

N^o 3233



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PROVISIONAL SPECIFICATION.

“Improvements in or relating to Steering Mechanisms for Motor Cars or other Vehicles”

I, WILHELM MAYBACH, Engineer, of Cannstatt, in the Kingdom of Württemberg, German Empire, do hereby declare the nature of this invention to be as follows:—

5 This invention relates to improvements in or relating to steering mechanisms and has for its object to provide a steering device which may be adjusted to any position most convenient to the operator.

10 A steering device constructed according to this invention comprises a hand wheel carried by a shaft one end of which rests in a socket within which it is free to turn. The socket is pivotted to the frame of the motor car or other vehicle to which the steering device is attached and is free to turn about an axis at right angles to the axis of rotation of the hand wheel. Pivotted also to the frame of the vehicle or car is a toothed quadrant operatively connected with the steering wheels of the vehicle and upon the shaft of the hand wheel is a pinion adapted to gear with this toothed quadrant.

15 By revolving the hand wheel the toothed quadrant will obviously be rotated about its centre moving the steering wheels, but if the shaft of the hand wheel is allowed to swing with the socket so that the pinion on the shaft rolls upon the quadrant, the shaft may by this means be brought into a position nearer to or further from the driver, only operating the steering mechanism when held stationary relatively to the quadrant and rotated about its own axis.

20 Guides may be provided between which the shaft may be swung when it is desired to bring it nearer to or further from the driver.

25 If desired the socket which supports the lower end of the shaft which carries the hand wheel may be carried from the frame of the vehicle by means of a pin adapted to be locked when desired by any convenient device. By this means the shaft may be adjusted to any angle to the driver within a given vertical plane and held rigidly in that position though free to rotate and operate the steering mechanism in the usual manner. If on the other hand the pivot by which the socket is secured to the frame is free the shaft of the hand wheel may be swung backwards and forwards carrying the quadrant with it so that the steering wheels are operated without any rotation of the shaft.

30 If desired in place of securing the shaft at the required angle to the operator by means of the pivot carrying the socket of the shaft, a locking device may be provided in the guides described above between which the shaft travels so that it may be locked in any desired position upon the guides.

Dated this 14th day of February 1901.

BOULT, WADE & KILBURN,
Agents for the Applicant.

[Price 8d.]



Improvements in Steering Mechanisms for Motor Cars or other Vehicles.

COMPLETE SPECIFICATION.

‘Improvements in or relating to Steering Mechanisms for Motor Cars or other Vehicles’.

I, WILHELM MAYBACH, Engineer, of Cannstatt, in the Kingdom of Württemberg, German Empire, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to improvements in or relating to steering mechanisms and has for its object to provide a steering device which may be adjusted to any position most convenient to the operator. 5

A steering device constructed according to this invention comprises a hand wheel carried by a shaft one end of which rests in a socket within which it is free to turn. The socket is pivotted to the frame of the motor car or other vehicle to which the steering device is attached and is free to turn about an axis at right angles to the axis of rotation of the hand wheel. Pivotted also to the frame of the vehicle or car is a toothed quadrant operatively connected with the steering wheels of the vehicle and upon the shaft of the hand wheel is a pinion adapted to gear with this toothed quadrant. 10 15

By revolving the hand wheel the toothed quadrant will obviously be rotated about its centre moving the steering wheels, but if the shaft of the hand wheel is allowed to swing with the socket so that the pinion on the shaft rolls upon the quadrant, the shaft may by this means be brought into a position nearer to or further from the driver, only operating the steering mechanism when held stationary relatively to the quadrant and rotated about its own axis. 20

Guides may be provided between which the shaft may be swung when it is desired to bring it nearer to or further from the driver.

If desired the socket which supports the lower end of the shaft which carries the hand wheel may be carried from the frame of the vehicle by means of a pin adapted to be locked when desired by any convenient device. By this means the shaft may be adjusted to any angle to the driver within a given vertical plane and held rigidly in that position though free to rotate and operate the steering mechanism in the usual manner. If on the other hand the pivot by which the socket is secured to the frame is free the shaft of the hand wheel may be swung backwards and forwards carrying the quadrant with it so that the steering wheels are operated without any rotation of the shaft. 25 30

If desired in place of securing the shaft at the required angle to the operator by means of the pivot carrying the socket of the shaft, a locking device may be provided in the guides described above between which the shaft travels so that it may be locked in any desired position upon the guides. 35

In the accompanying drawings:—

Figure 1 is a side elevation of a steering device constructed according to this invention, and

Figure 2 is a section of the same on the line $x-x$ of Figure 1. 40

Like letters indicate like parts throughout the drawings.

