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# H. G. MEUMANN.

## VELOCIPEDE.

No. 589,531. Patented Sept. 7, 1897.

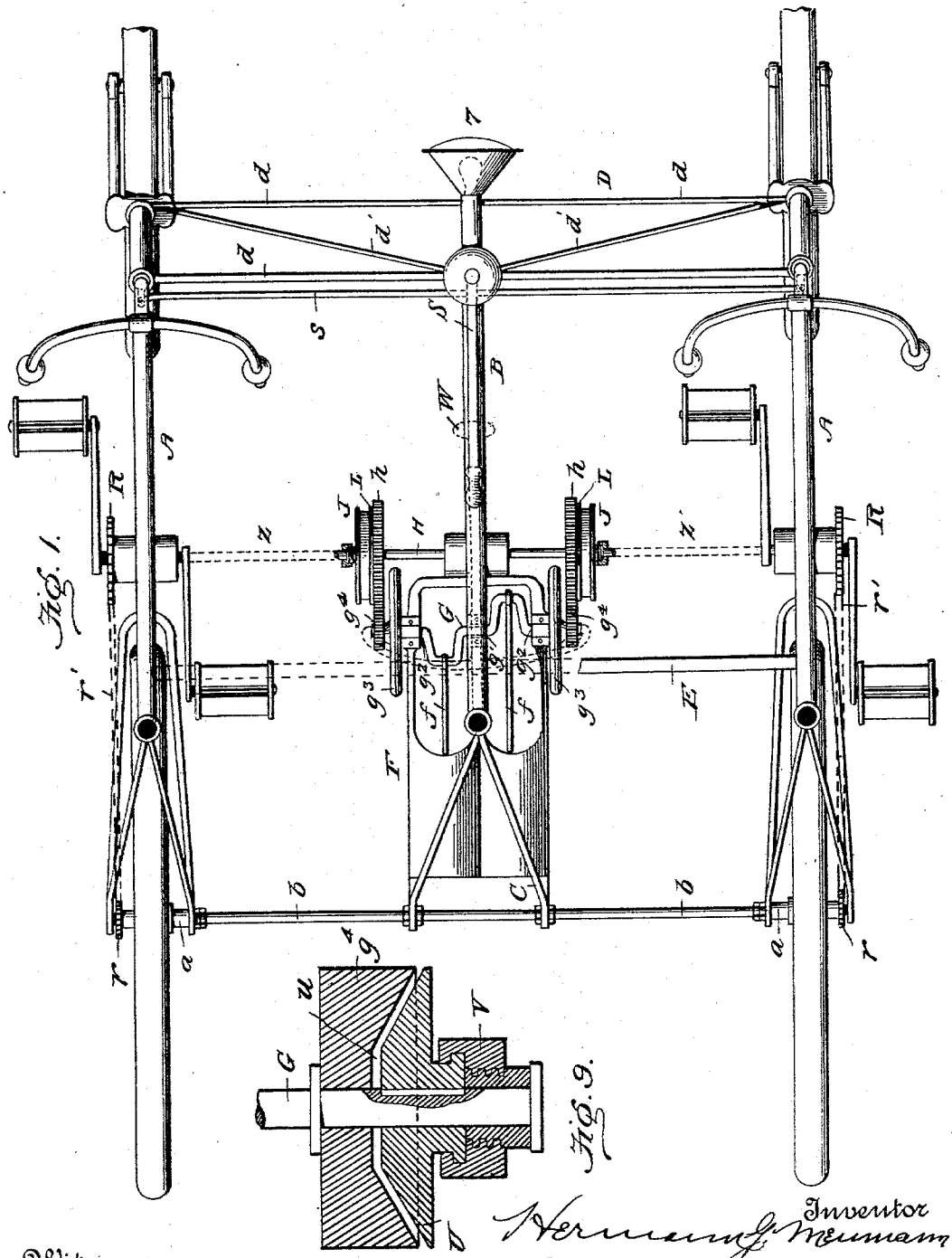


Fig. 1.



