(No Model.) 3 Sheets—Sheet 1.

J. A. WRONSKI.

CYCLE.

No. 606,323. Patented June 28, 1898.

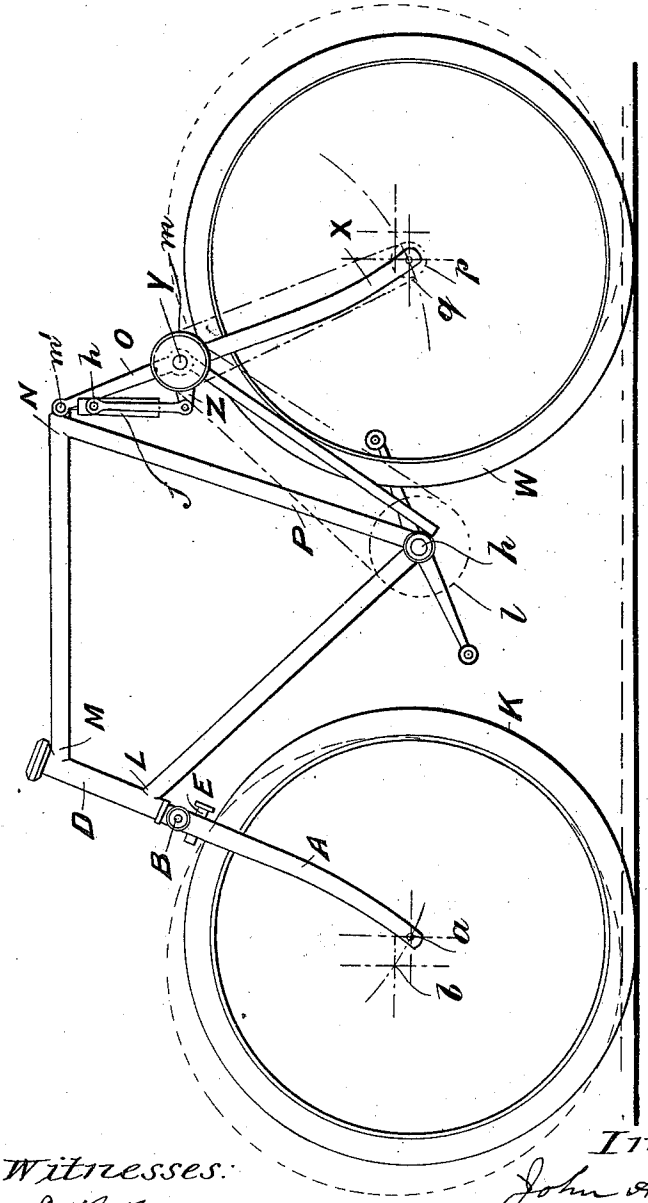


FIG. 1.

Witnesses:
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A. D. Wurm

Inventor:
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.)

3 Sheets—Sheet 2.

J. A. WRONSKI.

CYCLE.

No. 606,323. Patented June 28, 1898.

