

E. H. WHITE.
STEERING MECHANISM FOR AUTOMOBILES.

APPLICATION FILED DEC. 1, 1902.

NO MODEL.

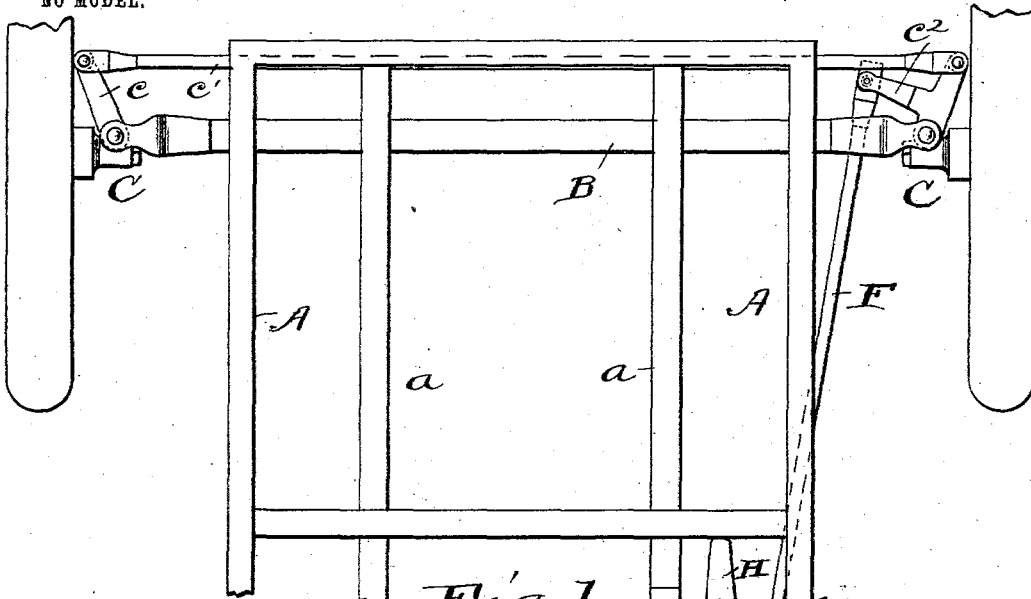


Fig. 1,

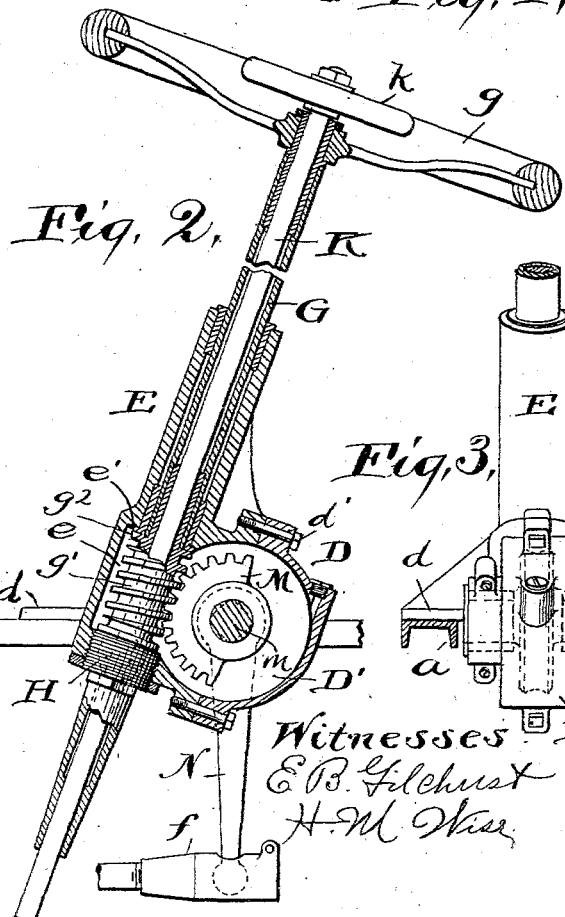


Fig. 2,

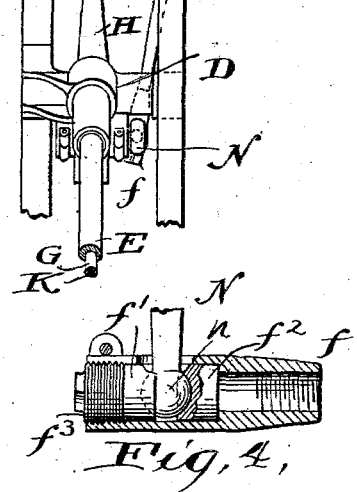


Fig. 4,

Fig. 3,

Witnesses
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UNITED STATES PATENT OFFICE.

ROLLIN H. WHITE, OF CLEVELAND, OHIO, ASSIGNOR TO THE WHITE SEWING MACHINE COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

STEERING MECHANISM FOR AUTOMOBILES.

SPECIFICATION forming part of Letters Patent No. 740,209, dated September 29, 1903.

Application filed December 1, 1902. Serial No. 133,331. (No model.)

