

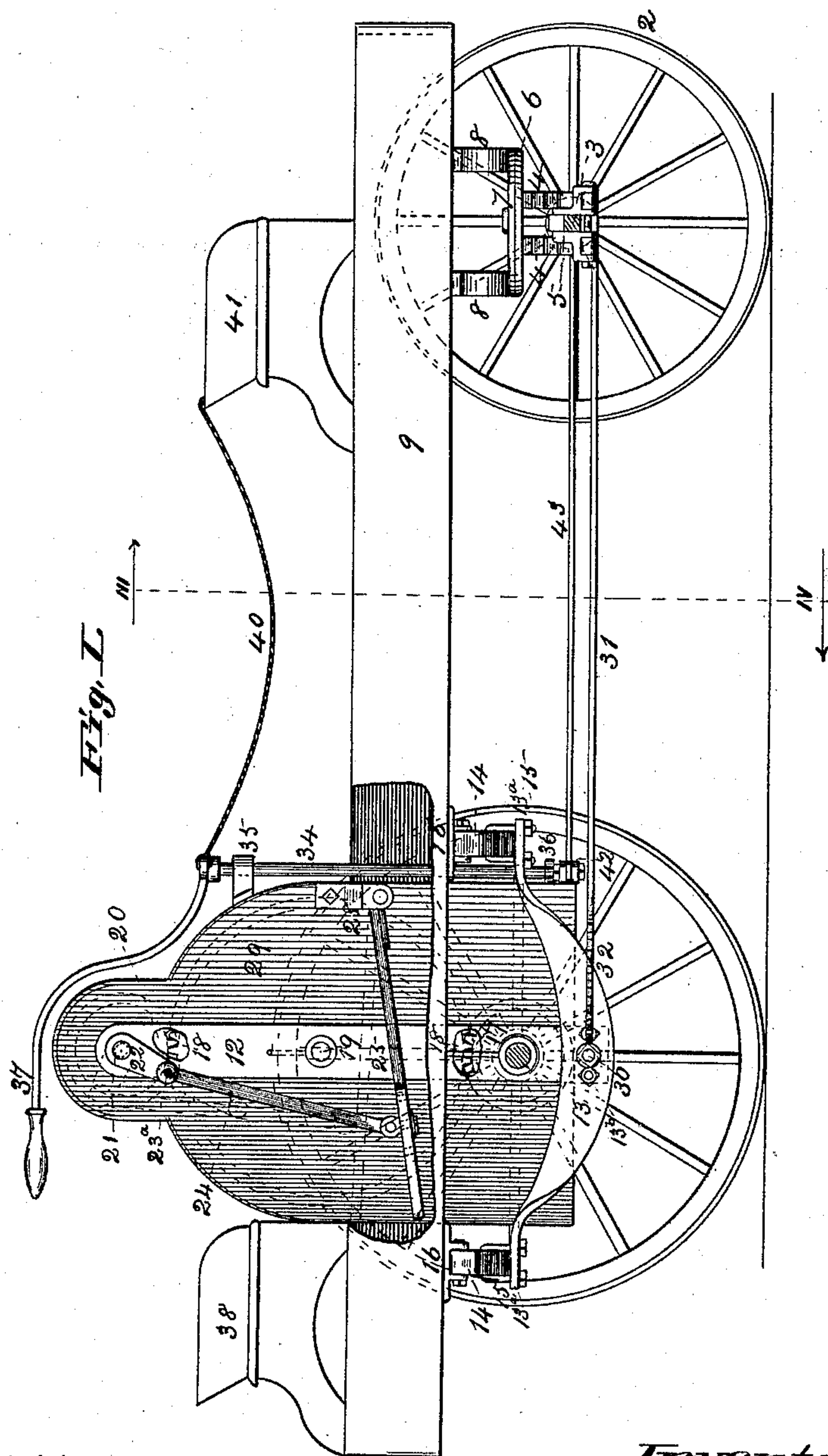
(No Model.)

3 Sheets—Sheet 1.

J. J. HAMMER.  
VELOCIPÈDE.

No. 477,540.

