No. 745,401. PATENTED DEC. 1, 1903.

B. A. STEWART.

MOTOR VEHICLE STEERING APPARATUS.

APPLICATION FILED DEC. 2, 1902.

NO MODEL.

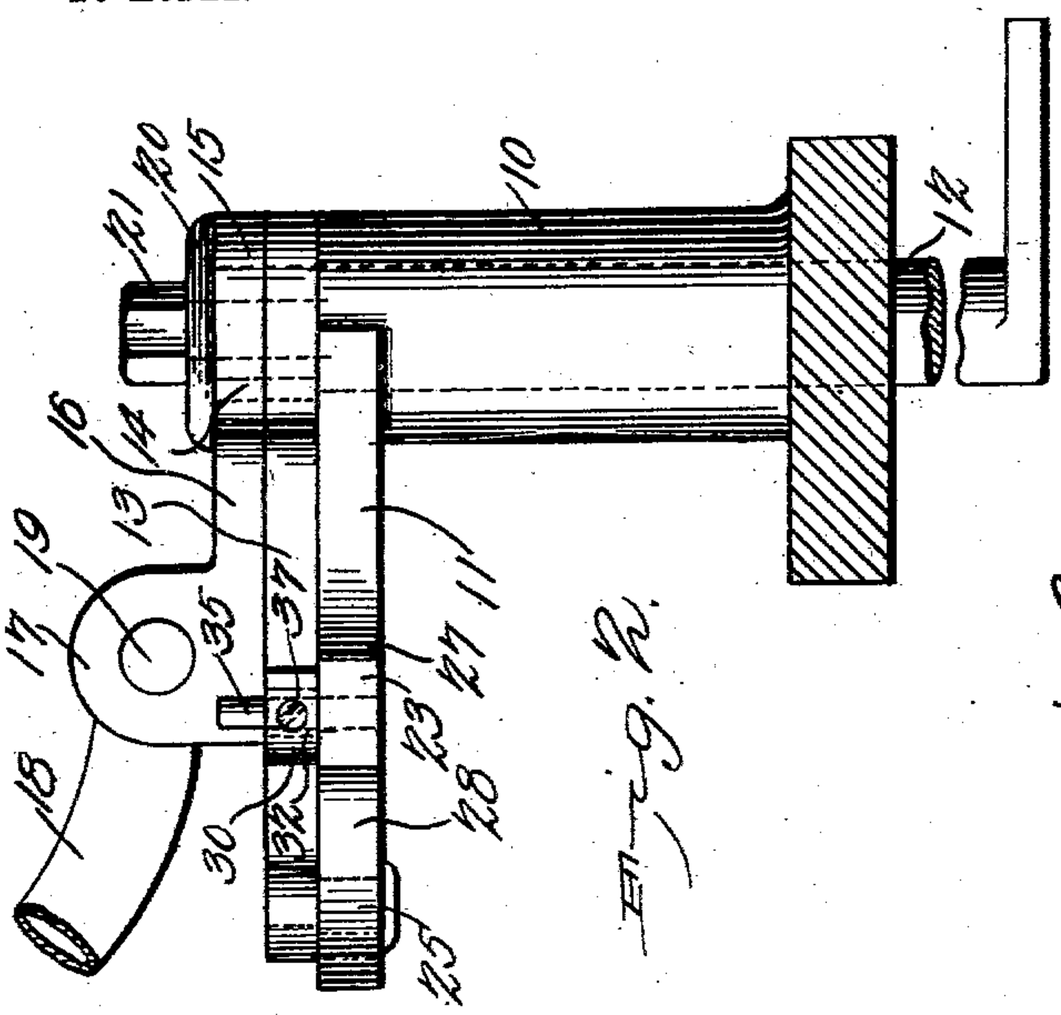

Fig. 2.

