F. R. HOARD.
Toy-Vehicle.

No. 202,651. Patented April 23, 1878.

Fig. 1.

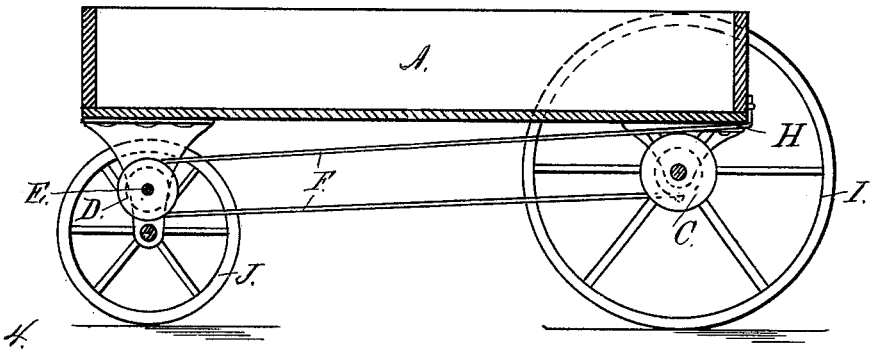


Fig. 4.

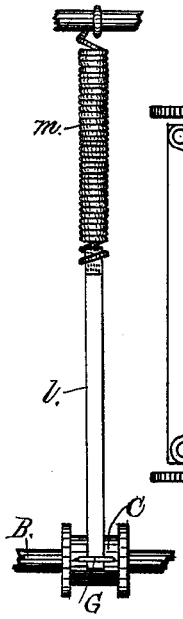


Fig. 2.

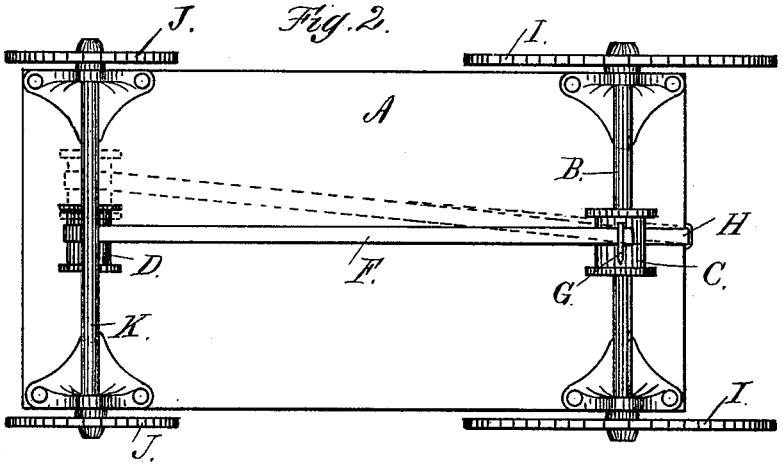
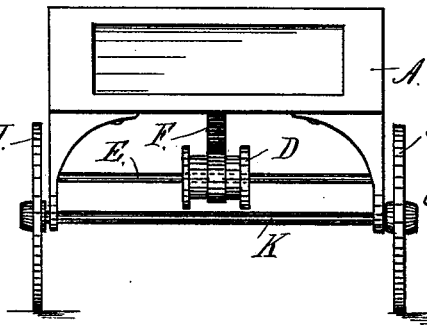


Fig. 3.



Attests:

Geo. T. Smallwood Jr.
Penn'a Halsted

Inventor:

Frederick R. Hoard
By. J. J. Halsted.
Atty.

UNITED STATES PATENT OFFICE.

FREDERICK R. HOARD, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN TOY VEHICLES.

Specification forming part of Letters Patent No. **202,651**, dated April 23, 1878; application filed January 18, 1878.

To all whom it may concern:

Be it known that I, FREDERICK R. HOARD, of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Toy Self-Propelling Vehicles; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to self-propelling toy wagons or vehicles; and it consists in combining, with the driving-axle or with a barrel rigidly fixed thereon, an elastic band or cord and a self-adjusting guiding spool or reel.

Figure 1 is a longitudinal section of a wagon to which my invention has been applied; Fig. 2, a plan view of the bottom of the vehicle; and Fig. 3, an end view.