Patented June 21, 1892.



Attest:  
Geo. E. Cress  
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Inventor:

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By Knight & Bro.

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(No Model.)

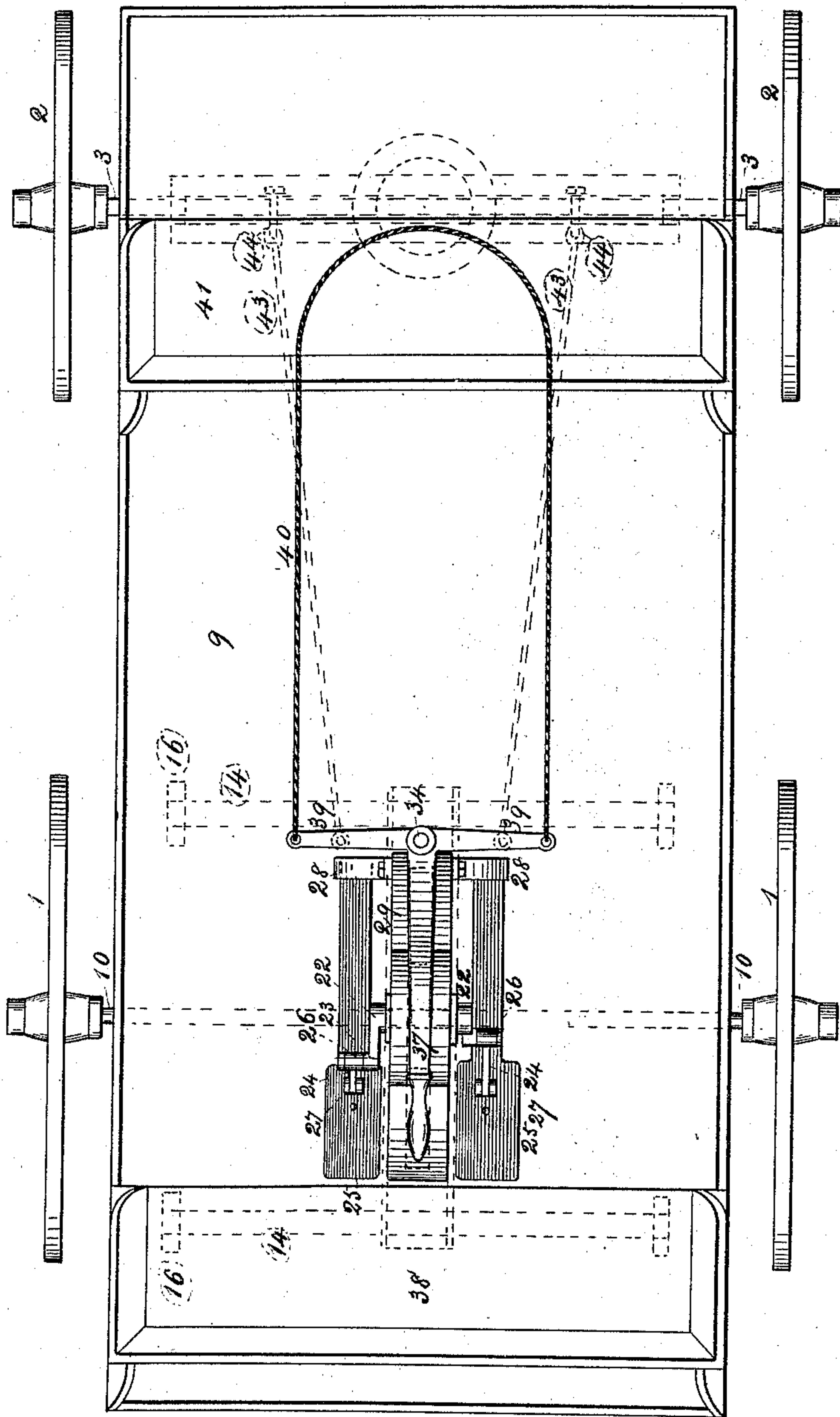
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Fig. 11.



