P. W. MACKENZIE.

Velocipede.

No. 39,349.

Patented July 28, 1863.

Fig. 1.

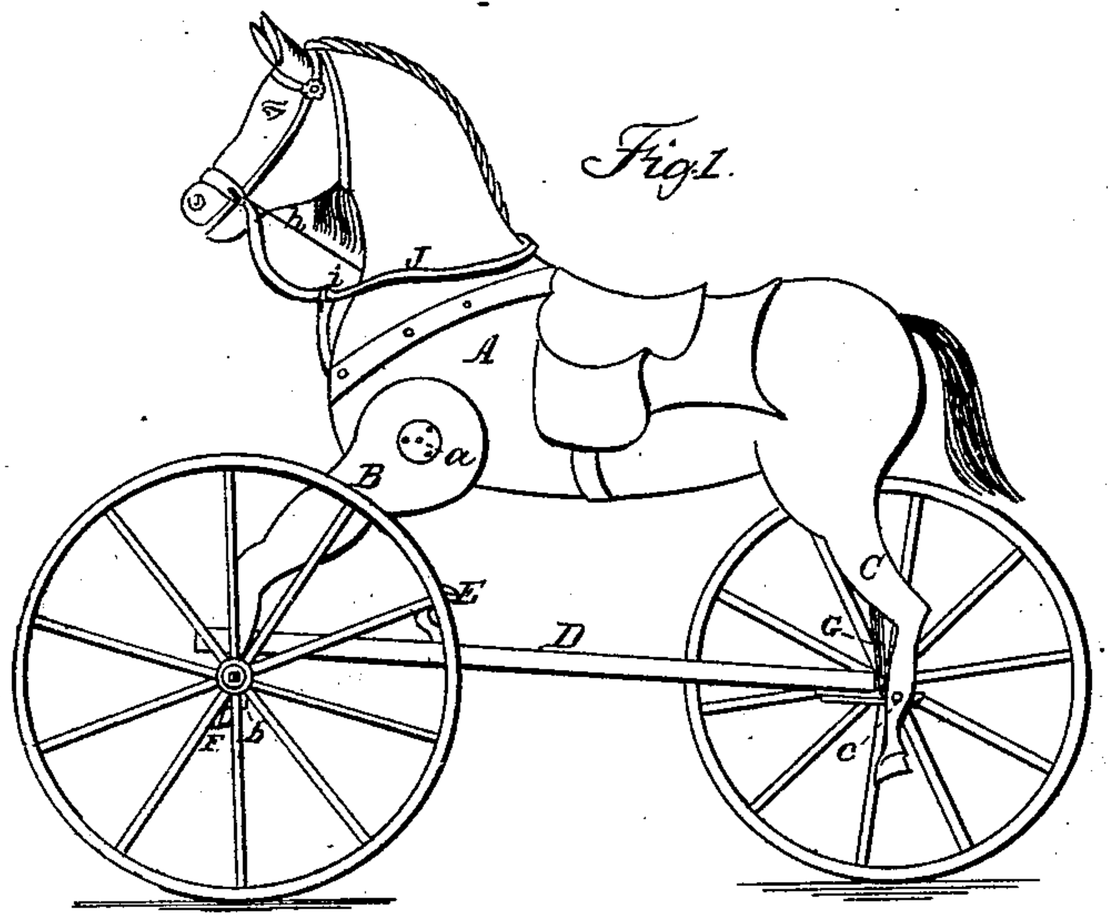


Fig. 3

