

(No Model.)

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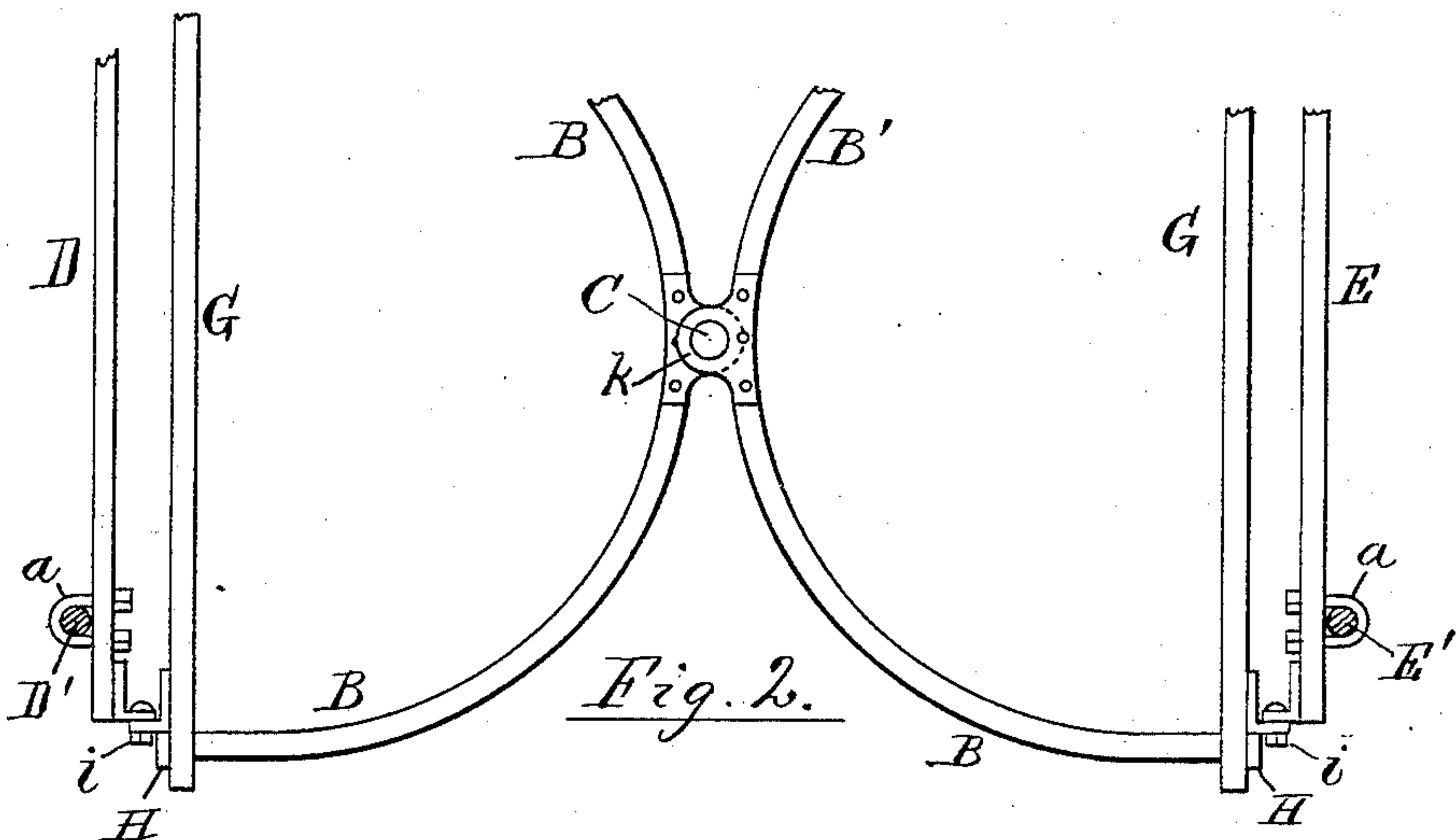
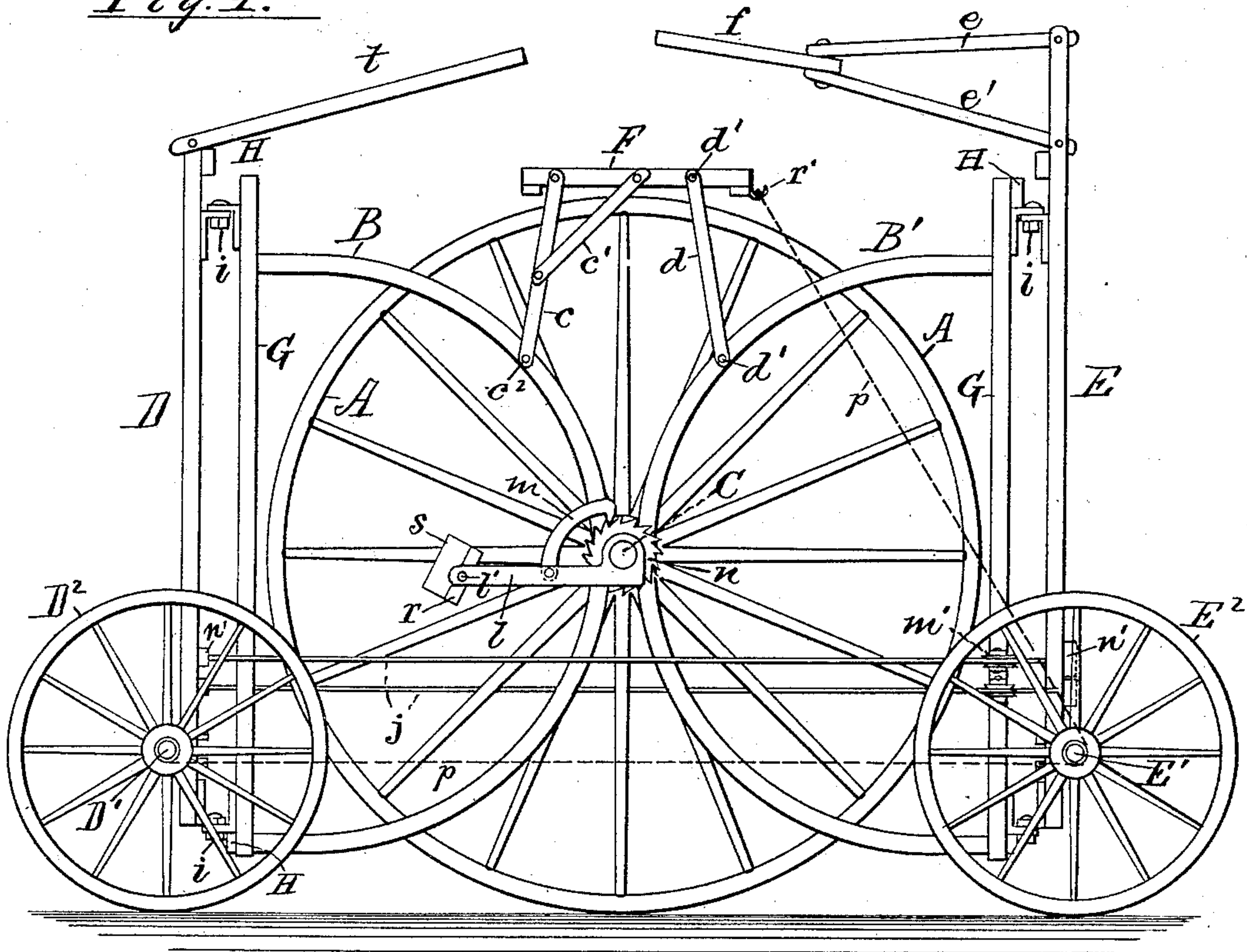
A. VREELAND.