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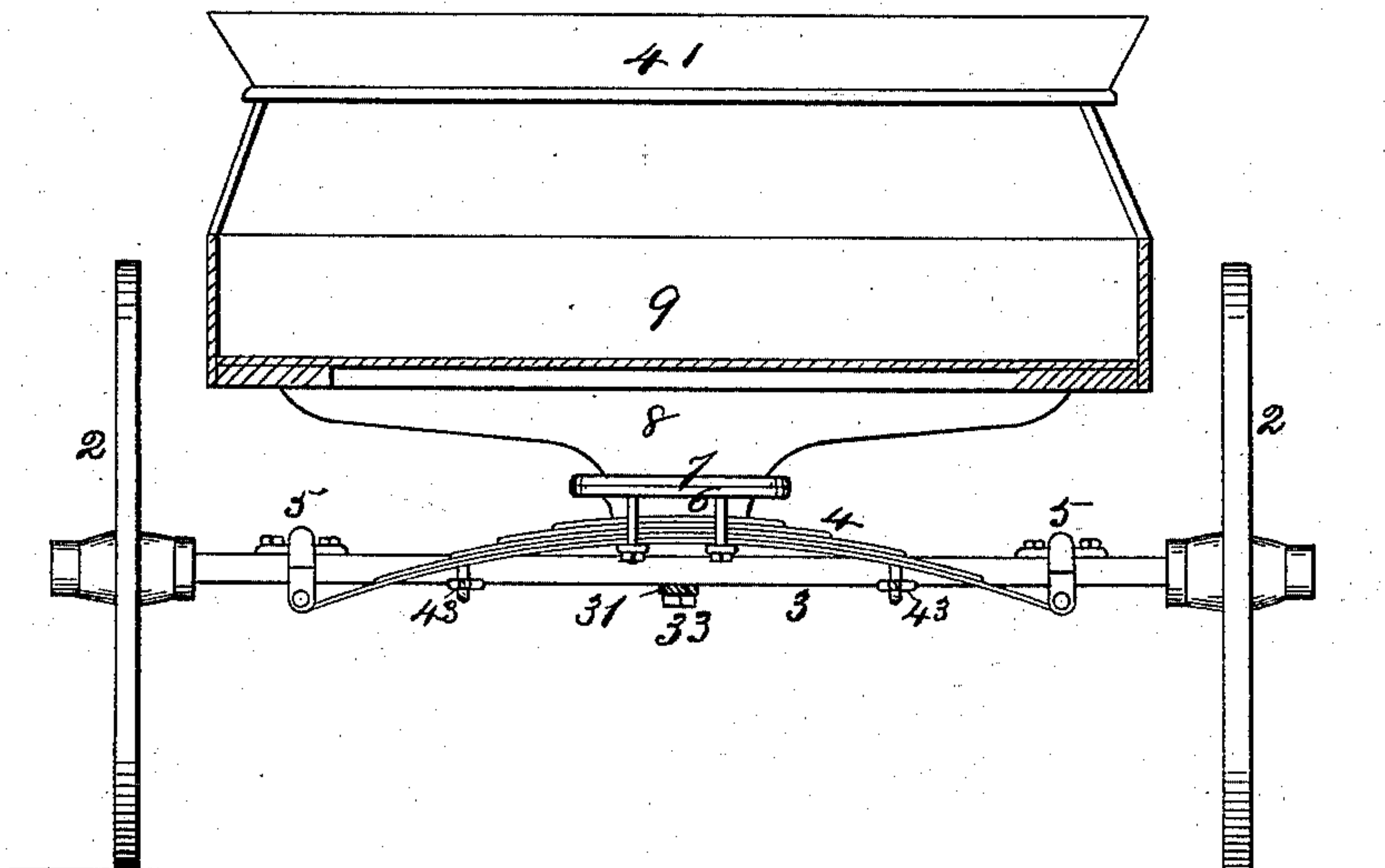
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J. J. HAMMER.  
VELOCIPÈDE.

