said frame, the upper portion of said hand lever being de-60 tachable; a pitman connecting said hand lever to said crank shaft; an operator's seat arranged at the rear of said hand lever; an engine arranged between the side rails of said frame at the rear of the front traction wheel

of said frame in front of the rear traction | being adapted to straddle said engine in oper-

purpose specified.

20. In a structure of the class described. the combination of the frame, comprising side rails connected by cross-pieces; a pair of traction wheels arranged between the side rails of said frame at the front and rear ends 75 thereof; a crank shaft arranged transversely of said frame in front of the rear traction wheel; driving connections for said crank arranged between the side rails of said frame | shaft to the axle for said rear traction wheel: driving connections; a hand lever arranged between said side rails of said frame; a pitman connecting said hand lever to said erank shaft; an operator's seat arranged at the rear of said hand lever; an engine ar- 85 ranged between the side rails of said frame at the rear of the front traction wheel and in front of the said seat; driving connections for said engine to the forward traction wheel; and means for connecting or disconnecting 90 said driving connections, for the purpose specified.

> 21. In a structure of the class described, the combination of the frame, comprising side rails connected by cross-pieces; a pair of 95 traction wheels arranged between the side rails of said frame at the front and rear ends thereof; a bifurcated hand lever, the upper portion of which is detachable; driving connections for said hand lever to the rear axle; 100 an operator's seat arranged at the rear of said hand lever; an engine arranged between the side rails of said frame at the rear of the front traction wheel and in front of the said hand lever, said hand lever being adapted to 105 straddle said engine in operation; a belt rim on the side of said forward traction wheel; a belt pulley on the crank shaft of said engine; driving belt; a belt tightener for said driving beit; and an operating lever for 110 said tightener, for the purpose specified.

> 22. In a structure of the class described, the combination of the frame, comprising side rails connected by cross-pieces; a pair of traction wheels arranged between the side 115 rails of said frame at the front and rear ends thereof; a hand lever, the upper portion of which is detachable; driving connections for said hand lever to the rear axle; an operator's seat arranged at the rear of said hand lever; 120 an engine arranged between the side rails of said frame at the rear of the front traction wheel and in front of the said hand lever; a belt rim on the side of said forward traction wheel; a belt pulley on the crank shaft of 125 said engine; a driving belt; a belt tightener for said driving belt; and an operating lever for said tightener, for the purpose specified.

23. In a structure of the class described, 65 and in front of the said seat, said hand lever | the combination of the frame, comprising 130

side rails connected by cross-pieces; a pair of I front traction wheel and in front of the said traction wheels artanged between the side hand lever, said hand lever being adapted to rails of said frame at the front and rear ends | straddle said engine in operation; driving . thereof; a bifurcated hand lever; driving con-| connections for said engine to the forward 5 nections for said hand lever to the rear axle: traction wheel: means for connecting or dis- 70 an operator's seat arranged at the rear of said | connecting said driving connections; and a hand lever; an engine arranged between the third wheel detachably connected to said side rails of said frame at the rear of the front! frame, for the purpose specified. traction wheel and in front of the said hand 27. In a structure of the class described, 10 lever, said hand lever being adapted to the combination of the frame, comprising 75 15 said driving belt; and an operating lever for said tightener, for the purpose specified.

24. In a structure of the class described. the combination of the frame, comprising side rails connected by cross-pieces: a pair of 20 traction wheels arranged between the side rails of said frame at the front and rear ends thereof; a hand lever; driving connections for said hand lever to the rear axle; an operator's seat arranged at the rear of said hand 25 lever; an engine arranged between the side rails of said frame at the rear of the front traction wheel and in front of the said hand lever; a belt rim on the side of said forward traction wheel; a belt pulley on the crank 30 shaft of said engine; a driving belt; a belt tightener for said driving belt; and an operating lever for said tightener, for the purpose specified.

25. In a structure of the class described, 35 the combination of the frame, comprising side rails connected by cross-pieces: a pair of traction wheels arranged between the side rails of said frame at the front and rear ends thereof; a bifurcated hand lever, the upper 40 portion of which is detachable; driving connections for said hand lever to the rear axle: an operator's seat arranged at the rear of said hand lever; an engine arranged between the side rails of said frame at the rear 45 of the front traction wheel and in front of the said hand lever, said hand lever being adapted to straddle said engine in operation; driving connections for said engine to the forward traction wheel; means for connecting or dis-50 connecting said driving connections: a gasolene supply reservoir and battery for said engine located beneath said seat; and a third wheel detachably connected to said frame, for the purpose specified.

