

(No Model.)

C. G. E. HENNIG.

TRICYCLE.

No. 310,998.

Patented Jan. 20, 1885.

Fig. 1.

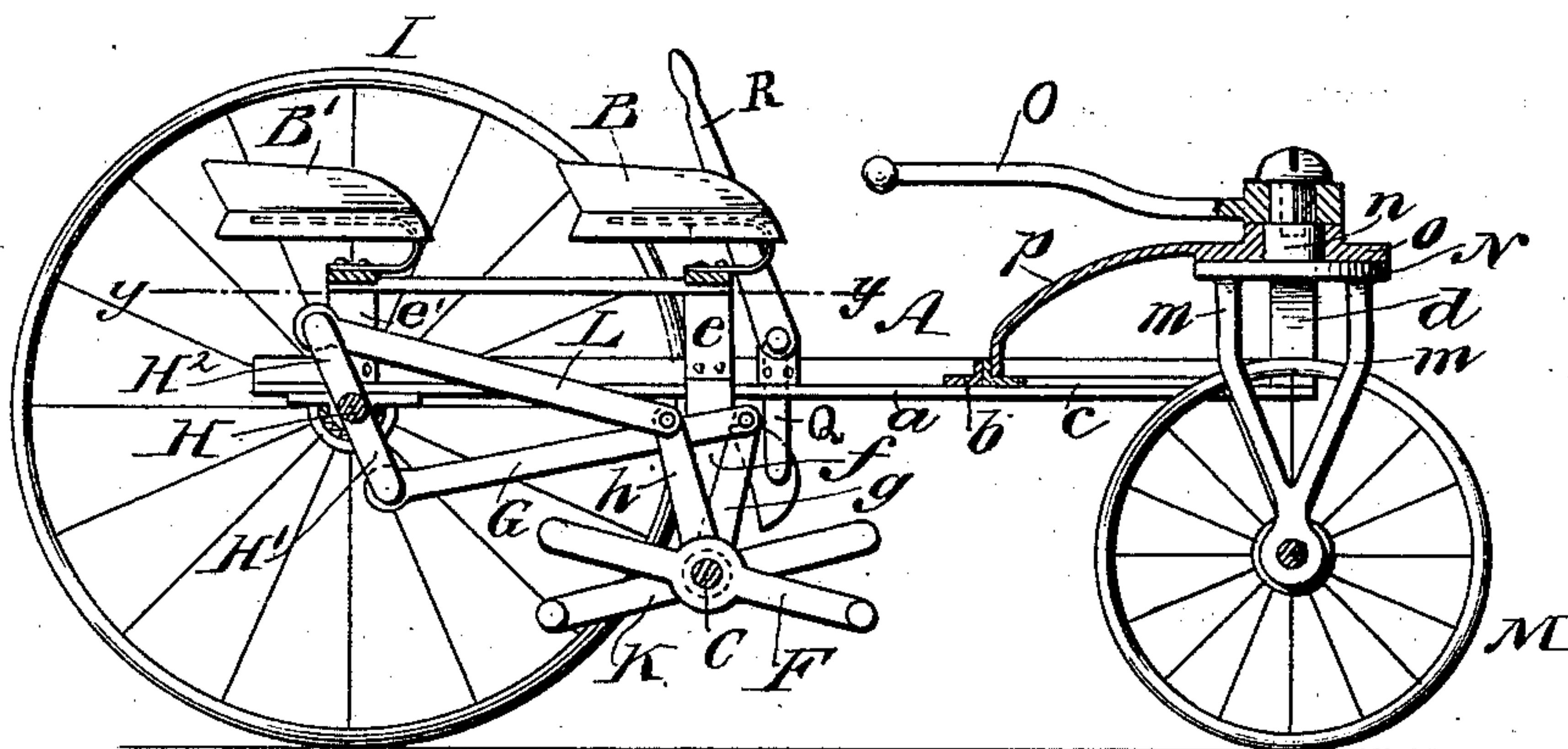


Fig. 2.