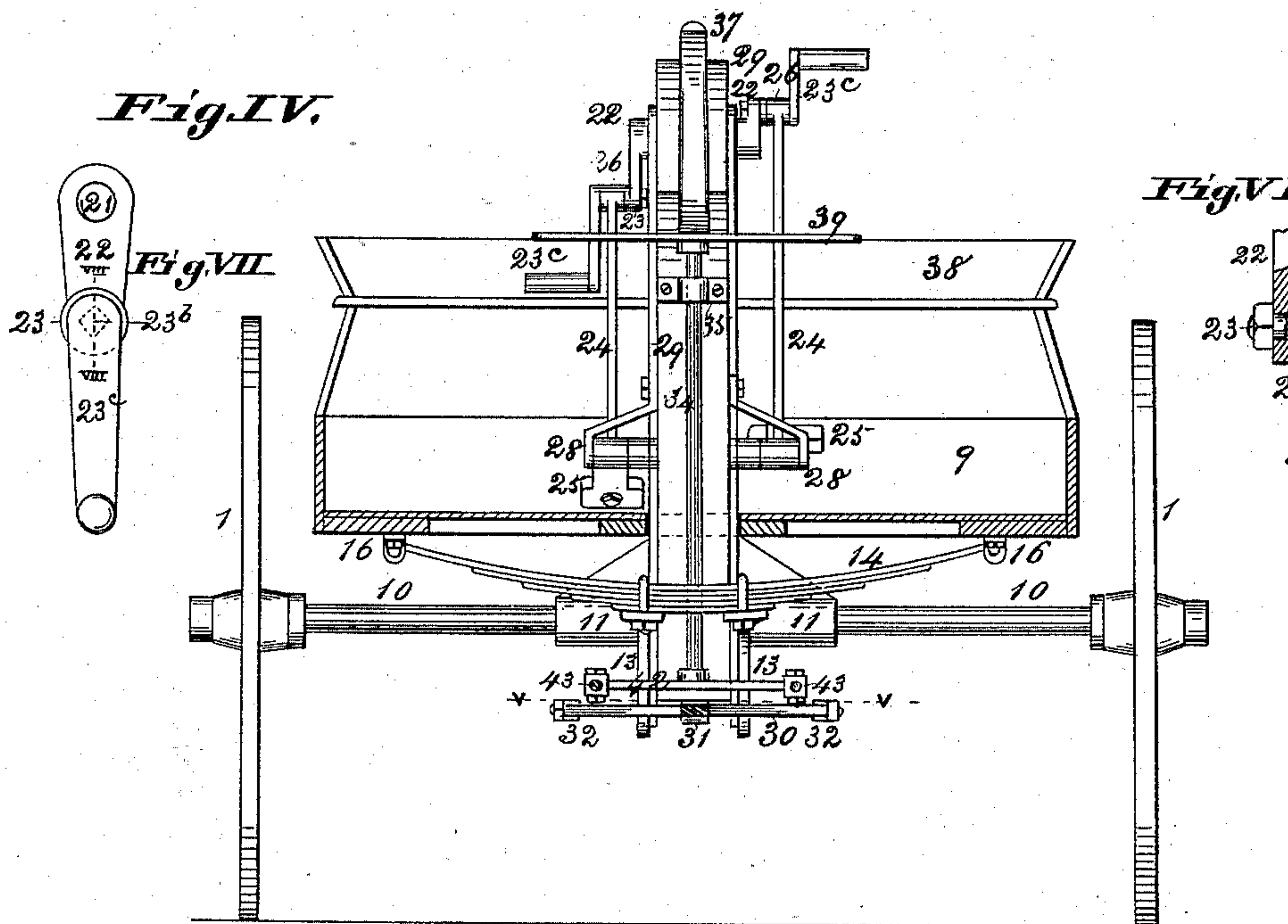
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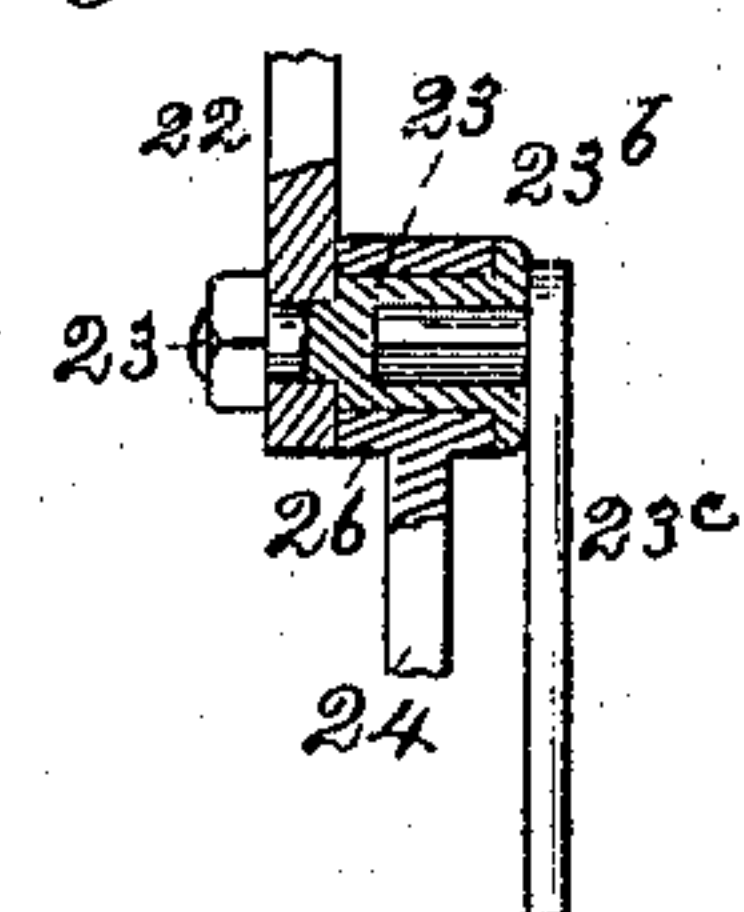
*Fig. III.*



