No. 786,772. PATENTED APR. 4, 1905.

E. J. LONN.

STEERING WHEEL FOR MOTOR VEHICLES.

APPLICATION FILED APR. 8, 1904.

Fig 1

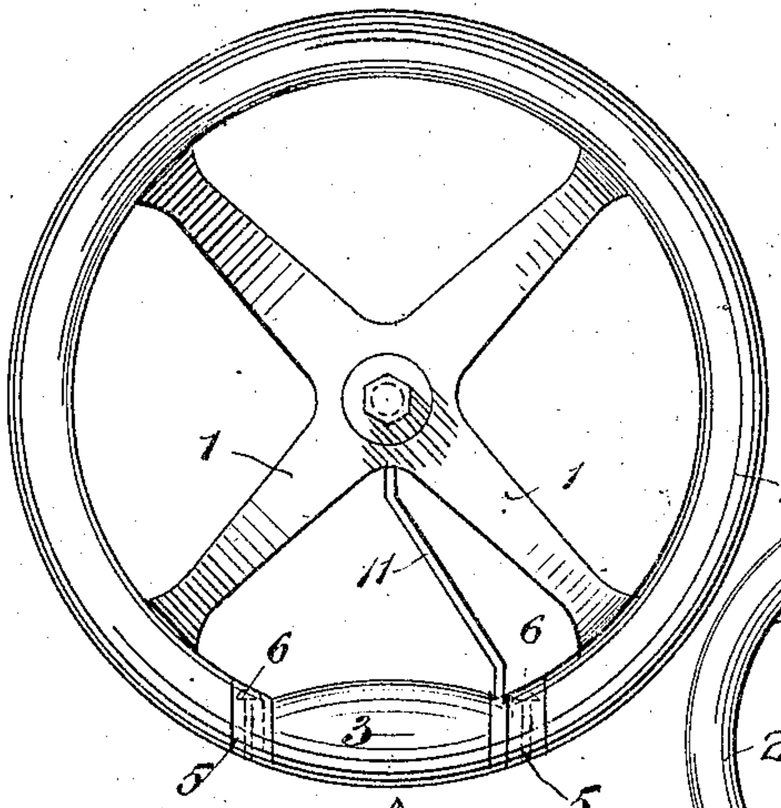


Fig 2

Fig 6

Fig 4

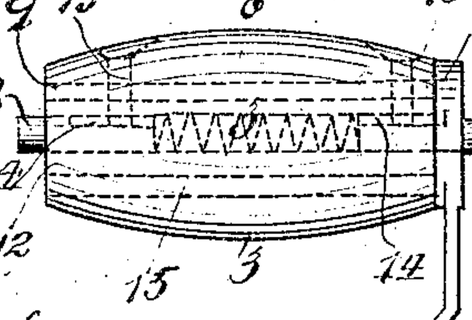


Fig 5

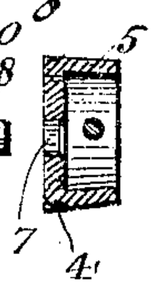


Fig. 13.

