

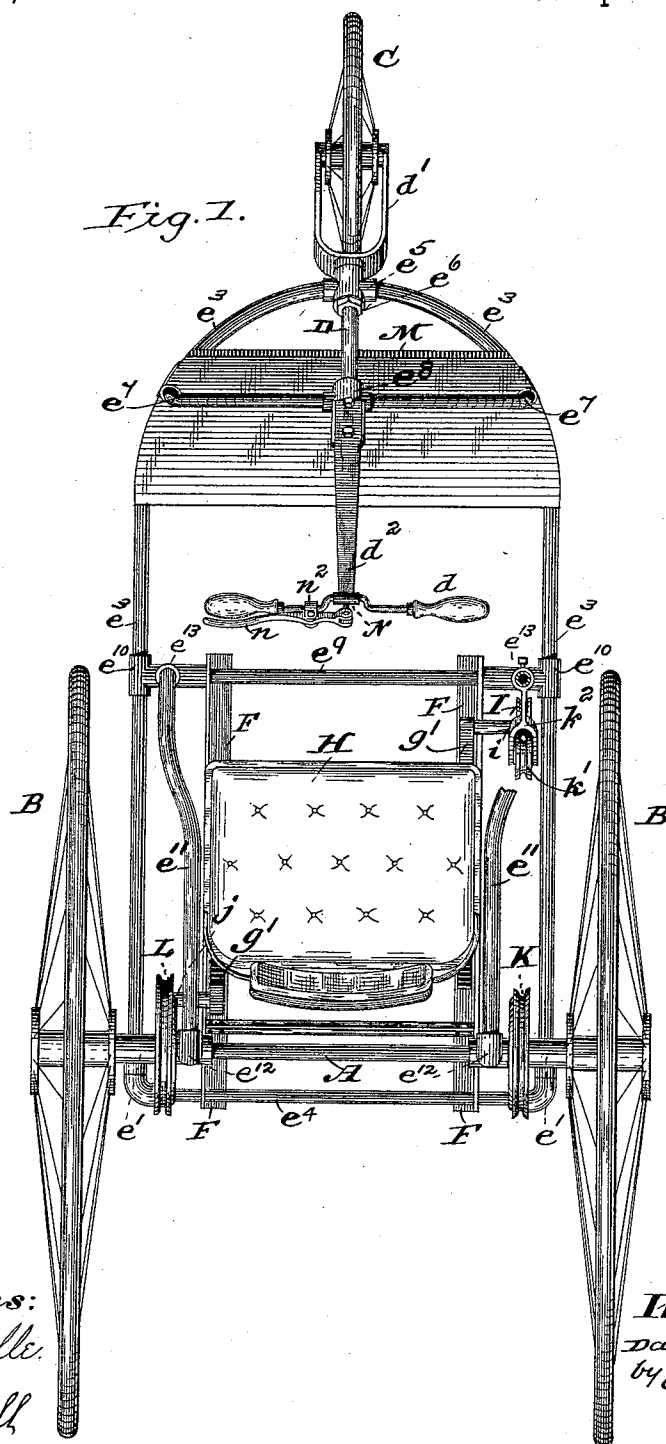
(No Model.)

3 Sheets—Sheet 1.

D. J. MOODY.
VELOCIPÈDE.

No. 473,196.

Patented Apr. 19, 1892.



Witnesses:

G. Bonville.

W. A. Hall

Inventor:

David J. Moody

by C. D. Moody
his atty.