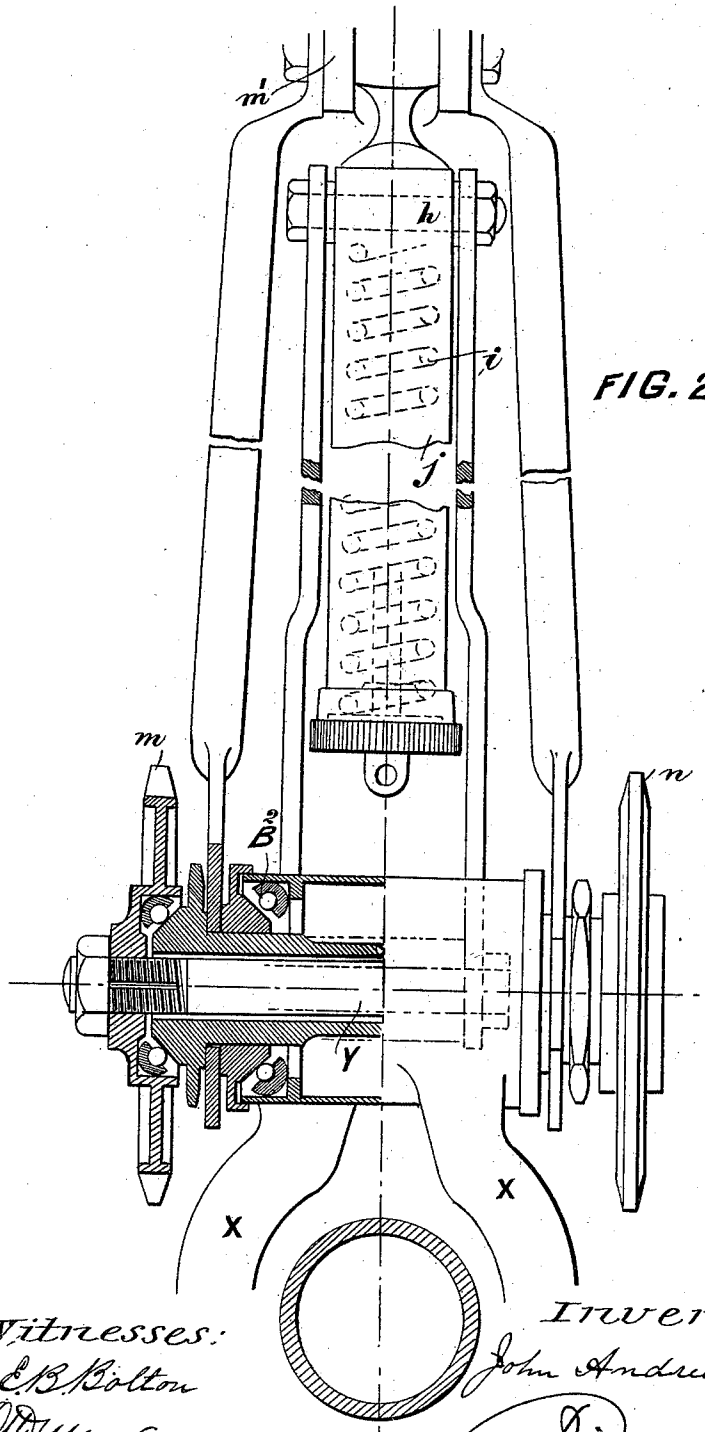


FIG. 2.

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 3.

J. A. WRONSKI.

CYCLE.

No. 606,323. Patented June 28, 1898.

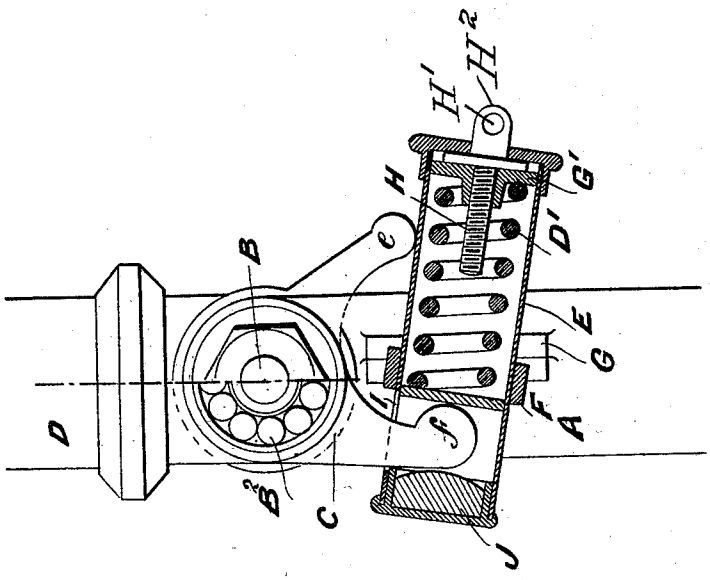


FIG. 4.

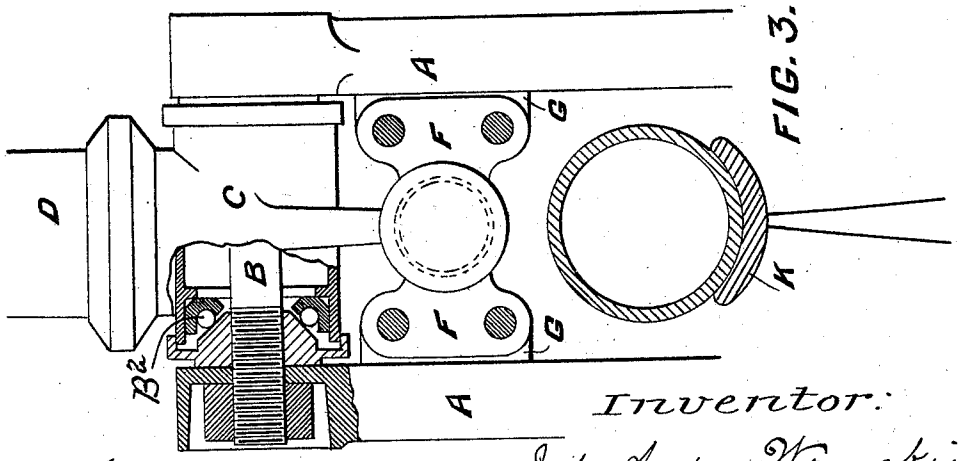


FIG. 3.

Witnesses:
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN ANDRÉE WRONSKI, OF BORND, RUSSIA.

CYCLE.

SPECIFICATION forming part of Letters Patent No. 606,323, dated June 28, 1898.

Application filed March 18, 1898. Serial No. 674,376. (No model.)

To all whom it may concern:

Be it known that I, JOHN ANDRÉE WRONSKI, a subject of the Czar of Russia, residing at Bornd, Warsaw, (Varsovic,) Russia, have invented certain new and useful Improvements in and Relating to Cycles, of which the following is a specification.

My invention relates to cycles, and has for its object to so mount the frame of the cycle upon its wheels that practically no vibration shall be communicated from the wheels to the frame in the passage of the machine over irregular or uneven roads.