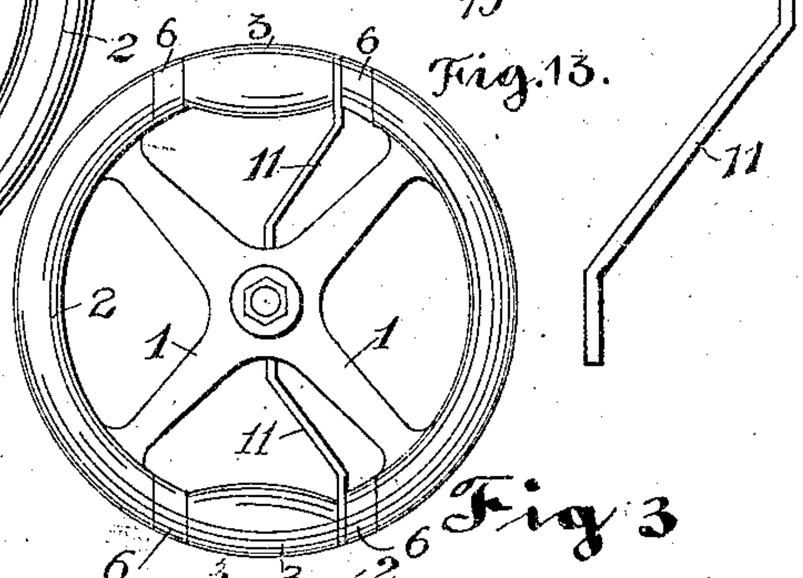


Fig 3

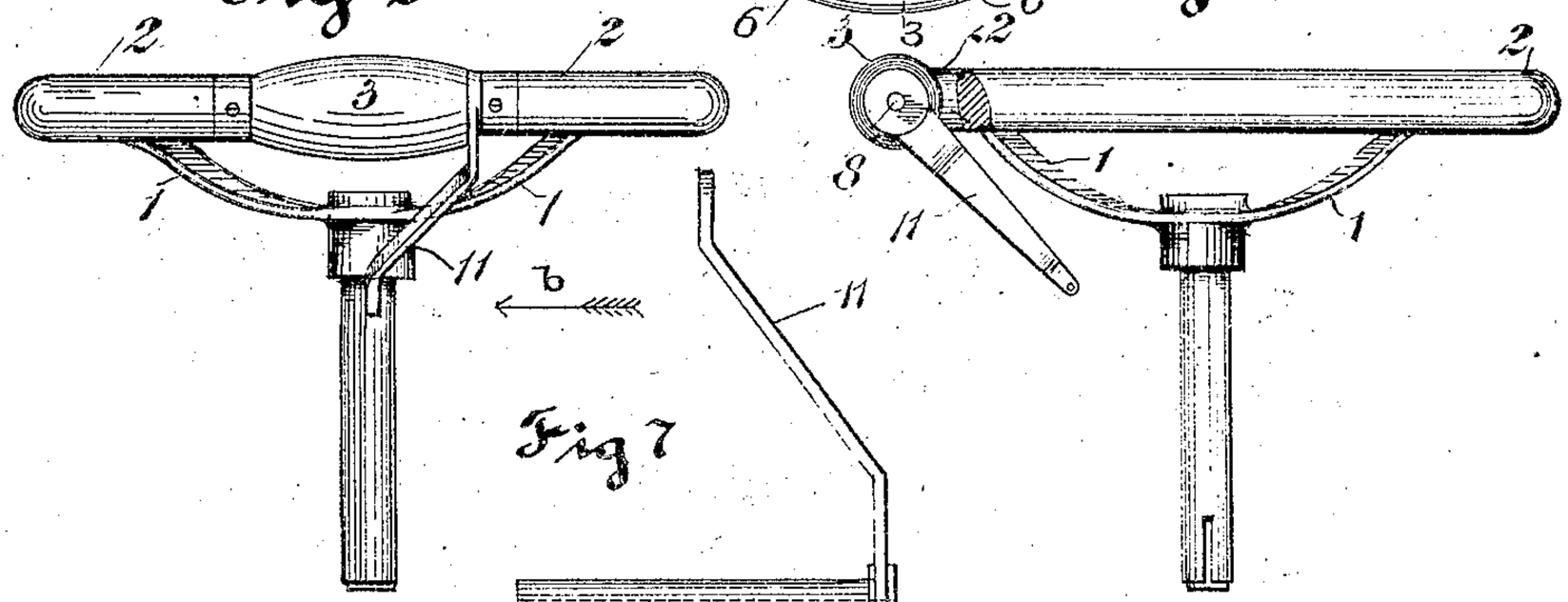


Fig 7

Fig 9

Fig 8

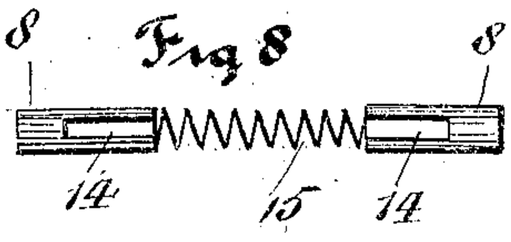


Fig 10

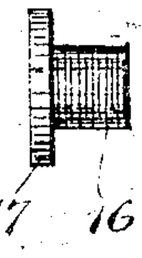
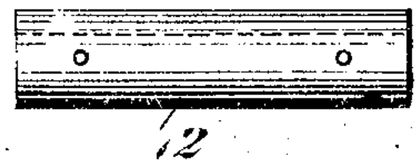