Fig. 9.

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## VELOCIPEDE.

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Fig. 2.

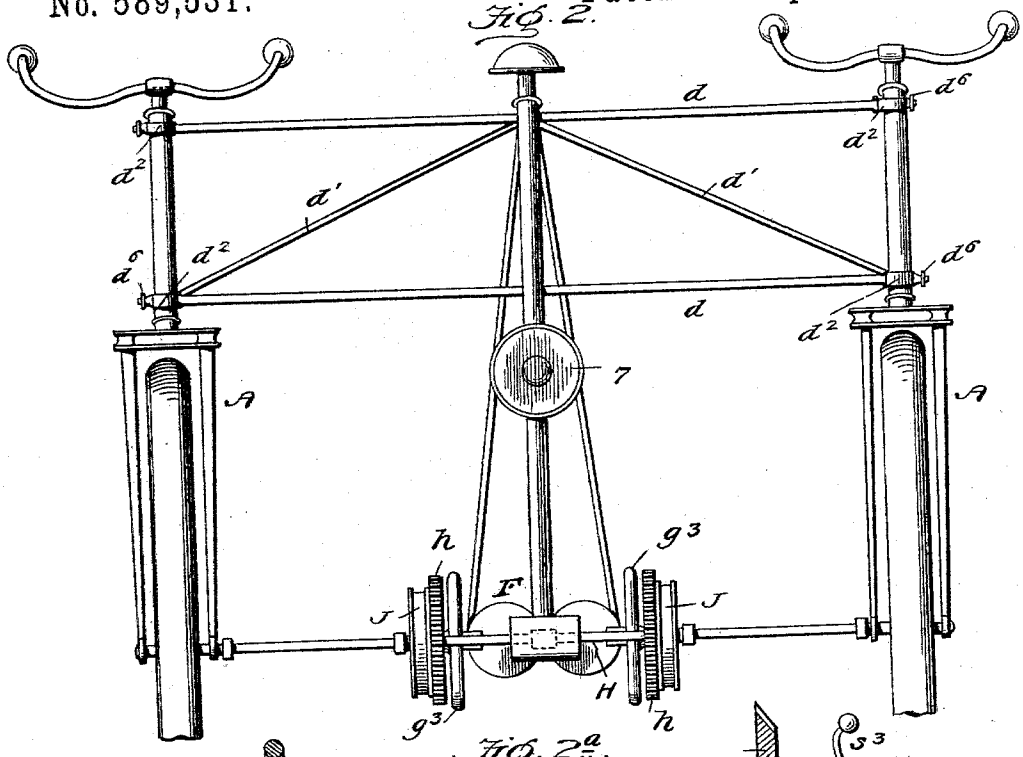



Fig. 2a.

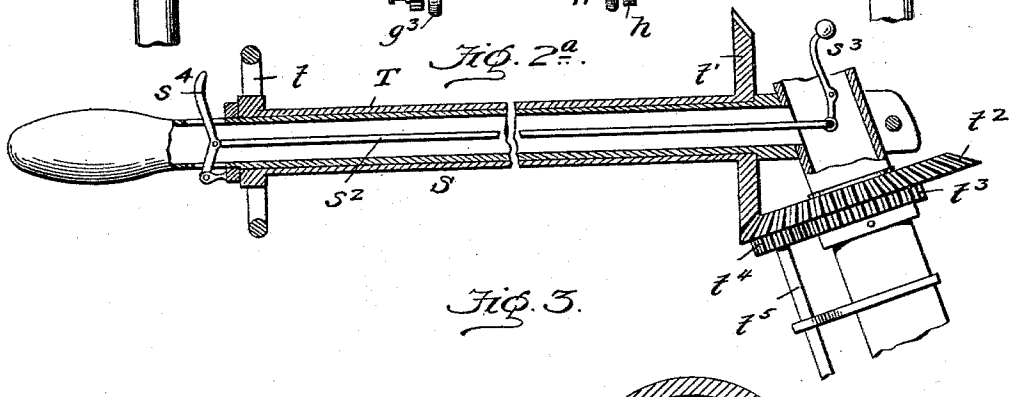
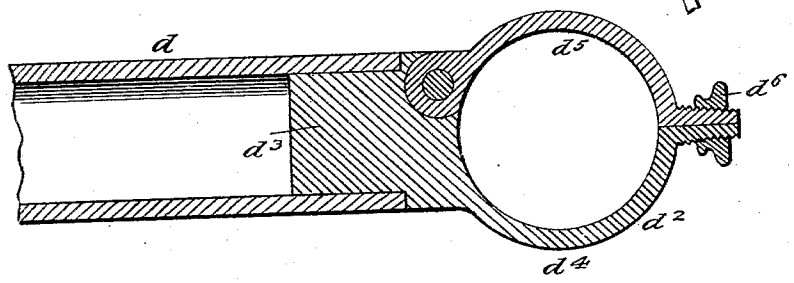



