

H. A. REYNOLDS.

Velocipede.

No. 54,207.

Patented Apr. 24, 1866.

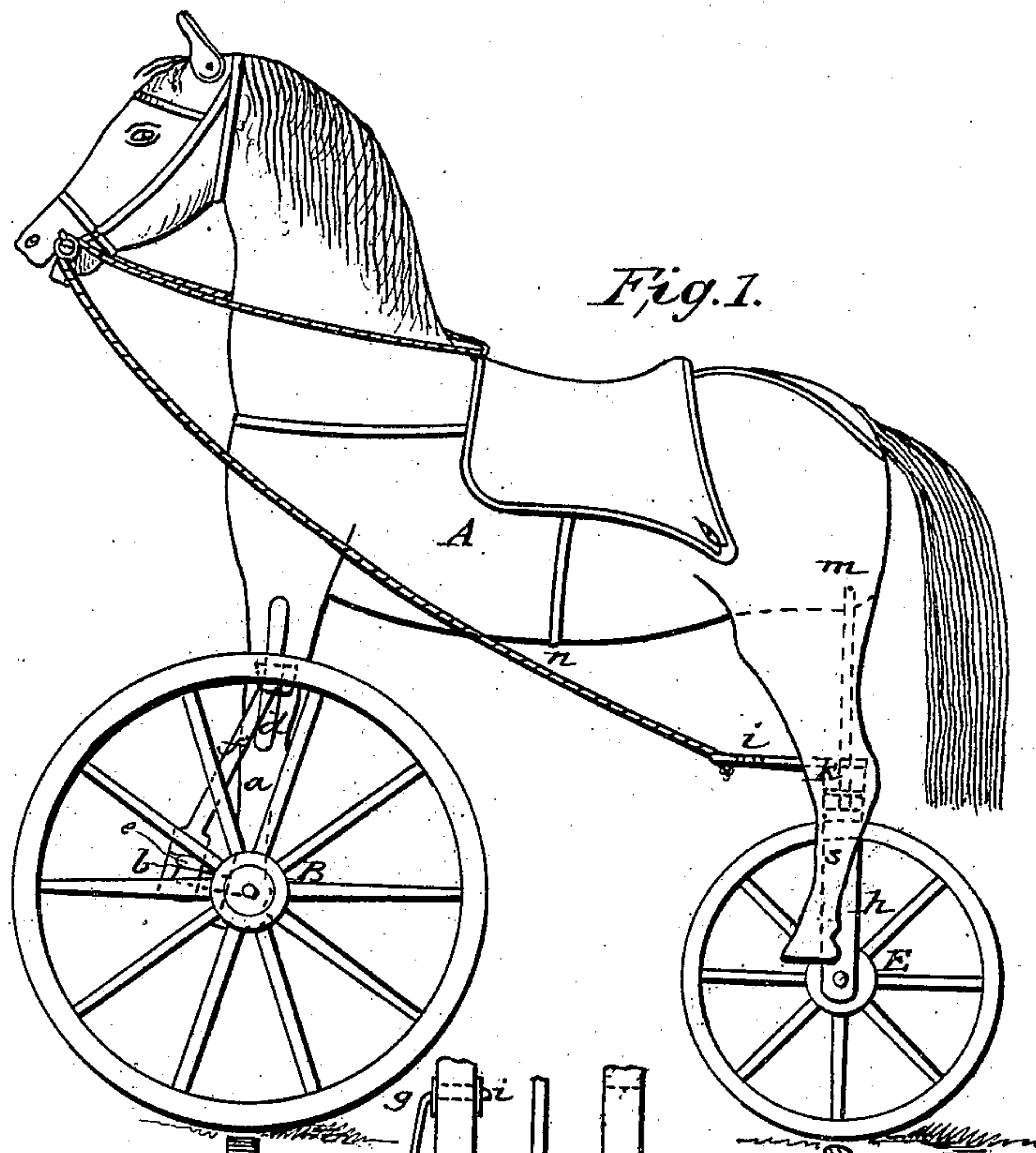


Fig. 1.

