

No. 622,323.

Patented Apr. 4, 1899.

J. C. BONNER.
MEANS FOR TRANSPORTATION.

(Application filed Sept. 8, 1897.)

(No Model.)

2 Sheets—Sheet 1.

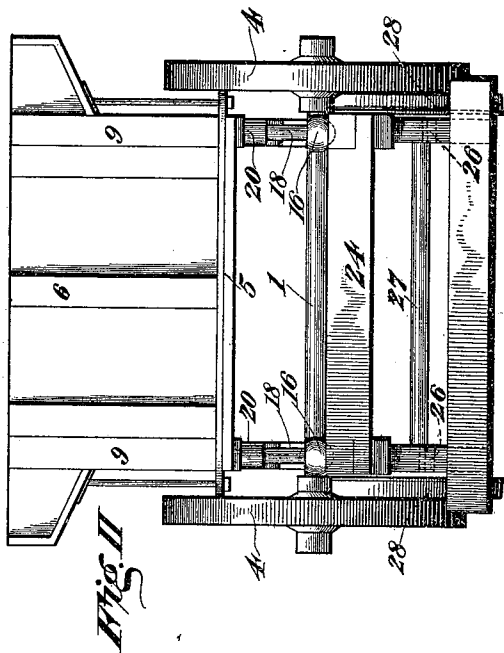
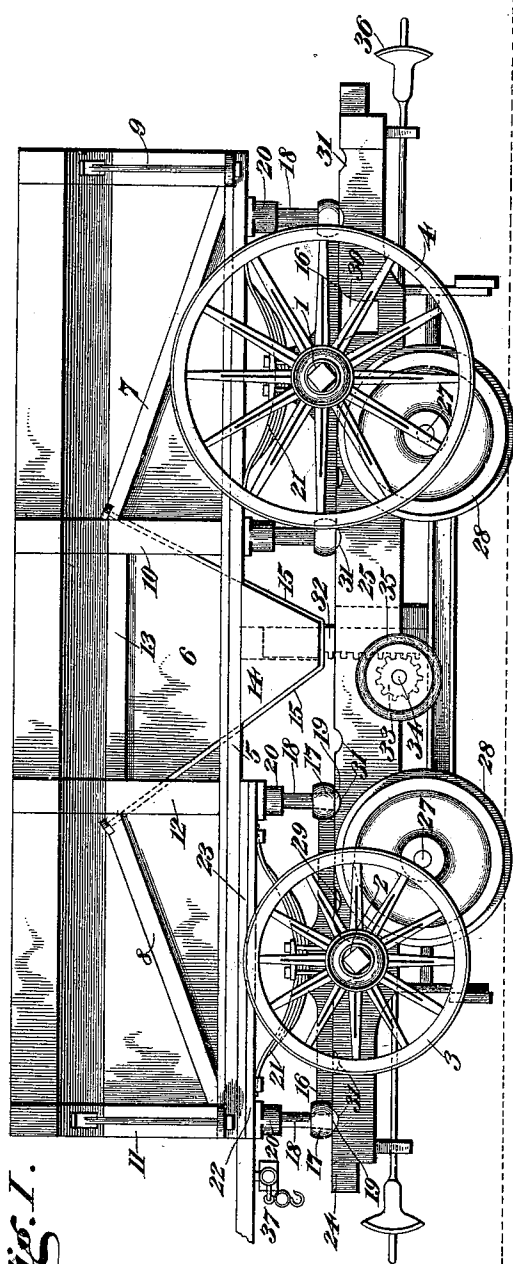


Fig. I.

Fig. II.

