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PATENTED MAY 29, 1906.

P. W. MARTIN.

DRAFT AND STEERING GEAR FOR VEHICLES.

APPLICATION FILED OCT. 28, 1905.

2 SHEETS—SHEET 1.

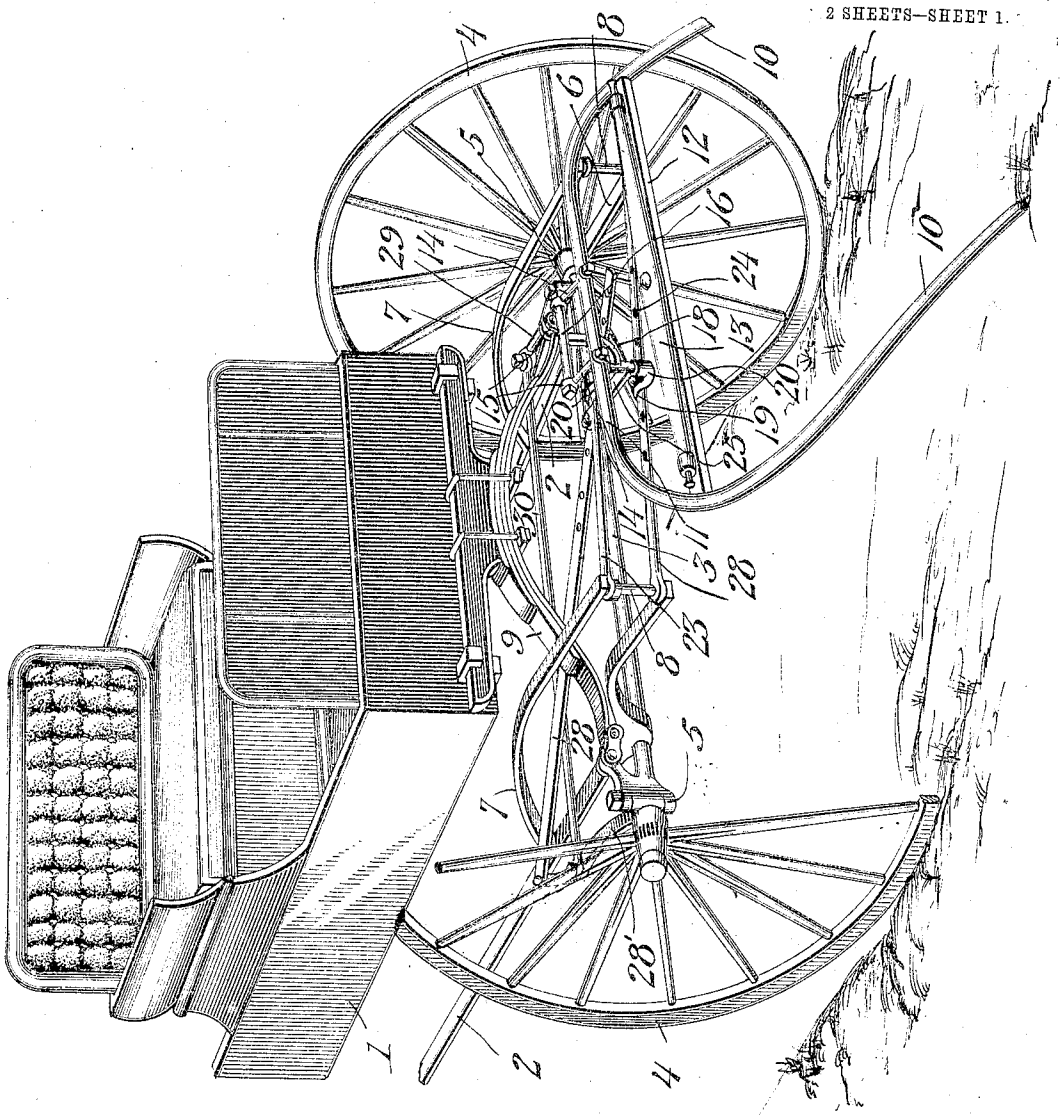

Fig. 1.