Fig 11

Fig 12



Witnesses

Wm O. Morck

F. F. Ayers.

Inventor

Edward Julius Lonn

By Thompson & Bell

Attorney

No. 786,772. Patented April 4, 1905.

UNITED STATES PATENT OFFICE.

EDWARD JULIUS LONN, OF LAPORTE, INDIANA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO AUTOCAR COMPANY, OF ARDMORE, PENNSYLVANIA.

STEERING-WHEEL FOR MOTOR-VEHICLES.

SPECIFICATION forming part of Letters Patent No. 786,772, dated April 4, 1905.

Application filed April 8, 1904. Serial No. 202,178.

To all whom it may concern:

Be it known that I, EDWARD JULIUS LONN, a citizen of the United States, residing at Laporte, in the county of Laporte and State of Indiana, have invented certain new and useful Improvements in Steering-Wheels for Motor-Vehicles, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to certain new and useful improvements in steering-wheels for bicycles, automobiles, or other such like vehicles; and it consists in a revoluble hand grip or grips formed to be inserted in the rim or periphery of a steering-wheel, whereto by suitable means valves or other controlling mechanisms are connected to be regulated thereby, as will be hereinafter more fully set forth, and particularly pointed out in the claims.

The object of this invention is to provide a revoluble grip or grips situated conveniently in the rim or periphery of a steering-wheel, and when two such grips are employed the same are preferably disposed in diametrically opposite positions in the rim or periphery of the steering-wheel, whereby the operator may manipulate valves or other controlling means, in connection with the motive power of the vehicle upon which this type of steering-wheel is mounted, without removing his hands from the rim of said steering-wheel; also, to construct such revoluble grip or grips and mount the same revolubly in the periphery of the wheel, so that said periphery will present a regular, smooth, and unbroken peripheral surface. I attain these objects by means of the construction of steering-wheel illustrated in the accompanying drawings, in which similar numerals of reference designate like parts throughout the several views.

Figure 1 is a plan view of my invention of a steering-wheel, showing the periphery thereof cut out or gapped to receive my invention of a hand-grip wherein it is removably mounted. Fig. 2 is an elevational view of the same looking in the direction of the arrow *a*. Fig. 3 is a side elevational view of the same looking in the direction of the arrow *b*. (See Fig. 2.) Fig. 4 is an enlarged detail view of the hand-grip. Fig. 5 is an end bearing for the same. Fig. 6 is an enlarged detail view of one of the end bearings, showing the securing-screw in dotted lines, whereby said bearings are secured to the ends of the periphery of the wheel. Fig. 7 is an enlarged detail view of the lever-arm and its sleeve. Fig. 8 is an enlarged detail view of the trunnions of the hand-grip. Fig. 9 is an end view of the same. Fig. 10 is an enlarged view of another form of the trunnion-bearing. Fig. 11 is an end view of the same. Fig. 12 is an enlarged view of the hand-grip sleeve-bushing; and Fig. 13 is a plan view of a steering-wheel, showing the periphery thereof cut out or gapped on diametrically opposite sides to receive hand-grips.

The steering-wheel may be of any suitable form of construction; but I prefer to construct the arms 1 of a suitable metal and mount on the ends of the said arms a periphery 2, preferably of wood, and the latter may be bolted or otherwise secured to the ends of the arms 1, and by this form of construction a light and very strong wheel is obtained.

