No. 822,268. PATENTED JUNE 5, 1906.

H. GEISENHÖNER & D. MILLER.

STEERING CHECK FOR AUTOMOBILES.

APPLICATION FILED OCT. 19, 1903.

2 SHEETS—SHEET 1.

Fig. 1

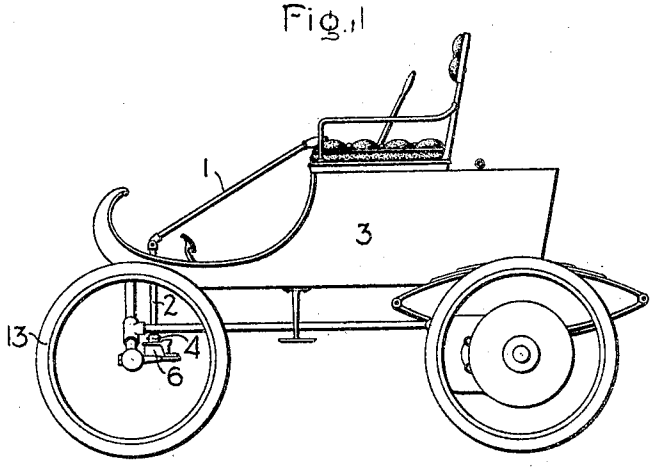
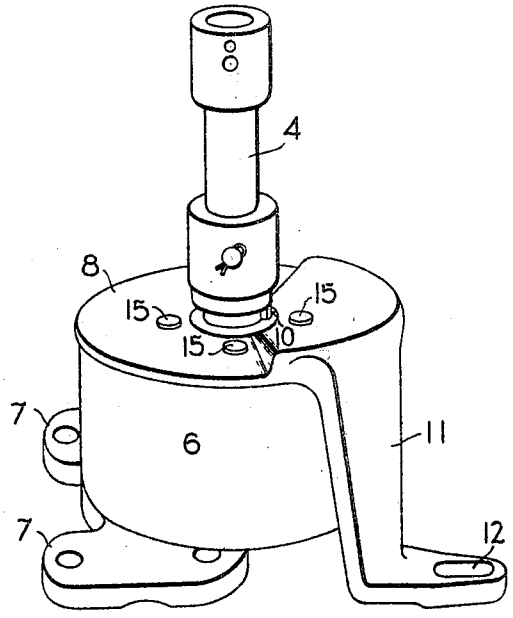


Fig. 2



Witnesses.