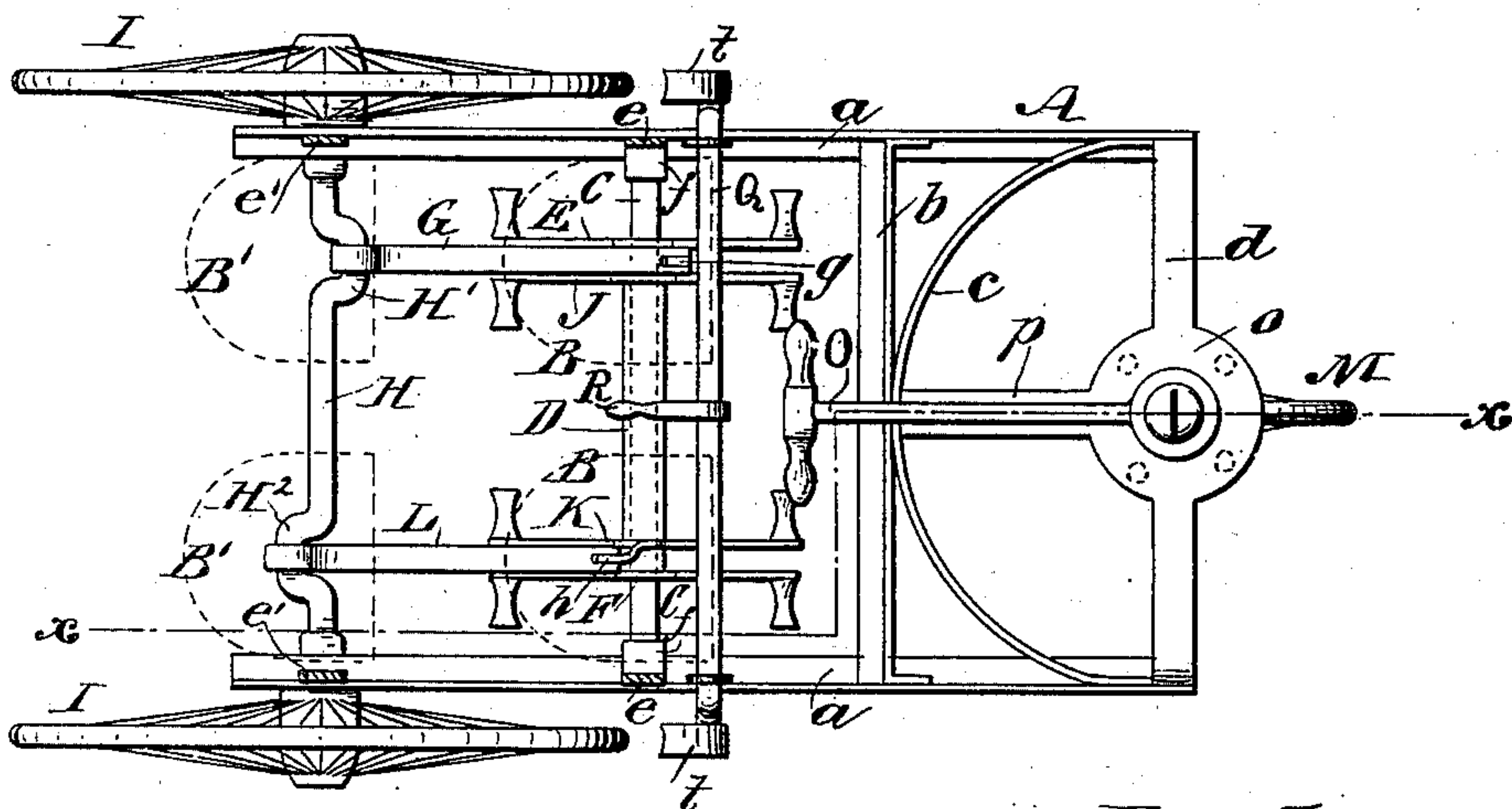
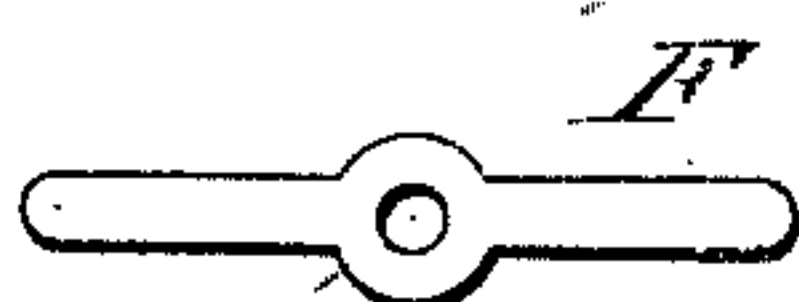


Fig. 4.



WITNESSES:

John H. Deemer
Edward M. Clark

Fig. 3.

