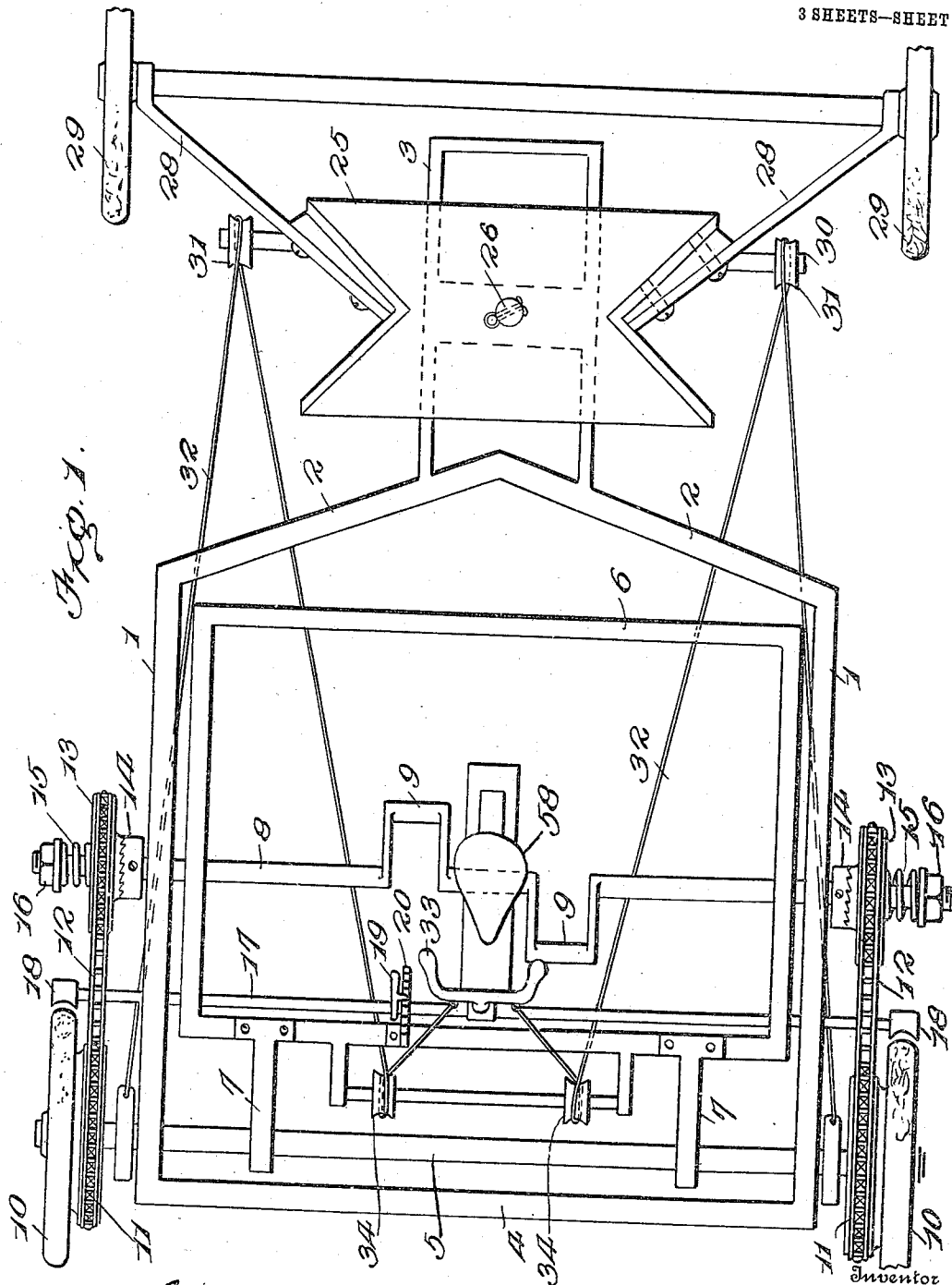


W. T. VENABLE.
MANUALLY PROPELLED ROAD MACHINE.
APPLICATION FILED SEPT. 2, 1908.

949,102.

Patented Feb. 15, 1910.

