

No. 661,939.

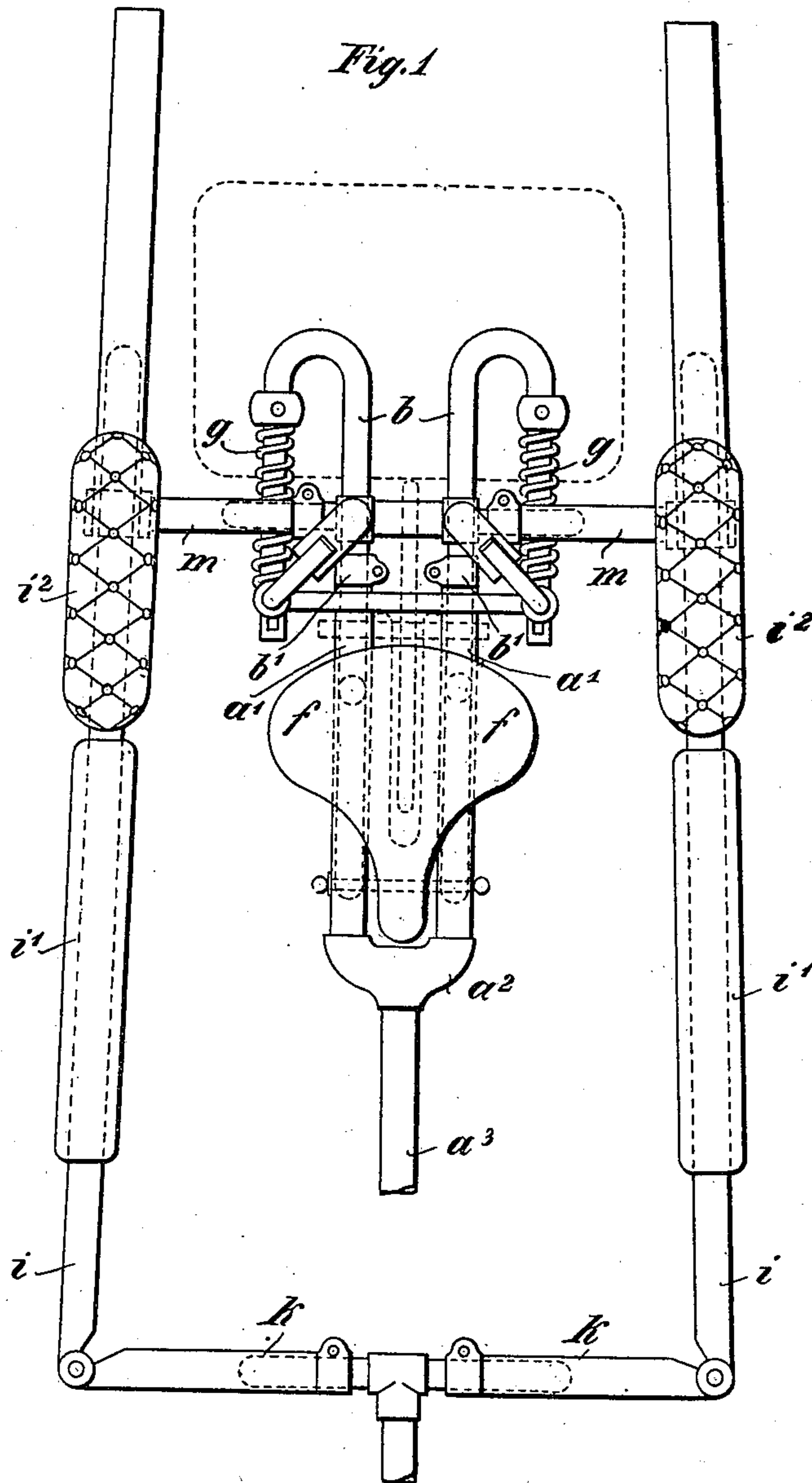
Patented Nov. 13, 1900.

M. VAN GÜLPEN.
VELOCIPÈDE.

(Application filed June 26, 1899.)

(No Model.)

6 Sheets—Sheet 1.



Witnesses:
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Inventor:
Max van Gülp
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No. 661,939.