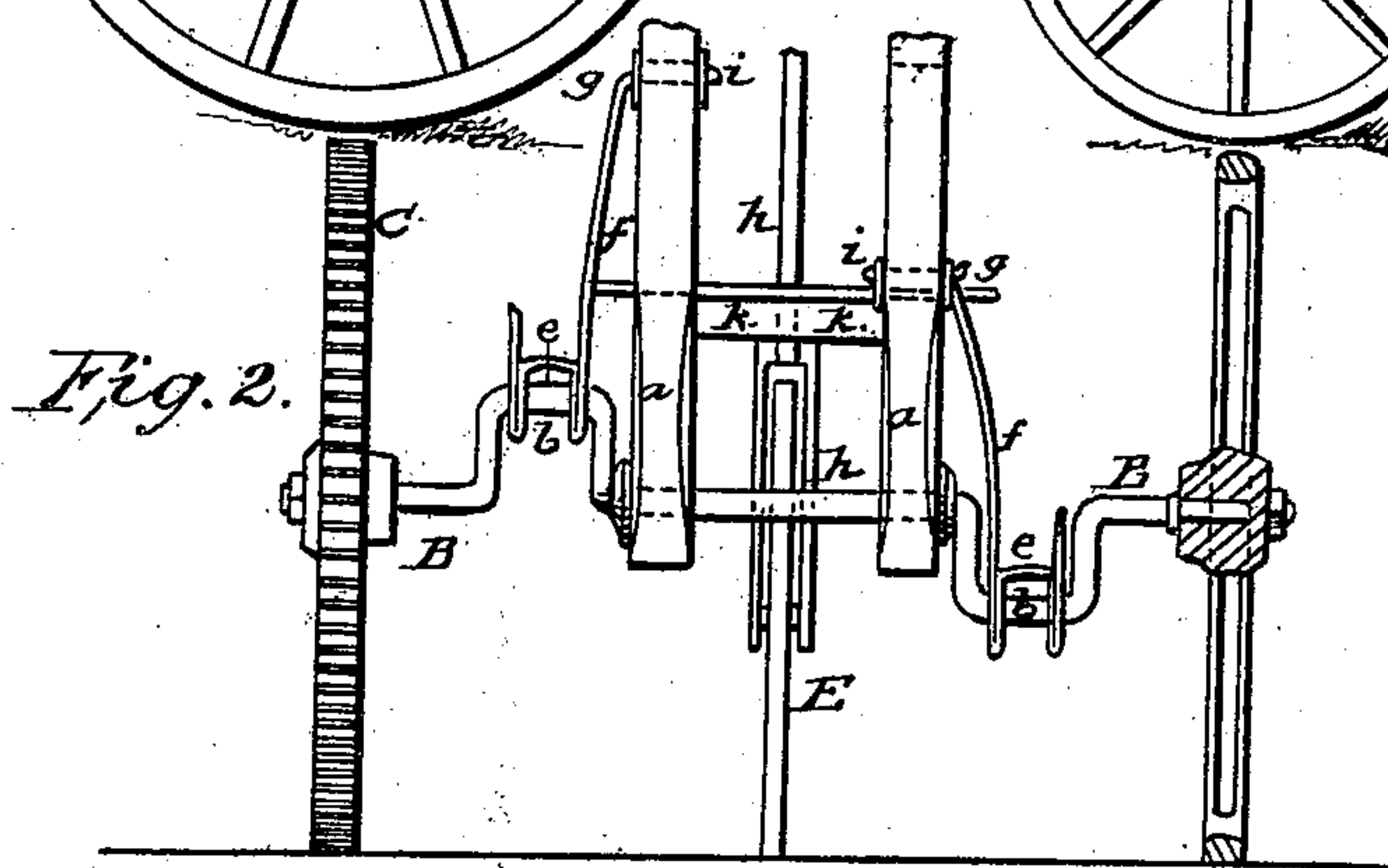


Fig. 2.