*Fig. IV.*

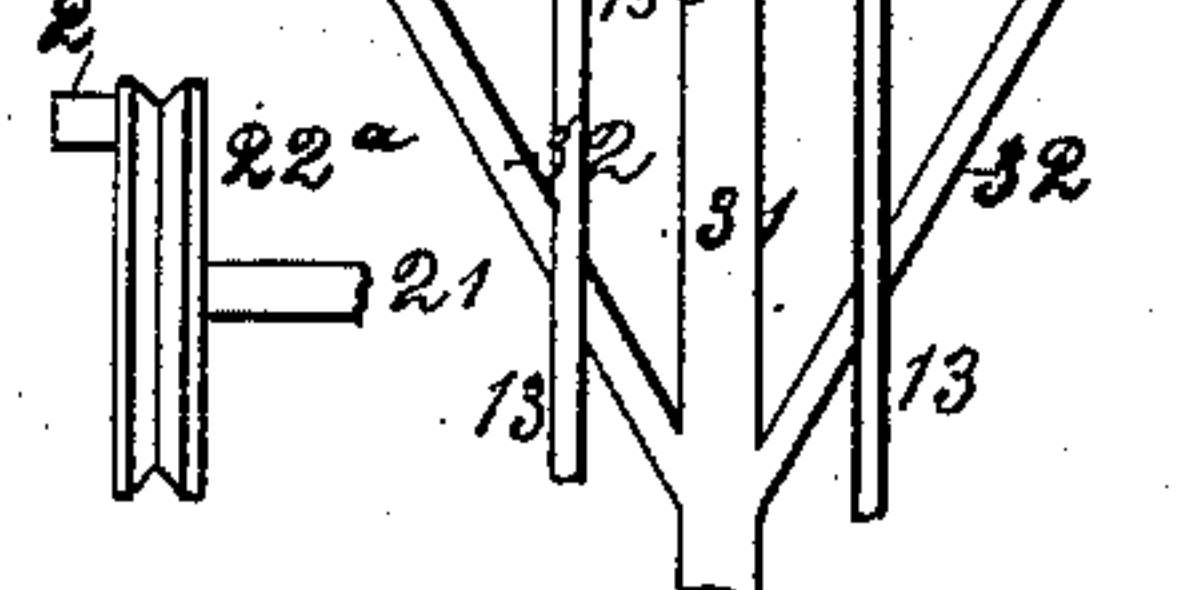


*Fig. V.*



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*Fig. VI.*



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# UNITED STATES PATENT OFFICE.

