

No. 685,570.

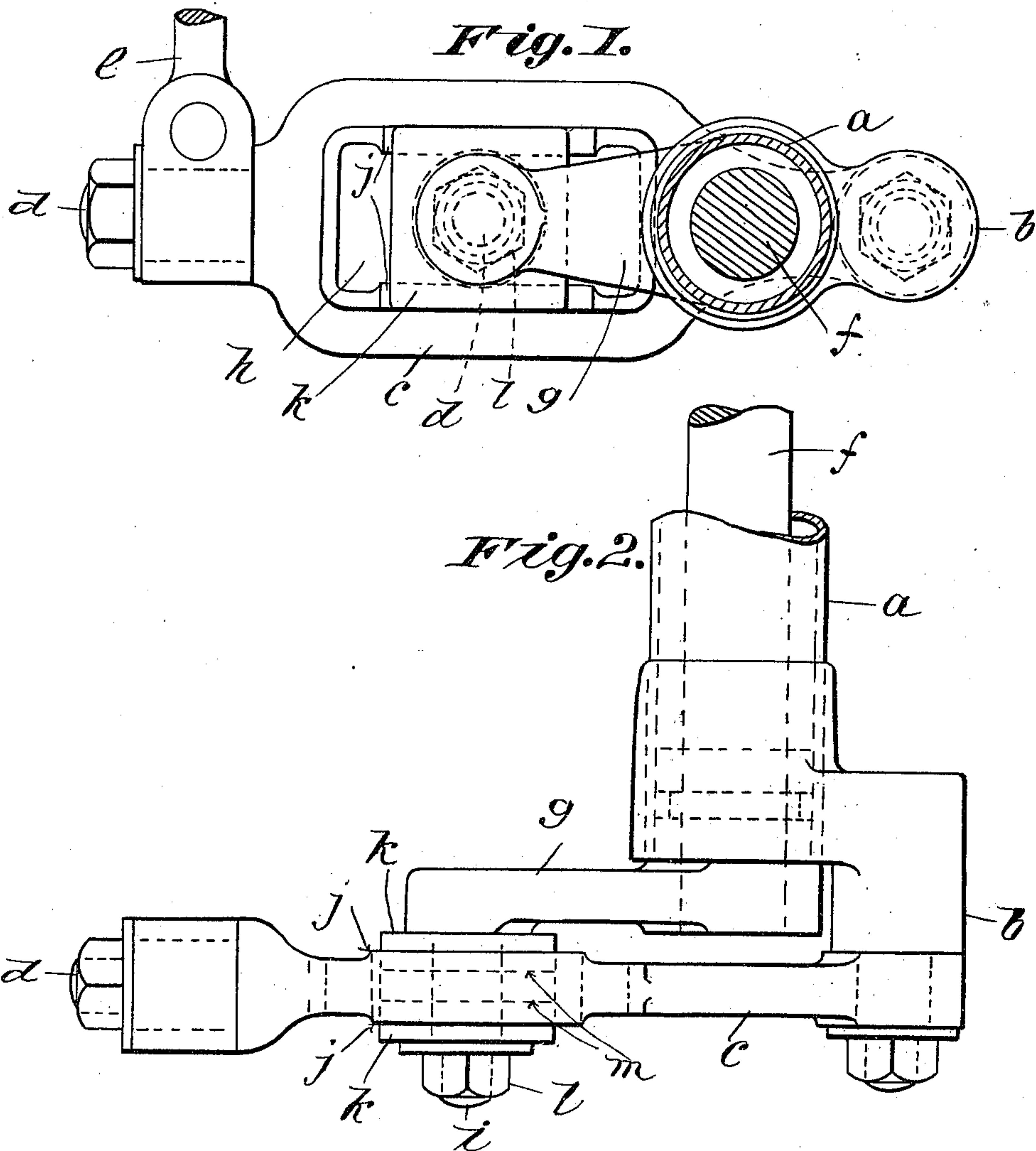
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J. H. BULLARD.

STEERING DEVICE FOR SELF PROPELLED VEHICLES.

(Application filed May 21, 1901.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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STEERING DEVICE FOR SELF-PROPELLED VEHICLES.

SPECIFICATION forming part of Letters Patent No. 685,570, dated October 29, 1901.

Application filed May 21, 1901. Serial No. 61,287. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. BULLARD, a citizen of the United States of America, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Steering Devices for Self-Propelled Vehicles, of which the following is a specification.