VELOCIPÈDE.

No. 327,125.

Patented Sept. 29, 1885.

Fig. 1.



Attest.

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2 Sheets—Sheet 2.

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Fig. 3.

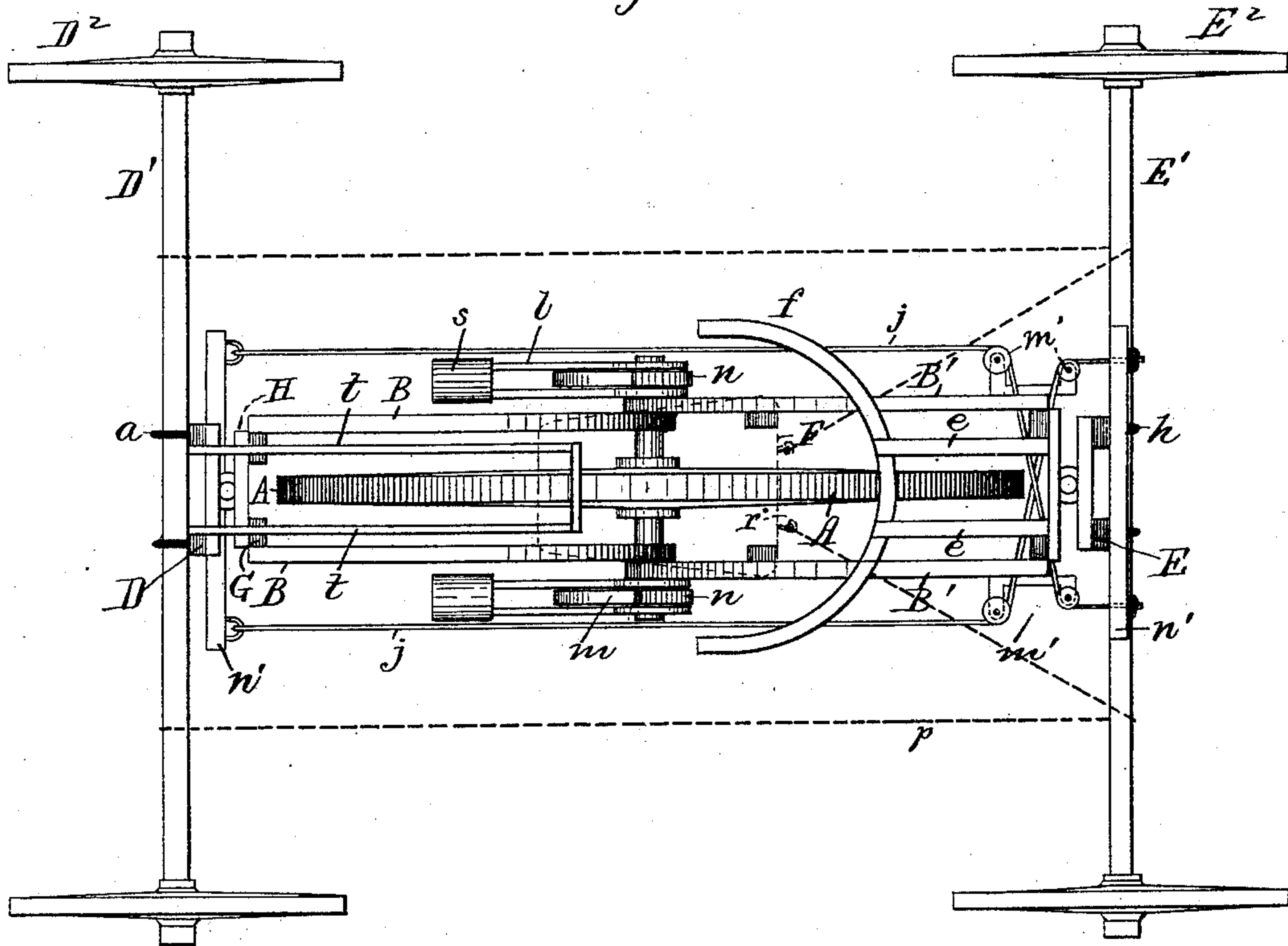
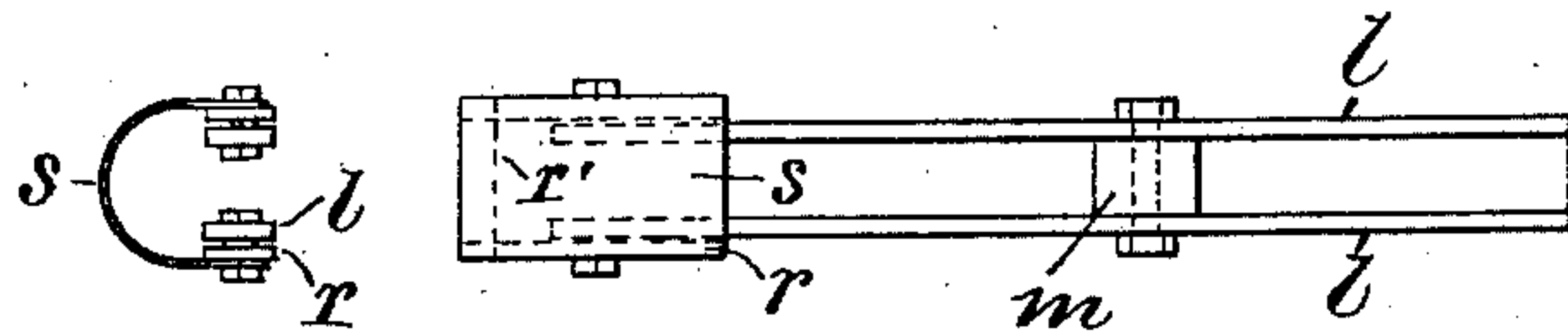


