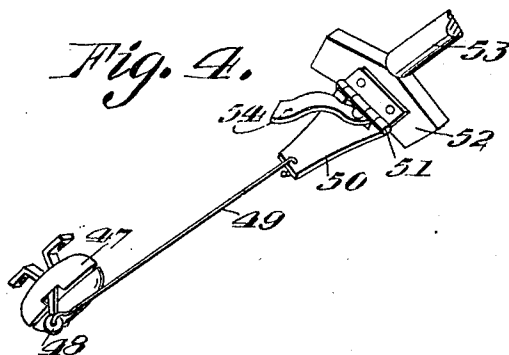
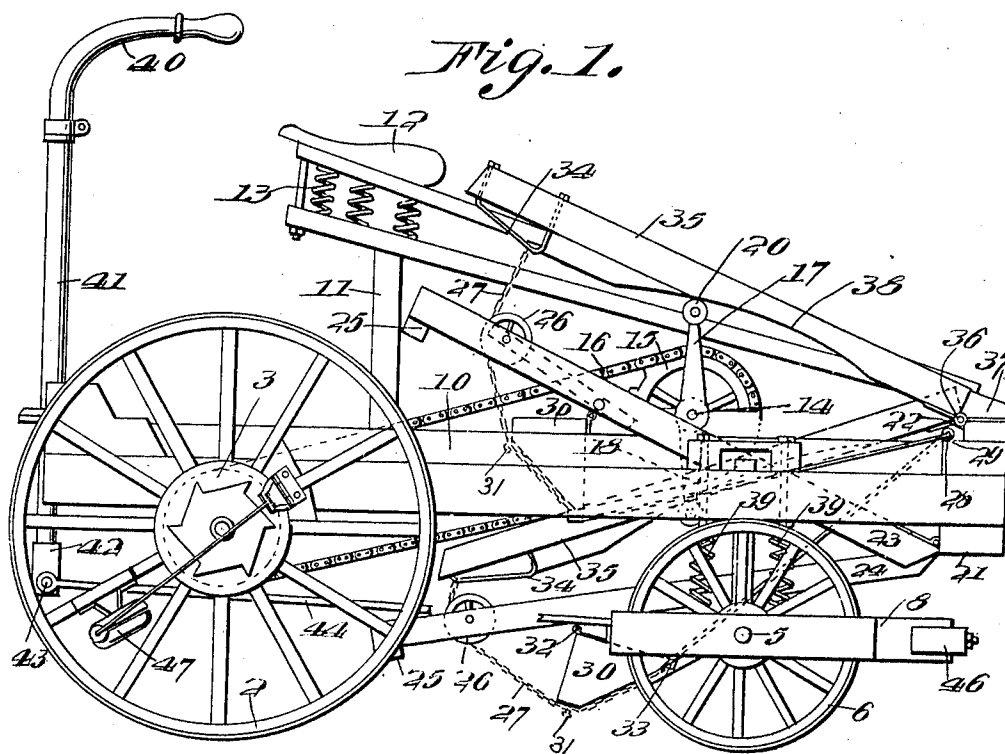


F. KLEINVOGEL.
VEHICLE.
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984,516.

Patented Feb. 14, 1911.

2 SHEETS—SHEET 1.



WITNESSES

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2 SHEETS-SHEET 2.

Fig. 2.