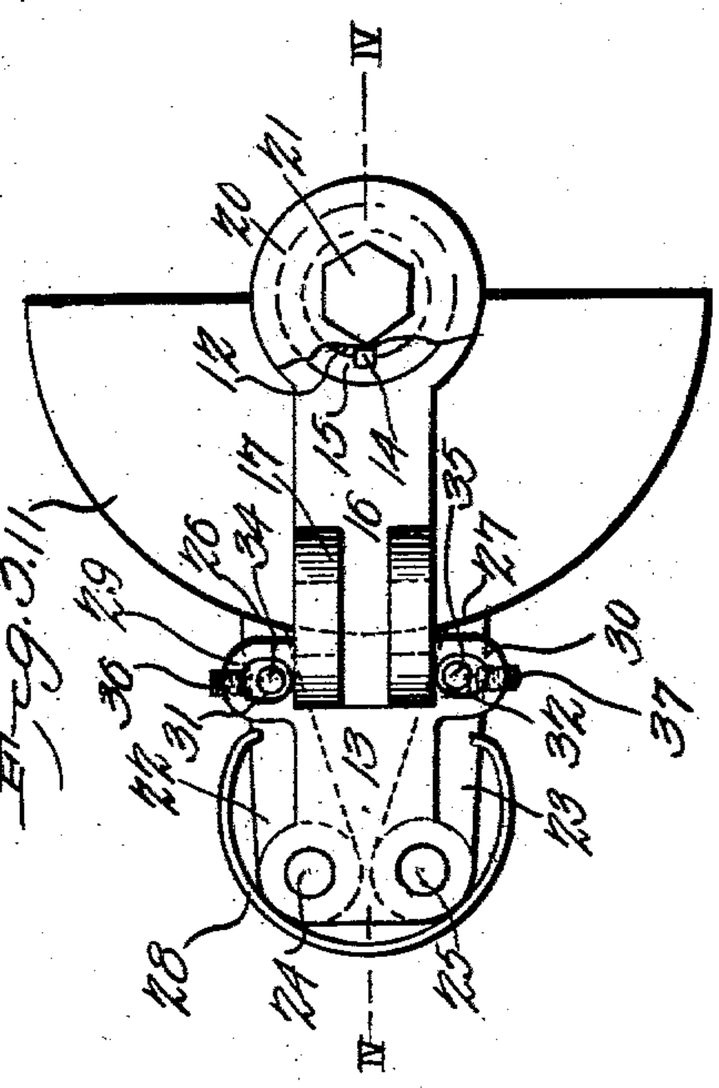

Fig. 3.

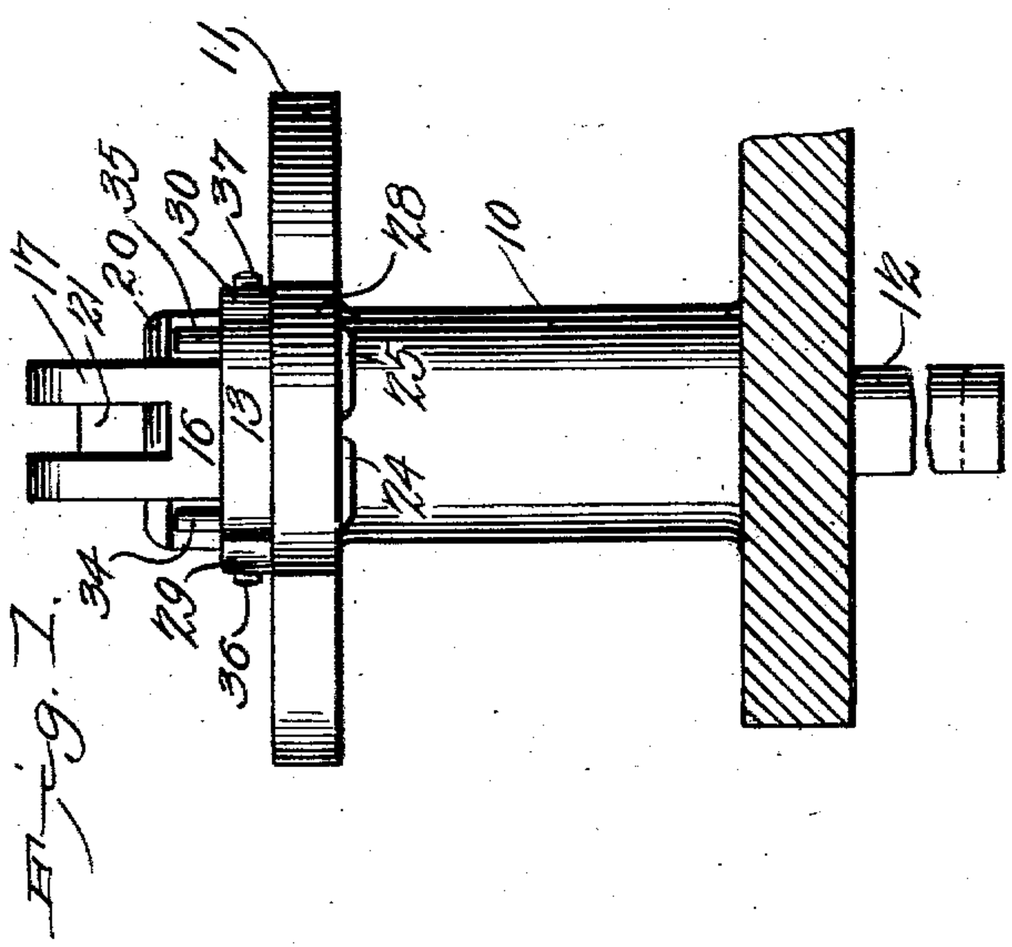

Fig. 1.

