

W. A. SUDDARD.  
MOTOR BICYCLE.

APPLICATION FILED SEPT. 23, 1903.

NO MODEL.

FIG. 1.

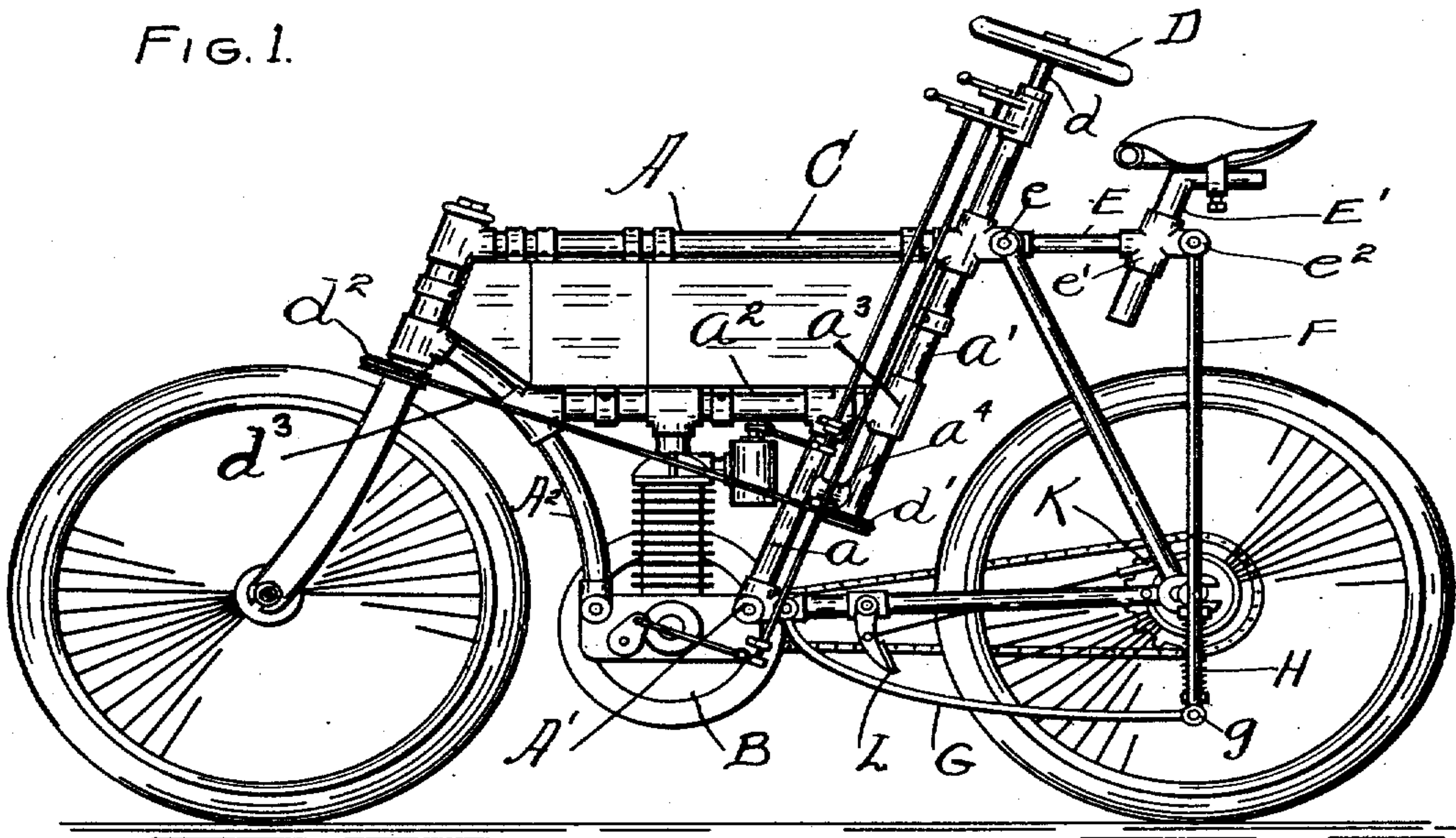


FIG. 2.