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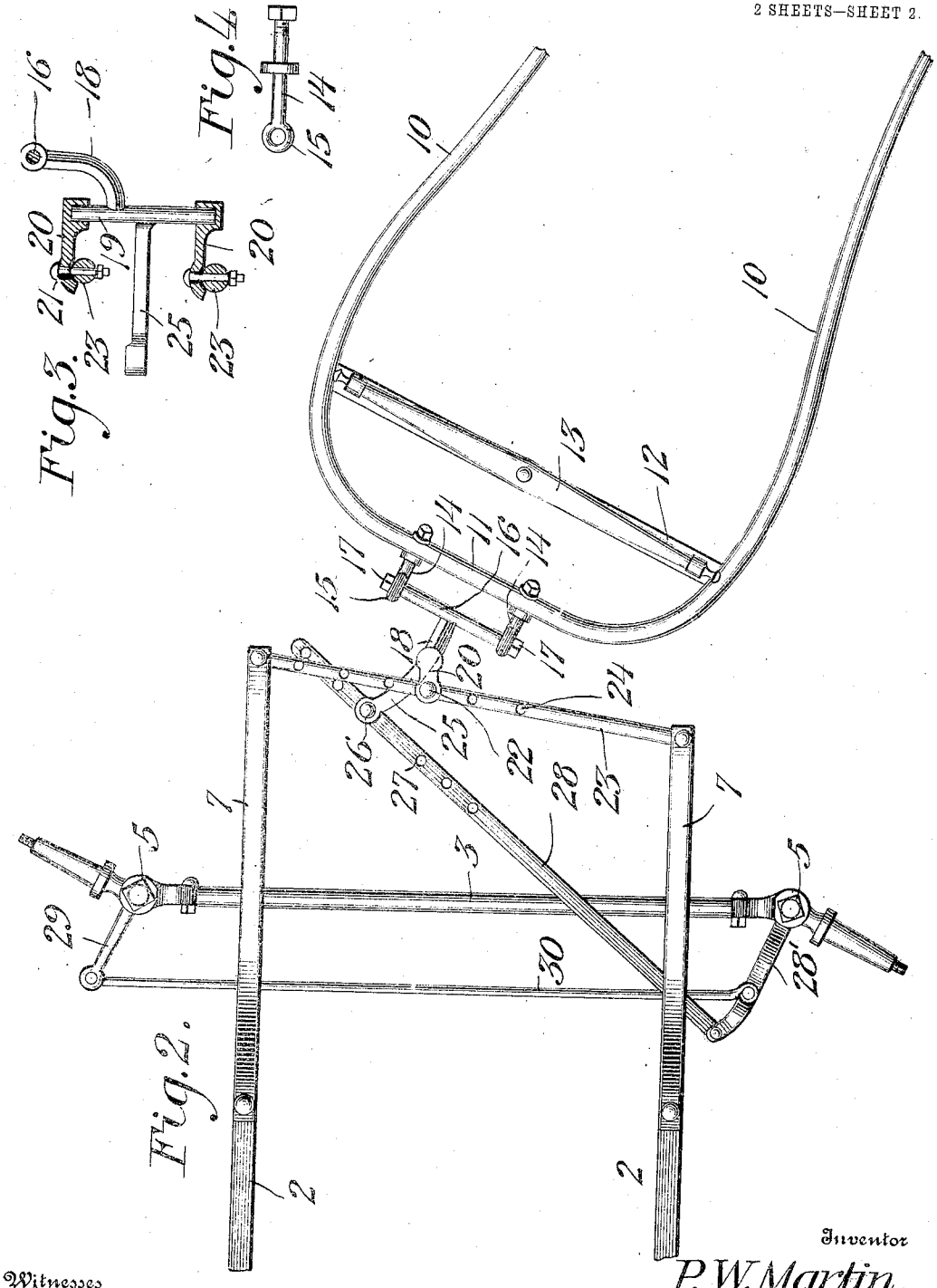

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UNITED STATES PATENT OFFICE.

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DRAFT AND STEERING GEAR FOR VEHICLES.

No. 822,145. Specification of Letters Patent. Patented May 29, 1906.

Application filed October 28, 1905. Serial No 284,847.

To all whom it may concern:

Be it known that I, PENNELL W. MARTIN, a citizen of the United States of America, residing at Lake Eunice, in the county of Becker and State of Minnesota, have invented new and useful Improvements in Draft and Steering Gear for Vehicles, of which the following is a specification.

This invention relates to draft appliances and steering-gear for buggies and other animal-drawn vehicles.

The object of the invention is to provide a construction of draft appliance and steering-gear by which the draft-animal may be hitched to pull in the center line of the vehicle or on either side of said line to suit the character or condition of the road without when the animal is arranged on one side of the center line, producing what is ordinarily called "side pull" or "side draft," which not only throws undue strain upon the animal and vehicle, but tends to deflect the vehicle from a straight course.