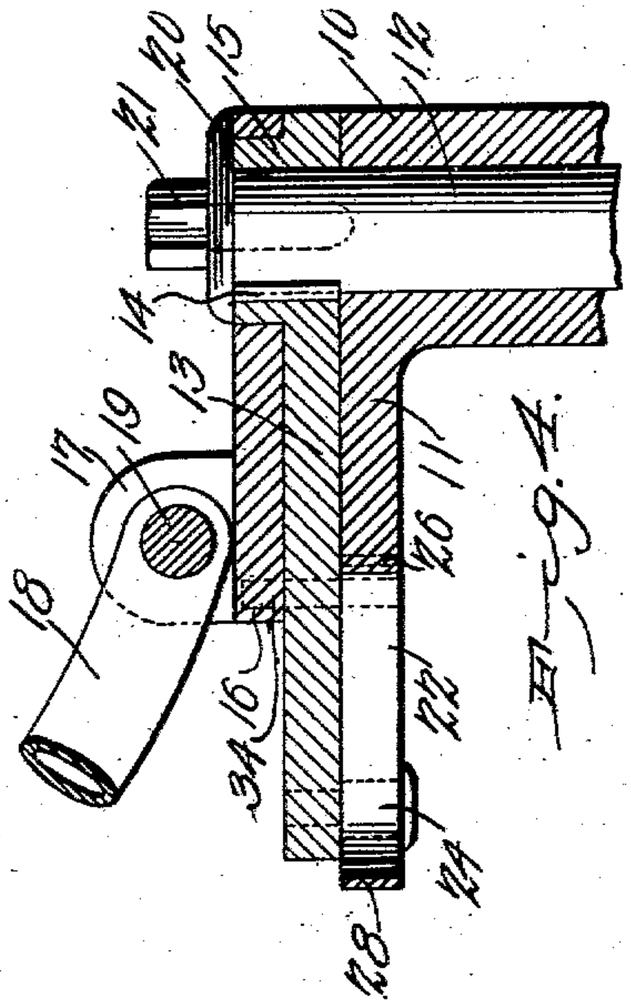

Fig. 4.

Witnesses
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UNITED STATES PATENT OFFICE.

BURDICK A. STEWART, OF PITTSFIELD, MASSACHUSETTS.

MOTOR-VEHICLE-STEERING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 745,401, dated December 1, 1903.

Application filed December 2, 1902. Serial No. 133,597. (No model.)

To all whom it may concern:

Be it known that I, BURDICK A. STEWART, a citizen of the United States, residing at Pittsfield, in the county of Berkshire and State of Massachusetts, have invented a new and useful Motor-Vehicle-Steering Apparatus, of which the following is a specification.

This invention relates to devices employed more particularly in connection with the steering mechanism of motor-vehicles, but which may be employed in connection with any steering apparatus upon any class of vehicles and under some circumstances in connection with the steering apparatus of vessels, and has for its object to simplify and cheapen the construction of devices of this character; and the invention consists in certain novel features of construction, as hereinafter shown and described, and specified in the claim.

In the drawings illustrative of the invention, in which corresponding parts are designated by like characters in all the figures, Figure 1 is a front elevation, Fig. 2 is a side elevation, and Fig. 3 is a plan view, of an approved form of the device. Fig. 4 is a vertical sectional elevation on the line IV IV of Fig. 3.

The improved device consists in a stationary standard or support 10, forming a part of the framework of the vehicle or connected thereto, as may be preferred, and provided with a sector or segmental plate 11, extending therefrom, as shown.

Within the support 10 is rotatively disposed a post 12, to which the steering-wheels of the vehicle are connected in any suitable manner; but as the steering connections form no part of the present invention they are not illustrated herein. Any of the ordinary approved steering connections may be employed, as the device is capable of being adapted thereto, and I do not wish to be limited in the application of the improvement to any specific form of steering connections between the steering-wheels and the operative mechanism.

The post 12 extends through the support 10 and is provided with an arm 13, secured thereto, as by a key 14, so that the rotative movement of the post will be imparted to the arm or the vibratory movement of the arm will be correspondingly imparted to the post.