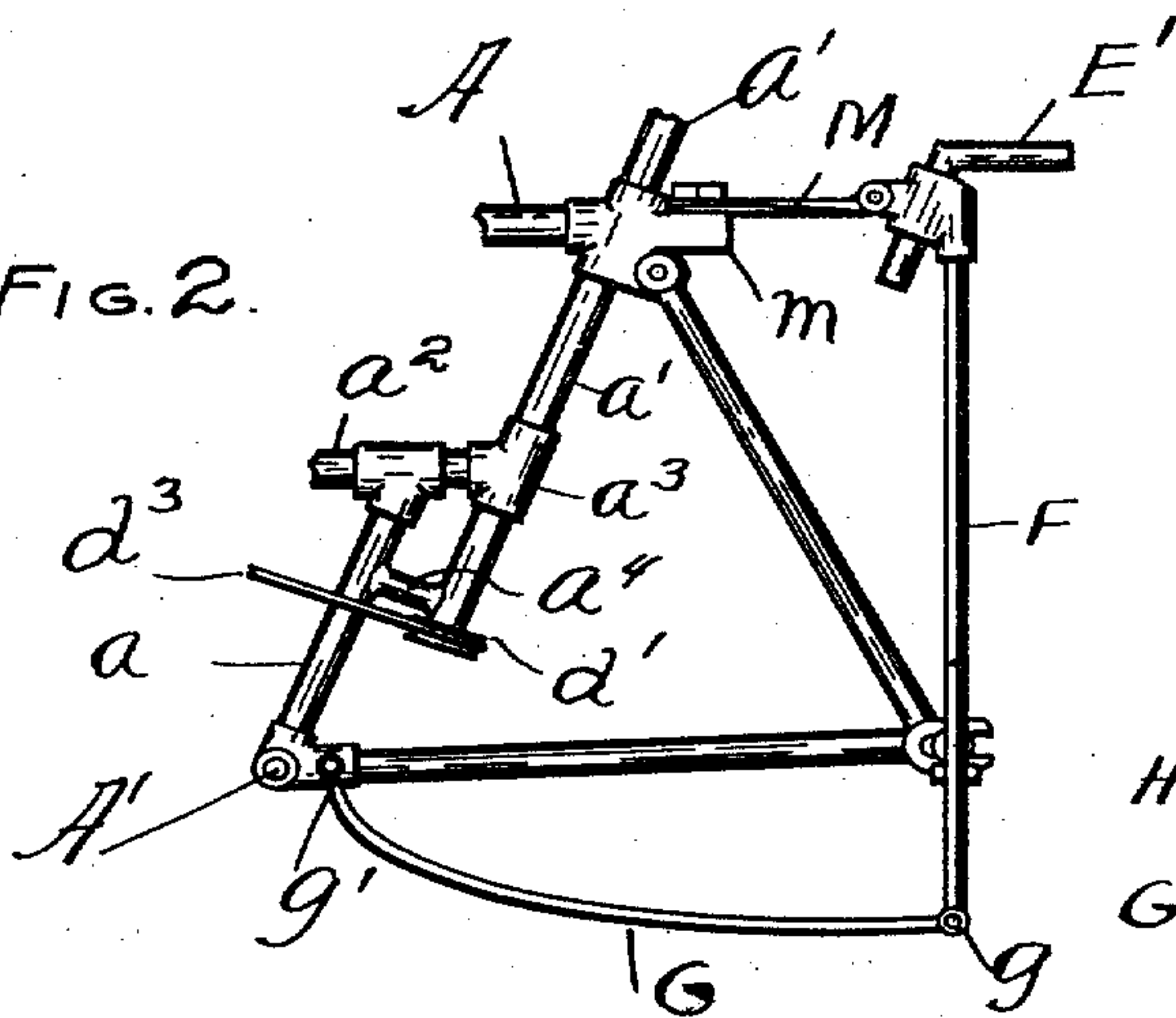
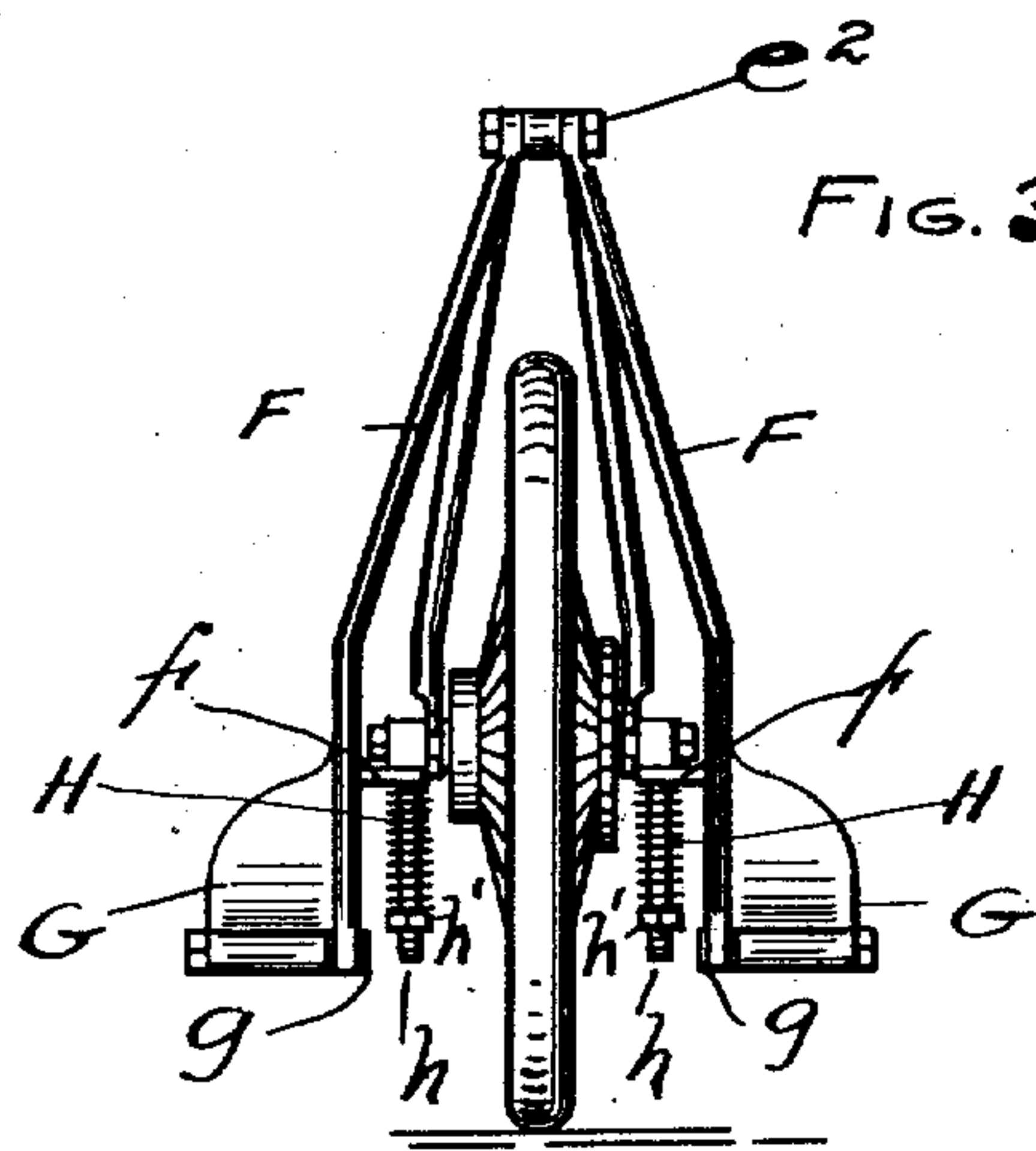