Fig. 3.




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## VELOCIPEDE.

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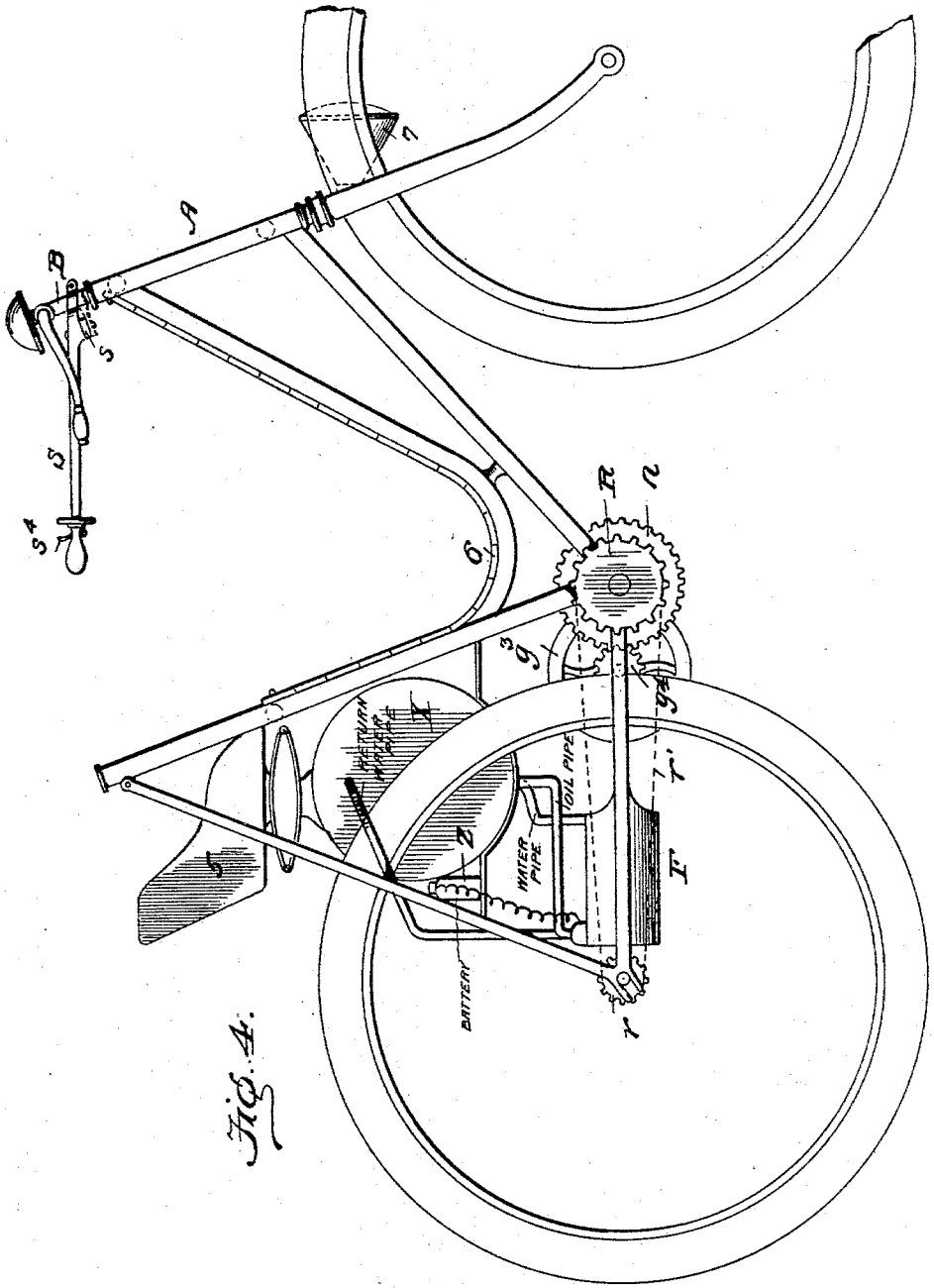