3 SHEETS—SHEET 1.



Witnesses

W. T. Venable
W. T. Venable

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By

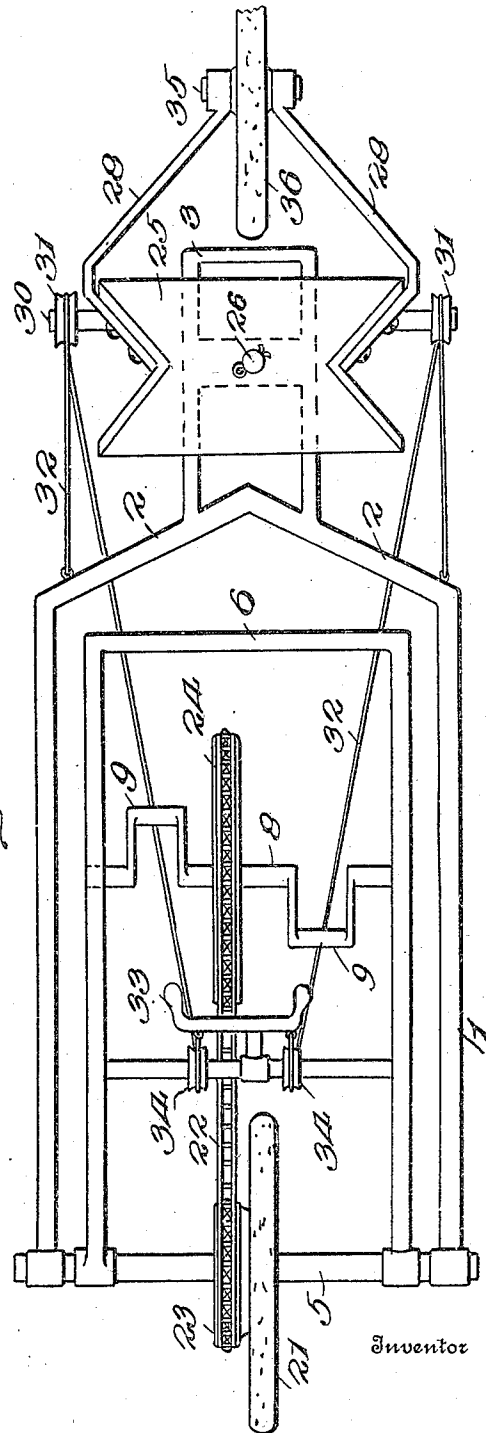
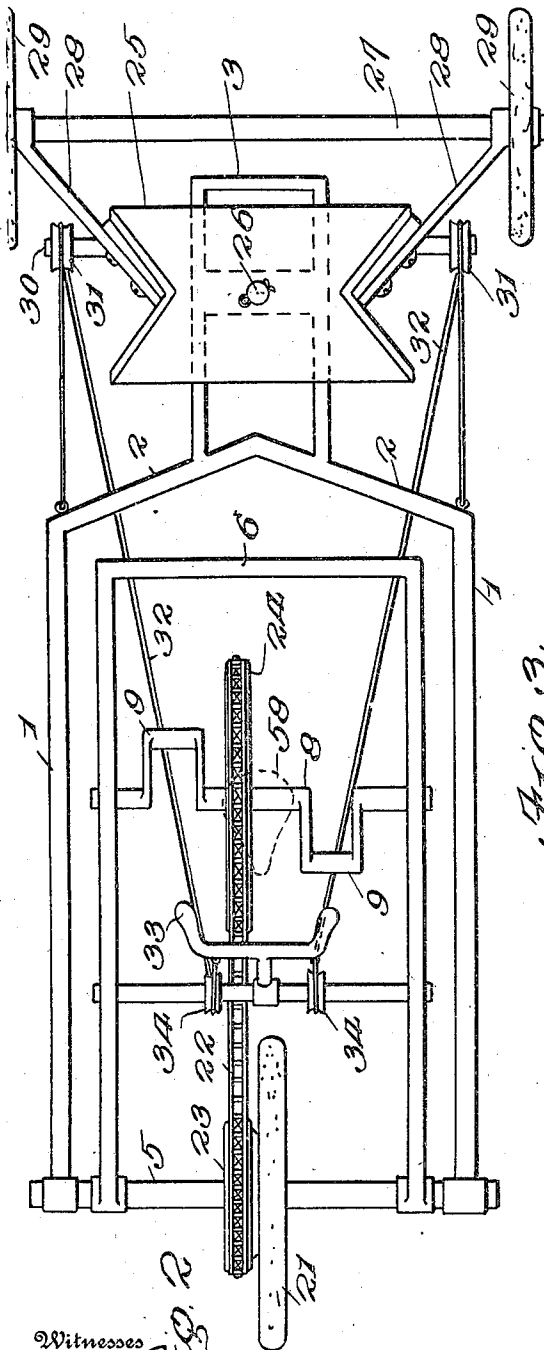
W. T. Venable
W. T. Venable, Attorneys