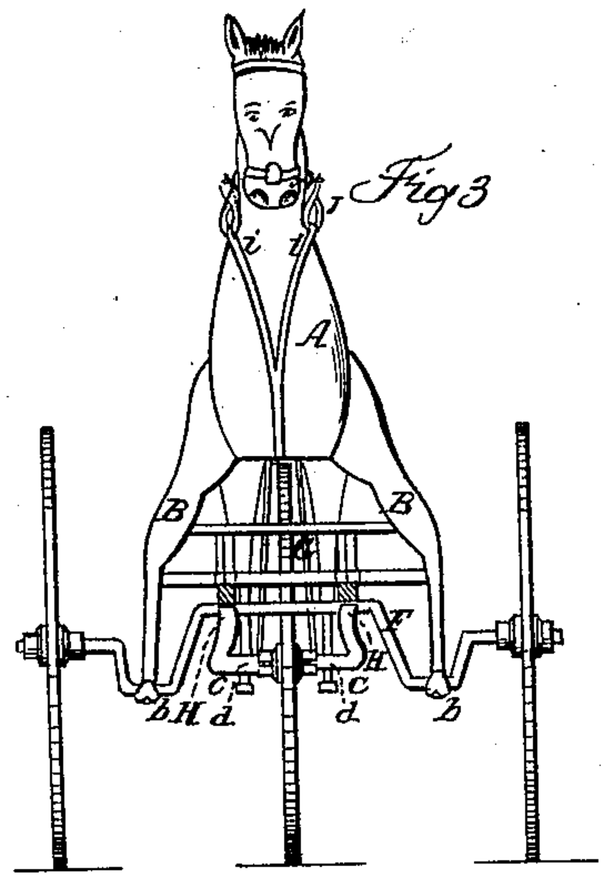


Fig. 2.

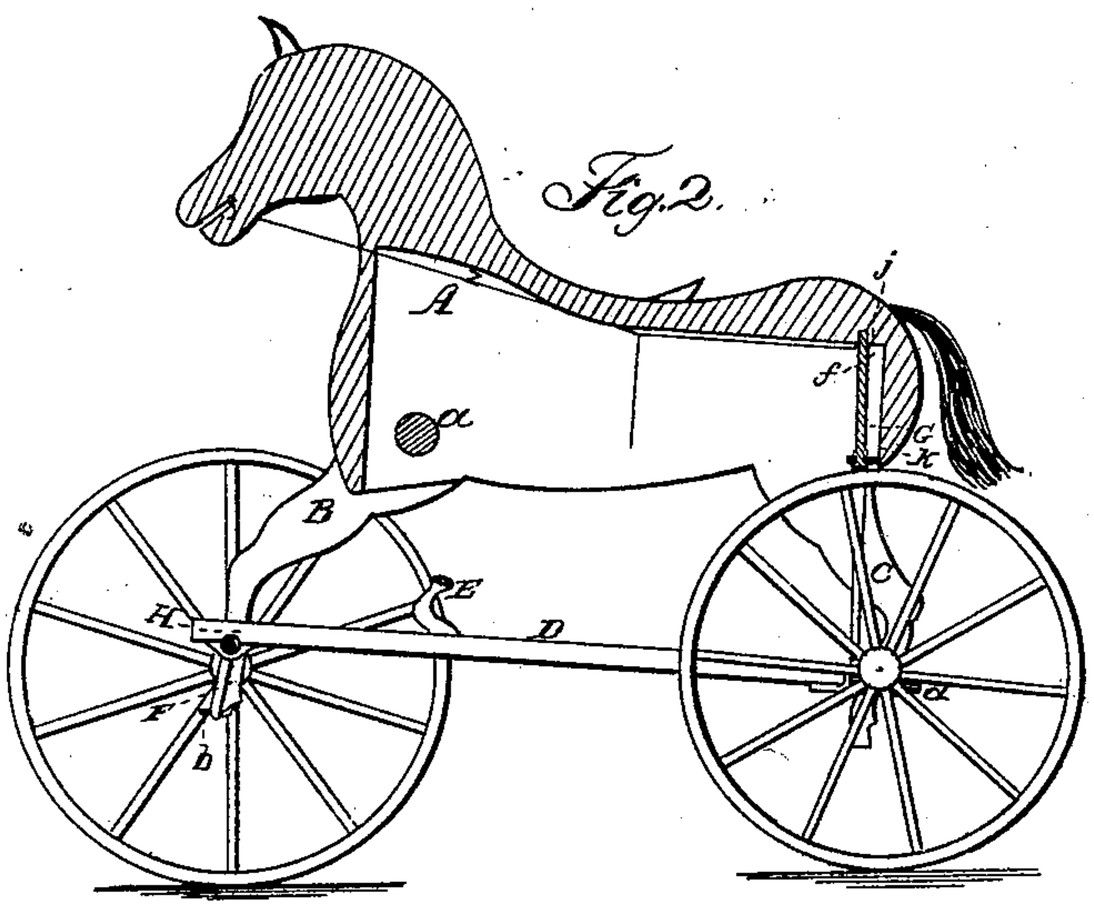
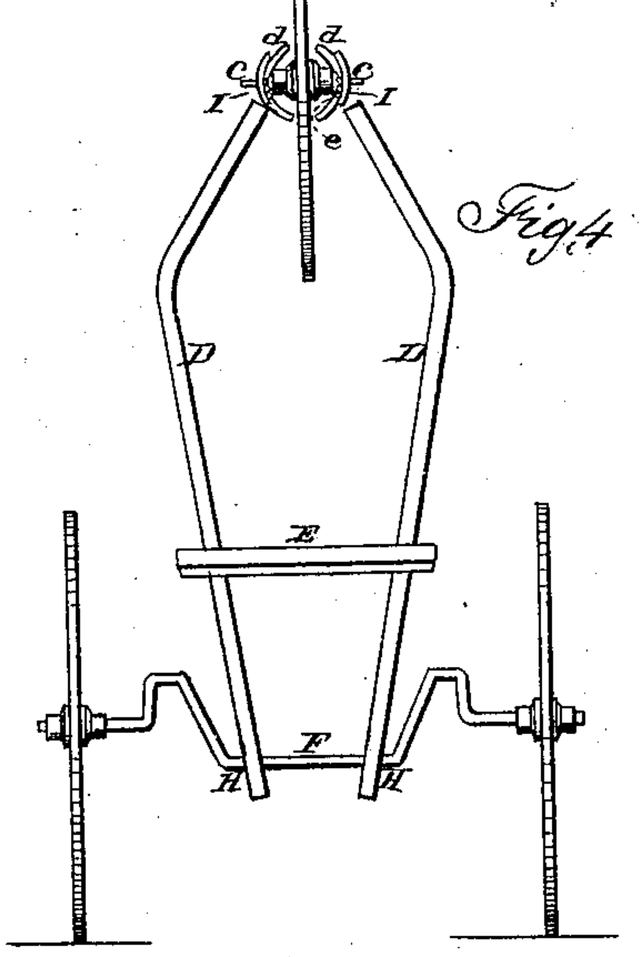