Fig. 4.

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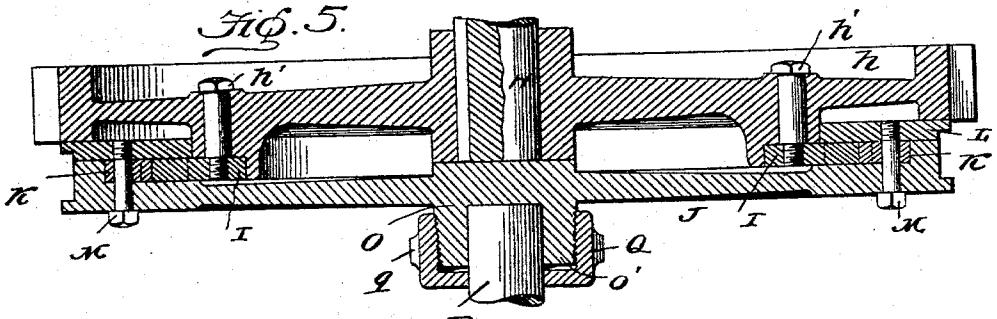
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# H. G. MEUMANN.

## VELOCIPEDE.

No. 589,531. Patented Sept. 7, 1897.

Fig. 5.



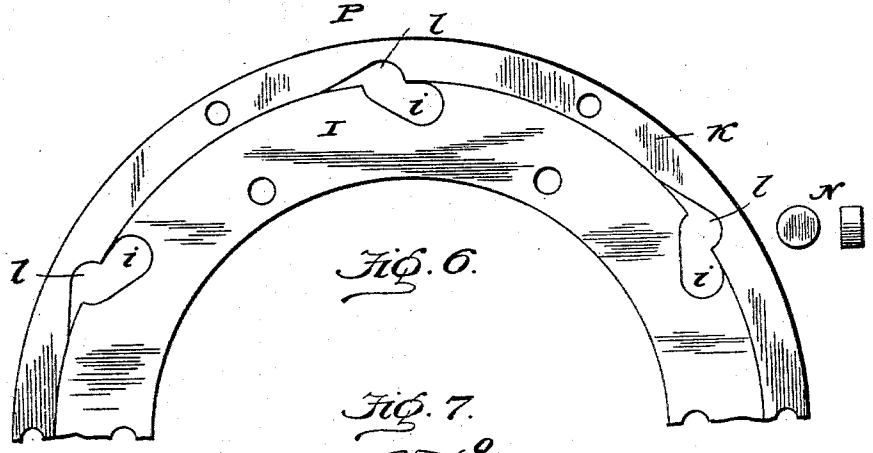




Fig. 6.

Fig. 7.

