N° 26,083 A.D. 1913

(*Under International Convention.*)

Date claimed for Patent under Patents and Designs Act, 1907, being date of first Foreign Application (in Italy), 11th Aug., 1913

Date of Application (in the United Kingdom), 13th Nov., 1913

Accepted, 26th Mar., 1914

COMPLETE SPECIFICATION.

Improvements in or relating to Steering Apparatus for Motor Cars.

We, the Firm LANCIA & Co., of 99, Via Monginevro, Turin, Italy, 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:—

In power driven vehicles the desirability of being able to modify the inclination of the steering pillar or column in order to adapt the same to a particular type of body or to place it at the required distance from the seat, has been recognised, and to this end it has been proposed to arrange the steering gear box in such a manner that it can turn about the pin of the toothed quadrant.

It has also been proposed to lock the steering column in position by means of a quadrant arranged at a certain distance from the axis of rotation and to which the steering pillar may be connected.

The present invention aims at providing a stronger, simpler and more efficient device than hitherto known, for enabling the inclination of the steering column to be modified.

This invention relates to a device for modifying the inclination of the steering column in which the latter is firmly locked in position; moreover means are provided for modifying easily the length of the link connecting the steering lever to the wheels.

The accompanying drawings illustrate by way of example a construction according to the invention.

Figure 1 is a side elevation of part of a frame on which the steering column is mounted.

Figure 2 shows the mounting of the steering column,

Figure 3 is a sectional front elevation on line x—x of Figure 2 of the sleeve carrying the column.

Figure 4 is a vertical section through the steering gear box on a larger scale to show its mounting on the frame.

Figures 5 to 7 show means to vary the length of the link connecting the steering arm to the wheels.

As will be seen in Figure 1, the column 1 is secured in the usual manner to

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the casing 2 which contains the worm and the worm wheel of the usual steering gear. The casing 2 is, however, pivoted in a conical box 3 secured to the frame 4 of the car, by means of a tubular pivot pin 3^1 secured to the box 3, and therefore to the frame 4, by means of the nut 4^1.

The worm wheel is keyed in the usual manner to the pin 10^1 controlling the lever 10.

The column 1 further carries at the level of the dash-board of the car, a sleeve 5 mounted on it and provided at the bottom with a part 6 of cylindrical surface, the centre of curvature of which is on the axis of rotation of the casing 2, and therefore on the axis of the pin 10^1, and on the other hand, with two vertical lugs 7. The dash-board of the car carries moreover a guide 8 through which the column passes and below which the lug 6 rests. This guide is provided with a cylindrical surface having its centre of curvature at the centre of rotation of the box containing the steering worm, and at the top carries two ribs 9 adjoining the lugs 7 and provided with holes. The lugs 7 could be secured to the said ribs, for instance by means of bolts.

Assuming therefore that the steering column is secured in the position shown in full lines in Figures 1 and 2, it is easy to bring it into one of the dotted positions because it is sufficient to loosen the connection between the box and the longitudinal member 4, and to release the part 5 from the fixed ribs 9; in order to render the column free to turn about the axis of the box 3 with which the guide 8 is concentrically fixed, so that the lugs 7 slide on the ribs 9, and the part 6 slides against the lower side of the guide 8 always remaining in contact with it.

It is thefrefore sufficient to fix the part 5 on the ribs 9 in another position, for instance by bolts and to tighten the extension 3^1 of the box on the longitudinal members 4, in order to fix column 1 at another inclination.

As by varying the direction of the box, the mean position of the arm 10 controlling the rod 11 which transmits the movements of the steering gear to the front wheels, is also necessarily altered, it is necessary, when the inclination of the column 1 is altered, to vary to a corresponding extent the length of the rod 11 in order to keep the front wheels in the same position parallel to the longitudinal axis of the car.