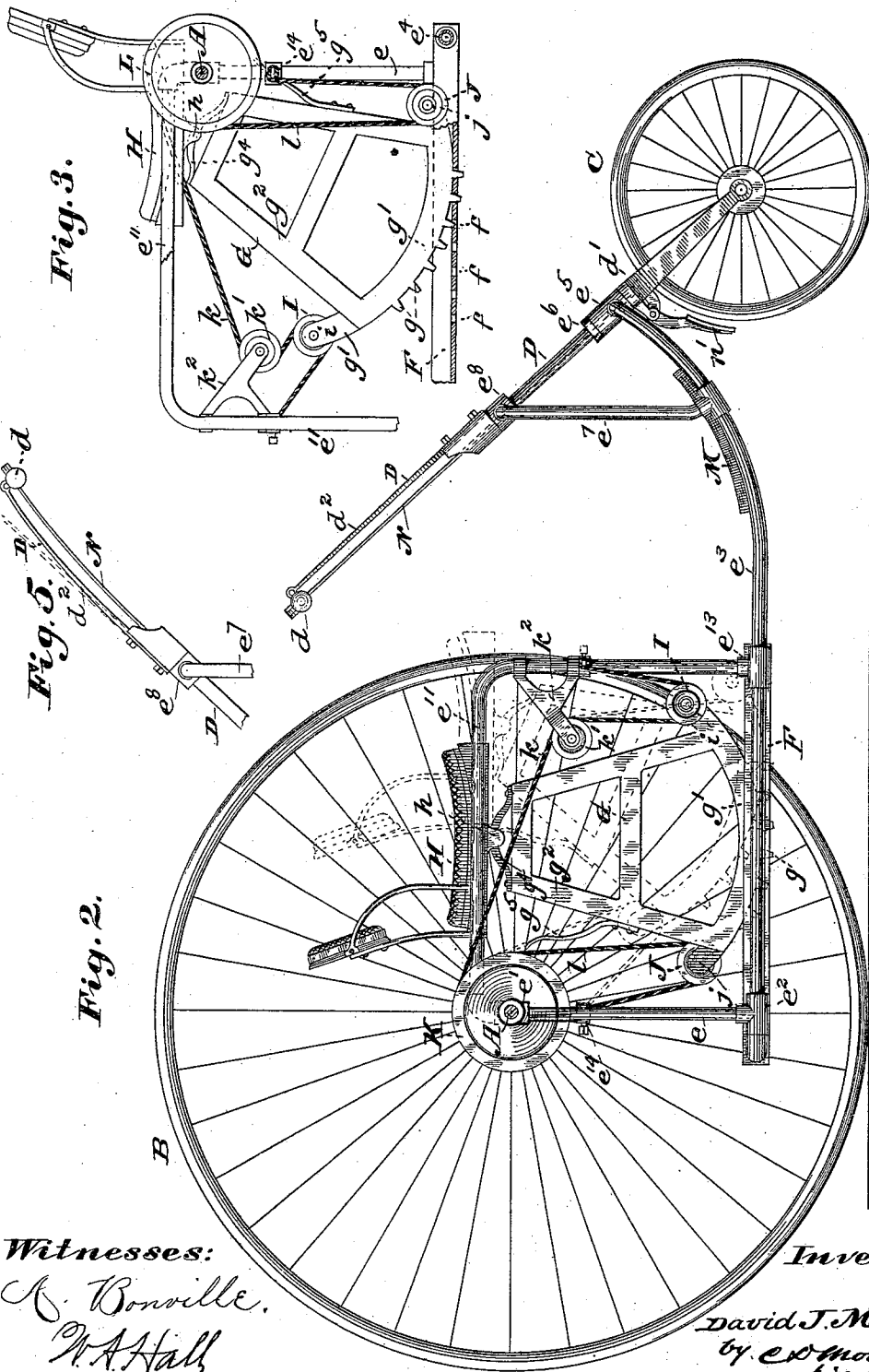
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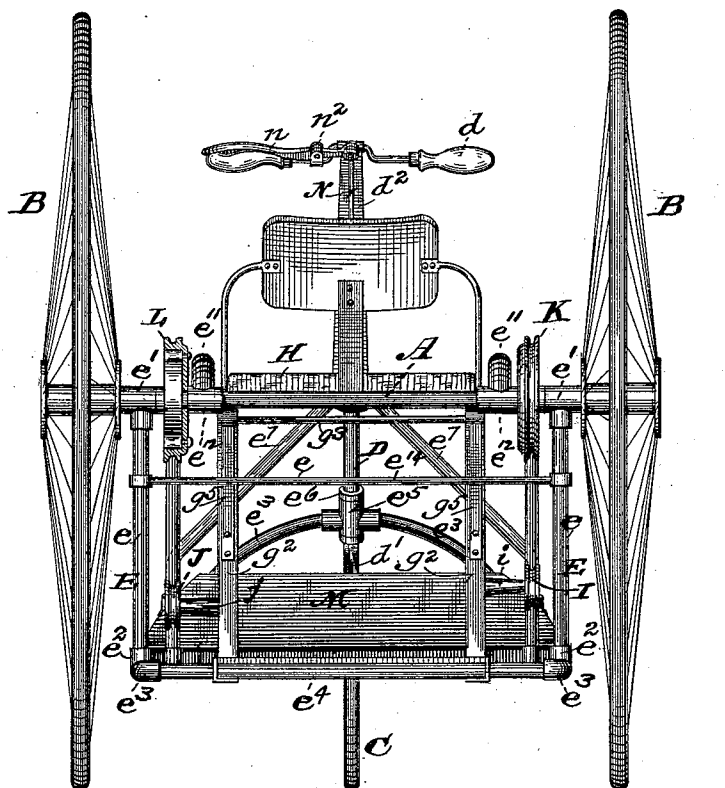
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Fig. 4,



Attest;

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UNITED STATES PATENT OFFICE.