FIG. 3.



WITNESSES:

Chas. P. Day.  
Frank A. Foster

BY

INVENTOR:  
William A. Suddard.  
Howard E. Barlow.  
ATTORNEY.



# UNITED STATES PATENT OFFICE.

WILLIAM A. SUDDARD, OF PROVIDENCE, RHODE ISLAND.

## MOTOR-BICYCLE.

SPECIFICATION forming part of Letters Patent No. 750,317, dated January 26, 1904.

Application filed September 23, 1903. Serial No. 174,313. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. SUDDARD, a resident of the city of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Motor-Bicycles; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of power-driven vehicles more particularly known as the "motor-bicycle."

The invention has for its object the construction of a combination-frame, one part of which is designed to carry the weight of the motor and its attending mechanism, while the rider is carried on an auxiliary spring-supported frame extending rearwardly therefrom. Running-boards are also attached to the lower portion of this auxiliary frame, forming a comfortable platform on which to rest the feet and take a portion of the weight of the body.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in claims.

A practical embodiment of the invention is presented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the machine. Fig. 2 is a side elevation of a portion of the frame, showing the construction thereof in detail, also showing a modified form of connecting the auxiliary frame to said main frame. Fig. 3 is a rear view of the machine, showing more clearly the auxiliary frame as hung on spiral springs.