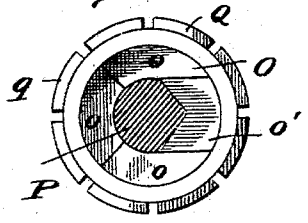
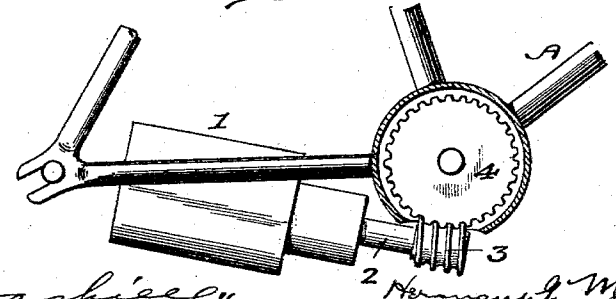



Fig. 8




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# UNITED STATES PATENT OFFICE.

HERMANN G. MEUMANN, OF BESSEMER, ALABAMA.

## VELOCIPEDE.

SPECIFICATION forming part of Letters Patent No. 589,531, dated September 7, 1897.

Application filed January 21, 1897. Serial No. 620,097. (No model.)

*To all whom it may concern:*

Be it known that I, HERMANN G. MEUMANN, a citizen of the United States, residing at Bessemer, in the county of Jefferson and State of Alabama, have invented certain new and useful Improvements in Velocipedes; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to velocipedes, and more particularly to that class of inventions which may be run singly or converted into a tandem and driven by power other than manual.

The object of the invention is to provide a machine of this character in which the parts may be quickly assembled to form the tandem and which may be as readily separated and removed to allow the bicycles to be used separately and driven by foot-power.

In this class of machines great difficulty has been experienced heretofore in devising means by which two bicycles of ordinary and well-known construction may be coupled together and furnish means for supporting an engine.

In the present case the bicycles used to form the machine are of the well-known type and are coupled together in a simple manner, so that should the engine break down or the oil give out the engine may be removed and stored away and the riders may then propel their individual wheels by foot-power, or the mechanism may be left connected together. Only the short power-shaft Z′ (shown in Figure 1) is removed, and then the wheel may be propelled by foot-power.

With the above objects in view the invention consists of certain features of construction and combination of parts, which will be hereinafter set forth and claimed.

In the accompanying drawings, which show the preferred embodiment of my invention and in which like letters of reference and numerals denote corresponding parts, Fig. 1 is a top plan view illustrating two bicycles of ordinary construction coupled together and supporting an engine, the seat being removed to show the underlying parts. Fig. 2 is a front view of the same. Fig. $2^a$ is a fragmentary sectional view of the middle supporting-frame, the steering-lever, and the parts, which will be hereinafter described, that are connected thereto. Fig. 3 is a sectional view of one end of one of the front coupling-rods that form the front coupling-frame. Fig. 4 is a side view of the machine. Fig. 5 is a sectional view of one of the driving-clutches. Fig. 6 is a side view of a portion of the same, showing to the right in a side plan the locking-roller. Fig. 7 is a side elevation of the clamping-hub of the brake-wheel, showing in section the shaft to which it is clamped. Fig. 8 is a modified form illustrating the application of an electric motor to drive the machine, and Fig. 9 is a sectional view of a clutch employed to throw into and out of gear the machine.

In the drawings, A A designate two bicycles, which are of the usual construction, and B denotes the ordinary frame of a bicycle with the wheels removed.

The rear ends of the complete bicycles have their steps *a* extended and projecting toward each other, and to these steps are secured the ends of brace-rods *b*, upon the inner ends of which the engine-frame *c* is supported.

The front ends of the bicycle-frames A A and B are connected by a coupling D, which consists of the parallel tubes *d* and the diagonal brace-tubes *d′*, connected thereto. The ends of the tube *d* are provided with clamps $d^2$, consisting of a head $d^3$, brazed or otherwise secured in the ends of the tubes *d* and provided with a fixed and a hinged jaw $d^4$ and $d^5$, respectively, the free ends of which are formed with semicircular screw-threaded studs, which receive clamping-nuts $d^6$ and by means of which the frames A A are connected together.

E denotes a central brace-tube which extends across and has its ends clamped to the seat-posts of the three frames by a clamp of similar construction to that used at the front end of the machine.