DAVID J. MOODY, OF ST. LOUIS, ASSIGNOR TO CHARLES D. MOODY, OF WEBSTER GROVES, MISSOURI.

VELOCIPEDE.

SPECIFICATION forming part of Letters Patent No. 473,196, dated April 19, 1892.

Application filed July 28, 1890. Serial No. 360,195. (No model.)

To all whom it may concern:

Be it known that I, DAVID J. MOODY, formerly of Lowell, Massachusetts, now of St. Louis, Missouri, have made a new and useful
5 Improvement in Tricycles and other Carriages, of which the following is a full, clear, and exact description.

The present invention relates to that class of carriages which are propelled by the occupant; and it consists in the means, substantially as is hereinafter set forth and claimed, aided by the annexed drawings, making part of this specification, in which—

Figure 1 is a plan of the improved carriage, one of the arms being broken away and the belts being omitted; Fig. 2, a side elevation thereof, the near main wheel being omitted; Fig. 3, an elevation, looking at the opposite side of the carriage to that presented in Fig. 2, but showing only the rocker and the parts immediately therewith connected, one of the rocker-supports being in section; Fig. 4, a rear elevation of a carriage, a portion of one of the ratchet mechanisms being in section and the belts omitted; Fig. 5, a side elevation of the upper part of the steering mechanism.

The same letters of reference denote the same parts.

In the present carriage power exerted by the occupant is transmitted to a rocking device hereinafter termed the "rocker," and the movement of the rocker in turn is transmuted into rotary motion of the main axle of the carriage, which is thereby propelled.

35 The rider seats himself upon the rocker and grasps a hold—such, for instance, as the tiller of the steering-bar—and by shifting his weight, but aided, if desired, by pressing his feet against a shoulder—such as a foot-board—in rocking backward and pulling upon the tiller in rocking forward, effects the backward and forward movement of the rocker, and thereby propels the carriage.

A spring at the back of the rocker can be used to promote the forward movement thereof, and the movement may be further facilitated by making the upper portion of the tiller-support in the form of a spring.

Additional features of the construction are the provision whereby the fulcrum of the rocker is shifted forward and backward in

the carriage as the rocker is rocked forward and backward, the provision whereby the rider's seat can turn upon the rocker to suit the position of the rider as the rocker is moved, and other combinations of parts whereby other advantages are obtained, substantially as is hereinafter described.

A represents the main or driving axle; B B, the main wheels; C, the front or steering wheel, and D the steering-bar, in whose lower forked end the steering-wheel C is journaled, and to whose upper end the tiller *d* is attached.

E represents a frame-work supported at its rear end from the axle A and extending thence forward and at or toward its forward end connected with the steering-bar D, but so that the steering-bar carrying the steering-wheel can be turned therein to guide the carriage when it is desired to turn to the right or left. This frame-work, in addition to uniting the main wheels and axle with the steering-wheel, serves to support the rocker and the means for transmitting its movement to the parts connected with the axle A. To this end the preferable form of the frame-work is the one shown. A pair of bars *e e*, by means of the tubular fittings *e' e'*, are connected with the axle A toward the sides, respectively, of the carriage and in such a manner as to permit of the rotation of the axle, and extend thence downward, and by means of the fittings *e² e²* are united with the horizontal bars *e³ e³*, respectively. The last-named bars at the rear end thereof are united by means of the cross-bar *e⁴*, and at the forward end thereof the bars *e³ e³* curve upward and inward, substantially as shown; and are united to a head *e⁵*, in which the steering-bar D is journaled. The head *e⁵* bears upon the upper end of the fork *d'* of the steering-bar. A collar or nut *e⁶* serves to prevent the head *e⁵* from rising on the steering-bar. Braces *e⁷ e⁷* lead from the bars *e³ e³*, respectively, at a point in the rear of the head *e⁵* upward and inward, and at the upper end thereof are united to the tubular fitting *e⁸*, through which the steering-bar D passes and in which it is journaled. At a point in front of the location of the rocker a cross-bar *e⁹* extends across the carriage and is connected with the bars *e³ e³* by means of the fittings *e¹⁰ e¹⁰*. Another

pair e^{11} e^{11} of bars extend from the axle A forward to a point in advance of the rocker, and thence downward to connect with the cross-bar e^9 . Their connections with the axle is by means of the tubular fittings e^{12} e^{12} to permit of the rotation of the axle, and with the cross-bar by means of the fittings e^{13} e^{13} . An additional part of the frame-work is the cross-bar e^{14} , Fig. 4, which is attached to the bars e e toward the upper end thereof.