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Fig. 3

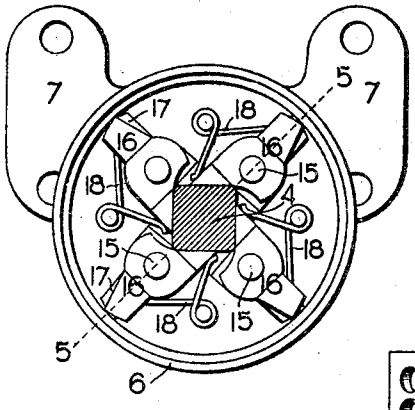


Fig. 4

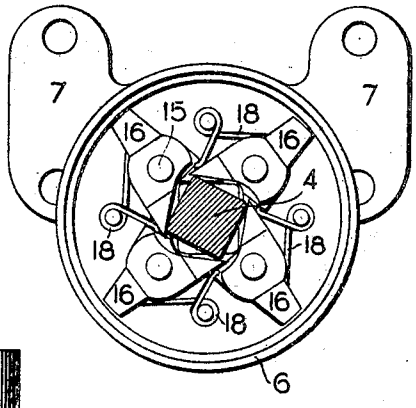


Fig. 5

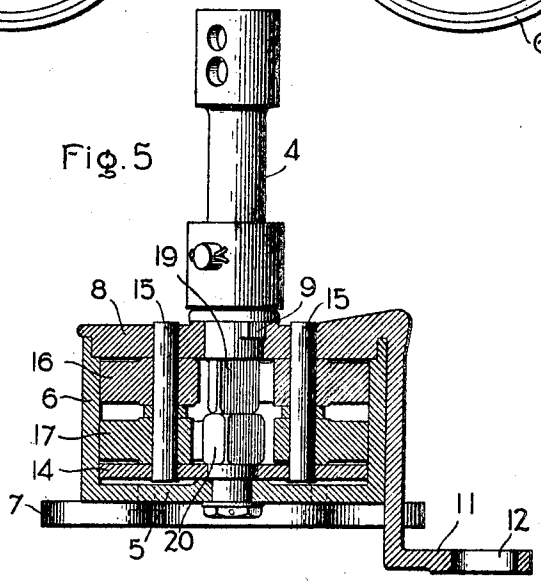
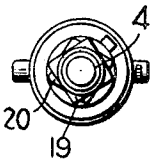


Fig. 6



Witnesses.

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UNITED STATES PATENT OFFICE.

HENRY GEISENHÖNER AND DAVID MILLER, OF SCHENECTADY, NEW YORK, ASSIGNORS TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

STEERING-CHECK FOR AUTOMOBILES.

No. 822,268. Specification of Letters Patent. Patented June 5, 1906.

Application filed October 19, 1903. Serial No. 177,547.

To all whom it may concern:

Be it known that we, HENRY GEISENHÖNER and DAVID MILLER, citizens of the United States, residing at Schenectady, in the county of Schenectady and State of New York, have invented certain new and useful Improvements in Steering-Checks for Automobiles, of which the following is a specification.

This invention relates to automobiles; and its object is to provide a simple and efficient device for automatically locking the steering-gear in any position to which it is moved by the steering-handle. The desirability and advantages of such a contrivance are so well known as to need no detailed explanation here. Patents have heretofore been granted for steering-checks; but, so far as we are aware, none of them operate in the same manner as our present invention, which consists of a stationary cylindrical shell, a central shaft connected with the steering-handle, a rotatable arm connected with the steering-gear, and two sets of locking-dogs pivotally mounted on said arm and engaging with the internal surface of the shell. Said dogs are adapted to be unlocked by the initial angular movement of the shaft, whose further rotation carries the arm with it and actuates the steering-gear.

In the accompanying drawings, Figure 1 is a side elevation of an automobile equipped with our improved steering-check. Fig. 2 is a perspective view, on a large scale, of the steering-check alone. Fig. 3 is a top plan view of the same with the top plate removed, showing the dogs locked. Fig. 4 is a similar view showing the dogs unlocked. Fig. 5 is a central upright section on the line 5 5, Fig. 3; and Fig. 6 is an end view of the cam-shaft.

The steering-handle 1 of the automobile is suitably attached to an upright shaft 2, journaled in bearings on the body 3 and coupled at its lower end to a cam-shaft 4, which is journaled in the bottom 5 of a cup-shaped cylindrical shell 6, having feet 7, by which it is fastened to the front axle of the machine. The top of the shell is closed by a plate 8, which is rotatable on the shell concentric with the shaft 4 and is connected with said shaft by a lost-motion device, preferably a lug 9, on the shaft, engaging with a notch 10 in the plate, the notch being longer than the lug, as shown in Fig. 2. The plate has an arm 11, containing a slot 12, by means of which it is pivotally connected with the rods, which run to the steering-heads in which the front wheels 13 are journaled and by means of which said wheels are turned to steer the machine.

It will be seen that the above-described mechanism provides a steering-gear with a slight amount of lost motion at the joint between the shaft 4 and the plate 8. In order to lock the plate 8 and the wheels 13 in any position to which they may be turned, we provide the following mechanism. A disk 14 is rotatably mounted on the shaft 4 at the bottom of the shell and is connected with the top plate 8 by posts 15, preferably four in number. On each post are pivoted two dogs 16 17, one above the other, the outer ends of the dogs being capable of biting into the inner surface of the shell and preventing any rotation of the plate and disk, the upper set of dogs resisting movement in one direction and the under set resisting movement in the opposite direction. The dogs are urged into engagement with the shell by strong springs 18, and when thus engaged the two dogs on each post stand at a slight angle with each other, as shown in Fig. 3. The tails of the dogs all project inwardly toward the shaft 4, which at these points is polygonal, having flattened faces 19 20 to afford a solid abutment for said tails when the tips of the dogs are in engagement with the shell.