Another object of my invention is to adapt the vehicle to steer easily in either direction irrespective of the position of the draft-animal and without interference between the shaft or animal and the front or steering wheels and, further, to provide a steering mechanism which may be advantagously employed upon all vehicles drawn by draft-animals.

In many sections it is difficult for the draft-animal to travel in the center of the road, owing to the bad character and condition of such portion of the road from the presence of stumps and other objects or from defective drainage, the sides of the road being better adapted to travel, especially where beaten paths are formed by draft-animals of two-horse vehicles. My invention provides simple and effective means which will enable the single draft-animal of buggies and other vehicles to be hitched to travel at one side of the road, while the vehicle runs in its usual path, without the objections incident to draft devices of the character heretofore employed for this purpose.

In the appended description I have described, as shown in the drawings, thills as the draft appliance employed; but it will of course be understood that a pole or tongue may also be used.

In the drawings hereto annexed and forming part of this specification, Figure 1 is a perspective view of the forward portion of a vehicle embodying my invention, one of the steering-wheels being partially broken away to better disclose the construction. Fig. 2 is a top plan view of a portion of the vehicle-frame and the draft appliance and steering-gear, showing such appliance and gear as arranged in making a turn. Fig. 3 is a vertical section through the front frame bars or rods and the bearings for the coupling-bracket applied thereto, the bracket appearing in side elevation; and Fig. 4 is a detail view of one of the pivot-bolts for connecting the thills with the coupling-bracket.

Referring now more particularly to the drawings, the numeral 1 designates the body of a vehicle, and 2 the reach-bars of the frame thereof, which bars support a stationary front axle 3, and 4 designates the front or steering wheels mounted upon spindles at the ends of the axle, which spindles are pivotally connected with the axle, as indicated at 5, to permit the wheels to swing for steering purposes without movement of the axle.

The reach-bars 2 have extensions 6, which project forwardly beyond the axle and above which are arranged braces or frame-pieces 7, which project over the axle and are secured in rear of the same to the reach-bars and terminate at their forward ends in alinement with the ends of the extensions 6, the end of each extension being connected with the end of the superposed brace or frame member by a connecting pin or bolt 8. The forward end of the body 1 may be supported in any preferred manner, but is here shown as mounted upon a spring 9, having its ends extending between the reach-bars and frame-pieces 7 and connected with the ends of the axle.

The rear ends of the thills 10 are joined by a cross piece or bow 11 and in advance thereof by a cross-bar 12, to which is pivoted an ordinary form of swingletree 13. The cross piece or bow 11 is formed on opposite sides of its center with openings for the reception of pivot-bolts 14, which bolts are provided at their rear ends with eyes 15, pivotally engaging the reduced ends of a cross-pin 16 and retained in engagement therewith by nuts 17, this construction permitting the thills to be swung upward to a vertical position and to have the necessary vertical play to conform to the movements of the draft-animal.

The cross-pin 16 forms part of a coupling-bracket connecting the thills with the frame and steering mechanism, which bracket con-

sists in addition to said pin of a supporting-arm 18, upon the upper end of which the pin is formed and having a rearwardly-curved lower end fixed to a vertical pintle or pivot-pin 19, journaled at its upper and lower ends in bearing members 20, having apertured ears 21 for the passage of bolts 22, which fasten the same to the frame rods or bars 23, fixed at their ends to the pins 8, the thills being thus adapted to swing on the pin 19 as an axis laterally in either direction to control the steering mechanism, as hereinafter described. The frame rods or bars 23—two in number—are arranged one above the other and are provided with registering series of openings 24 for the passage of the bolts 22 to enable the coupling-bracket to be fastened thereto to bring the thills or draft appliance in the center line of the body or at one side thereof, the present arrangement of the holes showing the thill adapted for application to the left of the center line, so that the draft-animal may travel on that side of the road. The reach extension and frame-piece 7 at the left side of the frame are preferably made somewhat longer than the corresponding parts at the right side of the frame in order that the thills when arranged at the left of the center line will stand far enough in advance of the left steering-wheel to prevent either the thills or the draft-animals coming in contact with said wheel when a turn to the left is made. It will of course be understood that the arrangement of the holes 24 and other parts may be such as to permit the draft appliance to be fastened on the right side of the center line or interchangeably on either side, as desired.