The steering wheel or wheels of the vehicle are operatively connected to a rod a pivotted to one arm of a bell crank lever b . On the other arm of the lever b is a toothed quadrant c and gearing with it is a pinion e carried by a steering stem d . The steering stem d is provided with a hand wheel d^1 by which it may be rotated and is supported by a socket or bearing f within which it is free to rotate, the bearing itself being also free to rotate or oscillate about a horizontal axis. The operation of this device is as follows;— 45

By rotating the hand wheel d^1 and consequently the steering stem d with its

Improvements in Steering Mechanisms for Motor Cars or other Vehicles.

toothed wheel *e* the quadrant *c* is moved in one direction or the other so that the rod *a* is caused to operate the steering wheel or wheels of the vehicle.

If the pinion *e* is rotated so that it rolls upon the quadrant *c* without moving it the stem *d* with its hand wheel may be made to swing with the bearing *f* about the horizontal axis of the latter so that the hand wheel may be brought into the position most convenient for the driver. This position having been found the bearing *f* may be rigidly secured so that further oscillation of the stem *d* is prevented; or the stem *d*, which conveniently slides between guides *d*², may be secured to the guides by any convenient device.

In some cases it may be preferred that the steering stem *d* should be kept free and steering effected either by rotating the pinion *e* or by swinging the hand wheel so that the stem *d* is made to oscillate between its guides carrying with it the quadrant *c*.

One method of securing the steering stem *d* is shown in the drawings and comprises a pin *g* rigidly secured to the bearing *f* and carried through the frame of the vehicle upon the further side of which it is secured by a nut. Between the bearing *f* and the frame a sleeve *h* is mounted so that when the nut is screwed tightly in place the bearing *f* is made to bind against the sleeve and the frame of the vehicle, whilst the quadrant *c* is free to rotate as before being mounted upon the sleeve *h*.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare that what I claim is:—

1. In a steering mechanism for motor or other vehicles the combination with an oscillating quadrant such as *c* operatively connected with the steering wheel or wheels of the vehicle of a steering stem such as *d* carrying a pinion *e* in engagement with the quadrant *c* and free to rotate in a socket or bearing such as *f* and swing with the quadrant with or without a locking device such as *g* all substantially as and for the purpose described or illustrated in the accompanying drawings.

2. The complete steering mechanism for a motor or other vehicle substantially as described or illustrated in the accompanying drawings.

Dated this 14th day of Novr. 1901.

BOULT, WADE & KILBURN,
Agents for the Applicant.

Fig. 1.

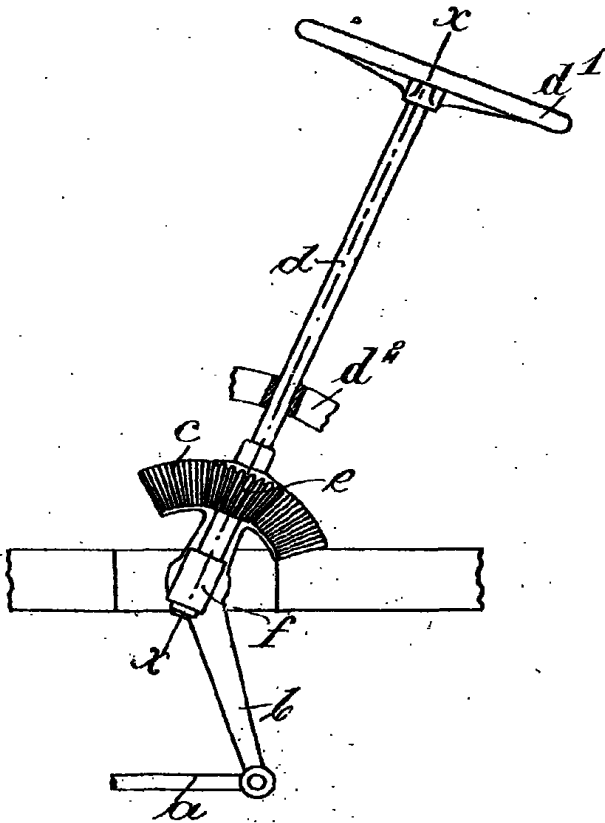
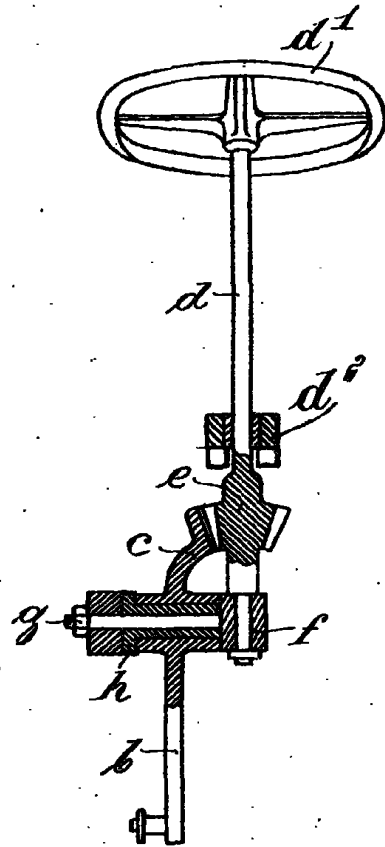


Fig. 2.



[This Drawing is a reproduction of the Original on a reduced scale.]

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