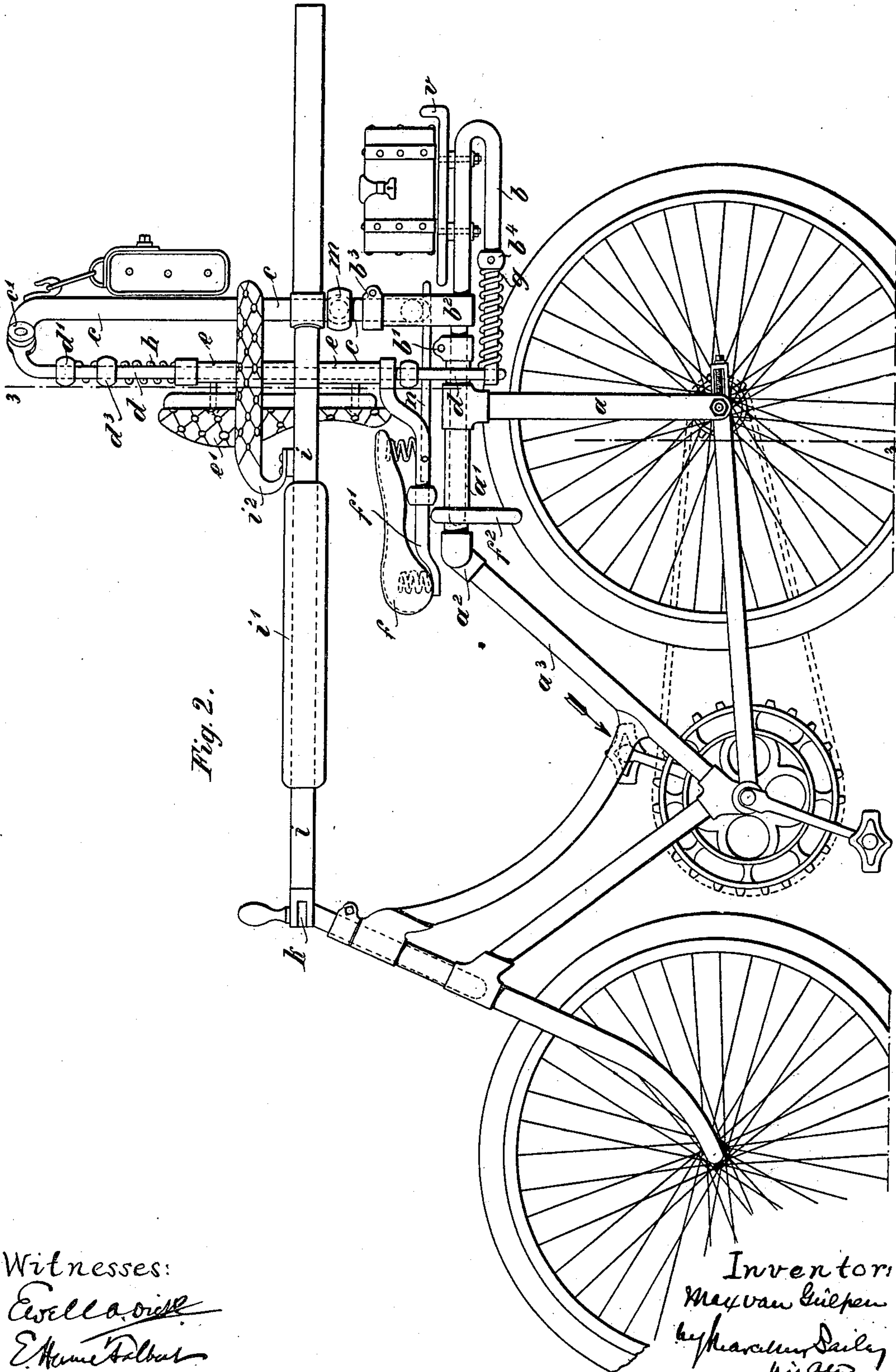
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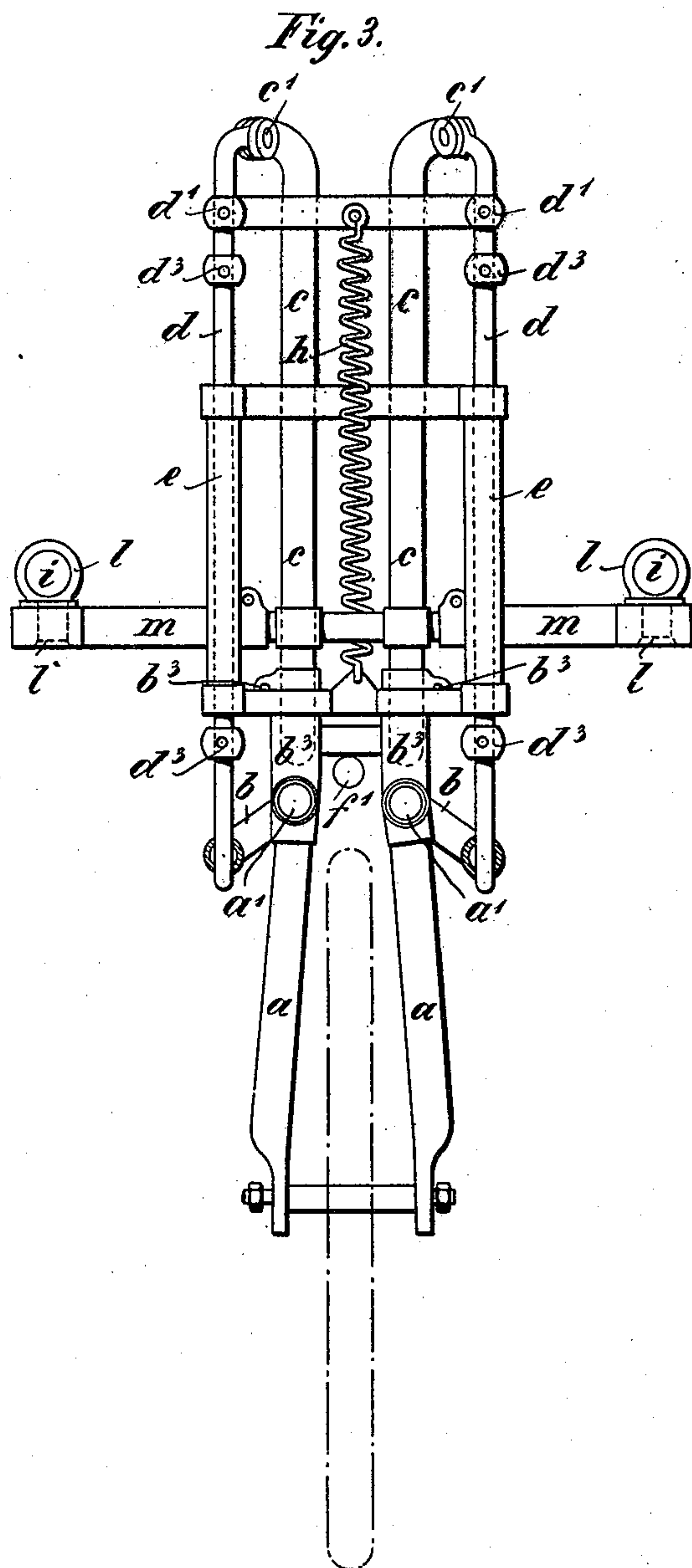
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(No Model.)

