

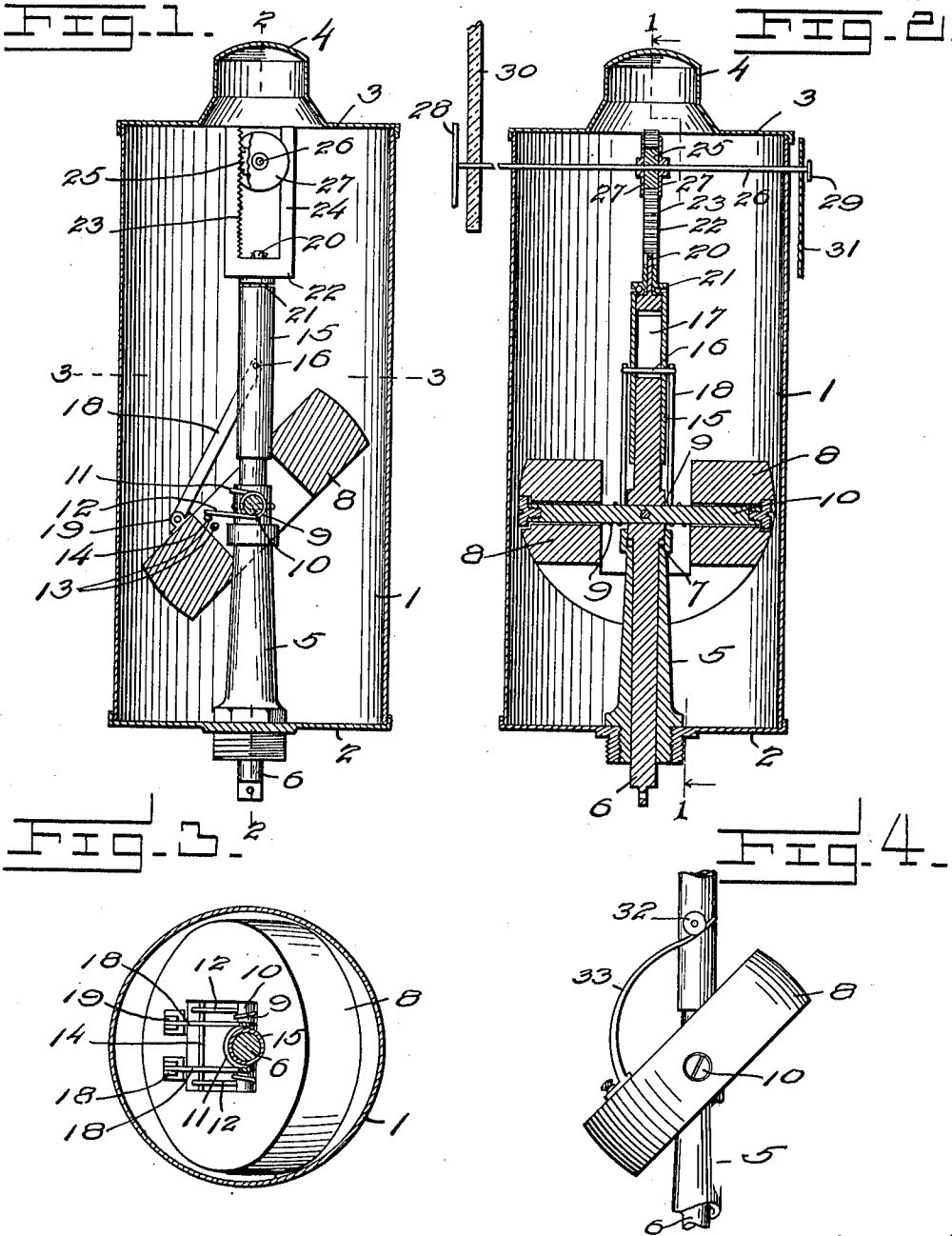
F. B. HEALEY & C. S. HOMSHER.
SPEEDOMETER.

APPLICATION FILED MAY 6, 1911.

1,019,638.

Patented Mar. 5, 1912.