To all whom it may concern:

Be it known that I, ROLLIN H. WHITE, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Steering Mechanism for Automobiles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates particularly to the mechanism for operating the steering-wheels of an automobile, and it also includes the construction, substantially as shown, for suitably supporting a tubular steering-post and a concentric throttle-operating shaft.

The invention may be here summarized as consisting of the construction and combination of parts hereinafter described, and pointed out definitely in the claims.

In the drawings, Figure 1 is a plan view of the front part of an automobile-frame carrying my invention. Fig. 2 is a sectional side view of the mechanism constituting the present invention. Fig. 3 is a front elevation of the mechanism shown in Fig. 2; and Fig. 4 is a sectional view of the ball-and-socket connection between the link, which goes to one of the steering-wheel knuckles, and the lever-arm which operates said link.

Referring to the parts by letters, A A are the side members and $a a'$ parallel intermediate members of the automobile-frame.

B represents the front axle, and C the steering-wheel knuckles pivoted thereto on vertical pivots in the usual way. Arms c , rigidly secured to these knuckles, are connected by a cross-link c' , and one of these knuckles is provided with an operating-arm c^2 , to which the rearwardly-extended link F is pivoted.

D represents a bracket having laterally-extended feet d , which are secured, respectively, to one of the side bars A and the adjacent longitudinal frame member a . This bracket includes an inclined tubular post E. The opening through this post is enlarged at its lower end, as at e , thereby forming the internal shoulder e' . The steering-post G, which, as shown, is tubular, is rotatably mounted in this sleeve, and to its projecting upper end the steering-wheel g is attached. A worm g'

is formed upon or attached to the lower part of this post and it lies within the enlargement e of the steering-sleeve. An annular flange g^2 upon the post, which may be the upper end of the worm, engages with the annular shoulder e' . This post is inserted into the sleeve from below, and thereafter the lower end of said sleeve is closed by a member H, which is tubular in the construction shown and which is screwed into the sleeve into engagement with the lower end of the post G. Endwise movement of the steering-post G within the sleeve E is prevented by the means set forth. The throttle-operating shaft K extends entirely through the tubular post G, projecting from its upper end, and to this upper end an operating-wheel k is attached. This throttle-shaft also extends down through this tubular member H, in which it has an efficient bearing.

The bracket D has on its rear side a casing D' for a worm-segment. This casing is divided in a diametrical line, and the two parts thereof are separably connected together by bolts d' . The worm-segment M is rigidly fast to an operating-shaft m , which is mounted in suitable bearings at the ends of the casing, and one end of the shaft extends out of the casing and has attached to it a depending arm N, whose lower end is fashioned into a ball n . On the rear end of the link F a coupling-sleeve f is secured. This coupling is a split tube at its rear end, and two blocks $f' f^2$, which together form a ball-socket, are fitted into this end, wherein they are adjusted by means of a plug f^3 , screwing into the end thereof. The adjustment is maintained by clamping this plug, the coupling being split for this purpose. The ball-shaped lower end of the operating-arm passes down through an enlarged opening in this coupling-piece into the ball-socket formed by said two blocks. It is obvious that by turning the steering-post the worm thereon operates the worm-segment M, whose motion is transmitted, through the shaft m and the operating-arm N, to the link F, which is thereby pushed forward or pulled backward, and thereby the steering-wheels are turned.

It has not been thought necessary to show

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the connection between the throttle-operating shaft and the throttle, since it is no part of the present invention, which relates primarily to the mechanism for operating the steering-wheels. The same screw-threaded tubular member H, however, which takes the downthrust of the steering-post serves also as the bearing for the lower end of the throttle-shaft, and to that extent there is cooperation between the steering mechanism and the throttle-operating mechanism.

The construction shown and described is simple and efficient, and all of the parts which might be injured by exposure are inclosed, and thereby protected.

Having described my invention, I claim—

1. In automobile-steering mechanism, the combination with the frame having two parallel longitudinally-extended bars, a bracket having laterally-projecting feet which are respectively secured to said bars, and having also an upwardly-extended inclined sleeve, and, behind that, a casing having a removable rear part, with a steering-post mounted in the said sleeve and having thrust-bearings therein to prevent its endwise movement, a worm rigid with said post within said sleeve, a shaft mounted in said casing and having a projecting end, a worm-wheel segment secured to the shaft within the casing and engaging with said worm, an arm secured to the projecting

end of said shaft, a link for operating the steering-wheels, and a ball-and-socket connection between said arm and link, substantially as specified.

2. In an automobile, the combination of a fixed bracket having an inclined sleeve the opening in which is enlarged in its lower end thereby forming an internal shoulder, which bracket has also, behind said sleeve, a casing, with a tubular steering-post mounted in said sleeve, a worm rigid with said post within the enlarged opening therein and bearing against said shoulder, a tubular member which screws into the lower end of said sleeve and furnishes a thrust-bearing for the lower end of said post, a throttle-operating shaft passing through this said post and the tubular member screwed into its lower end, a shaft mounted in the casing, a worm-wheel secured thereto within the casing engaging with said worm, an operating-arm secured to said shaft, and a link for operating the steering-wheels to which the lower end of said arm is connected, substantially as specified.

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

ROLLIN H. WHITE.

Witnesses:

E. B. GILCHRIST,
H. M. WISE.