The arm 13 will be provided with a hub 15, concentric to the post 12 and extending upward therefrom and forming a bearing for a bracket 16, the bracket having spaced ears 17, between which the steering-bar 18 is movably supported by a transverse pivot 19. By this arrangement it will be obvious that the bracket 16 will be free to rotate upon the hub 15 independently of the arm 13, while the latter in its lateral movement will carry the post 12 with it. The bracket 16 is held in position relative to the hub 15 and arm 13 by a washer 20 and clamp-screw 21.

Movably connected to the arm 13 are reversely-disposed friction-pawls 22 23, the pawls pivotally connected at 24 25 to the arm and with their free ends engaging the outer surface of the sector 11, as shown at 26 27, the pawls held in operative engagement with the sector by a spring 28, as shown. The operative ends 26 27 are inclined, as shown in Fig. 3, and it will be obvious by this arrangement that they will firmly lock the arm 13 to the sector and effectually prevent any lateral movement in either direction of the arm so long as the pawls are held in engagement with the sector by the spring 28.

The arm 13 is provided with oppositely-extending lugs 29 30, provided, respectively, with elongated apertures 31 32, and the pawls 22 23 will be provided, respectively, with pins 34 35, extending through the apertures and projecting for some distance above the arm 13 upon opposite sides of the bracket 16, as shown. The pins 34 35 will be located relative to the bracket 16, so that a certain degree of lost motion will be permitted to the bracket laterally before it engages the pins. Hence when the bracket is in its central position it will be out of contact with the pins, as illustrated in Fig. 3, for the object to be hereinafter explained. The lugs 29 30 will be provided, respectively, with adjusting-screws 36 37, adapted to limit the outward movement of the pins. By this simple arrangement the steering-post 12 will be firmly locked in whatever position it may be set, and so long as the bracket 16 and the hand-

lever 18 are held from lateral movement the steering mechanism will be rigidly supported; but if the operator wishes to change the direction of the vehicle he moves the lever 18 to one side, which causes the bracket 16 to engage the pin 34 or 35, as the case may be, and releases the pawl with which it is engaged, thus likewise releasing the arm 13 and permitting the steering-post to be rotated by causing the pin with which the bracket engages to move outwardly until it strikes the adjusting-screw 36 or 37, as the case may be, thus coupling the arm 13 to the bracket. The moment the steering-lever 18 is released the spring 28 will return the released pawl to its former position and again lock the mechanism in engagement with the sector, and this new locked position will remain intact until again released. By this means if the vehicle-wheels strike an obstruction which would have a tendency to throw them to one side this movement would be resisted by the locking mechanism and the steering-lever entirely relieved from any movement or concussion, as will be obvious.

With the arrangement of the parts as shown the position of the handle 18 indicates the direction of the movement of the vehicle, and the steering will be accomplished in a smooth and easy manner and with a minimum of effort on the part of the operator.

If the wheels strike an obstruction while the lever 18 is being moved, tending to turn the wheels in the same direction, the bracket 16 would move away from the pin in the pawl, releasing the pawl and permitting it to instantly engage the sector and effectually prevent further movement in that direction until the lever and bracket are again swung around to disengage the pawl from the sector, the opposite pawl simply following around, ready for action instantly should the wheels tend to move the lever in that direction. By this means the action of the steering apparatus may be perfectly controlled and any tendency to sudden lateral movements of the steering apparatus or the steering-wheels resisted and all danger from accidents from that source obviated.

It is obvious that the parts may be modified and changed in construction and readily adapted to different constructions of vehicle and likewise adapted to the steering of vessels without departing from the principle of the invention or sacrificing any of its advantages.

A steering-wheel or other suitable device may be substituted for the lever 18, if preferred; but such modification would not be a departure from the principle of the invention, as the results produced and the mode of operation would be the same.

Having thus described the invention, what is claimed is—

In a steering mechanism for vehicles, a stationary support having a sector-plate extending therefrom, a post connected to the steering-wheel and rotatively disposed relative to said support, an arm connected to said steering-post having spaced elongated apertures, oppositely-disposed pawls connected movably to said arm and reversely engaging said sector-plate and holding said steering-post from rotative movement, pins carried by said pawls and extending through said apertures, set-screws disposed to adjust the movement of said pins, a steering-lever rotatively connected relative to said steering-post and extending between said pins, whereby the lateral movement of said levers will alternately move said pawl and permit the steering-post to be rotated, and means provided for regulating the movement of said pawls, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

BURDICK A. STEWART.

Witnesses:
EDW. S. OSTEGEE, Jr.,
GEORGE E. HAYNES.