2 SHEETS—SHEET 1.



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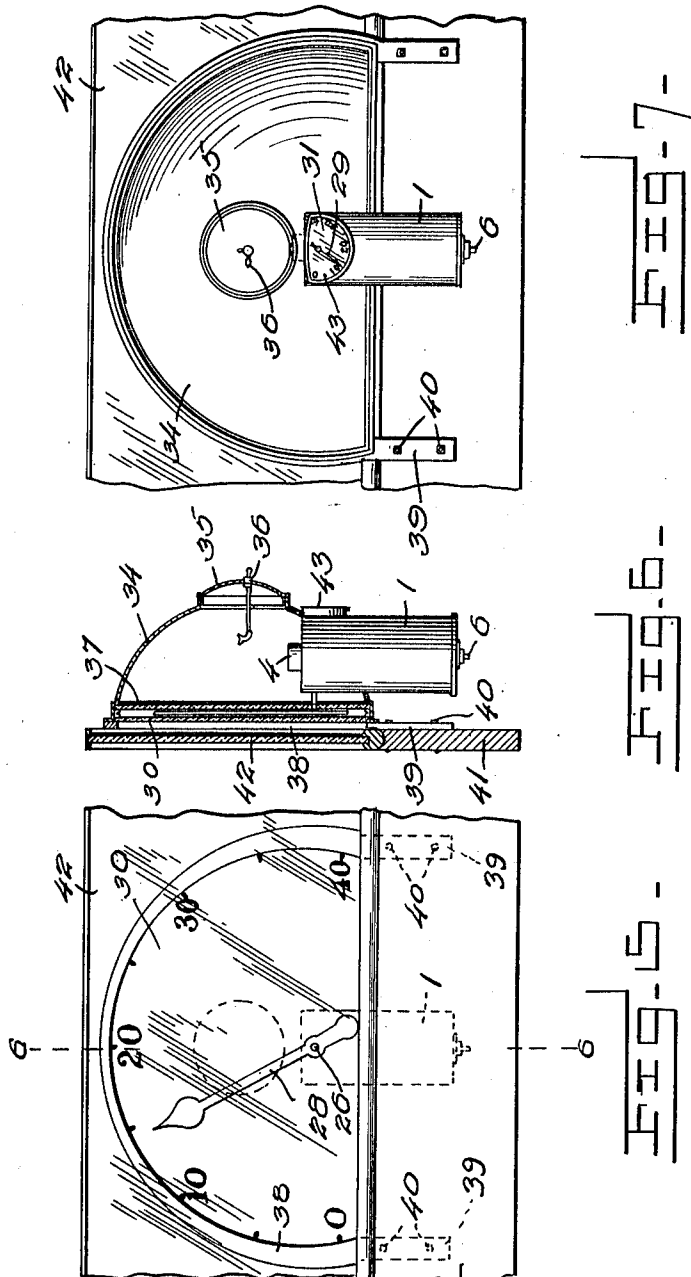
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UNITED STATES PATENT OFFICE.

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SPEEDOMETER.

1,019,638.

Specification of Letters Patent.

Patented Mar. 5, 1912.

Application filed May 6, 1911. Serial No. 625,501.

To all whom it may concern:

Be it known that we, FRED B. HEALEY and CARL S. HOMSHER, citizens of the United States, residing at Denver, in the county of Denver and State of Colorado, have invented new and useful Improvements in Speedometers, of which the following is a specification.

This invention relates to speedometers, and one object of the invention is to construct a speedometer for use in connection with a relatively large graduated dial which is to be seen by the public and a relatively small graduated dial adapted to be read by the driver, the speed being indicated by two separate and individual dials and hands or pointers.

A further object of the invention is to simplify and improve the construction and operation of the working parts of the speedometer proper.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the claims may be resorted to when desired.

In the drawings,—Figure 1 is a vertical sectional view taken through the speedometer casing on the plane indicated by the line 1—1 in Fig. 2. Fig. 2 is a vertical sectional view taken on the plane indicated by the line 2—2 in Fig. 1. Fig. 3 is a horizontal transverse sectional view taken on the line 3—3 in Fig. 1. Fig. 4 is a sectional detail view illustrating a slightly modified form of the invention. Fig. 5 is a front view of the dash board of a motor vehicle to which the invention has been applied, showing also a transparent wind shield associated with the dash board. Fig. 6 is a vertical sectional view taken substantially on the plane indicated by the line 6—6 in Fig. 5, the speedometer casing being shown in elevation. Fig. 7 is a rear elevation of the dash board having the improved device applied thereto.