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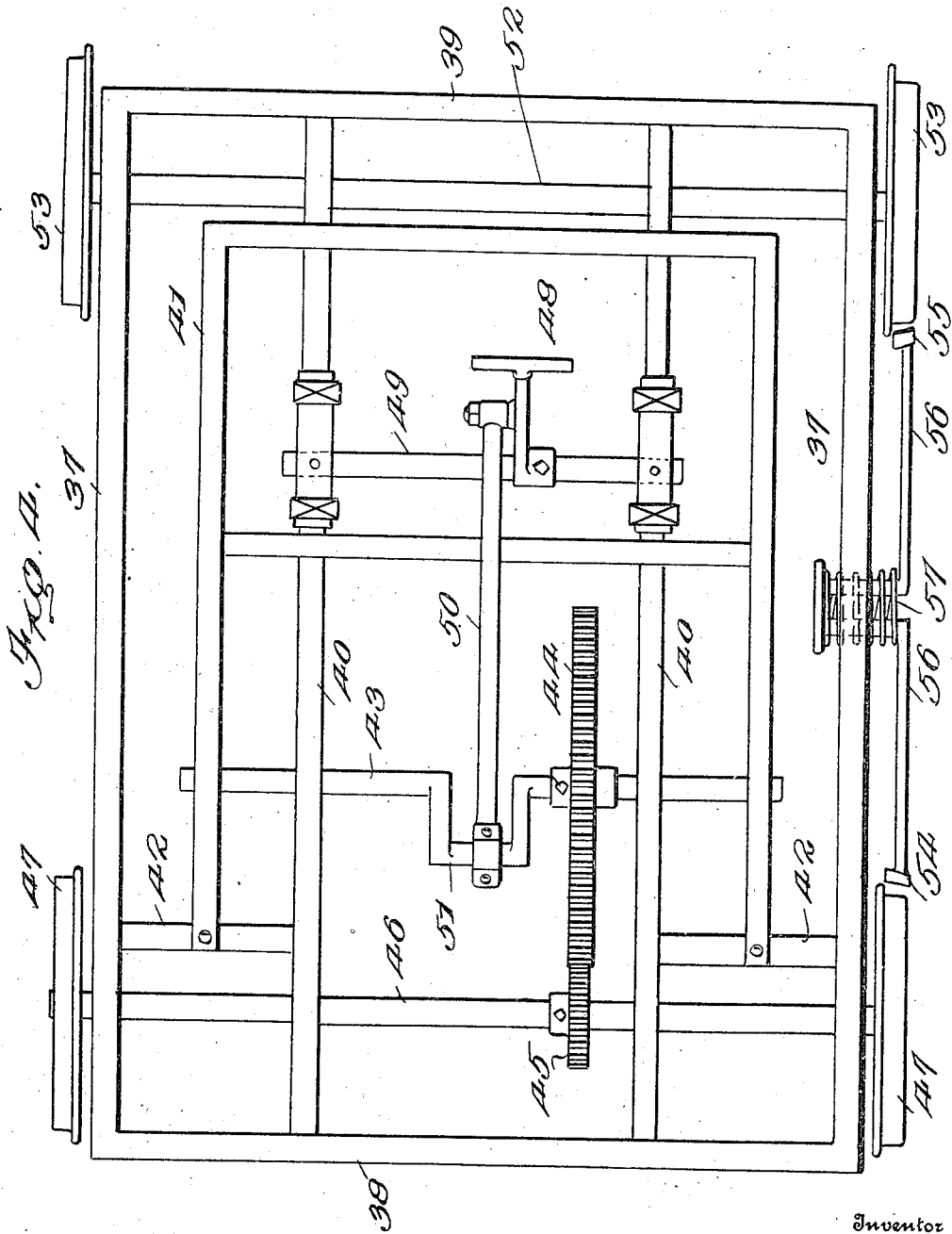
Witnesses
J. M. ...
H. J. ...

By *W. T. Venable*
H. M. ... Attorneys

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Inventor

Witnesses
W. T. Venable
W. T. Venable

W. T. Venable

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W. T. Venable
Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM T. VENABLE, OF ANCHORAGE, KENTUCKY.

MANUALLY-PROPELLED ROAD-MACHINE.

949,102.

Specification of Letters Patent.

Patented Feb. 15, 1910.

Application filed September 2, 1908. Serial No. 451,457.

To all whom it may concern:

Be it known that I, WILLIAM T. VENABLE, citizen of the United States, residing at Anchorage, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Manually-Propelled Road-Machines, of which the following is a specification.

The present invention appertains to mechanically propelled machines designed for road traffic and is adapted for bicycles, tricycles and polycycles.