6 Sheets—Sheet 3.



Witnesses:

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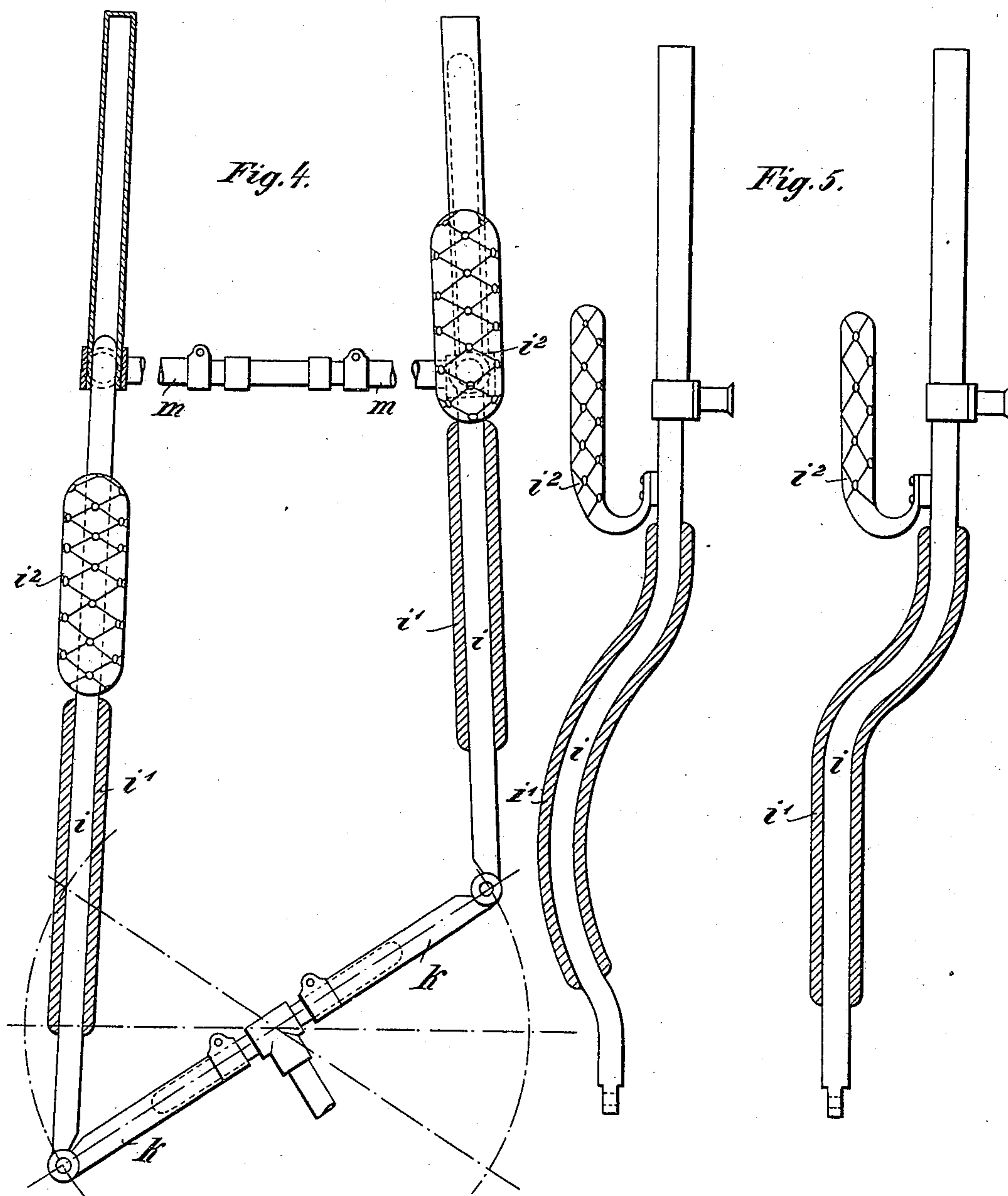
M. VAN GÜLPEN.
VELOCIPEDE.