To that end, assuming that it is sufficient to have three possible positions for the column 1 (and this assumes that three series of holes are provided in the rib 7), it is possible to adopt, for the connection of the rod 11 to the ends of the arms to which it is connected, the arrangement shown separately in Figures 5—7, that is to say, between the ends of the rod 11 and the heads of the block 12 adjustable in the sleeve 13 secured to the rod 11, with which block the end of the arm to be connected engages, are inserted distance pieces for instance two washers 14 held in place by a spring 15. The same thing could be done at the other end of the rod 11 where it is connected to the lever controlling the wheels. These washers can be arranged either both at the end of the rod 11 (Figure 7), or one at each end of the block 12 (Figure 5) or both between the block 12 and the plug 16 which closes the outer end of the sheath 13 (Figure 6), so that it is possible to modify very easily the length of the connection between the arm 10 and that connected direct to the front wheels.

With such a construction the inclination of the steering column can be varied at will, without having to change any part, and by exceedingly simple operations.

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

1. In a steering gear for power driven vehicles, in which the inclination of the steering column may be varied, a member mounted on the dash-board and comprising a cylindrical surface the axis of which coincides with the axis about

which the column can swing and against which rests a similarly shaped surface connected to a sleeve surrounding the steering column, the said sleeve being provided with lugs moving between two ribs of the stationary member to which the sleeve is secured by means of bolts or the like.

2. An arrangement as claimed in Claim 1, in which, in order to compensate the movement of the arm secured to the spindle of the steering segment, the length of the rod connecting its end to the lever controlling the wheels is modified by distance washers which can be suitably inserted between its heads and blocks with which the ends of the arm or of the lever engage.

3. The steering apparatus for motor cars substantially as described or as illustrated in the accompanying drawing.

Dated this 13th day of November, 1913.

BOULT, WADE & TENNANT,
111 & 112, Hatton Garden, London, E.C.,
Chartered Patent Agents.

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LANCIA & CO.'S COMPLETE SPECIFICATION.

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

Fig.1

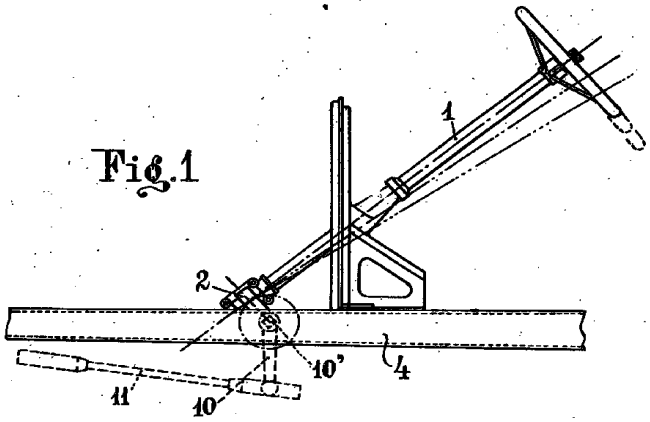
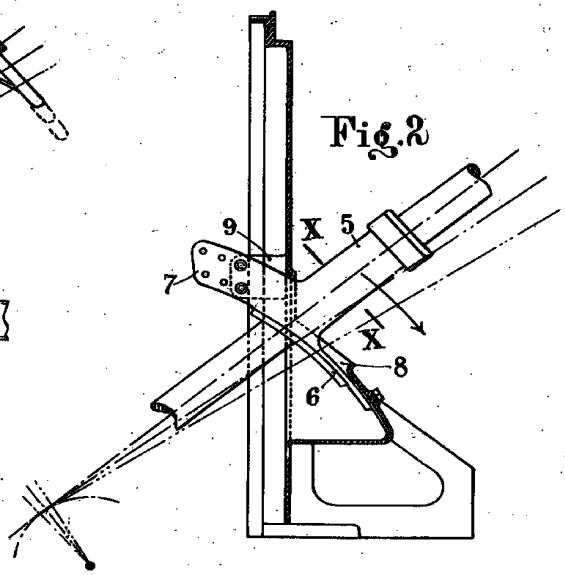