The purpose of the invention is to devise a novel and unique construction which is at all times under control of the operator both for steering and propulsion.

For a full understanding of the invention and the merits thereof and also to acquire a knowledge of the details of construction and the means for effecting the result, reference is to be had to the following description and accompanying drawings.

While the invention may be adapted to different forms and conditions by changes in the structure and minor details without departing from the spirit or essential features thereof, still the preferred embodiment is shown in the accompanying drawings, in which:

Figure 1 is a top plan view of a four wheeled machine embodying the invention, Fig. 2 is a top plan view of a tricycle embodying the invention, Fig. 3 is a top plan view showing the invention applied to a bicycle, and Fig. 4 is a top plan view of a hand car embodying the invention.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

In Figs. 1, 2 and 3, the main frame is substantially of like formation and comprises longitudinal bars 1, rearwardly converged bars 2 and a rear frame 3, the latter projected rearward from the converged bars 2 at a median point of the main frame. A transverse bar 4 connects the front ends of the longitudinal bars 1, this being present only in the construction shown in Fig. 1. An axle 5 is rigidly secured at or near its ends to the front portions of the longitudinal bars 1. A supplemental frame 6 of rectangular formation is supported upon and rigidly secured to the axle 5 and may have direct connection therewith as indicated in Figs. 2 and 3, or curved arms 7 may

serve to rigidly connect said supplemental frame with the axle 5 as indicated in Fig. 1, said arms 7 curving downwardly between their ends. A crank shaft 8 is mounted in bearings applied to the longitudinal bars of the supplemental frame 6 and its crank portions 9 are so positioned as to receive the feet of the operator and admit of the machine being conveniently and advantageously propelled. Power is taken from the crank shaft 8 to operate the drive wheel or drive wheels according to the adaptation of the invention and as indicated in the several figures.

As shown in Fig. 1, the drive wheels 10 are loosely mounted upon the ends of the axle 5 and are provided with sprocket wheels 11. Sprocket chains 12 connect sprocket wheels 11 with sprocket wheels 13 loose upon the ends of the crank shaft 8. A half clutch is formed or provided upon the inner side of each sprocket wheel 13 and is adapted to cooperate with a half clutch 14 fast to the crank shaft 8 so as to cause the sprocket wheel 13 and crank shaft to turn as one part. A spring 15 is mounted upon each end of the crank shaft 8 and exerts a pressure upon the adjacent sprocket wheel 13 to hold it in clutched engagement with the clutch member 14, said spring being held in place by means of a nut 16 threaded upon the outer end of the crank shaft. The provision of the clutch between the sprocket wheel 13 and the crank shaft 8 enables one drive wheel 10 to travel faster than the other as when making a curve. A shaft 17 is mounted in bearings applied to the longitudinal bars of the supplemental frame 6 and is supplied at its ends with brake shoes 18 to be brought in engagement with the drive wheels 10 so as to check the speed of the machine when required. A lever 19 fast to the shaft 17 enables the same to be operated either to set or to release the brakes as may be required. A notched bar 20 coöperates with a stop of the lever 19 to hold the said lever and the shaft 17 in the required position.

In the construction shown in Fig. 2 a drive wheel 21 is provided and mounted loose upon the middle portion of the axle 5. A sprocket chain 22 connects a sprocket wheel 23 applied to a slide of the drive wheel 21 with a sprocket wheel 24 fast to the middle portion of the crank shaft 8. A drive mechanism as modified in this figure, adapts the

invention to a tricycle having the single wheel in the front.

A hind truck or portion of the machine is mounted to turn about a vertical axis thereby enabling the machine to be properly steered. The hind truck or rear portion of the machine comprises a coupling frame 25 which receives the rear frame 3 of the main frame, a king bolt 26 pivotally connecting the coupling frame to the rear frame 3 and constituting the vertical axis about which the hind truck of the machine turns. As shown in Figs. 1 and 2, an axle 27 is mounted in rearwardly diverged bars 28 secured at their inner forward ends to the coupling frame 25, said axle being provided with ground wheels 29. A rod or bar 30 is secured to the coupling frame 25 and its end portions project beyond the bars 28 and are provided with pulleys 31. Cords 32 or like flexible connections pass around the pulleys 31 and have connection at one end with the main frame and have their opposite ends connected to a handle bar 33 and are designed to transmit movement from said handle bar to the hind truck when it is required to steer the machine. The handle bar 33 is located at the upper end of a standard which is mounted upon a suitable portion of the supplemental frame 6. Pulleys 34 receive the forward portions of the cords or connections 32 to properly direct the same to enable the power to be properly and effectively transmitted. The cords 32 are connected to the axle 5 in Fig. 1 and to the rearwardly diverged bars 2 in Figs. 2 and 3.