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(Application filed June 28, 1899.)

(No Model.)

6 Sheets—Sheet 4.



Witnesses:

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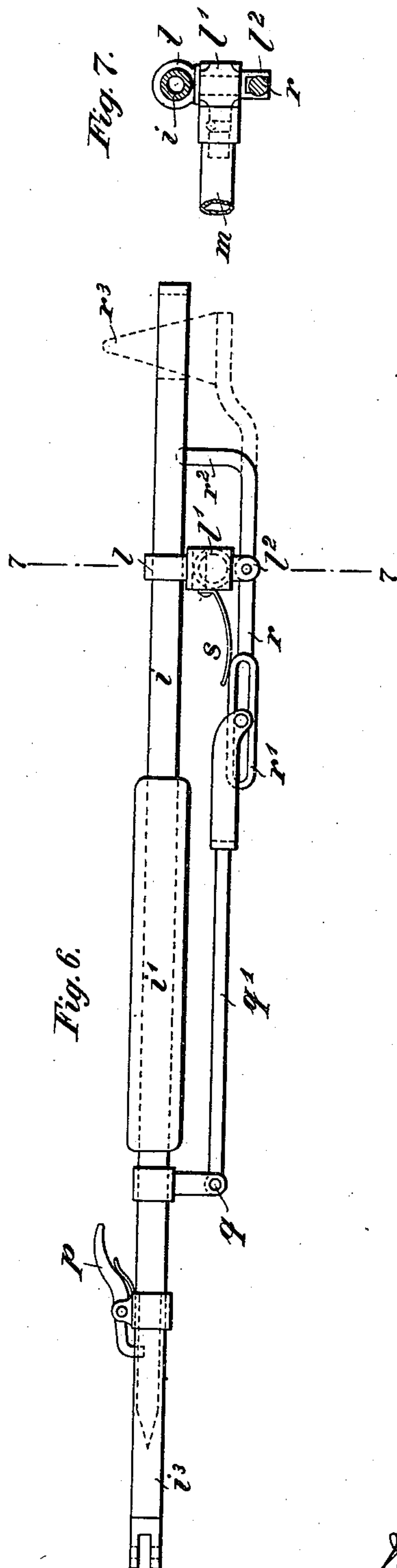
Patented Nov. 13, 1900.

M. VAN GÜLPEN.
VELOCIPÈDE.

(Application filed June 26, 1899.)

(No Model.)