The coupling-bracket is completed by an arm 25, extending rearwardly from the pin 19 and apertured at its rear end for the passage of a pin or bolt 26 to engage any one of a series of holes 27 in a steering bar or lever 28, normally arranged diagonally with relation to the frame and pivotally connected at its rear end to the outer end of an arm 28′, projecting from the right-hand wheel-spindle, which arm 28′ is similarly connected to a corresponding arm 29, fixed to the left-hand spindle by a transverse connecting-rod 30 to adapt the two spindles when motion is transferred thereto by the lever 28 to swing in opposite directions in unison. It will be seen that when the thills 10 swing to the right or left on the pivot 19 motion will be communicated through the arm 25 to the lever 28 to turn the wheels accordingly and that the series of openings 27 permit the arm 25 to be pivotally connected with said lever to compensate for a variation in position of the bearing members 20 on the frame-bars 23.

The construction and mode of operation of my improved draft and steering mechanism will be readily understood from the foregoing description, taken in connection with the drawings, and it will be seen that the use of the stationary axle and pivotally-supported steering-wheels permits of the application of the draft appliance upon one side of the center line without side pull, as by making the axle stationary and the wheels movable the pulling strain will be distributed to the wheels and transferred to the ground in such manner as to prevent side pull upon the shafts and animal and a tendency to lateral deflection of the vehicle from its direct course of travel. It will be further seen that the draft and steering construction may be employed, if desired, without the necessity of making the thills or other draft appliance employed adjustable.

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

1. In a vehicle, a stationary axle, wheeled supporting-spindles pivotally connected thereto and provided with rearwardly-extending arms, a rod pivotally connecting said arms, an angularly-arranged steering-bar pivoted at one end to one of the arms in rear of the pivotal connection of the rod therewith, and a draft appliance pivotally mounted upon the frame of the vehicle in advance of the axle and connected with the other end of the bar.

2. In a vehicle, a stationary axle, spindles pivotally mounted thereon, a connection between the spindles arranged in rear of the axle to adapt them to swing in unison, a diagonally-arranged bar operatively attached at one end to said connections, and a draft appliance pivotally mounted upon the frame in advance of the axle and connected with the opposite end of said bar.

3. In a vehicle, a stationary axle, wheeled supporting-spindles pivotally connected thereto, connections including a lever for swinging said spindles, and a draft appliance pivotally mounted upon the frame in advance of the axle, said appliance being adjustably connected with the frame and lever.

4. In a vehicle, a stationary axle, spindles pivotally connected therewith, connections for simultaneously swinging said spindles including a diagonally-arranged lever, and a draft appliance pivotally connected with the frame of the vehicle in advance of the axle, said appliance being adjustable at an angle transversely of the frame to vary the line of draft and adjustably connected with the lever.

5. In a vehicle, a stationary axle, wheeled supporting-spindles pivotally connected therewith and provided with rearwardly-extending arms, a connecting-rod joining said arms, a diagonally-arranged operating-bar pivotally connected at its rear end with one of the arms in rear of the point of connection of the rod therewith, and a draft appliance pivotally mounted upon the frame in advance of the axle, said appliance being ad-

justably connected with the frame and forward end of the bar to vary the line of draft.

6. In a vehicle, a stationary axle having pivoted spindles, connecting means between the spindles arranged in rear of the axle, a draft appliance pivotally mounted upon the frame in advance of the axle, and a diagonally-arranged bar pivotally connected at its forward end with the draft appliance and at its rear end with the spindle-connecting means.

7. In a vehicle, a stationary axle, spindles pivotally connected therewith, the frame of the vehicle being provided with a supporting portion arranged in advance of the axle and at an angle thereto, a draft appliance adjustably mounted upon said supporting portion to vary the line of draft, and lever mechanism connecting said draft appliance with the spindles.

8. In a vehicle, a stationary axle, spindles pivotally connected therewith, connecting means between the spindles arranged in rear of the axle, the frame of the vehicle being provided in advance of the axle with a supporting portion disposed at an angle thereto, a diagonally-arranged bar pivotally connected at its rear end with the spindle-connecting means, and a draft appliance adjustably mounted upon the inclined portion of the frame and adjustably connected with the forward end of the bar.

9. In a vehicle, reach-bars carrying a stationary axle and provided with extension-arms projecting in superposed relation in advance of the axle, transverse frame-bars connected with said arms, a draft appliance, a bracket connected therewith and pivotally connected with the frame-bars and provided with a rearwardly-extending arm, spindles pivoted to the axle and provided with rearwardly-extending arms, a connecting-rod uniting said arms, and a bar pivotally connected at its rear end to one of said arms and at its forward end to the arm of the bracket.

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

PENNELL W. MARTIN.

Witnesses:
A. G. WEDGE,
W. B. CARMAN.