Fig.2



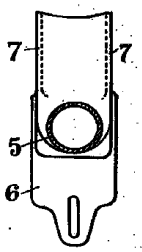


Fig.3

Fig.4

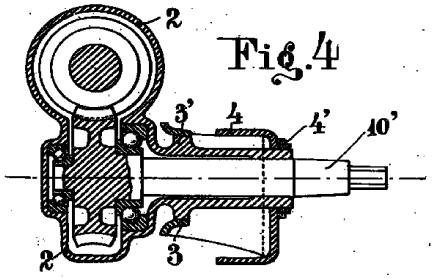


Fig.5

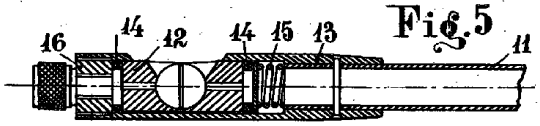


Fig.7

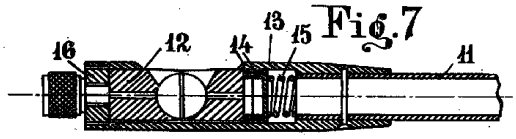


Fig.6

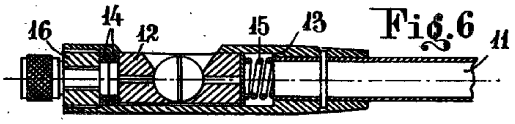