6 Sheets—Sheet 5.



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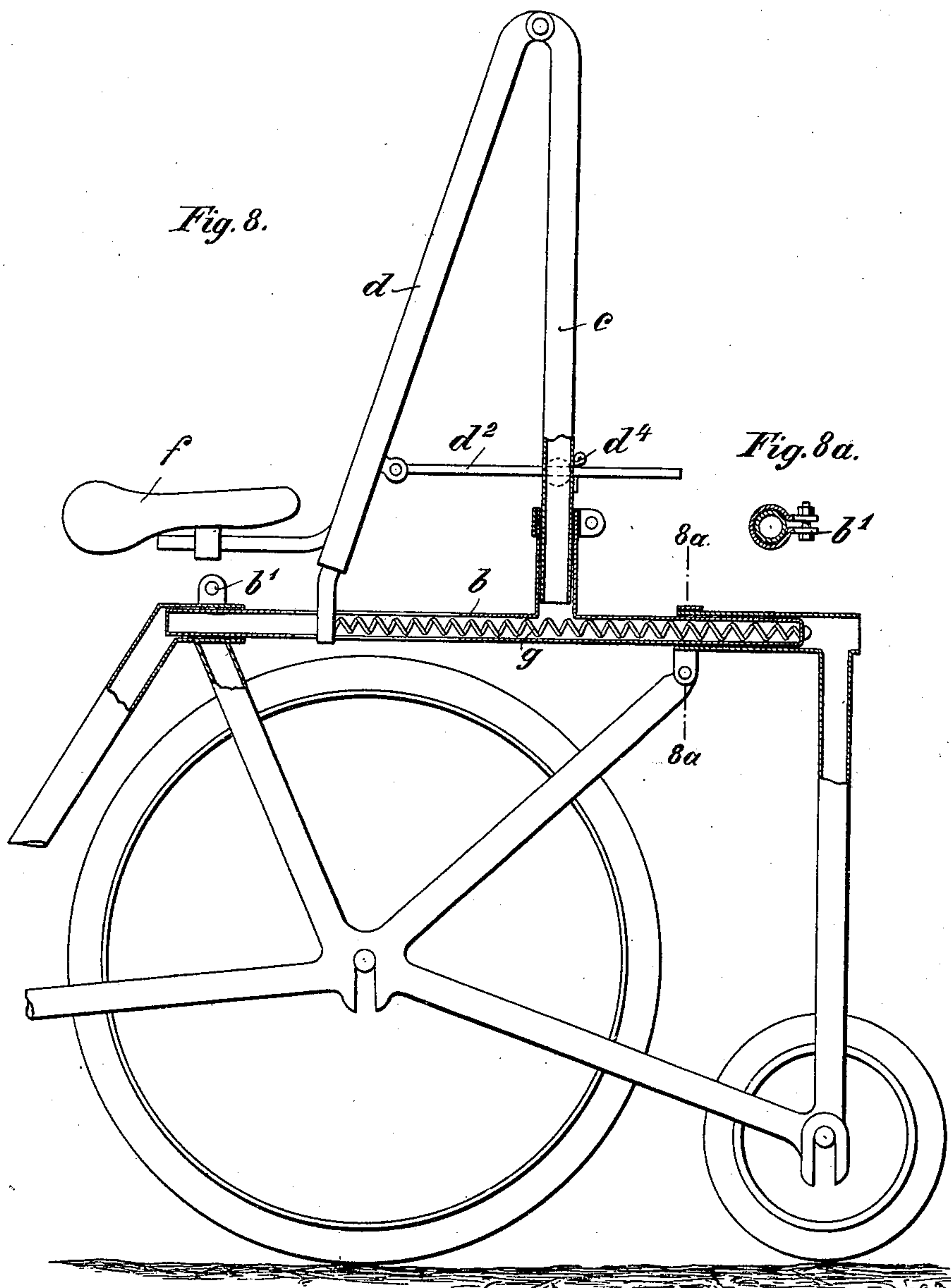
M. VAN GÜLPEN.
VELOCIPÈDE.

Patented Nov. 13, 1900.

(Application filed June 26, 1899.)

(No. Model.)

6 Sheets—Sheet 6.



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UNITED STATES PATENT OFFICE.

MAX VAN GÜLPEN, OF MÜLHEIM-ON-THE-RHINE, GERMANY.

VELOCIPEDÉ.

SPECIFICATION forming part of Letters Patent No. 661,939, dated November 13, 1900.

Application filed June 26, 1899. Serial No. 721,916. (No model.)

To all whom it may concern:

Be it known that I, MAX VAN GÜLPEN, manufacturer, a subject of the King of Prussia, Emperor of Germany, residing at Mülheim-on-the-Rhine, in the Kingdom of Prussia, German Empire, have invented new and useful Improvements in Velocipedes, of which the following is a specification.