The means adopted to carry my invention into effect are illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a cycle, showing the application of my invention to the same. Fig. 2 is a part-sectional front view of the spring device which is combined with the rear forks. Figs. 3 and 4 are respectively end and side elevations, on an enlarged scale, of the mechanism restraining the front forks of the cycle.

With reference to the accompanying drawings, I provide a front or steering fork, such as A, pivotally mounted upon the spindle B, situated at the lower extremity of the steering-head D, and the whole arranged in such a manner as to permit of a radial movement from *a* to *b*. Upon the fixed portion of the extremity of the steering head or tube D, I provide a projecting arm or finger piece C, (clearly shown in detail at Figs. 3 and 4) rigid with the tube-head, and at the upper extremities of the respective stems of the fork A, I mount a spiral spring D′ within a casing E, so disposed that the two fingers *e f*, which are extensions of the finger-piece C, fixed at the extremity of the steering-head, may abut against the spiral spring contained in such casing, and so restrain movement in a radial upward direction. The finger *f* acts within a slot upon a washer arranged upon the top of the spiral spring D′, while the finger *e* acts upon the outside of the casing E, this casing E being, as shown, attached by the brackets F F to the flanges G G, forming parts of the fork A. The spring D′ is capable of compression or extension, and for that purpose is mounted upon a collar G′, which is fixed upon a screwed pin H, projecting through the casing E, so that by screwing it in or out the tension of the spring may be altered. The pin H can be turned by a suitable pin or key inserted through the opening H′ and the head H^2, connected with said pin. The casing E is provided with a slot I for the reception of the finger *f*, and at the same end of the casing and within it a bed of india-rubber or other material J is provided, so that the finger *f* may be firmly held in position. It will be understood that in passing over irregular surfaces the vertical movement of the front or steering wheel K, Fig. 1, is transmitted to the fork A, which swings in a radial direction upon pin B and by reason of the casing and spring D′ causes that spring to be compressed by the finger *f* and the motion to be taken up in compressing that spring instead of being transmitted to the rider through the rigid frame L M N O P.

The means I adopt to provide a spring adjustment for the rear or driving wheel W are as follows: The rear fork X is capable of radial movement about an intermediate spindle Y, attached to the rigid portion N O P of the framework of the machine, while rigidly attached and in one piece with the upper end of this fork X are brackets Z, connected at their outer ends to links, which in turn are pivoted to a cross-piece *h*, acting upon a spring *i*, contained within a cylinder-case *j*, attached or pivoted to the upper portion *m′* of the framework. The effect of this radial pivoting of the back forks X and the restraint of the radial movement by the spring *i* within the cylinder *j* is similar to that hereinbefore described with regard to the front wheel K—that is to say, that when passing over irregular surfaces the vertical movement and vibration is largely taken up by the compression of the spring *i* and not transmitted to the frame L M N O P and therefore to the rider. It is evident that as the rear wheel W makes a radial and vertical movement relative to the driving-spindle the ordinary method of chain drive would not be suitable. The drive is in this instance taken from the chain-wheel *l* on the main spindle to a chain-wheel *m*, carried upon one outer end of the intermediate spindle Y, upon which the rear fork X pivots, while upon the other end of that intermediate spindle a chain-wheel *n* is carried, (see Fig.

2,) which communicates by a chain with the sprocket-wheel P upon the rear-driving-wheel spindle *q*. It will thus be seen that any movement of the rear wheel relatively to the main spindle *k* is fully provided for. The spindles B and Y are preferably mounted upon ball-bearings B^2, as clearly shown in detail on Figs. 2, 3, and 4.

It is to be understood that I do not limit myself to the employment of springs in the hereinbefore-described modifications, but may employ any suitable equivalents, such as air-cylinders, rubber resistances, or the like.

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

1. In combination with the steering-head, the bolt B at the lower end thereof, the forks A, A, at opposite ends of the bolt, the ball-bearings B^2 between the forks and the steering-head, the spring-barrel extending transversely of the forks, and an arm extending down from the steering-head in between the forks, and connected with the spring in the barrel, substantially as described.

2. In combination, the frame having a rigid portion N, O, P, the rear fork X, the pivotal connection for the rear forks arranged at the end of the part O, a spring *i* for applying tension to the said rear forks, a barrel *j* containing said spring, a cross-head *h* bearing on the spring, the links and arms *z* connected with the fork X the said barrel depending in rear of the seat-standard, and sprocket connections between the crank-axle and the pivotal connection and between said pivotal connection and the rear wheel, said pivotal connection including a shaft carrying sprocket-wheels, substantially as described.

3. In combination with the front forks pivoted to the steering-head at their upper ends, a barrel E extending between the forks transversely thereof and having a spring therein, the arm connected with the steering-head and extending into the said barrel to be under pressure of the spring and having a finger-piece *e* to bear on the outer side of the barrel, substantially as described.

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

JOHN ANDRÉE WRONSKI.

Witnesses:

LOUIS SULLIGIV,

EDWARD P. MACLEAN.