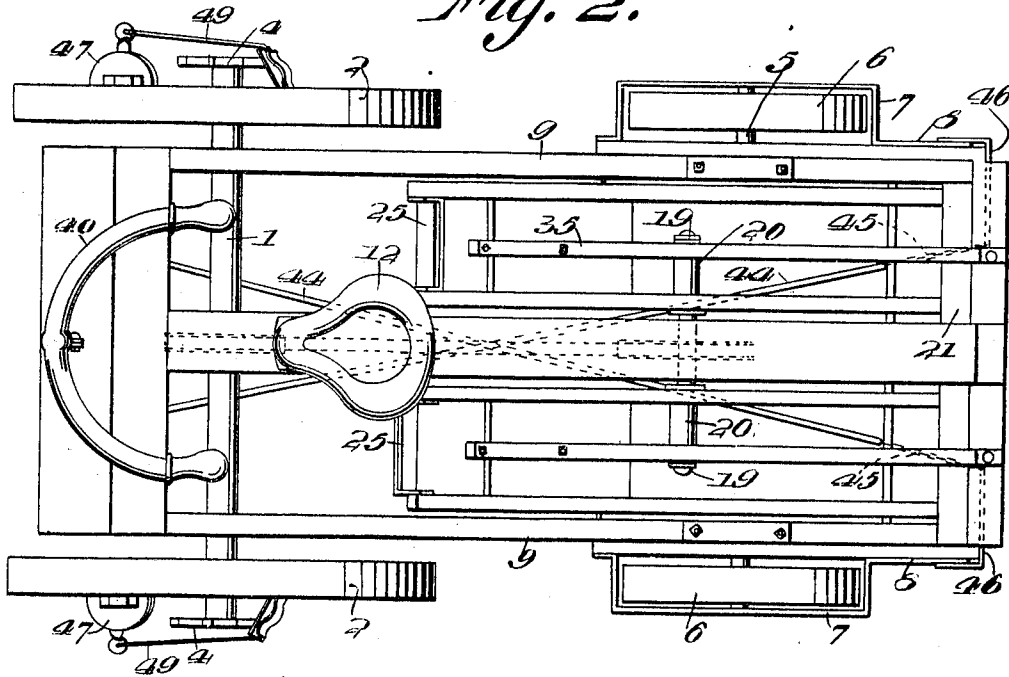
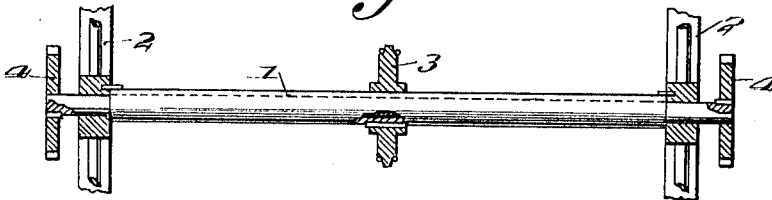


Fig. 3.



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VEHICLE.

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To all whom it may concern:

Be it known that I, FRIEDRICH KLEINVOGEL, a citizen of the United States of America, and resident of Newport, in the county of Campbell and State of Kentucky, have invented certain new and useful Improvements in Vehicles, of which the following is a specification.

This invention relates to certain new and useful improvements in vehicles designed primarily for use in transportation or delivery of light articles, the device, as herein illustrated, being shown as designed for actuation by foot power, but it is applicable to other means of propulsion and to other uses such for instance as operating machinery.

The present invention aims primarily to produce a simple and efficient, easily driven vehicle in which a plurality of levers are so attached that through the same a pressure or power is produced through the medium of the crank shaft without interruption, so that the dead center or point will be passed, the pedals or analogous portions being designed to be given more than a half revolution at each depression of the treadle. The means whereby this end is accomplished is simple yet efficient, durable, and reliable in its action.

The invention has for a further object to provide means whereby, when the vehicle turns a curve, an alarm is automatically sounded as a warning to persons, in order to avoid collision and accident. I provide means whereby when the vehicle is caused to turn to make a slight curve or a larger curve around a corner, for instance, the lever on one end of the driving axle will be caused to engage or ride over the cooperating ratchet and a more or less sound or signal will be given by the bell. If the vehicle moves on without power, after the pressure on the pedals is removed, then the levers will be driven over the two ratchet wheels and a signal sounded. Means are provided for throwing out the bell when desired.

Other objects and advantages of the invention will hereinafter appear and the novel features thereof will be particularly pointed out in the appended claims.

The invention is clearly illustrated in the accompanying drawings, which, with the numerals of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a side elevation of a device

embodying my present improvements with a portion broken away. Fig. 2 is a top plan view. Fig. 3 is an elevation of the front axle with the ratchets and other portions shown in section, the front wheels and other portions being broken away. Fig. 4 is a perspective detail showing the bell and its actuating lever detached.

Like numerals of reference indicate like parts in the several views.

Referring to the drawings, 1 designates the front axle and 2 the front wheels thereon. 3 is a sprocket wheel, and 4 are ratchet wheels fast one upon each end of said axle outside of the wheels 2. The wheels 2 are loose upon the axle for a purpose which will hereinafter be made apparent. The axle 1 passes through a sleeve surrounding the same. The wheels 2 and the sprocket 3 are fast on this sleeve so that the sprocket revolves the wheels 2.

5 is the rear axle and 6 the rear wheels thereon.

7 are guards for the rear wheels which may be attached in any suitable manner to the side bars 8.