Fig. 1

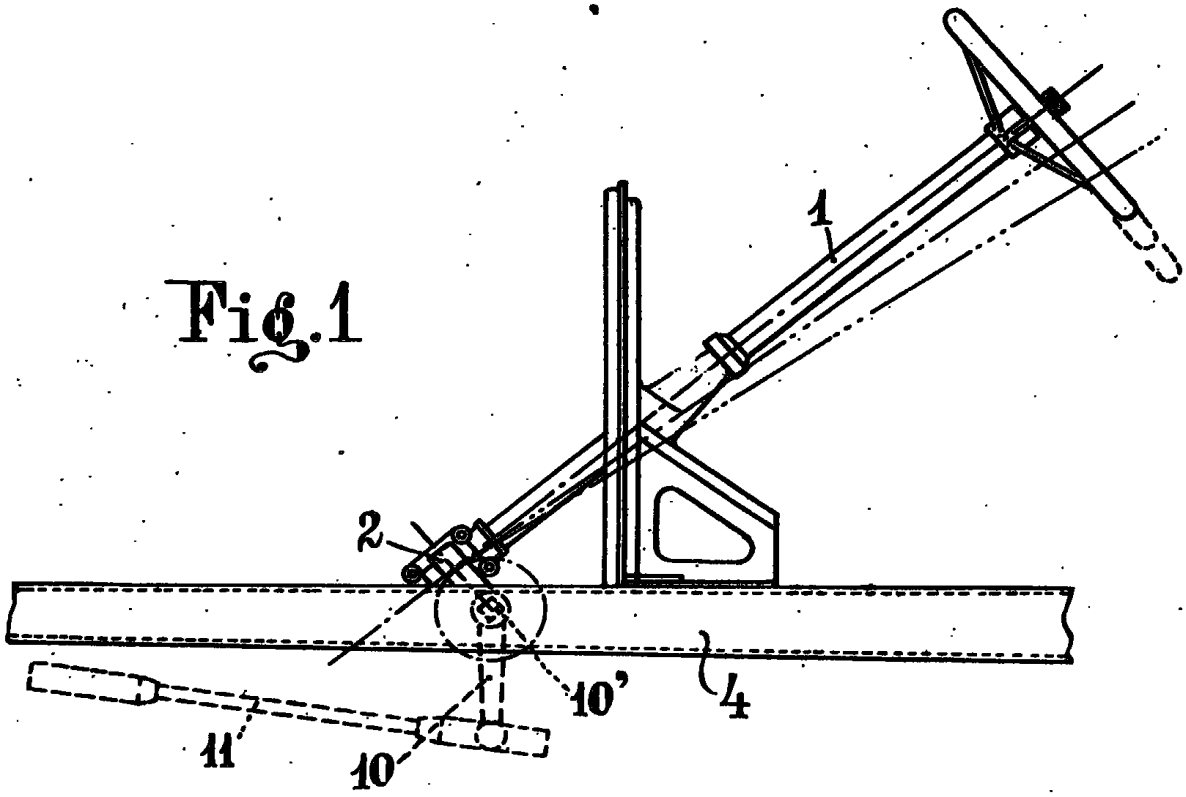


Fig. 4

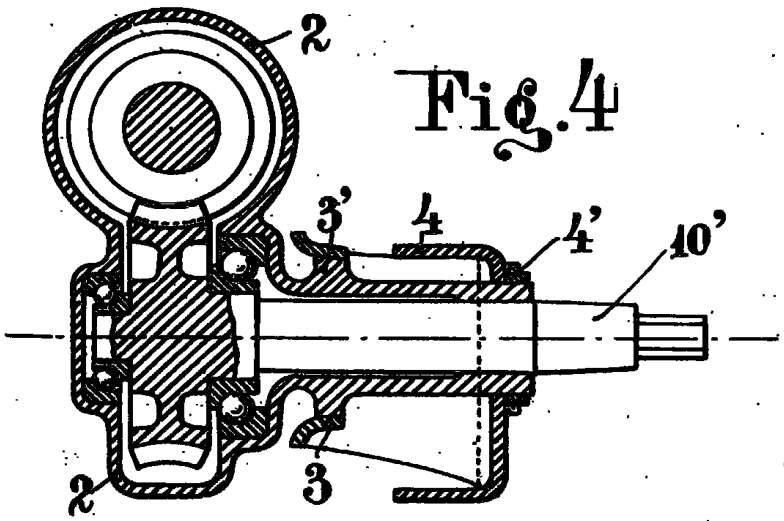
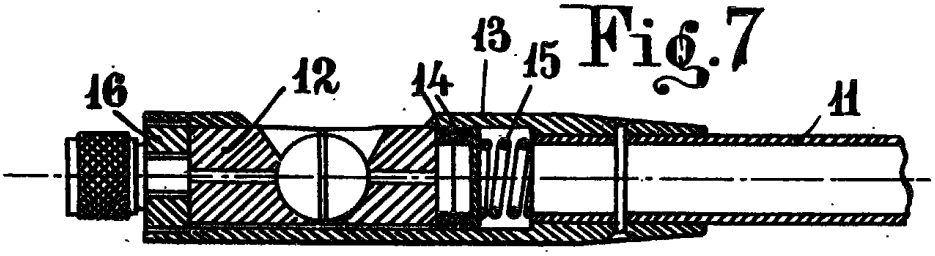
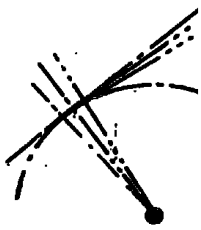
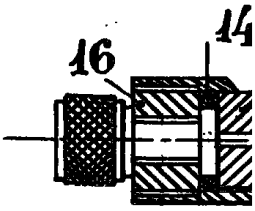