Witnesses

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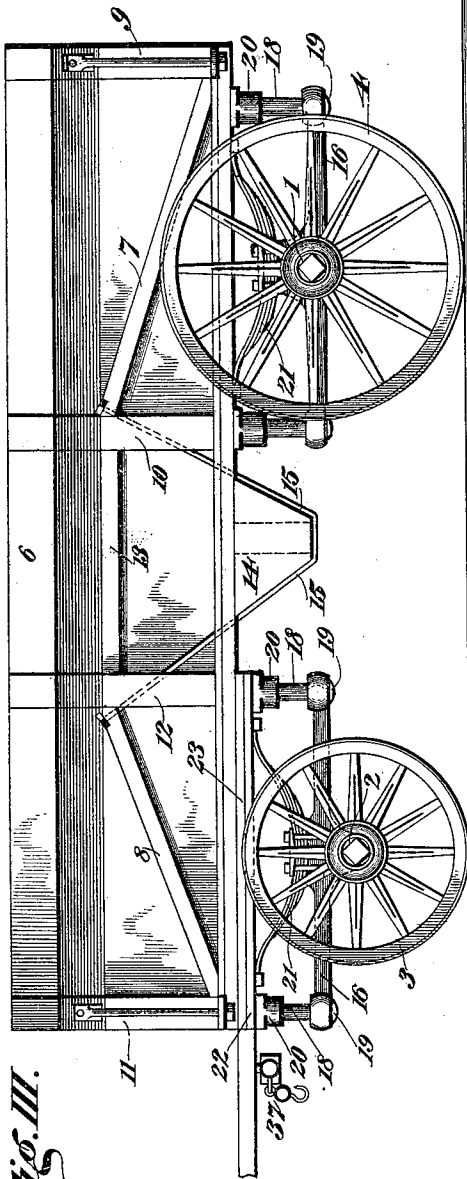
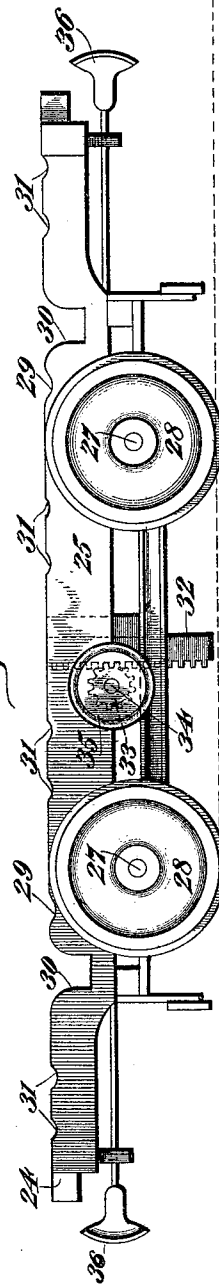


Fig. III.

Witnesses

McTouler
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Fig. IV.



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UNITED STATES PATENT OFFICE.

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MEANS FOR TRANSPORTATION.

SPECIFICATION forming part of Letters Patent No. 622,323, dated April 4, 1899.

Application filed September 8, 1897. Serial No. 650,984. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH C. BONNER, of Toledo, in the county of Lucas, State of Ohio, have invented certain new and useful Improvements in Means for Transportation, of which the following is a complete specification, reference being had to the accompanying drawings.

My invention relates to a convertible vehicle adapted to be used upon an ordinary road or upon a railroad through the conversion of its running-gear, as required.

Since the introduction of electricity, compressed air, and other economical motive power into general use, the extension of city street-railroads into the rural districts, and the rapid and practically continuous passenger service afforded by such roads, the desirability of suburban residence has been greatly enhanced. Nevertheless, no effort has been made to utilize such roads for the purposes of freight traffic, although it is well known that the principal cost of transportation of products is chargeable to the expense of handling and transporting the same from the place of production to an available point of shipment by rail. An important item of such expense is the loading and unloading or "handling," as it is called, of a product or commodity in bulk in transporting it by wagon from place to place and from a wagon to a railway-car.

The object of my invention is to dispense to a great extent with animate power as well as the handling of a commodity between the place of production and its market and to reduce the cost of transportation to a minimum which will compare favorably with cost of transportation by rail.

The object is proposed to be accomplished by the employment of an independent set of running-gear adapted to be introduced underneath the vehicle and to be substituted operatively in place of the ordinary road running-gear with which the vehicle is at all times provided, whereby the vehicle may be converted into one adapted for rail use or one for road use speedily and with facility as often as required.