When the machine is coupled and driven by an engine, the engine, (shown at F,) which may be of any of the well-known and approved forms of gas-engines, is supported upon the engine-frame *c*, and its piston-rods *f* are connected to the cranks of a crank-shaft

G, which is journaled in the center of the engine at $g'$ and also in the sides of the engine-frame at $g^2$ and is provided with fly-wheels $g^3$ and with pinions $g^4$.

The bicycle-frame has projecting from its crank-hanger at both sides a straight shaft H, and to the ends of this shaft are secured gear-wheels $h$. A clutch-ring I is secured to each of the gear-wheels $h$ by bolts $h'$ and is provided in its periphery with a tangential recess or pocket $i$.

J denotes the brake-wheels, each of which has an annular recess in its inner face to receive the outside member K of the clutch-section, which is held in place by a ring L, through which bolts M pass, and in this way holds ring K, brake-wheel J, and ring L together, the ring L at the same time holding brake-wheel J to gear-wheel $h$. The inner periphery of the section K of the clutch is provided with tangential recesses or pockets $l$, which, with the pockets $i$, receive the rollers N.

O denotes the hub of the brake-wheel, which is formed of split sections $o$ and a clamping-block $o'$, which is formed with a V-shaped recess to engage the V-shaped end of the drive-shaft P, which extends across and has its outer end removably clamped to the pedal-shaft.

Q denotes a nut which engages the threaded exterior of the hub and is provided with a wrench-face $q$, whereby it may be screwed upon the hub to clamp its split sections and the block firmly to the shaft.

By referring to Fig. 1 of the drawings it will be seen that the wheel $h$ is in gear with the pinion $g^4$, and that when the latter is rotated the power will be transmitted from it to the former, and thence to the drive-shaft to rotate the drive-sprockets R, which are geared to the sprockets $r$ by the chain $r'$ in the usual manner.

In operation the wheel $h$, being rotated by the pinion $g^4$, will rotate the brake-wheel J, and the rollers N will be moved toward the contracted ends of the recesses $i$ of the clutch-ring I and lock the two parts together and cause the rotation of the drive-shaft.

In going downgrade the machine will run ahead of the engine-power, and by reason of the rollers falling into the enlarged portions of the sockets, with the engine-wheel running, as soon as the speed of the wheel lessens the rollers will be forced into the contracted ends of the sockets and cause the machine to be driven by the power transmitted from the engine. This construction also permits of one wheel turning faster than the other in turning short corners.

It will be understood that bands will encircle the brake-wheel and extend to any suitable point of the machine and be connected, so as to be tightened around the brake-wheels to regulate the speed of the machine.

S denotes the steering-lever, the end of which is clamped to the steering-head of the frame B and the rear end of which projects within convenient reach of one of the occupants of the machine. A bar $s$ is pivoted to this lever and extends across and is pivoted to the steering-posts of the bicycles A A. It is evident, therefore, that when this lever is moved from one side to the other the front wheels of the bicycles will be correspondingly turned. This lever is in the form of a tube and it incloses a bell-actuating rod $s^2$, the forward end of which is pivoted to a pivoted bell-hammer $s^3$, while its rear end is pivoted to a lever $s^4$, by means of which the bell-hammer is actuated.

Surrounding this lever is a sleeve T, the rear end of which is provided with a hand-wheel $t$ and the foward end of which is provided with a bevel-gear $t'$, which meshes with a similar gear $t^2$, journaled on the steering-head of the middle frame B. Keyed to or forming part of this pivoted gear $t^2$ is a gear-wheel $t^3$, which meshes with a gear-wheel $t^4$, secured to the upper end of a shaft $t^5$, which is connected with mechanism that governs the controlling-valve of the engine.