In the construction shown in Fig. 3 the rear portions of the bars 28 are converged and connected by means of an axle 35 upon which a single ground wheel 36 is mounted. The ground wheel 36 is in line with the drive wheel 21 and loosely mounted upon the front axle 5. The drive wheel 21 is connected with the crank shaft 8 in substantially the same manner as disclosed in Fig. 2, namely by means of a sprocket chain 22 and sprocket wheels 23 and 24.

In the construction shown in Fig. 4, the main frame is of rectangular formation and comprises longitudinal bars 37 a front bar 38 a rear bar 39 and intermediate longitudinal bars 40. The supplemental frame 41 has its longitudinal bars connected to short cross bars 42 supported in turn at their ends by the bars 37 and 40. A crank shaft 43 mounted in the longitudinal bars of the supplemental frame 41, is provided with a spur gear 44 which is in mesh with a spur pinion 45 fast to the front axle 46 which is mounted in the bars 37 and is provided with wheels 47. A hand lever 48 mounted upon a cross bar 49, is connected by pitmen 50 with crank portions 51 of the crank shaft 43. The rear axle 52 is mounted in bearings applied to

the bars 37 and is supplied with wheels 53. Brake shoes 54 and 55 are arranged to cooperate with the respective wheels 47 and 53 and are carried by bars 56 whose inner ends are bent and cooperate with a spring 57 to normally apply the brakes. A driver's seat 58 is conveniently arranged to admit of the operator having the handle bar 33 and crank portions of the crank shaft under control.

Having thus described the invention, what is claimed as new is:

1. In a machine of the character described, the combination of a main frame provided with supporting and drive wheels, a stationary supplemental frame carried by and arranged within the lines of the main frame, drive mechanism mounted upon the supplemental frame, and connecting means for transmitting power from the drive mechanism to the drive wheels.

2. In a machine of the character described, the combination of a main frame provided with supporting and drive wheels, a stationary supplemental frame disposed within the lines of the main frame, and having connection at one end only with said main frame, a drive mechanism mounted upon the supplemental frame, and connecting means between the drive mechanism and the drive wheels for transmitting motion from the former to the latter.

3. In a machine of the character described, the combination of a main frame, a rear frame having pivotal connection with the main frame and provided with a supporting wheel, a stationary supplemental frame carried by and disposed within the lines of the main frame, a drive wheel mounted near the front of the main frame, drive mechanism mounted on the supplemental frame and adapted to operate the drive wheel, and steering mechanism mounted upon the supplemental frame and adapted to turn the rear frame to properly direct the machine in its course.

4. In a machine of the character described, comprising front and rear frames having pivotal connection, a stationary supplemental frame carried by and supported at one end only of the front frame, a drive wheel mounted forward of the front frame, a steering wheel mounted upon the rear frame, propelling means mounted upon the supplemental frame for operating the drive wheel, and controlling means for the rear frame mounted upon the supplemental frame and adapted to admit of the rear frame being turned to steer the machine.

5. In a machine of the character described, a main frame having an auxiliary frame extending rearwardly therefrom and of less width than the main frame, a coupling frame having pivotal connection with the auxiliary frame, a supporting wheel mounted upon the coupling frame, a drive wheel

mounted upon the main frame, a stationary supplemental frame, disposed within the lines of the main frame and having one end only secured to said main frame, and propelling and steering means mounted upon the supplemental frame for driving or directing the machine.

6. The combination of a main frame, a coupling frame having pivotal connection with the main frame, a stationary supplemental frame disposed within the lines of the main frame and supported at one end only on said main frame, a steering bar mounted on said supplemental frame, flexible connections coupled at one end to the steering bar and at their opposite ends to the main frame, directing means mounted upon the coupling frame and supporting the flexible connections between their ends, a supporting wheel mounted upon the coupling frame, a drive wheel mounted upon the main

frame, and actuating means carried by the supplemental frame for operating the drive wheel.

7. In combination a main frame, provided with a drive wheel, a coupling frame pivotally connected with the rear portion of the main frame and provided with a supporting wheel, a supplemental frame rigidly connected with the front portion of the main frame and supported on said main frame at one end only, and propelling and steering means mounted upon the supplemental frame and adapted to operate respectively the drive wheel and coupling frame.

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

WILLIAM T. VENABLE. [L. S.]

Witnesses:

JAMES L. ORR,
T. C. HOBBS.