Fig. 5.

Fig. 4.



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Crane & Miller, Attys.

UNITED STATES PATENT OFFICE.

AARON VREELAND, OF CEDAR GROVE, NEW JERSEY.

VELOCIPEDÉ.

SPECIFICATION forming part of Letters Patent No. 327,125, dated September 29, 1885.

Application filed March 17, 1885. (No model.)

To all whom it may concern:

Be it known that I, AARON VREELAND, a citizen of the United States, residing at Cedar Grove, Essex county, New Jersey, have in-

5 vented certain new and useful Improvements in Velocipedes, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

10 This invention consists in an improved construction for the frame of a velocipede, whereby it is adapted to carry two front wheels and two rear wheels, and to accommodate itself to the inequalities of the ground.

15 It also consists in the combination, with such a frame, of a seat jointed to the frame in a special manner, and in a construction for the treadle-lever whereby an actuating-pawl and ratchet-wheel are embraced between two

20 side bars. The latter feature is shown, but not claimed, in a co-pending application, No. 147,098, allowed to me December 3, 1884, and is disclaimed therein to be secured in the present application.

25 In the drawings, Figure 1 is a side elevation of the machine. Fig. 2 is a skeleton side view of the lower part of the frame. Fig. 3 is a plan of the entire machine; Fig. 4, a detached plan of the treadle-lever, enlarged; and

30 Fig. 5, an end view of the same, to show the shape of the stirrup.

The driving-wheel A is located in the center of the frame, with the seat over it, and the front and rear pairs of wheels are much smaller, and are supported at the ends of transverse

35 axles of sufficient length to steady the machine sidewise.

The whole frame consists of four auxiliary parts or frames—viz., two middle parts, B B',

40 which are horizontally jointed to the driving-wheel axle C, and separate front and rear parts, D E, which are vertically jointed to the parts B B'.

D' E' are the front and rear axles, and D² E²

45 the wheels at their ends. The frame B is double, and fitted to the axle C at opposite sides of the wheel A, and is shown formed at each side of a half-circle "felly" of wood, having its middle point provided with a metallic bearing, k, bolted thereto and fitted up-

50 on the axle C between the wheel A and the

treadle-lever. The outer ends of each felly project toward the front of the wheel, and curve, respectively, upward and downward, and are bolted to vertical bars G, which are joined 55 by cross-pieces H near their tops and bottoms. To these cross-bars are fixed vertical pins or bolts i, and the front frame, D, constructed like the parts G and H, is pivoted thereto, and has the front axle, D', secured near its 60 lower end by clips a.

The frame B' and the rear frame, E, are exactly similar to the frames B and D, but project in the opposite direction from the axle C, so that the driving-wheel stands midway be- 65 tween the front and rear wheels. The rear axle is clamped to the frame E by clips a, and the wheels D² E² are shown as constructed to follow the same track and to match an ordinary wagon-rut or horse-car track, if de- 70 sired.

The seat F is sustained by two posts at each side of the wheel, the front posts, c, being braced to the seat at c', and bolted to the frame B at c², and the rear posts, d, being jointed to 75 the seat and to the frame B' at d'.

Steering mechanism is attached to both the front and rear frames, D and E, either of which the rider may use at his pleasure. The front frame, D, has a steering-handle, t, bolted 80 to it and projected toward the seat, so as to be within reach of the operator, and is thus turned upon the pivot between the frames B and D, to guide the whole machine in the required manner. 85

To turn the rear wheels in the required direction simultaneously with the front ones, the front and rear frames, D E, are connected by cords j, which are attached, respectively, 90 to the opposite sides of the frames and carried over pulleys m' upon the edges of the rear frame. Cross-bars n' are affixed to the frames to attach the cords and pulleys; but the latter could be affixed directly to the axles D' E', if desired. 95

Cords p are shown in Fig. 1 attached to the front axle and carried around the rear axle to the rear of the seat F, where they are tied to hooks r'. These cords are intended to draw 100 the front and rear axles slightly together at times, to relieve the wheel A of some of the rider's weight. The cord produces this effect

by turning the frames B and B' around on the shaft C, so that if the rider is on a very smooth and level road he can make the smaller wheels carry the greater part of his weight, and thus
5 diminish the frictional resistance of the large wheel upon the ground.