9 is the frame of the truck of any suitable construction, the center longitudinal bar thereof being raised or elevated and rising therefrom is the seat post 11, 12 being the seat supported thereon on suitable springs 13.

14 is a shaft mounted in suitable bearings on the elevated central beam 10 and fast on this shaft is a sprocket wheel 15, around which passes a sprocket chain 16, which passes around the sprocket wheel 3 on the front axle, whereby motion is communicated to the latter. On the shaft 14 are the cranks 17 and 18 oppositely disposed and provided with the lateral terminals 19, on which are the rollers 20 loosely mounted thereon and held in any suitable manner, as by nuts or the like, upon the ends of the portions upon which they are mounted.

To the rear cross member 21 there are pivotally mounted, as at 22, the levers or foot pedals 23 and 24. The forward ends of these foot pedals have the rests 25 for the feet, and to the rear thereof is journaled in each pedal a wheel 26, beneath each of which passes a chain 27 or the like, one end of which is connected in any suitable manner, as at 28, to a cross bar 29 at the rear of the machine. Each chain passes beneath a triangular member 30, being secured thereto near its forward end, as at 31, in any suit-

able manner, the said triangular member 30 being hinged to the under side of its member 24, as seen at 32 in Fig. 1. The rear end of the triangular member has a lug 33 with a slot through which the chain passes. The forward end of the chain 27 has a sliding connection with an inclined rod 34, as seen best in Fig. 1, which is secured to the under side of a pivotally mounted arm 35, whose pivot is at 36 on the rear cross bar 37 of the truck. The under side of each of the pivoted members 35 is provided with a curved or cam shaped portion 38, as seen best in Fig. 1, which is designed to rest upon and have contact with the roller 20 of the crank arm, as will also be readily understood upon reference to Fig. 1.

The rear portion of the frame of the truck is mounted upon springs, as 39, as seen in Fig. 1.

With the parts constructed and arranged as above described, the operation of this part of the invention will be readily understood. The foot treadles are so arranged that when one is up, the other is down, and, as the pivoted members 35 rest upon the rollers or rotatable sleeves 20 of the crank arms, as power is applied to the pedals, the downward movement of one causes the pivoted arm 35 to bear upon the roller 20 of its crank arm, thus causing the shaft 14 to revolve. The movement is such that the shaft is given more than a half revolution at each downward depression of the pedal and pressure or power is produced on the crank shaft without interruption, so that no dead center is encountered, the crank passing the dead center upon each downward movement of the pedal. Alternate up and down movements of the pedals gives continuous revolution to the shaft 14 and through its sprocket wheel and the sprocket chain and the sprocket wheel on the front axle propels the vehicle. The sliding connection of the forward ends of the chains with the members 34 on the pivoted arms 35 allows of the increased movement. The triangular members provide for the proper lifting of the pedals and for the proper actuation of the pivoted members 35, as power is applied to the pedals. The rollers, in connection with the curves upon the under faces of the pivoted members 35, serve to insure minimum friction of the parts so that ease of movement is assured.

The device is provided with a suitable guiding handle 40 carried by the stem 41, suitably mounted in the forward portion of the truck or frame of the device, and, at its lower end, this stem carries a yoke 42, in which is supported a transverse rod 43, to opposite ends of which are connected the rods 44 which are crossed at substantially the midlength of the device, as seen best in Fig. 2. The forward ends of these crossed

rods have suitable connection, as by chains 45, with the lateral members 46 secured to the rear ends of the side bars 8, by means of which the vehicle may be guided.

On each front wheel, I secure a bell 47, the hammer arm 48 of which has detachably connected therewith a rod or the like 49, the free end of which is connected in any suitable manner to a member 50, hinged at 51 to a plate or the like 52, which may be secured in any suitable manner to the wheel, as, for instance, to one of the spokes 53, or to a portion of the hub, or in any other suitable manner. This plate 50 is designed to, at times, cooperate with the ratchet 4 to sound an alarm. 54 is a spring arm designed to bear upon the member 50 but adapted to be thrown up or out of engagement with the said member 50, when desired. The construction is such that under normal conditions, that is, when the vehicle is moving in a straight line, no alarm will be sounded, but when the vehicle turns a curve or corner or deviates from a straight line, then the wheels 2, being loose upon their axle, the member 50 rides over the ratchet and the alarm is sounded once at each revolution of the wheel. The faster the vehicle moves or the greater the curve, the greater the alarm. Should the vehicle continue to move, after power is removed from the pedals, then the members 50 will be driven over the two ratchet wheels and both alarms will be sounded. It is to be understood that the front wheels, being loose upon their axle, when the vehicle turns a corner or moves upon a curve, the alarm on one wheel will be sounded. When turning a curve in the opposite direction, it is the alarm upon the other wheel that is sounded. When the pedals are at rest and the machine goes forward in a straight line, the alarms on both wheels will be sounded.