In carrying out my invention I propose, for instance, to have a railroad provided with an equipment of suitable vehicles having road

running-gear and mounted upon or adapted to be mounted upon, respectively, railway-trucks of such dimensions and so constructed as to be run under the vehicle and between its road-wheels, so that the entire vehicle, with its load and road running-gear, may be shifted from railroad to wagon-road, or vice versa, as often as required.

In carrying out my plan a producer will be enabled upon notice to an available road to have a car consigned to him. The car is transported by rail to a designated point on the railroad and thence conveyed by horse or motor power to the place where it is to be located, and, having been loaded, is reconveyed to the truck upon which it is again mounted, and thence transported by rail to its destination. By this means not only will it be necessary to handle the contents of the vehicle-body but once, but the distance to be covered by horse-power being small very heavy loads can be transported with facility, it being well understood that a team of horses can draw several tons a mile or a fraction of a mile which it is impracticable for them to draw any considerable distance.

In the accompanying drawings, Figure I is a side elevation of my vehicle complete ready for use. Fig. II is an end view thereof. Fig. III is a side elevation with the rail-truck removed. Fig. IV is a side elevation of the rail-truck detached.

Referring to the figures on the drawings, 1 indicates the rear axle of a vehicle; 2, the forward axle thereof; 3, the front wheel, and 4 the rear wheel. The forward and rearward axles are united by any suitable and preferred means to the bed-frame 5 of a suitable body 6. The particular means of uniting the wheels 3 and 4 with their respective axles to the bed-frame 5 is immaterial, that illustrated being merely by way of example, and it being essential only that the parts referred to shall constitute suitable running-gear of the road form for its superimposed body. The body also may be of any preferred and suitable construction. At present, however, I prefer to employ upon each side of it a truss-frame composed of oblique braces 7 and 8, extending, respectively, between uprights 9 and 10 and 11 and 12, respectively, and an intermediate spanner 13. Below the spanner, under-

neath the bed-frame 5, I prefer to provide a cross-piece 14, which is secured, as by brace-rods 15, to the corners of the truss-frame with which, through the rods 15, it is incorporated.

5 The construction above described, consisting of the truss-frames, the bed-frame 5, the cross-piece 14, and the rods 15, constitutes an exceedingly strong frame capable of sustaining a great tension upon the cross-piece

10 14. The cross-piece 14 may therefore be employed as a main support for the wagon in shifting and during the operation of converting it, as has been previously suggested and as will hereinafter more fully appear.

15 As illustrated, the means of attaching the axles 1 and 2 with their wheels to the bed-frame 5 consists of cross-pieces 16, secured intermediately to their respective axles and having, respectively, at their opposite ends
20 apertures 17, adapted to accommodate adjustable studs or screws 18, whose heads project below the cross-pieces, as indicated at 19, and which are seated in sockets 20, which constitute in effect extensions of the respective
25 uprights 9 to 12, inclusive. By this means the axles are movably secured to the studs 18, but are yieldingly forced toward their heads 19, as by springs 21, secured to the axle which carries the cross-pieces 16,
30 and whose opposite ends are properly seated against the bottom of the bed-frame 5 or equivalent part.

The sockets 20, while they constitute in effect, as above described, a continuation of
35 the uprights 11 and 12 when the axle 2 is located parallel to the rear axle 1, yet in order to accommodate the front axle to the movement common to front axles generally I mount the sockets 20 of the front axle directly upon
40 a platform 22, which coöperates with a corresponding permanent support 23 upon the bottom of the bed-frame 5. The part 22 is pivotally secured to the part 23, against which it works after the manner of an ordinary fifth-
45 wheel. By this arrangement, as appears from the drawings, the front wheels are, as usual, smaller than the rear wheels and the front axle 2 is carried in a lower plane than the rear axle 1.