JENS J. HAMMER, OF ST. LOUIS, MISSOURI.

## VELOCIPED.

SPECIFICATION forming part of Letters Patent No. 477,540, dated June 21, 1892.

Application filed January 15, 1892. Serial No. 418,128. (No model.)

*To all whom it may concern:*

Be it known that I, JENS J. HAMMER, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Velocipedes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This velocipede is mounted on four wheels, two of which are drivers and the others used for steering the axle, the latter being connected with the body by a fifth-wheel, as in a buggy or other vehicle. The novelty consists in certain details, to be fully described in the specification and set forth in the claims.

Figure I is a side elevation of the device with part of the body broken away to disclose the treadle mechanism. Fig. II is a top view, with the position of parts beneath the body indicated by dotted lines. Fig. III is a transverse section taken at III IV, Fig. I, looking forward, as indicated by the arrow at III. Fig. IV is a transverse section taken at III IV, Fig. I, looking backward, as indicated by the arrow at IV. Fig. V is a detail horizontal section taken at V V, Fig. IV, showing the connection of the reach with the rear frame. Fig. VI is an elevation of the circumferentially-grooved crank-wheel. Fig. VII is a front view of the handle or winch, showing its connection with the treadle-crank. Fig. VIII is a detail elevation, partly in section, taken at VIII VIII, Fig. VII.

1 are the hind wheels, and 2 the fore wheels. The fore wheels turn free on the axle 3.

4 are half-elliptic springs on each side of the fore axle, whose ends are pivoted to clips or saddles 5, straddling the axle. The middle parts of the springs are clipped to the spring-block 6, forming the lower member of the fifth-wheel, to whose upper member 7 are fixed cross-pieces 8 of the body 9.

The hind wheels 1 are fixed to the shaft 10, that turns in bearings 11 of the upright side plates or standards 12, in which the drive-gearing has journal-bearing.

13 are upwardly-curved spring bearing-bars secured at their mid-length to the standards by bolts or nuts 13<sup>b</sup> and extending longitudinally. The central portions of the bars 13 are edge up, the bars being twisted near the ends, so that they form at the ends 13<sup>a</sup>

horizontal or nearly horizontal bearings for the central parts of the two half-elliptic springs 14, which are firmly connected to them by clips 15. The ends of the springs have bearing in ears 16 at the bottom of the body. The wheel-shaft 10 has fixed to it a spur-wheel or pinion 17, engaging a spur-wheel 18 upon a shaft 19, having journal-bearing in the standards 12.

20 is a spur-wheel or pinion engaging the wheel 18, and which is fast upon the crank-shaft 21, said shaft also having journal-bearing in the standards 12.

22 are cranks upon the shaft 21. The wrist-pins 23 of the cranks have an axial square or other non-circular socket 23<sup>a</sup> to receive a projection 23<sup>b</sup> upon the handle or winch 23<sup>c</sup>, the handle being attachable to the wrist-pin when required by insertion of the projection into the socket. The construction admits of the easy application or removal of the handles. The handles may be needed when starting the velocipede or when ascending a steep grade. The connecting-rods 24 of the treadles 25 are strapped at 26 to the wrist-pins 23, so that the treadles and handles may both be used, if desired, in turning the drive mechanism.