The operation of our invention is as follows: A slight rotary movement of the shaft in either direction to the extent permitted by one-half the play of the lug 9 in the notch 10 causes the corners of the shaft between the faces 19 20 to operate as cams and to force the dogs into the position shown in Fig. 4. The tips of the dogs are now parallel with the shell and their sharp angles no longer bite into it, so that the shaft, plate, disk, posts, and dogs can all be rotated in the shell to effect a steering movement of the wheels. A movement of the cam-shaft in either direction unlocks the particular set of dogs (either upper or lower, as the case may be) which normally opposes the turning of the plate 8 in that direction. When one set is thus unlocked and the plate is turned, the other set of dogs simply drags around inside the shell ready at any instant to oppose any re-

trograde movement, so that when the pressure on the steering-handle is relaxed both sets of dogs are immediately in locking engagement with the shell. Any effort to turn the plate 8 by thrust on the rods connecting the arm 11 with the steering-wheels only serves to make the dogs bite into the shell the deeper. The steering-gear is thus positively locked at all times when the steering-handle is not being moved, but is instantly unlocked by a slight movement of said handle in either direction.

In accordance with the patent statutes we have described the principle of operation of our invention, together with the apparatus which we now consider to represent the best embodiment thereof; but we desire to have it understood that the apparatus shown is only illustrative and that the invention can be carried out by other means.

What we claim as new, and desire to secure by Letters Patent of the United States, is—

1. A steering-check for automobiles, comprising a rotatable arm, a stationary shell, radially-disposed dogs pivotally supported by said arm and engaging with said shell, and a shaft having a wiping engagement with the dogs for unlocking them and rotating said arm.

2. A steering-check for automobiles, comprising a rotatable arm, a stationary shell, dogs pivotally supported by said arm and engaging with said shell, and a shaft having cam-surfaces to unlock said dogs.

3. A steering-check for automobiles, comprising a rotatable arm, a stationary shell, dogs pivotally supported by said arm, and engaging with said shell, and a shaft having cam-surfaces to unlock said dogs and a lost-motion connection with said arm.

4. The combination with a cup-shaped cylindrical shell, of a shaft centrally journaled therein, and provided with flattened faces, a disk and a top plate rotatable on said shaft, posts connecting said disk and plate, and dogs pivoted on said posts and engaging with the inner surface of said shell and also with the faces on said shaft.

5. The combination with a cylindrical shell, of a plate rotatable thereon, two sets of dogs pivoted on said plate and serving respectively to prevent movement of said plate in either direction, and a cam-shaft for unlocking either set of dogs according to the direction in which it is turned.

6. The combination with a cylindrical shell, of a shaft concentric therewith and having two polygonal portions, a plate rotatable concentric with said shaft, and two sets of dogs pivotally supported on said plate and engaging with the inner surface of said shell and with the polygonal portions of said shaft.

7. The combination with a cylindrical shell, of a shaft concentric therewith and having two polygonal portions, a plate rotatable concentric with the shaft, and two sets of spring-actuated dogs pivotally supported on said plate and engaging with the polygonal portions of the shaft and the inner surface of said shell, said sets respectively resisting movement of the plate in opposite directions.

8. In combination, a rotatable arm, a surrounding shell, dogs pivotally supported by the arm and engaging with said shell, and a shaft having cam-surfaces to unlock said dogs.

9. In combination, a rotatable arm, a stationary shell, dogs pivotally supported by said arm and engaging with said shell, and a shaft having cam-surfaces to unlock said dogs and a lost-motion connecction with said arm.

In witness whereof we have hereunto set our hands this 16th day of October, 1903.

HENRY GEISENHÖNER.
DAVID MILLER.

Witnesses:
HELEN ORFORD,
E. C. HOLLISTER.