In operation it is desired to start the engine before its power is applied to the machine to drive it, and to this end I have provided the clutch shown in Fig. 9, which consists of a bevel-gear U, which is splined to the crank-shaft and works into a recess $u$, formed in the face of each pinion $g^4$. The hub of this pivoted clutch-section has a collar that is engaged by the flange of a nut V, which has a quick thread. The yoke extends over the fly-wheels and the ends are formed with hubs which embrace the extreme ends of the crank-shafts, and the exterior surfaces of these hubs are formed with quick threads which engage the threads of the nuts. It is evident, therefore, that when this yoke is operated the clutch-section U will be forced into engagement with the pinion $g^4$ and said pinion be caused to turn with the crank-shaft. By this construction I am enabled to start my engine, and then by manipulating the yoke, which may be done by the foot-levers W, (shown in dotted lines in Fig. 1,) the engine will be connected with the driving mechanism of the machine.

When it is desired to stop, by simply reversing the movement of the foot-lever the engine may be thrown out of gear with the machine, but be allowed to continue working.

I prefer to employ the clutch shown in Fig. 9, but any other well-known or approved form may be substituted without departing from the spirit of my invention.

In Fig. 4 I have illustrated a tank (designated by the letter X) which is adapted to contain the oil and water to supply the gas-engine, and to supply the spark I have represented by the letter Z a storage battery and wires running therefrom to the engine-cylinder. Any approved form of engine may be employed, and the one shown may be em-

ployed. Hence I do not consider it necessary to describe the details of the one shown in the present instance.

Instead of using a gas-engine an electric motor may be substituted, such as shown in Fig. 8, in which 1 represents the motor, having its armature 2 provided with a worm 3, that engages a worm-wheel 4, secured to the driving-shaft of the machine. When driven by an electric motor, the storage-tank will be removed and a square box will be substituted to receive the storage battery, and the seats will be supported by said box. Clutches, as heretofore described, may be used in this connection, and the construction of parts will be substantially the same when this form of motor is used as when the gas-engine is used.

5 denotes a seat which extends across the machine and is capable of supporting two or more passengers, and 6 represents a foot-rest which also extends across the machine and has its ends secured thereto, as shown in Fig. 4. This foot-rest consists, preferably, of slats hinged together and is made removable, so that it may be taken off and rolled up into small compass.

7 denotes a lamp which may be lighted by oil or electricity. When employed, I may find it advisable to generate a sufficient amount of electricity to supply the lamp.

Although I have described my invention as consisting of three bicycle-frames I would have it understood that I contemplate the employment of three tandem-frames, which will sustain more persons.

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

1. In a velocipede, the combination with two bicycles of ordinary construction, and the frame of another bicycle, means for connecting the parts together, an engine-frame supported by the bicycle-frames, the driving-shaft connected with the driving-shafts of the two bicycles, and connections between the engines and the driving-shafts for imparting the movement of the engine to the driving-shaft, substantially as set forth.

2. The combination with two bicycles and the frame of a third bicycle, said parts being removably connected together, of an engine supported by the several frames, provided with a crank-shaft connected to the piston-rods of the engine, a drive-shaft having a geared connection with the crank-shaft and with the ordinary drive-shafts of the two bicycles, substantially as set forth.

3. In a velocipede, the combination with two bicycles of the usual or well-known construction, and the frame of a bicycle removably clamped thereto, of an engine-frame, an engine supported by said frame, a crank-shaft to which the piston-rods of said engine are connected, gear-wheels loosely mounted upon the ends of said crank-shaft, a driving-shaft connected to the driving-sprockets of bicycles, gear-wheels on said driving-shaft in mesh with those on the crank-shaft, clutches connecting said gear-wheels with said driving-shaft, whereby the gear-wheels are caused to turn in unison with the driving-shaft, the construction being such that the gear-wheels may rotate faster than the working of the engine, substantially as set forth.

4. The combination with two bicycles of the usual and well-known construction, and the frame of a third bicycle clamped thereto, of an engine for driving the bicycles, a steering-lever, a rod connecting the steering-heads of the two bicycles and pivoted to the steering-lever, whereby when said lever is actuated, the steering of the two bicycles will be moved in unison, substantially as set forth.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

HERMANN G. MEUMANN.

Witnesses:
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J. A. WILLSON.