The periphery 2 is cut out or gapped to receive the hand-grip 3, and on the gap ends of the rim or periphery 2 of the steering-wheel are secured the hand-grip bearings 4. The ends of the rim or periphery 2 of the steering-wheel are reduced to receive the thimbles 5 of said bearings 4, and the said thimbles 5 are accurately fitted in the ends of the rim or periphery 2 and are secured to the latter by suitable securing-screws 6, which pass through the ends of the rim 2 or periphery of the steering-wheel and are screwed in the threaded holes formed in the thimbles 5 to securely hold and retain said bearings 4 in their position relatively to each other and centrally with the revoluble center or axis of the grip 3, so that their journaled bearings 7 will be directly opposite each other and in alinement with the axis of the grip 3 to receive the trunnions 8.

The hand-grip 3 may be of wood or any other insulating or non-conducting material, such as vulcanized rubber, and is preferably

of a round form and of a larger diameter at its center and tapered gradually to its ends.

The outer sleeve or bushing 9 is fitted in the hand-grip 3 to extend longitudinally therethrough, and on one of the prolonged ends of the said sleeve is secured the hub 10 of the lever-arm 11. The inner sleeve 12 is fitted in the bore of the outer sleeve 9 and extends flush with the ends of the latter, and the said sleeves are secured firmly in the hand-grip 3 by means of the securing-screws 13, which pass through said hand-grip at or near the ends thereof, through the outer sleeve 9, and are screwed into the inner sleeve 12, and the projecting end of the said screws engage the grooves 14, formed in the trunnions 8.

The trunnions 8 are fitted in the ends of the bore of the inner sleeve 12 and are arranged to slide longitudinally therein, and between the said trunnions is situated a coil-spring 15, by means of which the said trunnions 8 are forced outwardly when the hand-grip 3 is placed in position to cause the trunnions 8 to enter their bearings 7 and project in said bearings sufficiently to form a substantial journal-support.

The bearings 4 may be made in various other ways, one of which is illustrated in Figs. 10 and 11, in which the cylindrical threaded portion 16 is screwed into the gap ends of the periphery 2 of the steering-wheel till the collars 17 fit up close to and bear against the said gap ends of the periphery 2, and the hand-grip 3 is arranged to fit between said bearings in the manner similar to the bearings illustrated in Figs. 5 and 6.

To apply the hand-grip to the steering-wheel, all that is necessary to be done is to press the trunnions 8 inwardly and insert the hand-grip 3, equipped with its lever 11, in position in the gap of the periphery of the steering-wheel, and when the same is placed centrally therein the spring 15, situated between the said end trunnions 8, will force the trunnions 8 outwardly to enter and form a sufficient journal-bearing in the bearings 7.

An arm 11, as previously described, is secured on the sleeve 9 to turn with the hand-grip 3 and in position thereon to be situated at one end of said sleeve 9, and consequently at one end of the hand-grip 3, and to the free end of the said arm is secured a rod or some other connecting means to connect with suitable valves, levers, or other controlling mechanisms, whereby the latter may be manipulated. A similar hand-grip may be inserted in the periphery 2 of the steering-wheel, as shown in dotted lines, (see Fig. 1,) on the side directly opposite the first-mentioned hand-grip and to be manipulated in the same way, it will be observed, so that the operator may readily grasp both hand-grips when manipulating the steering-wheel, and thereby control two valves or controlling mechanisms without removing his hands from the rim or periphery of the steering-wheel.

It is clear that by the means above described the more important controlling mechanism may be connected to the hand-grips, and said mechanism can be readily manipulated without the necessity of the operator removing his hands from the steering-wheel to divide his attention, which in the matter of high-speed vehicles is necessarily required to be concentrated on the steering-wheel mechanism in order that the vehicle be safely manipulated and guided. This is such an obvious fact that further description is unnecessary.

Having thus fully described this my invention, what I claim as new and useful, and desire to cover by Letters Patent of the United States therefor, is—

1. In a hand steering-wheel, the combination with the rim thereof, of a hand-grip revolubly mounted in said rim.

2. In a hand steering-wheel, the combination with the rounded rim thereof, of a hand-grip inserted and revolubly mounted in said rim to form a regular contour.

3. Controlling means comprising a steering-wheel and an independently-movable handhold therein which is adapted to be connected to an operative device.

4. Controlling means comprising a steering-wheel and a pair of independently-movable handholds therein which are adapted to be connected to operative devices.