F F represent what may be termed the "rocker-supports." They extend longitudinally in the carriage, so as to uphold and provide for the movement of the rocker, and as the most desirable construction they are in the form of bars L-shaped in cross-section, and they extend from the cross-bar e^4 to the cross-bar e^9 , to which bars they are attached, substantially as shown, and they are perforated at f f , Fig. 3, to receive the teeth g g of the rocker G, substantially as shown. This last-named part may be variously shaped and adapted to be tilted or rocked and the object of the improvement more or less attained. I prefer, however, the special construction shown—that is, a frame whose part or parts which bear immediately upon the rocker-supports are in the form of curved bars g' g' , substantially similar to those used upon a rocking-chair. The advantage accruing therefrom is this: As the rocker is moved forward and backward in the carriage, as described, its teeth g g engage successively in the perforations f f of the supports F F, and that perforation or perforations which for the time being are occupied by the rocker-teeth constitute the fulcrum of the rocker—that is, the fulcrum shifts along the supports F F with the movement of the rocker, the effect of which is to shorten the distance between the fulcrum and that point of the rocker from which its movement is transmitted more and more as the rocker approaches the end of its half-stroke—that is, at the beginning of the half-stroke of the rocker, as in Fig. 3, the rocker-fulcrum is farthest removed from the point of resistance to the movement of the rocker and the power of the rider is exerted least advantageously; but as the rocker moves the power is applied more and more advantageously, and at the end of the half-stroke it is applied most advantageously of all. This I consider preferable to a rocker whose fulcrum is fixed, for in initiating the movement of the rocker upon its half-stroke less power suffices, whereas after the rocker has acquired some momentum more power can be profitably used, and at the end of the half-stroke of the rocker the entire force exerted by the rider can be most beneficially utilized. The rocker in the present instance has two uprights g^2 g^2 , suitably united by means of cross-rods, such as g^3 , Fig. 4, to form a suitable frame for the purpose in view. The curved bars g' g' form or are applied to the lower ends, respectively,

The rider's seat H, at or near the top of the

rocker, is preferably not rigidly attached to the rocker, but is jointed thereto to enable the seat to remain in a more horizontal position in use than would be practicable if it were fixed upon the rocker. To this end the seat is journaled at h upon the rod g^2 to enable it to be turned substantially as is indicated by its various positions shown and indicated in Figs. 2 and 3. The seat-rod g^2 may rest on springs g^4 g^4 , which in turn are attached to the rocker. The seat may be of any shape suited to the purpose. The rocker has springs g^5 , which as the rocker turns backward encounters a shoulder—say the bar e^{14} —and cushions the movement in that direction of the rocker and also assists in starting the rocker in its forward movement. The springs might be attached to a fixed part of the structure and the rocker adapted to encounter them.

The rocker and rider's seat and other parts of the construction are preferably adapted so that on the backward movement of the rocker the seat can pass slightly above the level of the axle A. The power exerted by the rider is, as stated, applied to the rocker and thence to the driving-axle A.

The power can be taken off the rocker at various points thereof. I preferably locate these points well down in the rocker, as follows: I represents a sheave journaled at i upon the forward end of the right-hand one of the bars g' g' of the rocker. J represents a similar sheave journaled at j upon the rearward end of the left-hand one of the bars g' g' . A pair of ratchet mechanisms K and L, analogous in construction and operation to those already used upon bicycles, such as the "Star," are applied to the axle A and so as to effect the forward rotary movement of the axle when the belts k and l , belonging, respectively, to the ratchets, are drawn out. The belt k leads from the ratchet K forward over a sheave k' , journaled in a bracket k^2 , attached to the right-hand one of the bars e^{11} e^{11} , and thence downward underneath and around the sheave I and thence upward to a level above that of the sheave I, where it is secured to a fixture—say the bar which supports the bracket k^2 . The belt l leads from the ratchet L downward and underneath and around the sheave J, and thence upward to a level above that of the sheave J, where it is secured to a fixture—say the cross-bar e^{14} .