26. In a structure of the class described, the combination of the frame, comprising side rails connected by cross-pieces; a pair of traction wheels arranged between the side rails of said frame at the front and rear ends 60 thereof; a bifurcated hand lever, the upper portion of which is detachable; driving connections for said hand lever to the rear axle; an operator's seat arranged at the rear of said hand lever; an engine arranged between 65 the side rails of said frame at the rear of the

straddle said engine in operation: a belt | side rails connected by cross-pieces: a pair of rim on the side of said forward traction traction wheels arranged between the side wheel; a belt pulley on the crank shaft of said | rails of said frame at the front and rear ends engine: a driving belt: a belt tightener for thereof: a bifurcated hand lever, the upper portion of which is detachable; driving con- 80 nections for said hand lever to the rear axle: an operator's seat arranged at the rear of said hand lever; an engine arranged between the side rails of said frame at the rear of the front traction wheel and in front of the said 85 hand lever, said hand lever being adapted to straddle said engine in operation; driving connections for said engine to the forward traction wheel: means for connecting or disconnecting said driving connections; and a 90 gasolene supply reservoir and battery for said engine located beneath said seat, for the purpose specified.

> 28. In a structure of the class described, the combination of the frame, comprising 95 side rails connected by cross-pieces; a pair of traction wheels arranged between the side rails of said frame at the front and rear ends thereof; a bifurcated hand lever, the upper portion of which is detachable; driving con- 100 nections for said hand lever to the rear axle; an operator's seat arranged at the rear of said hand lever; an engine arranged between the side rails of said frame at the rear of the front traction wheel and in front of the said 105 hand lever, said hand lever being adapted to straddle said engine in operation; driving connections for said engine to the forward traction wheel: and means for connecting or disconnecting said driving connections, for 110

the purpose specified.

29. In a structure of the class described, the combination of the frame, comprising side rails connected by cross-pieces; a pair of traction wheels arranged between the side 115 rails of said frame at the front and rear ends thereof; a hand lever; driving connections for said hand lever to the rear axle; an operator's seat arranged at the rear of said hand lever; an engine arranged between the side 120 rails of said frame at the rear of the front traction wheel and in front of the said hand lever; driving connections for said engine to the forward traction wheel; means for connecting or disconnecting said driving con- 125 nections; a gasolene supply reservoir and battery for said engine located beneath said seat; and a third wheel detachably connected to said frame, for the purpose specified.

30. In a structure of the class described, 130

rails of said frame at the front and rear ends! fied. 5 thereof; a hand lever; driving connections | 34. In a structure of the class described, 70 for said hand lever to the rear axle; an oper-! the combination of the frame, comprising rails of said frame at the rear of the front rails of said frame at the front and rear ends 10 traction wheel and in front of the said hand thereof; an operator's seat; an engine ar- 75 the forward traction wheel; means for con- | the rear of the front traction wheel and in necting or disconnecting said driving connec-| front of said operator's seat; a belt rim on tions; and a third wheel detachably connected 15 to said frame, for the purpose specified.

31. In a structure of the class described, the combination of the frame, comprising side rails connected by cross-pieces; a pair of \(\) traction wheels arranged between the side 20 rails of said frame at the front and rear ends ! thereof; a hand lever; driving connections for said hand lever to the rear axle: an oper- the combination of the frame, comprising ator's seat arranged at the rear of said hand | side rails connected by cross-pieces; a pair lever; an engine arranged between the side of traction wheels arranged between the side 25 rails of said frame at the rear of the front | rails of said frame at the front and rear ends 90 traction wheel and in front of the said hand | thereof: an operator's seat; an engine arlever; said hand lever being adapted to ranged between the side rails of said frame at straddle said engine in operation; driving the rear of the front traction wheel and in connections for said engine to the forward front of the said operator's seat; a belt rim 30 traction wheel: means for connecting or dis-1 on the side of said forward traction wheel; a 95 connecting said driving connections; and a | belt pulley on the crank shaft of said engine; gasolene supply reservoir and battery for a driving belt; a belt tightener for said drivsaid engine located beneath said seat, for the ling belt; an operating lever for said tightpurpose specified.