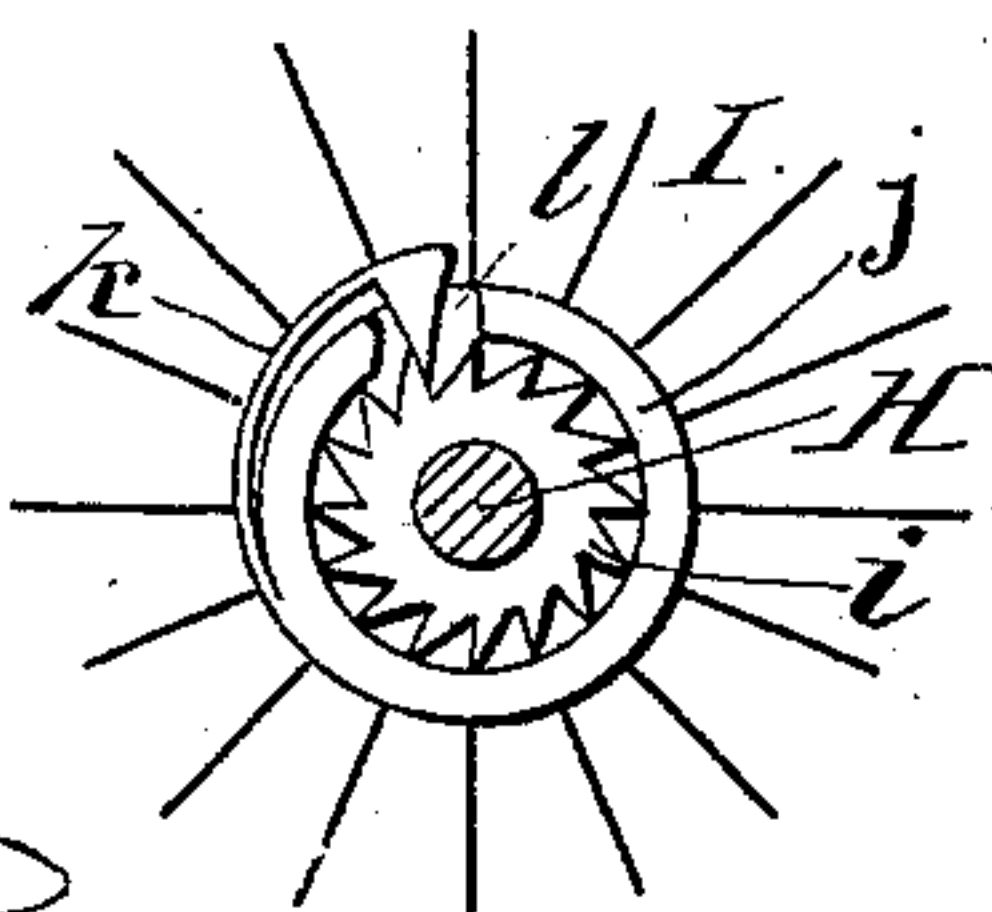
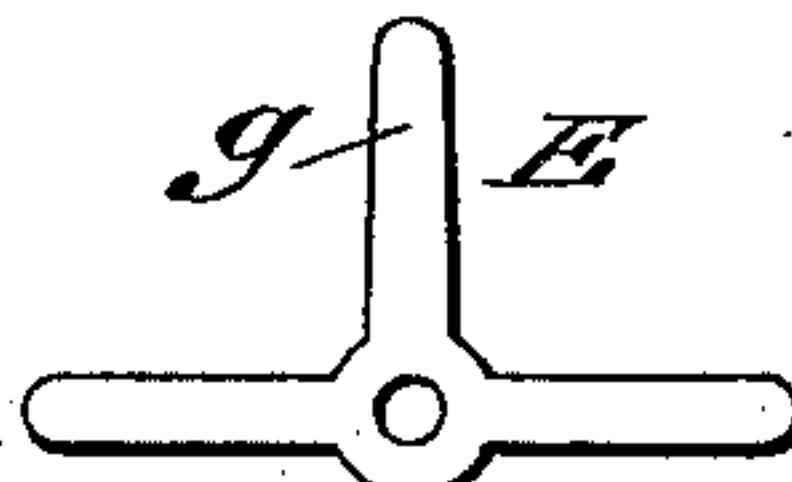


Fig. 5.



INVENTOR:

C. G. E. Hennig

BY

Munn & Co
ATTORNEYS.

UNITED STATES PATENT OFFICE.

CARL G. E. HENNIG, OF PATERSON, NEW JERSEY.

TRICYCLE.

SPECIFICATION forming part of Letters Patent No. 310,998, dated January 20, 1885.

Application filed October 24, 1884. (No model.)

To all whom it may concern:

Be it known that I, CARL G. E. HENNIG, of Paterson, in the county of Passaic and State of New Jersey, have invented a new and useful
5 Improvement in Tricycles, of which the following is a full, clear, and exact description.

This invention pertains to improvements in tricycles; and it consists of the combinations of parts and their construction, substantially
10 as hereinafter fully set forth and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

15 Figure 1 is a sectional side elevation of my invention, taken on the line xx ; Fig. 2. Fig. 2 is a sectional plan view taken on the line yy of Fig. 1, the seats being shown in dotted lines. Fig. 3 is a detailed sectional view of
20 a part of one of the drive-wheels, showing its ratchet-connection to the axle, and Figs. 4 and 5 show the preferred form of treadles used.