In operation the rider occupies the seat H, places his feet upon the foot-board M, which is supported upon the bars e^3 e^3 , and grasps the tiller d . By shifting his weight to incline the rocker forward, and also, if he chooses, by drawing upon the tiller, he causes the rocker to turn forward, as indicated by the broken lines in Fig. 2, the sheave I to be thereby depressed and the belt k thereby drawn out. The movement of the belt effects the rotation of the ratchet K and axle A, and the carriage is propelled forward. On the return half-stroke the rider shifts his weight to incline the rocker backward, and, also, prefera-

bly, pushes himself backward, partly by pressing with his hand against the tiller, but more especially with his feet against the foot-board M. This last-described movement causes the
 5 rocker to be turned backward, as shown in Fig. 3, the sheave J to be depressed, and the belt *l* thereby drawn out. This causes the ratchet L and axle A to be rotated and the carriage to be propelled forward. By continuing to move the rocker in the described
 10 manner the propulsion of the carriage is maintained. As either belt is being drawn out and its ratchet thereby rotated in a forward direction the other of the belts is by
 15 means of the ratchet mechanism being wound upon its ratchet. The ratchets are also, as stated, of the usual construction, which permits of the continued forward rotation of the axle A after the belts have ceased to draw
 20 upon the ratchets. As the belts *k* and *l* are doubled around their respective sheaves I and J their movement is twice as far, substantially, as is the movement of said sheaves, and hence the pull upon the ratchets is correspondingly prolonged.

The steering-bar D is journaled advantageously in the two bearings *e*⁵ *e*⁸, and the frame-work in turn is advantageously supported at its forward end. The upper portion
 30 of the steering-bar is preferably in the form of a spring, capable of being sprung substantially as is indicated by its positions shown, respectively, in Figs. 2 and 5. As the rider moves backward the part *d*² is sprung backward, as indicated in Fig. 5, and on the return the recovery of the spring promotes the forward movement of the rocker. The part *d*² thus coacts with the springs *g*⁵. On the backward movement of the rocker such auxiliary aid as may be supplied by springs is
 40 not so much needed.

N represents a brake, which may be advantageously used. At its upper end it is provided with a suitable lever *n*, constructed and
 45 adapted to be operated in the customary manner, and from its point of connection with the lever it extends downward past the part *d*² and through the lower tubular portion of the steering-bar, and at its lower end is provided
 50 with a shoe *n'*, which when the brake-lever *n* is turned upon its fulcrum *n*² is applied to the steering-wheel. By turning the bar D in its bearings *e*⁵ *e*⁸ to the right or left the carriage is guided as desired. I desire not to be
 55 restricted to this special form of steering mechanism. The bar D and its tiller *d*, however, constitute a convenient hold for the rider to grasp in operating the rocker, as described, irrespective of the matter of directing the movement of the carriage. The inclination backward of the bar and tiller, substantially as shown, is desirable, in that the hold for his hands is in a convenient position. Nor do I wish to be limited to a direct connection
 60 between the rocker and the ratchets upon

the axle A, for the described movement of the rocker may be imparted to intermediate mechanism, whose movement in turn may be transmitted to the ratchets. Neither do I wish to be restricted to a tricycle, as the described
 70 rocker and supports and other coacting parts can be used in other forms of carriages. Further, I do not confine myself to the special means herein shown in providing a movable fulcrum for a rocker. It should also be noted
 75 that either ratchet and belt, in combination with the rocker, substantially as described, is operative by itself. It is better, however, to employ the two ratchets and belts and associated parts, as thereby the best result is obtained. It will be seen that owing to the depression of the frame-work below the level of the main axle, as shown, the rocker and foot-board can be carried low down in the carriage and the stableness of the carriage thereby be
 85 increased. The carriage is also easy to enter.

I claim—

1. A carriage having the rocker and the rider's seat, said seat being adjustable to turn in a vertical plane upon said rocker, substantially as described. 90
2. The combination, in a carriage, of the main axle, ratchets, and belts, the frame-work, the rocker, the rocker-supports, and the belt-sheaves, substantially as described. 95
3. The combination, in a carriage, of the rocker and the spring-tiller, substantially as described.
4. The combination, in a carriage, of the rocker, the spring-tiller, and the foot-board, substantially as described. 100
5. The combination of the main wheels and axle, the frame-work, the steering-wheel, the steering-bar and tiller, the foot-board, the rocker, and the rocker-supports, the ratchets, the belts, and the belt-sheaves, substantially as described. 105
6. The combination of the main axle and ratchet K, the belt *k*, the frame-work, the rocker, and the sheaves *k'* and I, substantially as described. 110
7. The combination of the main wheel and the ratchet L, the belt *l*, the frame-work, the rocker, and the sheave J, substantially as described. 115
8. The combination, in a carriage, of the rocker, the adjustable rider's seat, and the spring-tiller, substantially as described.
9. The combination, in a carriage, of the rocker, the adjustable rider's seat, and the foot-board, said adjustable seat turning upon said rocker independently of the inclination of the rocker, substantially as described. 120

Witness my hand this 24th day of July, 1890.

DAVID J. MOODY.

Witnesses:

J. D. STILLMAN,
 A. B. STILLMAN.