This invention relates to a velocipede wherein with the object of insuring a fuller display or utilization of the forces of the body than has hitherto been attainable and an increased effective range of motion of the crank two movable side tubes or rods are connected with the steering handle or head, and a counter-support or abutment is arranged whereby the cyclist is afforded the opportunity of either bringing into operation an abutting force acting upon the cranks at an angle, or by grasping the side rods with his hands bringing his full power and entire weight to bear upon the crank-shaft in a vertical direction, or combining both methods of operating the cranks. The side tubes or rods are pivoted to the steering-handle or handle-bar and may be arranged to slide in guides revoluble upon a stationary cross bar or tube at the back of the cycle-frame, and either or both of the side tubes or rods may be made detachable from the steering-handle for the convenience of the cyclist in mounting and dismounting. In order to enable the two side tubes or rods to be secured in position where the course of the machine is straight, one of the said rods is provided with two coöperating levers, one of which is capable of being engaged with and disengaged from the corresponding side tubes or rods. Increased reliability in steering may be insured by providing the levers first mentioned upon both of the side tubes or rods and providing the free ends of the back levers with triangles or cams, each adapted to engage in slots formed in the corresponding side tubes or rods. Thus whenever either of these triangles or cams descends it leaves between its front edge and the front end of the slot as much room or scope as is necessary for turning the machine in the desired direction, while the other side rod may in that case be moved forward to a proportionate extent. The side tubes or rods may be used for supporting the cycle when at

rest by constructing each such tube or rod in two separable parts, so that the rearward part after being disconnected from the forward part may be moved outward and downward, so as to rest on the ground. The counter-support or abutment before alluded to preferably consists of a back-rest vertically movable upon swinging spring-controlled rods, which also serve to carry the saddle. If desired, means such as those hereinafter described may be provided for enabling the back-rest and saddle to be adjusted in a horizontal direction.

This invention will be best understood by reference to the accompanying drawings, in which—

Figure 1 is a plan of a portion of the improved velocipede. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical section on the line 3 3 of Fig. 2 looking from the front toward the back of the machine. Fig. 4 is a plan showing the movable side rods in a steering position. Fig. 5 shows side elevations of modified forms of the side rods. Fig. 6 is a side elevation showing means for locking the steering-head and enabling the side rods to be used for supporting the cycle. Fig. 7 is a vertical section on the line 7 7 of Fig. 6. Fig. 8 is a side elevation showing means for adjusting the back-rest and saddle and other parts hereinafter more particularly described, and Fig. 8^a is a section on the line 8^a 8^a of Fig. 8.

The horizontal tubes *a'* are rigidly connected at their back ends with the rear-fork tubes *a* and at their front ends with a transverse piece *a*², Fig. 1, which connects the said tubes *a'* to the downwardly-extending tube *a*³. Two tubes *b* are inserted into the rear ends of the tubes *a'* and are secured in position by means of clamping-rings *b'*. Upon the tubes *b*, which are each bent into the shape of a fork, as illustrated particularly in Figs. 1 and 2, short vertical tubes *b*² are secured, and into these tubes are inserted vertical tubes *c*, which are maintained at any required height therein by means of clamping-rings *b*³. To the upper ends of the vertical tubes *c*, which at these parts are slightly bent forward and sidewise, there are pivotally joined rods or tubes *d*, upon which a slide or carriage *e* is movably mounted, such carriage supporting

both a back-rest e' and through the medium of a bracket-arm f' the saddle f . The lower ends of the rods or tubes d pass through or are guided by slots provided in the fork-shaped tubes b and are constantly pressed forward by helical springs g , provided on the said tubes. To a transverse cross-piece d' , adjustably secured to the upper ends of the rods or tubes d , there is connected a tension-spring h , the lower end of which is connected with the bottom cross-piece of the slide or carriage e .

In order to enable the cyclist not only to exercise an abutting force directed toward the pedals at an angle owing to the relatively low position of the saddle and provision of the abutment or back-rack e' , but also to ascend and descend along with the pedals in a vertical direction, and thereby utilize his full weight for propelling the cycle, there are arranged on both sides of the machine tubes or rods i , which serve for enabling the cyclist to maintain an upright position and at the same time afford increased convenience in steering. The front ends of the tubes or rods i are pivotally jointed to the ends of the handle-bar k , while their rear ends are arranged to slide in guiding-eyes l , which are pivoted in a horizontal transverse tube m , connected with the vertical tubes c . For the convenience or comfort of the rider the tubes or rods i are provided with grasping-surfaces i' and with raised arms i'' , the latter of which serve as rests for the elbows. Both the handle-bar k and the horizontal cross-piece m are formed of tubes telescoping within and adjustable to each other, so that the distance between the rods i may be varied to suit the comfort of the cyclist. Very considerable power may be exercised on the tubes or rods i , so that the cyclist has the front wheel entirely under his control.