Fig. 4



Witnesses

La Dungan

W. Tracy

Inventor.

P. W. Mackenzie.

UNITED STATES PATENT OFFICE.

PHILIP W. MACKENZIE, OF JERSEY CITY, NEW JERSEY.

IMPROVEMENT IN LOCOMOTIVE-HORSES FOR VEHICLES, &c.

Specification forming part of Letters Patent No. **39,349**, dated July 28, 1863.

To all whom it may concern:

Be it known that I, PHILIP W. MACKENZIE, of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Locomotive Horses, Vehicles, &c.; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, figures and letters of reference thereon, making part of this specification.

Of the said drawings, Figure 1 is a side elevation of my locomotive-horse vehicle. Fig. 2 is a longitudinal section of the same. Fig. 3 is an end view, and Fig. 4 shows the running and steering gear without the horse.

Similar letters of reference indicate like parts in all the drawings.

The object of my invention is to provide a locomotive horse or vehicle for exercise or travel on roads, which may be operated with ease and rapidity.

The nature of the first part of my invention consists in the use of a crank having three or more centers, whereby the weight of the rider, being alternately shifted from the seat to the foot-rests, produces a rotary motion.

The second part of my invention consists in the steering mechanism by which the hind wheel can be readily turned and the direction of the vehicle perfectly governed, at whatever pitch the body of the horse and rider may be.

The third part of my invention consists in the arrangement of the fork and cross-head, and the bit or lever in the mouth of the horse, so that by drawing the bridle the horse or vehicle can be perfectly directed by the rider while in his seat.

The fourth part of my invention consists in mounting a horse or proper seat for an erect position of the rider upon wheels so that it may be propelled by the weight of the body being alternately shifted from the saddle or seat to the foot-rests, and guided in any direction at the will of the rider.