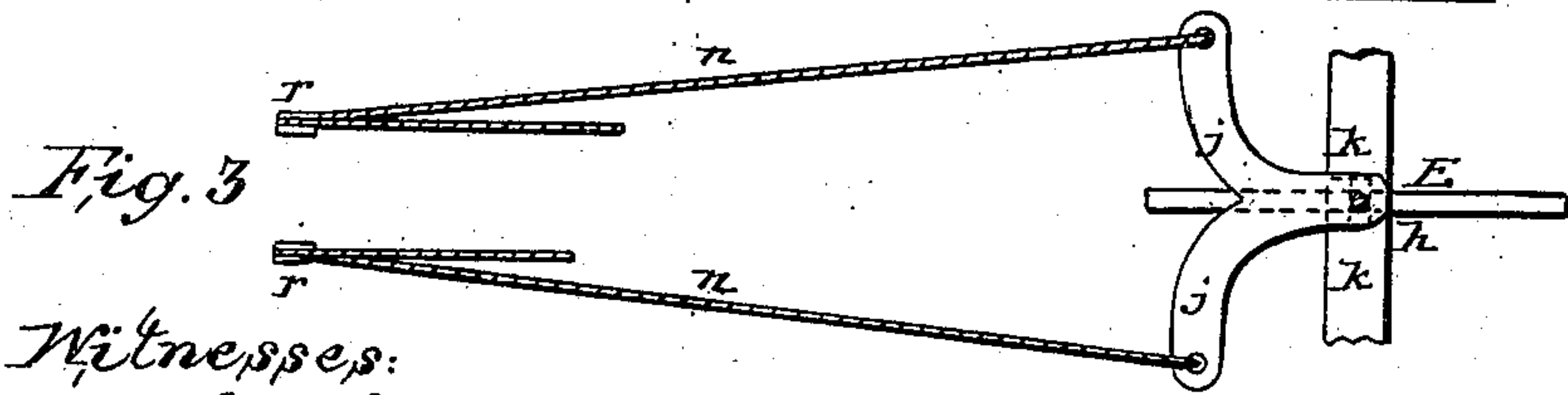


Fig. 3.

Witnesses:

J. W. Coombs  
A. de Clerc

Inventor:

Harvey A. Reynolds



# UNITED STATES PATENT OFFICE.

HARVEY A. REYNOLDS, OF NEW YORK, N. Y.

## IMPROVEMENT IN VELOCIPEDES.

Specification forming part of Letters Patent No. 54,207, dated April 24, 1866.

*To all whom it may concern*

Be it known that I, HARVEY A. REYNOLDS, of the city, county, and State of New York, have invented certain new and useful Improvements in Velocipede Horses and Propellers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a side elevation of a velocipede horse or propeller constructed according to my invention. Fig. 2 is a front elevation of the working parts of the same. Fig. 3 is a detached plan view of that portion of the invention which relates to steering the same.

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

The objects of this invention are, first, to provide more effectually for turning the velocipede in short curves or circles; second, to enable the cranked driving-shafts to be rotated with greater facility.

It consists in furnishing the cranked driving-shaft or axle with a loose wheel, which serves only to support a portion of the weight of the apparatus, and a fast wheel, which serves as a driving-wheel to propel the same, in such a way that the said wheels readily accommodate themselves to the movements of the steering-wheel, and prevent the latter from dragging sidewise in turning short curves, thus enabling the velocipede to be turned in such curves with great facility.

The invention also consists in the employment of pulleys fixed upon each side of the horse's mouth for guiding the steering-lines in such a way that the steering-wheel can be easily turned or operated to any desired degree.

The invention furthermore consists in guiding grooves or slots formed longitudinally in two of the legs of the horse, and used in connection with the stirrups attached to the cranks for operating the cranked driving-shaft, the stirrups working in the said grooves or slots and being kept in proper position by them, so that a very direct and efficient operation of the stirrups upon the cranked axle is obtained, thus increasing the facility of turning the said axle.

To enable others to understand the construction and operation of my invention, I will proceed to describe it with reference to the drawings.