Fig. 7







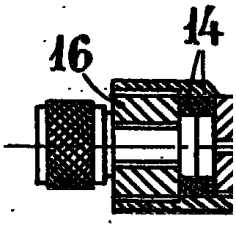
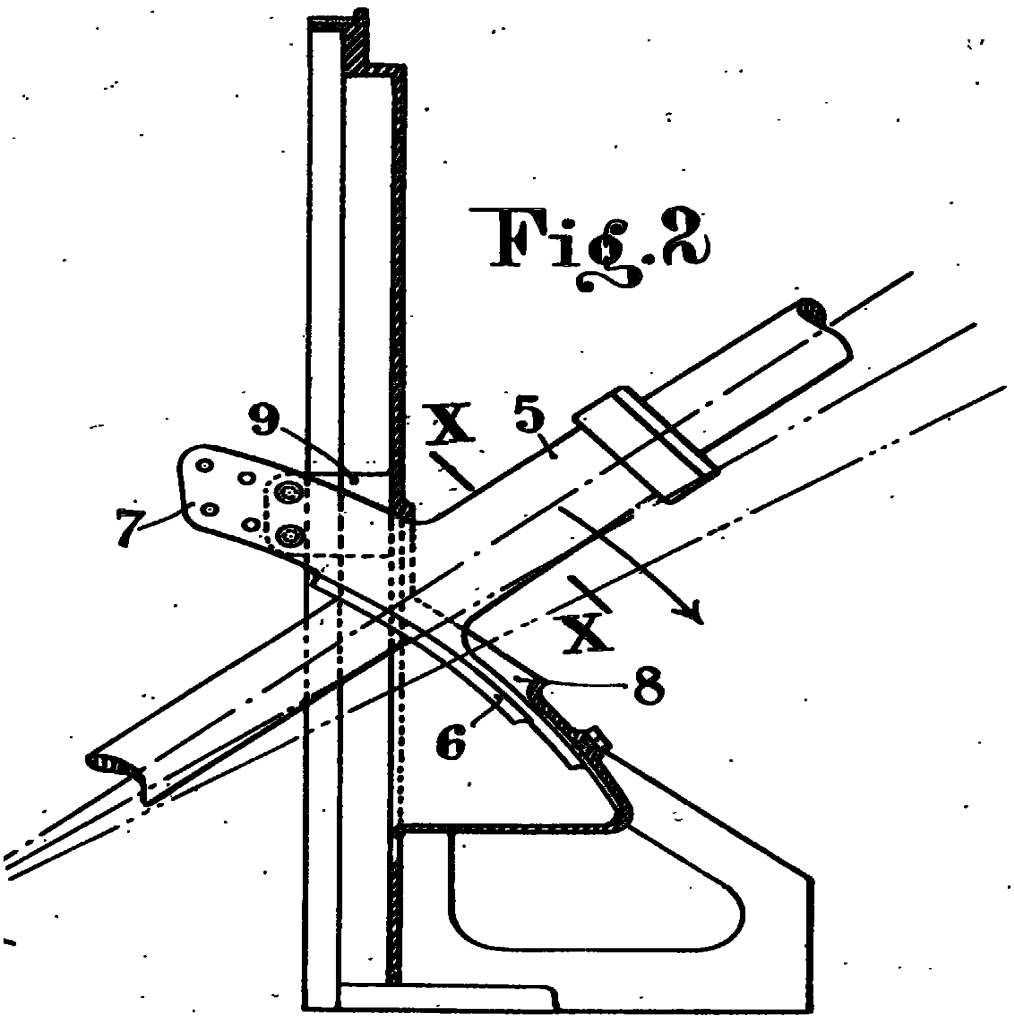


Fig.2



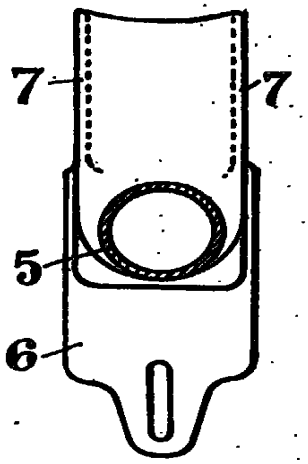


Fig.3

Fig.5

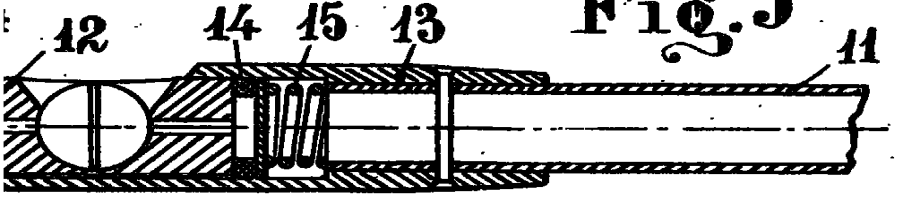


Fig.6