The last part of my invention consists in making the body of the horse hollow, so that the steering mechanism can be readily placed and adjusted therein, and the horse made light, so that when mounted it shall not be top-heavy and liable to tip and capsize.

To enable others skilled in the art to make and use my invention, I will proceed to describe the construction and operation thereof.

A represents the body of the horse, which is made hollow by securing the parts, sides, and back and head in a substantial manner, the hollow part being shown plainly in Fig. 2.

The hind legs, C, of the horse are pivoted at *c* to the grooved plates I I, which are secured to the bar D D, (plainly shown in Fig. 4,) while the fore legs, B, are jointed at the shoulders *a* to the body of the horse and the feet pivoted to the cranked axle F at *b b*. On the bars D, the front ends of which are jointed at H H to the crank having the greatest sweep, is placed a foot-rest, E, for the feet to rest upon when the horse is mounted.

In the body of the horse, between the hind legs, is securely placed a forked shaft, G, having bearings at *j* and *k*, Fig. 2, the lower ends of the forks being inserted in holes in the segment-plates *d d* at *e e*, which plates make the axle-journal for the hind wheel. To the upper end of this shaft *g*, in the body of the horse, is secured a cross-head, *f*, with rods or chains *h h*, leading therefrom to the lever or bit in the mouth of the horse, as shown in Fig. 2.

To the bit or lever *g* in the horse's mouth is secured the bridle J, which may or may not be passed through the martingale-rings *i*, as desired. The cranked axle, to which are secured the wheels in a proper manner, has three centers—viz., one for the wheels, one for the fore legs of the horse, and the other for the bars D D, as plainly shown in Fig. 4.

The operation will be as follows: The rider mounts the horse and places the feet upon the foot-rest E, and with the hands seizes the bridle J. The body is then exerted in a forward or backward direction to start the vehicle sufficiently to obviate the dead-centers of the crank, and by raising the body from the seat (the longest crank being up and forward of the dead-center) and throwing the weight thereof upon the bars D D the vehicle will be driven forward, while the opposite crank raises the horse to the highest position. The weight of the body is then thrown entirely upon the horse, thereby causing the horse to fall to the lowest position, still propelling the vehicle, and by alternately shifting the

weight of the body from the seat and bars D D a rapid and easy rotary motion is produced, which gives the horse a cantering motion.

The steering of the vehicle is accomplished by the rider drawing the bridle in the desired direction, which, by means of the rods *h h*, secured to the bit *g* and cross-head *f* on the forked shaft G, changes the direction of the hind wheel, and consequently the direction of the vehicle, as desired.

It will be obvious that any other animal may be substituted for the horse and mounted upon the vehicle in the same manner as I have described.

I am aware that wagons and hobby-horses have been mounted on wheels and propelled by means of hand-levers having rods connecting with the hind wheels, and guided by the feet on a steering-wheel having arms in front of the rider, and I therefore disclaim all such devices.

I claim—

1. In combination with a horse or proper seat for the rider, the employment of a cranked axle having three or more centers, substantially as described, whereby the weight of the rider, being alternately shifted from the saddle or seat to the foot-rests, produces a rotary motion of the vehicle, substantially as described and set forth.

2. In combination with a horse or other proper seat for an erect position of the rider, the steering mechanism consisting of the grooved segments I I and plates *d d*, or their equivalents, whereby the hind wheel can be readily turned and the direction of the vehicle perfectly governed, at whatever pitch the body of the rider may be, substantially as described and specified.

3. In combination with a steering mechanism substantially such as described, the fork G and cross-head *f*, or their equivalents, and the bit or lever in the mouth of the horse, so that by drawing the bridle the vehicle can be perfectly directed by the rider while in the seat, substantially as described and specified.

4. Mounting a horse or proper seat for an erect position of the rider upon wheels so that it may be propelled by the weight of the rider and guided in any direction, substantially as specified and set forth.

5. In combination with the steering and propelling mechanism, making the body of the horse hollow, substantially as described, whereby I am enabled to obviate the danger of capsizing, consequent upon a solid, heavy horse, and for the purpose of readily adjusting and securing the steering mechanism therein, substantially as set forth and specified.

P. W. MACKENZIE.

Witnesses:
C. A. DURGIN,
W. WRAY.