50 The foregoing description comprehends a practicable road-wagon, with the addition of means for adapting it when loaded to be carried securely upon a suitable railway-truck. Such a truck, as illustrated in the drawings,
55 consists of a truck-frame 24 of suitable transverse and longitudinal dimensions. The frame is provided with frame side pieces 25, to which in boxes 26 are united axles 27, provided, as usual, with flange-wheels 28. As specified
60 above to this point, the truck may be, save as to its relative proportions, substantially of any suitable and ordinary construction. In order to accommodate it to its office, however, it is also necessary that means be provided for
65 safely and securely fitting the wagon, with its road running-gear, to it. For this purpose in order to accommodate the particular form

of wagon illustrated the frame side pieces 25 are provided with depressions 29 for the accommodation of the rear axle and with correlative deep depressions 30 for accommodating the front axle of the vehicle. At suitable distances from those depressions I provide stud-sockets 31, adapted to receive the heads 19 of the studs 18.

Inasmuch as it is desirable to adapt the truck to head in either direction, the axle-recesses 29 and 30 and the stud-socket 31 are duplicated throughout. By the duplication of the parts the axles find their proper recesses whether the truck is introduced under the wagon one end foremost or the other.

It will be perceived in view of the foregoing description upon reference particularly to Fig. I of the drawings that when the wagon is mounted upon the truck the weight of the former is sustained securely and immovably upon the axles and frame-pieces and is as thoroughly incorporated with the truck as is the body of an ordinary railway-car. As an additional security, however, additional means for uniting the body to the truck may be provided. That illustrated, for example, consists of a rack-bar 32, working in a suitable aperture in the truck-frame and actuated by a pinion 33, carried upon a shaft 34 and operated by a handle-wheel 35 at the side of the truck. The rack-bar 32 is adapted, through the operation of the handle-wheel 35, to be inserted into or retracted from a suitably-located aperture in the cross-piece 14.

The road-wagon and the truck should, of course, be provided with separate and suitable draft-applying mechanism. The railway coupling mechanism is indicated at 36 upon the truck, and a tongue-support is indicated at 37 upon the bed-frame.

In practice let it be assumed that the vehicle shown in Fig. III is loaded and that the truck shown in Fig. IV is ready to receive it. All that is necessary is to raise the loaded vehicle shown in Fig. III by any suitable mechanism—as, for example, inclined planes located upon opposite sides of a track upon which the truck shown in Fig. IV travels—and then introduce the truck shown in Fig. IV in position underneath the vehicle shown in Fig. III. The parts being properly adjusted, the latter is lowered upon the truck until the parts are secured in their proper respective positions, as indicated in Figs. I and II.

What I claim is—

1. The combination with a vehicle-body, and road running-gear, of a railway-truck, and means for mounting the body of the vehicle, with its running-gear, directly upon the truck, and supporting it thereon independently of its running-gear, substantially as and for the purpose specified.

2. The combination with a vehicle-body, railway-truck, and supports as for instance studs upon the bottom of the vehicle-body, adapted to rest upon the truck and support

thereon the weight of the vehicle-body, of road running-gear operatively located upon the vehicle-body, substantially as and for the purpose specified.

5 3. The combination with a vehicle-body, railway-truck, and supports as for instance studs upon the bottom of the vehicle-body adapted to support thereon the weight of the vehicle-body, of road running-gear incorpo-
10 rated with the supports upon the vehicle-body, substantially as set forth.

4. The combination with a vehicle-body, front and rear axles, axle cross-pieces and supports as for instance studs, of a railway-
15 truck provided with axle-recesses, and sup-

port-sockets, substantially as and for the purpose specified.

5. The combination with a railway-truck, and a road-vehicle, of a rack-bar carried upon the truck, a pinion for operating the rack-bar, 20 and mechanism upon the road-vehicle adapted to engage the rack-bar for the purpose of uniting the road-vehicle to the truck, substantially as and for the purpose specified.

In testimony of all which I have hereunto 25 subscribed my name.

JOSEPH C. BONNER.

Witnesses:

WM. M. CURRIE,

WM. A. MILLS.