A represents the body of a wagon or vehicle; B, the back axle or shaft, and upon which the winding barrel or spool C is fixed, so that it may not revolve thereon; D, a loose revolving and guiding reel; E, the stationary rod, on which this reel D turns freely, and on which it is free to move or shift laterally; F, the rubber or elastic band or strip; H, a fastening device of any desired kind, which holds the rubber at one of its ends to the body of the carriage or vehicle; G, the point at which the other end of said elastic strip may be fastened to the barrel or spool C. I I are the back wheels; J J, the front ones, the former being made fast to their shaft to serve as drivers; and the latter may be loose upon or secured to their shaft, but preferably loose thereon.

Motion is given to the vehicle by simply pushing or pulling it along the ground or floor, and the resistance or friction given to the wheels I will turn their axle B, and also the barrel C, thus stretching, winding up, and tightening the elastic band or cord to any degree desired within the capacity of the band. When such winding has ceased, and the vehicle is left free, the elongated and wound band at once commences to unwind by the force of its own resiliency, and in so doing it turns the barrel C and its axle B, and consequently the wheels I I, in the opposite direction, and the vehicle will thus of its own motion, or automatically, return about to or even farther than the goal from which it started, dependent as to the distance upon the smoothness of the floor or body pon or in which it travels. In some cases it will not only unwind, but rewind to a limited extent, in the opposite direction, on the barrel, and thus compel the carriage to make or retrace a short return trip.

Instead of pulling or pushing the vehicle along the floor, it may be given motion by turning one of the wheels I by hand, and consequently winding up the band on the barrel C.

The loose reel D may be placed on the axle K; but I prefer to have a separate horizontal rod or axis, E, as shown.

By my construction I avoid the use of any clutch or clutches, levers or brakes, and all complex mechanism of any description, and all needless cost, and have nothing likely to get deranged or out of order, or but what can be readily repaired by any child, at short notice, by simply substituting one elastic for another, in case it should break by careless usage.

When a toothed clutch is used upon the axle, and the driving or winding spool running loosely upon said axle is also provided with teeth to engage with such clutch, the band can be wound only in one direction, and the axle and wheels can therefore only propel the vehicle in one direction. Mine, however, can be wound and driven in either direction equally well, and the child does not make any mistake, or need to stop and examine to see that he winds rightly. When wound, mine will also, before stopping, make a returning trip, which, with a clutch, is impracticable or impossible.

Also, when the guide roller or reel is placed on a vertical shaft, it cannot slide laterally to relieve or adapt itself to the stretching of the band, as mine does. Moreover, the band in such case must be twisted, and it tends to run off and to become unequally stretched, strained, and weakened, and its edges are liable to rub against each other and produce friction and wear, while my loose guide-roller D being

placed on a horizontal shaft or axis, and being self-adjusting as to position, these difficulties are entirely avoided.

The relative length of the band or cord, as shown in the drawing, is sufficient for practical purposes, and it may be even shorter, and fastened at its fixed end at any part of the vehicle most convenient; but a longer movement may be obtained by a longer band or cord running around an extra guiding-spool.

As a substitute for the elastic band or cord, I sometimes use a non-elastic short band or cord, *l*, connected to a spiral spring, *m*, as shown in Fig. 4, the band to be wound upon the barrel and the spring to give the power. I prefer, however, the simple elastic, as above first described, as simpler and cheaper.

The driving devices described will operate a paddle or paddles, which may be substituted for the wheels I. This will convert the toy at once into a water-vehicle, or one capable of running either on the land or in the water, it being understood, as heretofore stated, that the body of the vehicle may of course be made in any desired form of carriage, locomotive, or boat, as this is not an essential part of my present invention.

The band may be fastened directly to the winding shaft or axle, instead of to a barrel or spool fastened thereon, the diameter of such axle being made sufficiently large for the purpose.

As a modification, when applied to a boat, I cast the winding-spool with one of its flanges made as a bevel-gear wheel, which engages with a bevel-pinion secured to the paddle-shaft, the spool in such case revolving on a vertical rod in a frame secured crosswise inside the boat, and the paddle-shaft having its bearings in the same frame.

I claim—

In a toy wagon or vehicle, the combination, with the driving-axle, or with a barrel rigidly affixed thereon, of an elastic band or cord and a self-adjusting guiding spool or reel, D, placed upon a separate axle or rod, and adapted to shift on said axle or rod, substantially as shown and described, and for the purpose set forth.

FREDERICK R. HOARD.

Witnesses:
JOHN C. PURKIS,
GILMAN E. JOPP.