The main frame A may be of any desired construction. In this instance it is composed
25 of the side bars, $a a$, cross-piece b , curved brace c , upwardly-curved front cross-piece, d , and upwardly-curved front and back seat-supports, $e e'$, upon which the front and back seats, $B B'$, are supported, as shown clearly in Fig. 1.

30 C is a rock-shaft journaled in the arms ff , that depend from the side bars, $a a$. This shaft, C in this instance, is arranged immediately under the front seats, B, and on it is placed loosely the tube D, that is confined from
35 endwise movement by the treadles E F, fixed upon the shaft C. The treadle F is centrally secured upon the shaft C, and constitutes a double treadle, one portion standing in front of the other in the rear of the shaft C. The
40 treadle E is also centrally secured upon the shaft C, to constitute a double treadle, and it is provided with the upwardly-projecting arm g , which is connected by the connecting-rod G to the cranks H' of the double-crank axle
45 H, which latter supports the rear end of the frame A, and has the drive-wheels I I journaled upon its ends. The tube D has the treadles J K secured to its opposite ends. The treadle J, like the treadle F, is a plain double
50 treadle, while the treadle K is, like the treadle E, formed with an upwardly-projecting arm, h , which is connected by the connecting-rod

L to the crank H^2 of the crank-axle H. The treadles J and E constitute two pairs of treadles arranged near each other, one pair 55 connected to the shaft C and the other to the tube D; and the treadles K and F also constitute two pairs of treadles connected, respectively to the tube D and shaft C, and these double sets of treadles are arranged to correspond with front and back seats, $B B'$, so that
60 persons riding in the seats may apply their feet to the opposite ends of the pairs of treadles and work them alternately up and down, which will rotarily reciprocate the shaft C and tube
65 E (the latter turning upon the shaft C) and alternately rock or reciprocate the arms gh , which, through rods G L and cranks $H' H^2$, will cause the axle H and wheels I to revolve, and thus propel the tricycle. The double-
70 crank axle H is formed or provided near each end with a ratchet-wheel, i , and the hub j of each wheel I is provided with a spring-pawl, k , which reaches through an opening, l , in the hub j and engages with the teeth of its
75 respective ratchet-wheel i , so that the wheels I are held to the shaft H only by the pawls k when the tricycle is propelled forward, the wheels being free to turn forward independently of the axle. In this manner the wheels
80 I and the axle are relieved of all lateral strain in turning the tricycle, since the ratchets will permit the axle to turn in the wheel having the greater distance to cover. The guide-wheel
85 M is journaled between the braces $m m$, secured to the circular plate N, which constitutes the fifth-wheel. The fifth-wheel or plate N is formed with the hub n , which is journaled in
90 an opening made in the central enlarged portion, o , of the upwardly-curved front cross-piece d , and to the upper end of the hub n is secured the horizontal lever O, by which the wheel M may be turned for guiding the tri-
95 cycle. The enlarged portion o of the front cross-piece, d , is of about the same size as the fifth wheel or plate N, and the cross-piece d is braced from the central portion, o , to the curved brace c by the brace p , so that the cross-piece d is held very firm, and, owing to the
100 enlarged portion o , plate N, and brace, m , holds the wheel M in a very firm and secure manner, so that the front portion of the tricycle may be made comparatively light and still possess sufficient strength and rigidity for

all ordinary uses of the tri-cycle. A brake, Q, is provided, which may be operated by the lever R for bringing the shoes *t t* thereof against the wheels I, for controlling the speed of the tri-cycle in going downgrade.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with four pairs of treadles, of two rocking arms, *g h*, connected to the cranks of the axle by rods G L, two pairs of said treadles being connected to said axle, and the two other pairs of said treadles being connected to a tube, D, arranged upon said axle, substantially as described.

2. The shaft C, having cranks secured thereto, in combination with a tube placed upon the shaft and provided with cranks, the shaft and tube being connected with the crank-axle

by rocking arms and connecting-rods, substantially as described.

3. The shaft C, provided with the double treadles E F, in combination with the tube D, provided with the double treadle J K, and the treadles E K, having the rocker-arms *g h* connected to the axle H, substantially as described.

4. The cross-piece *d* of the frame of the tri-cycle, enlarged at *o*, and braced by the rod *p*, in combination with the circular plate N, formed with hub *n*, and provided with the braces *m*, between which the guide-wheel M is held, substantially as described.

CARL G. E. HENNIG.

Witnesses:

JACOB BEST,

AUGUST STOLZ.