The rear frame, E, has two bars, *e e'*, bolted to each of its upper corners and projected toward the rear side of the seat, where they are
10 secured to curved pieces *f*, which encircle the rider's body, and serve both to support his back and to form a steering device, which can be operated by the pressure of his elbows, or by swaying his body from side to side. Steering-bars *t* are also joined to the front frame, D,
15 and extended backward.

The driving-wheel is propelled by treadle-levers *l*, having pawls *m*, adapted to catch upon the teeth of ratchet-wheels *n*, secured to
20 the outer ends of the axle C, one at each side of the wheel A.

Each treadle-lever is composed of two flat bars, (lettered *l* in the enlarged plan view in Fig. 4,) one being journaled upon the axle C
25 at each side of the ratchet-wheel, and the pawl *m* being pivoted between the same by bolt.

The stirrup is formed by securing a leather strap, *s*, to two plates, *r*, which are pivoted to the outer ends of the bars at *l'*, the toe of
30 the operator fitting between the lever *l* and the strap, and lifting the lever up by the strap before each stroke of the pawl.

The plates *r* may be joined at their ends, beyond the pivot *l'*, by a cross-bar, *r'*, to sustain the foot of the operator; or the latter may
35 rest only on the edges of the plates when pressing downward.

With the construction shown the whole machine is self-adjusting to all inequalities in the
40 road, as the seat is held in a uniform relation to the frame B by the braces *c'*, while the pivoted connections of the posts *d* and the flexible character of the joint (which connects the frame B with the frame B') renders the frames
45 B and B' capable of vertical motion around the axle C, to which they are journaled by their middle bearings, *k*. By the use of two bars, *t*, for the treadle-levers the treadle is prevented from twisting sidewise, and one can
50 be placed at each side of the pawl-and-ratchet wheel and the pressing-strain be entirely central. The rider may steer by the front bars, *t*, or by them and the yoke *f* jointly.

The frames B B' may obviously be made in
55 other forms, and of any desired material, that

shown herein being the one preferred by me, but not essential to the practice of my invention, which consists, essentially, in the four frames hinged to move as described.

Having thus described my invention, what
60 I desire to claim is—

1. In a velocipede, the combination, with the axle of a central driving-wheel, of the frames B and B', hinged to such axle and provided with wheels resting freely upon the
65 ground, substantially as shown and described.

2. In a velocipede, the combination, with the axle of a central driving-wheel, of the frames B and B', hinged to such axle and provided with wheels resting freely upon the
70 ground, the front wheels being sustained by a vertically-hinged frame provided with means for turning it to steer the machine, substantially as shown and described.

3. In a velocipede, the combination, with
75 the wheel A, axle C, and frames B B', hinged thereto and provided with wheels resting freely upon the ground, of the seat F, rigidly attached to one of said frames, and secured to the other by a yielding connection, substan-
80 tially as and for the purpose set forth.

4. In a velocipede having a central driving-wheel and front and rear axles with two wheels each, the construction for the jointed frame, consisting in the half-circle fellies B B',
85 hinged to the driving-wheel axle as described, and attached to uprights G, the cross-pieces H, provided with the joint-bolts *i*, and the vertical front and rear frames, D E, carrying the axles D' E' and wheels D² E², the whole ar-
90 ranged and operated substantially as shown and described.

5. The combination, with the ratchet-wheel and pawl, of the lever-bars arranged at each side of the wheel and pawl and provided with
95 the stirrup hinged at its outer end, as and for the purpose set forth.

6. The combination, with the frames B B', D, and E, and the seat F, and wheels A, D², and E², arranged as described, of the steering
100 devices projected from the front and rear frames toward the seat, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing
105 witnesses.

AARON VREELAND.

Witnesses:

THOS. S. CRANE,
L. LEE.