A represents the horse, which may be made of wood or other suitable material, and of any ordinary form. B is the driving shaft or axle, which rotates in holes or bearings formed transversely in the lower ends of the forward legs, *a a*. This driving-axle has two cranks, *b b*, formed upon it, one at each side of the horse A, and projecting from the axle in opposite directions, and upon one end of the said axle is rigidly secured a driving or traction wheel, C, while upon the opposite end thereof is a loose wheel, D, which, turning loosely upon the axle, serves only to sustain a portion of the weight of the apparatus. In each of the fore legs, *a a*, is a longitudinal transverse slot or groove, *d d*, and pivoted upon each of the cranks *b b* is a stirrup, *e*, by means of which the driving-shaft is rotated by the feet of the rider, as will be hereinafter fully set forth. A rod or bar, *f*, projects upward from the inner side of each stirrup *e*, and has its upper end turned inward at right angles to its main length, as shown at *g*, these bent upper ends, *g*, of the rods *f* passing into or through the slots *d d* in the fore legs of the horse, and each being provided with a collar or nut, *i*, upon the outer and inner side of the leg, to keep it in its place. As the stirrups *e* pass around with the revolutions of the cranks *b b* the upper ends of the rods *f f* slide up and down in the grooves *d d*, and the said rods keep the stirrups in an upright position during such revolutions, so that they can be easily and conveniently operated by the feet of the rider to rotate the driving-shaft.

E is the steering-wheel, which is situated between the hind legs, *s*, of the horse A, and pivoted in the forked lower end of the vertical arbor *h*, the said arbor passing up through a suitable hole in a cross-piece, *k*, which extends from one of the hind legs to the other, and having its upper end situated in a bearing, *m*, formed in the under side of the rearmost portion of the horse. Securely fastened upon the arbor *h*, above the cross-piece *k*, is a forked bar or lever, *j*, the two arms of which extend forward and sidewise in front of the hind legs of the horse, a line or cord, *n*, being secured to each end of the lever *j*. These lines or cords *n* pass forward and over pulleys *r*, of which there is one upon each side of the mouth of the horse, and thence upward over the neck of the horse, as shown in Fig. 1, so that they can be easily grasped by the rider.



The operation of the invention is as follows: The rider being placed astride of the horse's back with his feet in the stirrups *e e*, the feet are pressed or moved downward alternately upon the stirrups *e e*, which, acting upon the cranks *b b*, rotate the driving-shaft B with its rigidly attached driving-wheels C, which propels the apparatus forward, the upper ends of the rods *f* sliding in the grooves or slots *d* in the legs of the horse, and thus keeping the stirrups in a proper upright position during the revolutions of the cranks. When it is required to turn the velocipede the lines or cords *n* upon the side toward which it is desired to turn is pulled, which, acting through the lever *j*, turns the steering-wheel E sidewise at such an angle to the length of the horse as will enable it to guide the cranked shaft or axle B around the requisite curve or circle, the loose wheel D enabling the shaft B, with its driving-wheel C, to conform to the movements of the steering-wheel E during the operation of turning, and thus preventing the steering-wheel from being dragged sidewise, as frequently occurs when both the wheels are fast upon the driving-axle.

If desired, the cranked driving-shaft B, with

its fast driving-wheel C and loose wheel D, may be placed at the rearmost end of the horse or body, with the steering-wheel E in front, in which case their operation in propelling and turning the velocipede will be substantially the same as when the driving-wheel with its appurtenances is placed in front, as hereinbefore set forth.

I do not claim operating the steering-wheel by means of rods having an endwise-thrusting action or an indirect draft on the lever; but

What I claim as new, and desire to secure by Letters Patent, is—

1. Operating the steering-wheel by means of lines *n*, passing over pulleys *r* at the sides of the horse's mouth and connecting with a lever, *j*, on the king-bolt or pivot of said wheel, substantially as specified.

2. The combination of the slots *d* in the legs of the horse with the extensions *f* of the stirrup working therein, substantially as and for the purposes set forth.

H. A. REYNOLDS.

Witnesses:

G. M. REYNOLDS,  
J. W. REYNOLDS.