35 32. In a structure of the class described, I to said frame, for the purpose specified. the combination of the frame, comprising side rails connected by cross pieces; a pair of traction wheels arranged between the side rails of said frame at the front and rear ends 40 thereof; a hand lever; driving connections for said hand lever to the rear axle: an operator's seat arranged at the rear of said hand lever; an engine arranged between the side rails of said frame at the rear of the front 45 traction wheel and in front of the said hand lever, said hand lever being adapted to straddle said engine in operation; driving connections for said engine to the forward traction wheel; and means for connecting or discon-50 necting said driving connections, for the pur-

pose specified. 33. In a structure of the class described, the combination of the frame, comprising side rails connected by cross-pieces; a pair of 55 traction wheels arranged between the side rails of said frame at the front and rear ends thereof; an operator's seat; an engine arranged between the side rails of said frame at the rear of the front traction wheel and in | the combination with a frame, of traction 60 front of the said operator's seat; a belt rim | wheels and motor, a hand-power driving 125 on the side of the said forward traction | mechanism, and a foot-power driving mechwheel; a belt pulley on the crank shaft of anism, arranged and connected so that the said engine; a driving belt; a belt tightener | car may be propelled either by the motor for said driving belt; an operating lever for | hand-power or foot-power, or any combina-65 said tightener; a gasolene supply reservoir I tion thereof, as desired.

the combination of the frame, comprising | and battery for said engine located beneath side rails connected by cross-pieces: a pair of | said seat: and a third wheel detachably contraction wheels arranged between the side | nected to said frame, for the purpose speci-

ator's seat arranged at the rear of said hand | side rails connected by cross-pieces; a pair of lever; an engine arranged between the side | traction wheels arranged between the side lever: driving connections for said engine to i ranged between the side rails of said frame at the side of said forward traction wheel; a belt pulley on the crank shaft of said engine: 80 a driving belt: a belt tightener for said driving belt; an operating lever for said tightener; and a gasolene supply reservoir and battery for said engine located beneath said seat, for the purpose specified.

35. In a structure of the class described, ener: and a third wheel detachably connected

36. In a structure of the class described. the combination of the frame, comprising side rails connected by cross-pieces; a pair of traction wheels arranged between the side rails of said frame at the front and rear ends 105 thereof; an operator's seat; an engine arranged between the side rails of said frame at the rear of the front traction wheel and in front of the said operator's seat; a belt rim on the side of said forward traction wheel; a 110 belt pulley on the crank shaft of said engine; a driving belt; a belt tightener for said driving belt; and an operating lever for said tightener, for the purpose specified.

37. In a structure of the class described. 115 the combination of a frame comprising side. rails connected by suitable cross-pieces; a pair of traction wheels arranged between said frame and side rails; a third carrying wheel connected to said side rails by a de- 120 tachable bar; a seat mounted on said frame;

and a seat mounted on said bar.

38. In a structure of the class described,

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the combination of a frame; traction wheels; | the combination of a frame; traction wheels; 20 an engine; driving connections therefor to an engine; driving connections for said enone of said traction wheels; a hand lever; gine to one of said traction wheels; a hand 5 driving connections therefor to one of the lever; driving connections therefor to one traction wheels; and means for connecting of said traction wheels; pivotally-supportor disconnecting said driving connections for | ed foot-rests; detachable connections there- 25

10 the combination of a frame; traction wheels; nections. an engine: driving connections for said engine to one of said traction wheels; a separable hand lever: driving connections therefor to one of said traction wheels pivotally-

15 supported foot rests: detachable connections therefor to said hand lever; and means for connecting or disconnecting said driving connections.

39. In a structure of the class described, | 41. In a structure of the class described, said hand lever and engine. for to said hand lever; and means for con-40. In a structure of the class described, | necting or disconnecting said driving con-

In witness whereof, I have hereunto set my hand and seal in the presence of two wit- 30 nesses.

WILLIAM S. HOVEY. [L. s.]

Witnesses:

O. P. EDGETT, E. J. Godshalk.