This invention relates to the construction of steering devices for self-propelled vehicles; and the object thereof is to provide means whereby when the steering-lever is moved one way or the other to guide the vehicle it may remain more or less fixed in the position to which it is moved until it is again swung by the hand of the operator; and the invention consists in applying to the steering mechanism a proper degree of frictional resistance to prevent the steering-wheels from being easily swung to the right or left by one wheel or the other thereof striking against some slight obstruction in the road. Without some such provision for holding the steering-wheels in the desired position the guiding of a vehicle on any but a smooth roadway is very fatiguing to the arm and hand of the operator, and, furthermore, many accidents have occurred by some sudden movement of the steering-wheels, which would cause the operator to lose control of the vehicle.

In carrying my invention into practice I have sought to provide a device which is inexpensive, yet of great strength, and which embodies means for quickly adjusting the degree of resistance against which the steering-wheels are operated.

In the drawings forming part of this specification, Figure 1 is a plan view, partly in section, of a part of the steering device of a self-propelled vehicle embodying my invention. Fig. 2 is a side elevation of the same.

Referring to the drawings, *a* indicates a tube, which is secured to the body of the vehicle in any convenient way and ordinarily to the floor thereof in front of the seat. On the lower end thereof is an offset hub *b*, located, as shown, in front of the tube *a*, the right-hand side of the drawing being toward the front of the vehicle and said hub *b* being located on the central longitudinal line

thereof, the axis of the hub being perpendicular. Pivotally supported on the lower end of this hub is a swinging member *c*, having the form of a yoke, on the free end of which is a horizontal stud *d*, with which a connecting-rod *e* has a pivotal engagement. This connecting-rod is connected by its opposite end to a rod parallel with the front axle, which connects together the two steering-wheels in a manner common in automobile constructions, in which, as is well known, the steering is effected by the swinging of the front wheels in vertical yokes on the ends of a stationary axle.

Supported in any convenient manner in the tube *a* is a steering-post *f*, on the upper end of which a steering-lever is secured, but which is not shown in the drawings. On the lower end of the post, which extends just below the end of the tube *a*, there is secured a crank-arm *g*, which extends rearwardly and whose free end is located about centrally over the slot *h* in the yoke *c*, and in which end is a downwardly-projecting pin *i*, which passes through the yoke. The two opposite longitudinal borders of the yoke are provided with smooth raised bearing-surfaces *j* on both sides of the yoke, and on the pin *i* are two plates *k*, adapted to bear on said surfaces on the upper and lower sides of the yoke, as shown in Fig. 2, a nut *l* on the pin serving to clamp said plates with more or less force against said bearing-surfaces. The plates *k* are each preferably let into the slot in the yoke, as indicated by the dotted lines *m*, Fig. 2, to prevent their turning on the pin *i*.

From the above description it is apparent that when the post *f* is partially rotated in one direction or the other the crank-arm *g*, swinging on a different axis from that of the yoke *c*, will, while imparting to the yoke a swinging movement in the same plane and direction as its own movement, have at the same time relative to said yoke a sliding movement toward and from the axis of the yoke, and this movement will take place with more or less freedom according as the plates *k* are clamped with more or less force against opposite sides of the yoke.

Having thus described my invention, what

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

1. In a self-propelled vehicle, a steering device comprising a rotatable post, a crank
5 thereon, a yoke pivotally supported in parallelism with said crank, a fixed support on which said yoke swings, said crank and yoke having different centers of oscillation; a clamping connection between the end of said
10 crank and said yoke, and means for adjusting said connection, substantially as described.

2. In a self-propelled vehicle, a steering device comprising a member having suitable
15 connections with the steering-wheels of the vehicle, a fixed support for said member on which it may have a free swinging movement; a steering-post having a different center of oscillation from said member, a crank-arm
20 on said post adapted to swing in the same plane as said member, a sliding clamping connection between said yoke and said member whereby a radial movement of said connection relative to said member will be effected

by the swinging movement of said crank-arm, 25 and a frictional resistance be applied to the movement of the parts, substantially as described.

3. In a self-propelled vehicle, a steering device comprising a member having suitable
30 connections with the steering-wheels of the vehicle, a fixed support for said member on which it may have a free swinging movement; a steering-post having a different center of oscillation from said member, a crank-arm 35 on said post adapted to swing in the same plane as said member, a longitudinal opening in said member, a pin on said crank passing through said opening, plates on said pin for clamping said member, and means for 40 adjustably tightening said plates against opposite sides of the member, substantially as described.

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