5. In a hand steering-wheel, the combination with an annular rim thereof provided with a hand-grip-receiving gap, of a hand-grip fitted to extend longitudinally in said gap to close the same, and means for revolubly supporting said hand-grip therein.

6. In a hand steering-wheel, the combination with the rim thereof provided with a hand-grip-receiving gap, of a hand-grip fitted in said gap, trunnions on the ends of said grip and thimbles secured to the gap ends of the rim.

7. In a hand steering-wheel, the combination with the rim thereof provided with a hand-grip-receiving gap, thimbles fitted and secured to the gap ends of said rim, of a hand-grip fitted to and extending longitudinally between said thimbles, and hand-grip trunnions mounted in said thimbles.

8. In a hand steering-wheel, the combination with the rim thereof provided with a hand-grip-receiving gap, thimbles fitted and secured to the gap ends of said rim, of a hand-grip fitted and extending longitudinally between said thimbles, hand-grip trunnions in said thimbles and a lever-arm connected to said hand-grip.

9. In a hand steering-wheel, the combination with the rim thereof provided with a hand-grip-receiving gap, thimbles fitted to and

secured to the gap ends of said rim, of a hand-grip fitted and extending longitudinally between said thimbles, hand-grip trunnions mounted in said thimbles, a lever-arm connected to said hand-grip, whereby controlling mechanism may be operated.

10. In a hand steering-wheel, the combination with the rim thereof having opposing hand-grip-receiving gaps, of opposing hand-grips revolubly mounted in said gaps of said rim and means connected to each of said revoluble hand-grips whereby controlling mechanisms may be operated independently.

11. In a hand steering-wheel, the combination with the rim thereof provided with a plurality of hand-grip gaps, of a grip mounted in each of said gaps and means connected to each of the said revoluble hand-grips whereby the controlling mechanisms may be operated independently.

12. In a hand steering-wheel, the combination with the rounded rim thereof provided with a plurality of hand-grip gaps, of a hand-grip fitted and revolubly mounted in each of said gaps to form a continuous and unbroken peripheral contour.

13. In a hand steering-wheel, the combination with the rim thereof provided with a hand-grip-receiving gap, thimbles fitted to and secured to the gap ends of said rim, of a sleeve fitted and extending longitudinally between said thimbles, a lever-arm secured on one of the ends of said sleeve, a hand-grip mounted on said sleeve, end trunnions mounted in the ends of said sleeve and arranged to accurately fit in said end thimbles.

14. In a hand steering-wheel, the combination with the rim thereof provided with a hand-grip-receiving gap, thimbles fitted to and secured to the gap ends of said rim, of a sleeve fitted and extending longitudinally between said thimbles, a lever-arm secured on one of the ends of the said sleeve, a hand-grip mounted on said sleeve and encircling the same, end trunnions yieldingly mounted in the ends of said sleeve and arranged to be moved into said thimbles when said hand-grip is placed in position.

15. In a hand steering-wheel, the combination with the rim thereof provided with a hand-grip-receiving gap, thimbles fitted to and secured to the gap ends of said rim, of a sleeve fitted and extending longitudinally between said thimbles, a lever-arm secured on one of the ends of the said sleeve, a hand-grip mounted on said sleeve and encircling the same, end trunnions mounted in the ends of said sleeve, and a spring situated in said sleeve between said trunnions for moving the latter longitudinally.

16. In a hand steering-wheel, the combination with the rim thereof provided with a hand-grip-receiving gap, thimbles fitted to and secured to the gap ends of said rim, of an outer sleeve fitted and extending longitudinally between said thimbles, a lever-arm secured on one of the ends of the said outer sleeve, an inner sleeve mounted within the aforesaid sleeve, a hand-grip mounted on said outer sleeve and encircling the same, end trunnions mounted in the ends of said inner sleeve, means for extending the said trunnions and means connecting said hand-grip, outer sleeve and inner sleeve to form a single rotative piece.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD JULIUS LONN.

Witnesses:
W. R. SMITH,
ESTELLA ANDERSON.