Modifications in details may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

What is claimed as new is:—

1. In a vehicle, an axle, wheels thereon, propelling means embodying pivoted pedals and levers independently pivoted above the pivots of said pedals, a crank shaft for co-operation therewith, means fixed at one end adjacent the pivots of said levers and having sliding connections with said levers and at the other end movable upon said pedals and cranks engaged by said levers whereby the crank shaft is caused to always pass the dead point.

2. In a vehicle, an axle, wheels thereon, propelling means embodying pivoted pedals and levers independently pivoted above the pivots of said pedals, a crank shaft for co-operation therewith, means fixed at one end adjacent the pivots of said levers and hav-

ing sliding connection with said levers and at the other end slidingly movable upon said pedals, and cranks engaged by said lever whereby the crank shaft is caused to always
5 pass the dead point, said pedals and levers having their pivots substantially in vertical alinement.

3. In a vehicle, pivotally mounted foot pedals, a crank shaft having its crank provided with freely movable sleeves, levers
10 connected with and operated by said pedals and adapted for movement upon said sleeves, and flexible means fixed at one end above the pivots of the pedals, intermediate the
15 ends connected to said pedals, and at the other end attached to said levers.

4. In a vehicle, pivotally mounted foot pedals, pivoted levers, a crank shaft, cranks thereon, upon which said levers rest, con-
20 nections having sliding connection with said pedals and fixed at one end above the pivots of the pedals and at the other end to the free ends of the levers for giving the cranks more than half a revolution at each depres-
25 sion of the pedal, and means on the underside of the pedals over which said connections move.

5. In a vehicle, pivotally mounted foot pedals, a crank shaft, connections between
30 the same and the axle of the vehicle, levers pivotally mounted above the pivots of the pedals and connected by sliding connections with the pedals, said levers bearing upon the cranks of the crank shaft and said sliding
35 connections attached at the end adjacent the pivots of the levers to some fixed part, and pivotally mounted triangular members on the pedals beneath which said connections
pass.

40 6. In a vehicle, pivotally mounted foot pedals, a crank shaft, connections between the same and the axle of the vehicle, levers pivotally mounted above the pivots of the pedals and connected by sliding connections
45 with the pedals, said levers bearing upon the cranks of the crank shaft and said sliding connections attached to some fixed part at one end adjacent the pivots of the pedals,

pivotally mounted triangular members on the pedals beneath which said connections
50 pass, and sleeves freely rotatable on the cranks of the crank shaft, and engaged by said levers.

7. In a vehicle, a crank shaft, cranks thereon, pivotally mounted pedals, pivotally
55 mounted levers resting upon said cranks, angular members on said pedals, pulleys carried by said pedals, and chains connected with said angular members and having one
60 end fixed to some fixed part of the vehicle adjacent the pivots of the levers and the other end passed under said angular members and pulleys and having limited sliding connection with said levers.

8. In a vehicle, a crank shaft, cranks
65 thereon, pivotally mounted pedals, pivotally mounted levers resting on said cranks, angular members on said pedals, pulleys carried by said pedals, chains connected with said angular members and having one end
70 fixed to some fixed part of the vehicle adjacent the pivots of the levers and the other end passed under said angular members and pulleys and having limited sliding connection with said levers, and sleeves freely
75 mounted on the cranks of the crank shaft.

9. In a vehicle, a crank shaft, cranks thereon, pivotally mounted pedals, pivotally
80 mounted levers, angular members on said pedals, pulleys carried by said pedals, chains connected with said angular members and having one end fixed to some fixed part of the vehicle adjacent the pivots of the levers and the other end passed under said angular
85 members and pulleys and having limited sliding connection with said levers, and sleeves freely mounted on the cranks of the crank shaft, the under sides of said levers being provided with curved surfaces en-
90 gaging with said sleeves.

Signed by me at Washington, D. C. this
7th day of October 1909.

FRIEDRICH KLEINVOGEL.

Witnesses:

PERCY H. RUSSELL,
E. H. BOND.