Referring to the drawings, the main frame is particularly constructed to support the driving-motor B, storage-tanks C, steering-wheel D, and all of the weight and mechanism necessary for the operation of a motor-driven bicycle. A portion of the main frame, as best illustrated in Fig. 2, is especially constructed for the use of the steering mechanism. In the

ordinary bicycle this portion of the frame is usually made in a triangular form, the upper part to receive the seat-post, one of the lower corners to receive the hub of the rear wheel, and the other corner the pedal-shaft. In this case the construction is entirely different, as the tube or leg which in the old construction contained the seat-post I have reconstructed and use the same as a bearing for my steering-gear. The tube *a* rises to the cross-bar *a*<sup>2</sup> from the lower corner A', the hollow tube *a*' extends up above the top of the frame and down through the top cross-bar A and through the fixture *a*<sup>3</sup>, where its lower end is supported from the tube *a* by the brace *a*<sup>4</sup>. By this construction of frame I cut out the upper portion of tube *a*, and a greater space is left for the storage-tank C. (See Fig. 1.) The motor B is hung from one corner of this triangle and the lower end of the arched tube A<sup>2</sup>. The steering-wheel shaft *d* extends down through the tube *a*' and has a segment *d*' fixed to its lower end. A wire cord *d*<sup>2</sup> extends around this segment and leads forward to and around a similar device *d*<sup>2</sup>, fixed to the fork of the front wheel. By this construction of frame and steering-spindle I am able to use the steering-wheel D, a lever, handle-bars, or any other convenient means of guiding the machine.

In my auxiliary frame I preferably use the construction illustrated in Fig. 1, where the seat-supporting bar E is hinged to the main frame at *e* and supports the seat-post E' in the bracket *e*'. Pivoted at *e*<sup>2</sup> at the rear end of this bar E are depending tubes or rods F F, which rods extend down on either side of the rear wheel, as shown in Fig. 3. The lower end of each of these tubes is pivotally connected at *g* to a running-board G, which board is in turn pivoted to the frame at *g*' at its forward end and is used for the purpose of mounting the machine as a rest for the feet and also may be used to support a portion of the weight of the body. This auxiliary frame is supported on springs H H from lugs *f* *f*, which lugs extend out laterally from the depending rods F F near their lower ends and engage the upper ends of said springs. These springs H H are hung on depending rods or bolts *h* *h*, which bolts are attached to the rear



axle or main frame near the journal of the rear wheel and have nuts on their lower ends for the adjusting of the tension of said springs.

While the coil-springs H H are preferably used, this auxiliary frame may be supported in various ways such, for instance, as the method illustrated in Fig. 2, which shows the leaf-spring M rigidly bolted to a lug *m* on the rear of the main frame, with its outer end supporting the seat-post E'. The running-boards G also might be constructed of spring-steel and rigidly secured at their forward ends to the main frame, thus forming two flat springs by which the frame with its weight might be supported.

L is the foot-lever which controls the band-brake K.

It has been found in riding the ordinary form of motor-bicycle where the rider sits on the main frame that the effects of the continuous jars and vibrations due to the explosions of the motor and the unevenness of the roads are transmitted to and felt very distinctly by the rider. This sensation is, to say the least, very disagreeable and often produces injurious results. The reason for this has been due to the rigidity of the frame connecting the forward and rear wheels, which rigidity is absolutely necessary in order to properly support the weight of the driving mechanism. Another very objectionable feature is the extremely awkward position in which the feet are held on the pedals while riding on the ordinary machines. My improved construction obviates all of these difficulties by making an independent auxiliary spring-supported frame extending out rearwardly from the heavy main frame for supporting the seat of the rider and placing at the lower end thereof a pair of running-boards. By this construction any style of a seat or saddle may be used and the shocks and vibrations received by the rider will be reduced to a minimum, and any part or all of the weight of the body may be taken through the feet on the running-boards, which are both on the same plane and in the best possible position to receive the same. All the weight and mechanism of the machine is in front and in sight of the rider, so in case of an accident he can easily step off at the rear and let the machine go. The usual and easiest way for starting one of these motor-bicycles is to connect the motor with the high-speed gear and push the machine along the ground until the motor is started, then mount to the seat by stepping on the running-board, or, if it is desired to start the motor without moving the bicycle, an ordinary crank may be used to start the motor the same as with the automobile engine. By the use of this arrangement of seat, footboard, and steering-gear the rider may sit upright in a comfortable position and have the machine at all times under perfect control.