A common modification of the crank is shown in Fig. VI, consisting of a disk 22<sup>a</sup> with the crank or wrist-pin 23 set in it. This disk or wheel 22<sup>a</sup> is fitted to receive a round or flat belt, or may have sprocket-teeth to engage a drive-chain, to enable the gearing to be driven by an electric or other suitable motor. The treadles are hinged to the connecting-rods at 27 and to the frame or case 29 at 28. This case incloses the cog mechanism and is fixed to the standards 12 and spring bearing-bars 13. The frame or case extends upward through an aperture 9<sup>a</sup> in the bottom of the body 9 and has no connection with the body except through the springs and spring bearing-bars 13.

30 is a horizontal transverse bar passing through the parts of the standards 12 extending below the axle-shaft. This transverse bar passes through the bearing-bars 13.

31 is the reach, connected to the bar 30 between the standards.

32 are the hounds connecting the reach with the ends of the bar 30. The fore end of the



reach is connected to the fore axle by a pivot-bolt 33.

34 is a vertical steering-shaft having bearings 35 and 36 fixed to the front end of the case 29.

37 is a tiller extending rearward from the upper end of the shaft 35 in reach of a person on the rear seat 38, such seat being adapted for one working the treadles and hand cranks.

39 is a bar extending transversely from the shaft 34 to each side.

40 is a steering cord or rope extending from the ends of the cross-bar 39 to the front seat to enable a person on that seat 41 to steer the velocipede.

42 is a cross-bar at the lower end of the steering-shaft, connected to ears 44 on the front axle by rods 43, extending from its ends. It will be seen that the shaft 34 may be turned either by the tiller 37 or cord 40, and will turn the axle on the fifth-wheel to guide the velocipede.

The cog mechanism is all tightly boxed up in the case 29, so that no injury can occur from entanglement in the cogs.

I claim herein as new and of my invention—

1. The combination, in a velocipede, of two supporting drive-wheels 1 upon a shaft 10, drive mechanism geared with said shaft, guide-wheels 2, with axle 3, having fifth-wheel connection with the body of the velocipede, and a vertical guide-post 34 in proximity to the drive mechanism of the shaft 10 and having a cross-bar connected with the axle 3 through suitable connecting-rods, substantially as and for the purpose set forth.

2. The combination, in a velocipede, of the body 9, the case 29, inclosing the drive mechanism, occupying an aperture in the body-bottom and movable therein, the spring bearing-bars 13, attached to the said case, springs 14, having bearing at the ends of the bars 13 and connected to the body, substantially as set forth.

3. The combination, in a velocipede, of a

body 9, supported upon springs connected with the four ground-wheels 1 and 2, the axle-shaft 10, carrying the wheels 1 and the drive mechanism geared with the axle-shaft 10, and inclosing and supporting case 29, extending through an aperture in the bottom of the body and having no direct connection with the body.

4. The combination, in a velocipede, of the drive mechanism, a drive-treadle connected with a crank of said mechanism, and a removable handle or winch detachably connected with the crank-shaft, substantially as set forth.

5. The combination, in a velocipede, of the case 29, inclosing the drive mechanism, the said mechanism, the ground-wheels 1, the axle-shaft 10 of the ground-wheels with a gear-wheel engaged by the drive mechanism, the body 9, with an aperture 9<sup>a</sup>, occupied by the case 29 and in which the case has movement, the guide-shaft 34, having bearing on the case, a cross-bar 42 on the guide-shaft, the front axle 3, with pivotal connection with the body, rods 43, connecting the cross-bar 42 with the fore axle, and means for turning the guide-shaft in its bearings, substantially as and for the purpose set forth.

6. The combination, in a velocipede, of the body 9, fore axle 3, having pivotal connection with the body, guide-shaft 34, with suitable means for turning the shaft, cross-bar 42 on the shaft, connected by rods 43 with the fore axle, rear wheels 1, fast upon the axle-shaft 10, driving mechanism engaging the axle 10, treadles connected with the drive mechanism, removable handle or winch 23<sup>c</sup>, connectible with the drive mechanism, a case 29, containing drive mechanism, the said case extending upward through an aperture in the body 9, and connection by means of the bars 13 and springs 14 between the case and the body, substantially as set forth.

JENS J. HAMMER.

In presence of—  
SAML. KNIGHT,  
E. S. KNIGHT.