The effective length of the handle-bar k may be reduced, so that even by a comparatively slight displacement of the tubes or rods i the cyclist may secure an extensive angular movement of the front wheel. The front end of, say, the left-hand tube or rod i is detachable from the handle-bar k , so as to enable this tube or rod to be moved aside when the cyclist requires to mount or dismount. As shown in Fig. 5, the tubes or rods i may be curved or otherwise shaped to suit any particular requirements.

The mode of employment or operation of the improved velocipede is as follows: Let it be assumed that at the start the pedals occupy the position shown in Fig. 2. If the left-hand tube or rod i , for example, after having been disconnected from the handle-bar k be moved sidewise outward from the machine, it is possible for the cyclist, owing to the fact that the saddle is considerably lower and situated more nearly over the rear-wheel axle than in safety-bicycles as hitherto constructed, so that more free space is left within the frame than is provided in the ladies' cycles now in use, to re-

main standing with one foot on the ground as he mounts the machine, to take his seat on the saddle with great ease, and then to again secure the side tube or rod in position. Now as he presses at an angle upon or against the right-hand pedal, his back in the meantime being supported by the back-rest e' , the saddle f , which is suspended, pendulum-like, at the points c' by means of the rods or tubes d , moves back, and in so doing the resistance of the springs g is overcome, while the back-rest e' is drawn downward in opposition to the spring h , whereby the machine instantly receives a powerful impulse in the forward direction, after which the cyclist may bring his left leg into operation. Thus the cyclist's back is afforded a firm support, and inasmuch as the pedals during the further progress of the velocipede are moved forward along an oblique line the said velocipede exhibits a tendency to maintain a straight course, while the rider is enabled to keep his balance more readily than he could on a cycle of the usual construction.

Should the cyclist desire to exert his strength upon the pedals vertically, he may readily bring himself to the necessary erect position by resting his hands upon the side tubes or rods i , in which position his movements in rotating the pedals will be assisted by the saddle being moved forward by the spring g and the back-rest being raised by the spring h . In this position the cyclist is enabled to exert his maximum strength until the cranks very nearly attain their lower dead-point. In consequence of the pressure exerted by the cyclist upon the side tubes or rods i the cycle as it travels along maintains a straight course, the alternate depressions of the pedal-cranks not causing any appreciable deviations. When the cyclist requires to exert the maximum power, the two methods of operating the cranks may be combined, the rider in that case moving himself bodily upward and forward and also downward and rearward, with the result that the cranks will commence their effective stroke before they reach the usual upper dead-point and continue it until they nearly reach the usual lower dead-point.

Owing to the movability of the back-rest and saddle the cyclist is properly supported no matter what the posture of his body may be at the time. In order that the range of motion of the sliding carriage e , along with that of the back-rest e' and that of the saddle f , may be regulated at will, the rods d are provided with adjusting-rings d^3 , and the tubes b are provided with similar adjusting-rings b^4 , the lower rings d^3 being preferably arranged in such a position that the saddle is situated sufficiently low to permit the cyclist to prop up his legs against the pedals at an angle, as shown by the arrow in Fig. 2. For the purpose of mounting and dismounting it is more convenient for the cyclist to be able to secure the carriage e in its lowest po-

sition, which object may be obtained, for example, by means of a lock-bar n , as illustrated in Fig. 2, such bar being movable in a guiding-slot in the saddle-support or bracket-arm f' and capable of being shifted rearward under a transverse part of the standard-tubes b^2 . After mounting this lock device may be released. f^2 designates guide-rods specially provided for the saddle f .

For the convenient transport of luggage a plate v may be secured on rearward extensions of the tubes b and hooks or the like may for the same object be provided on the vertical tubes c . Where, however, it is necessary to carry luggage, it is desirable that means should be available for firmly supporting the velocipede in position when at rest. According to the example shown in Figs. 6 and 7 this result is attained by constructing one or both of the side tubes or rods i in two parts and by connecting it (or them) with the before-mentioned transverse tube m , so that it or they may be revoluble in a downward as well as a horizontal direction. On the front part i^3 of the side tube or rod i there is provided a spring catch or pawl p , which normally engages in an aperture or recess in the rear portion i of such tube or rod. When the pawl is released, this rear portion i may be withdrawn or disconnected from the front portion i^3 and moved outward and downward, the guiding-eye l for this purpose being pivoted in a sleeve l' , which is itself pivoted to the transverse tube m , Fig. 7. By these means when the tubes or rods i are turned outward and downward, as last described, their lower ends may rest upon the ground, and they are thus caused to act as lateral supports for maintaining the cycle in its vertical position.