Having thus described my invention, what

I claim as new, and desire to secure by Letters Patent, is—

1. In a motor-driven bicycle, the combination of a main frame for supporting the propelling mechanism, an independent spring-supported auxiliary frame for supporting the rider, substantially as described.

2. In a motor-driven bicycle, the combination of a main frame for supporting the weight of the propelling mechanism and steering mechanism, an independent spring-supported auxiliary frame, rearwardly extending from said main frame for carrying the rider, substantially as described.

3. In a motor-driven bicycle the combination of a main frame for supporting the weight of the propelling mechanism and steering mechanism, an independent auxiliary frame, rearwardly extending from said main frame for carrying the rider, a spring for supporting said auxiliary frame, substantially as described.

4. In a motor-driven bicycle the combination of a main frame, a tube in said main frame forming the forward leg of the rear triangle, said tube being open at its upper and lower ends for the purpose of receiving the steering-wheel shaft, an independent spring-supported auxiliary frame rearwardly extending from said main frame for carrying the rider, substantially as described.

5. In a motor-driven bicycle, the combination of a main frame, a tube in said main frame forming the forward leg of the rear triangle, said tube being open at its upper and lower ends for the purpose of receiving the steering-wheel shaft, an independent spring-supported auxiliary frame rearwardly extending from said frame for carrying the rider, running-boards connected to the lower portion of said auxiliary frame, substantially as described.

6. In a motor-driven bicycle the combination of a main frame, a tube in said main frame forming the forward leg of the rear triangle, said tube being open at its upper and lower ends for the purpose of receiving the steering-wheel shaft, means connecting said steering-wheel shaft with the forward forks, an independent spring-supported auxiliary frame rearwardly extending from said main frame for carrying the rider, substantially as described.

7. In a motor-driven bicycle the combination of a main frame, a tube in said main frame forming the forward leg of the rear triangle, said tube being open at its upper and lower ends for the purpose of receiving the steering-wheel shaft, flexible means connecting the lower end of said steering-shaft with the forks of the forward wheel, a spring-supported auxiliary frame rearwardly extending from said main frame for carrying the rider, said springs for supporting said auxiliary frame, substantially as described.

8. In a motor-driven bicycle, the combina-



tion of a main frame for supporting the weight of the propelling mechanism and steering mechanism, an independent spring-supported auxiliary frame rearwardly extending from said main frame for carrying the rider, said springs for supporting said auxiliary frame, running-boards connected to the lower portion of said auxiliary frame, substantially as described.

9. In a motor-driven bicycle, the combination of a main frame for supporting the weight of the propelling mechanism and steering mechanism, an independent spring-supported auxiliary frame rearwardly extending from said main frame for carrying the rider, said springs for supporting said auxiliary frame, running-boards pivoted at one end to the lower portion of said auxiliary frame, the opposite end of said boards being pivoted to said main frame, substantially as described.

10. In a device of the character described, the combination of a main frame for supporting the weight of the propelling and steering mechanism, an auxiliary frame including a seat-post-supporting bar pivoted to the main frame, depending rods pivotally connected to said supporting-bar, running-boards pivoted

at one end to the lower end of said depending rods, the opposite end of said boards being pivoted to said main frame, spring means for supporting all of said auxiliary frame, substantially as described.

11. In a device of the character described, the combination of a main frame for supporting the weight of the propelling and steering mechanism, an auxiliary frame including a seat-post-supporting bar pivoted to the main frame, depending rods pivotally connected to said supporting-bar, running-boards pivoted at one end to the lower end of said depending rods, the opposite end of said boards being pivoted to said main frame, spiral springs supported from the main frame, means on said depending rods for engaging said spiral springs for supporting said auxiliary frame, substantially as described.

In testimony whereof I have hereunto set my hand this 22d day of September, A. D. 1903.

WILLIAM A. SUDDARD.

In presence of—  
HOWARD E. BARLOW,  
E. I. OGDEN.

Disclaimer in Letters Patent No. 750,317.

### DISCLAIMER.

750,317. — *William A. Suddard*, Providence, R. I. **MOTOR-BICYCLE.** Patent dated January 26, 1904. Disclaimer filed March 18, 1908, by patentee.

Enters his disclaimer—

"To claim 1 in said Letters Patent which is in the following words, to wit:

"1. In a motor-driven bicycle, the combination of a main frame for supporting the propelling mechanism, an independent spring-supported auxiliary frame for supporting the rider, substantially as described."—[*Official Gazette, March 31, 1908.*]

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