Figs. 6 and 7 further illustrate an arrangement for securing the rods i in a straight direction of motion, thereby rendering the process of turning or steering more reliable. In the rear portion of one of the side tubes or rods there is pivoted at q a lever q' , which by means of a small roller carried on its free end engages with a slot r' , provided in a two-armed lever r . This lever r is pivoted in the lower bifurcated end l^2 of the guiding-eye l and has its rear or hook-shaped end r^2 constantly pressed by a spring s into or toward a recess in the tube or rod i , so that the said tube or rod i is firmly secured for a straight course of motion. Now when it is desired to turn the machine it is only necessary in grasping the handles i' to pull the lever q' upward, so as to disengage the hook r^2 from the tube or rod i and then to move the latter longitudinally to the required extent. To render the steering still more reliable, the arrangement described may be placed under both of the side tubes or rods i , and, as shown in dotted lines in Fig. 6, the two-armed lever r may be extended rearward and a triangle or cam r^3 be attached to the end of each such lever. By the action of the springs s the tri-

angles or cams are each constantly pressed into a slot provided in the adjacent side tube or rod i in such a manner that its front edge rests against the front end of the slot, while between the rear of the cam and back end of the slot a sufficient amount of free space is provided. Now supposing, for example, that it is desired to turn the cycle to the right a slight upward pull is exercised upon the lever q' , located under the right-hand tube or rod i , whereby the corresponding triangle is lowered and caused to leave between its front edge and the front end of the slot as much free space as is necessary to permit the said rod i to be drawn back to the required extent, the left-hand side rod i being free to be moved forward by reason of the free space between the back edge of the cam and the rear end portion of the slot.

In the modifications shown in Figs. 8 and 8^a the horizontal tube b , which carries the vertical tubes c , with the pendulum-rods d suspended therefrom, is made adjustable, so that the back-rest, together with the saddle f , may be adjusted horizontally without affecting the spring g , which in this example may be located within the tube b . To the rods d there is pivoted a rod d^2 , the perforated rear portion of which is guided by a transverse tie of the vertical tubes c , as shown in dotted lines in Fig. 8. By inserting a pin or stud d^4 into a hole in the said rod d^2 the effective power of the spring g may be varied and the forward movement of the back-rest limited. The clamping-sleeves b' serve for securing the tube b in position.

Owing to the fuller utilization of power which is attained in the before-described velocipede and to the increased amount of space which it provides within its frame as compared with existing machines, the chain-wheel employed on the crank-axle may be of considerably larger size than hitherto.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. In a velocipede the combination with the saddle and the steering-bar of two movable side tubes between which the saddle is arranged, back-rest and means for detaching one or both of the side tubes from the steering-bar, the said side tubes being pivotally connected to the steering-bar and movable in pivoted guides in the rear of the cycle-frame, essentially as and for the purpose described.

2. In a velocipede, the combination of a seat, a back-rest or support, a vertically-movable frame or carriage by which both the seat and back-rest are supported, and a tension-spring connected with such frame or carriage, substantially as set forth.

3. In a velocipede, the combination of a seat, pendulum-like, pivoted rods by which the saddle is supported, thus permitting a forward and back movement of the saddle, and springs which hold the saddle in normal position and are arranged to yield and per-

mit the saddle to move when certain pressure is applied to the pedal.

4. In a velocipede, the combination of pendulum-like pivoted arms *d* arranged to move in a forward and back direction at their lower ends, the springs *g* which hold them with a yielding force in a certain normal position, a vertically-movable frame or carriage *e* mounted upon the rods *d*, the saddle and a back-rest supported in such frame or carriage, and a tension-spring, *h*, connected with the frame or carriage, substantially as set forth.

5. In a velocipede the combination of the steering-bar of two movable side tubes, a back-rest and means for securing the said side tubes in straight direction, consisting of two coöperating levers one of which is fulcrumed in fixed relation to the frame and engages by a projection with a recess in the corresponding side tube, essentially as and for the purpose described.

6. In a velocipede the combination with the steering-bar of two movable side tubes, a back-

rest and levers fulcrumed in fixed relation to the frame and coöperating with the side tubes, which levers carry triangles or cams adapted to engage in slots of the said tubes, essentially as and for the purpose described.

7. In a velocipede, the combination with the steering-bar, of a movable side tube formed of two separate parts, one connected with the steering-bar, and the rear one having sliding, as well as a substantially universal connection with the frame, whereby when the parts of said side tube are disconnected, the rear part may be moved outward and down to constitute a rest or support for the velocipede, substantially as set forth.

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

MAX VAN GÜLPEN.

Witnesses:

LOUISE BARNES,
WILLIAM H. MADDEN.