Corresponding parts in the several figures are denoted by like characters of reference.

The speedometer proper includes a cylindrical casing 1 having bottom and top caps 2 and 3 detachably or otherwise associated therewith, the top cap being preferably formed with a dome 4 to accommodate the working parts of the device when in operation. Associated with the bottom cap is a sleeve 5 affording a bearing for the drive shaft 6 which is in practice to be connected by a flexible shaft or in any other suitable fashion with some revolving part of the motor vehicle to which the invention in practice is to be applied, and the speed of which is to be determined. The shaft 6 is supported at the upper end of the sleeve or bearing 5 upon a ball bearing 7, and said shaft carries a pivoted ring 8 which constitutes in practice a governor weight and which normally occupies the position indicated in Fig. 1 in a plane at an acute angle to the longitudinal axis of the shaft but with its axis intersecting the axis of the shaft. When the shaft is revolved, centrifugal force will cause the ring to oscillate on its pivot and gradually approach a position substantially at right angles to the shaft. A spring 9 is suitably coiled about the pivot 10 supporting the annular weight 8, said spring having a bridge portion 11 resting against the shaft and terminal arms 12 engaging the weight. The arms 12 are preferably adjustably connected with the weight in order that the tension of the spring may be regulated, and to this end the weight may be provided with a plurality of apertures 13 in which a cross bar 14 engaged by the arms 12 may be adjustably mounted, but it is understood that the adjustment whereby the tension of the spring is regulated may be effected in any suitable and convenient manner.

The shaft 6 carries a movable sleeve 15 having a transverse pin 16 extending through a slot 17 at the upper end of the shaft with which the sleeve is thus connected for rotation. The pin 16 is connected by links 18 with pivot lugs 19 upon that portion of the weight which normally occupies a position below the axis of the pivot member 10. It follows that when the shaft 6 is rotated and the annular weight 8 gradually approaches a position at right angles to the axis of the shaft, the sleeve 15 will be moved upwardly upon the shaft. Associated with

the upper end of the sleeve 15 by means of a shaft 20 and a ball bearing 21 forming a swivel connection is a U-shaped yoke or member 22 having arms, one of which constitutes a rack bar 23, while the other arm forms a guide member 24 whereby the rack is held in engagement with a pinion 25 upon a shaft 26 that is supported for rotation diametrically in the casing, said shaft being also equipped with disks 27 that constitute flange members adjacent to the pinion between which the rack bar 23 and the guide arm 24 are guided so as to prevent displacement of the parts when the device is in operation. Connected with the two ends of the shaft 20 are hands or pointers 28, 29, the hand 28 which is mounted upon the front end of the shaft being of relatively large dimensions, while the hand 29 is relatively small. The hands 28 and 29 operate in conjunction with dials 30 and 31 having corresponding characters inscribed thereupon to indicate, in miles or other suitable units of measurement, the speed at which the vehicle upon which the device is mounted is traveling. In the operation of this part of the invention, it will be seen that when the shaft 6 is rotated, the ring or weight 8 will begin to oscillate and as it moves toward a horizontal position, the spring 9 will be placed under tension, said spring having been previously adjusted so that its tension will be proportionate to the distance between the graduations on the dial, and the ratio of increase in the speed of revolution of the shaft will thus be accurately transmitted from the centrifugal ring to the indicator hands which will thus enable the speed to be instantly ascertained. When the speed slackens, the centrifugal ring or weight 8 under the tension of the spring 9 will be gradually restored to its initial position.

Under the modified construction illustrated in Fig. 4 of the drawings, the pin 16 is provided with wheels 32 engaged by resilient cam members 33 adjustably connected with the weight 8 in such fashion that the tension exercised by the resilient cam members against the wheels 32 may be conveniently regulated. The wheels are preferably annularly grooved to accommodate the terminal ends of the resilient cam members which, when the ring or weight 8 moves from an inclined toward a horizontal position, will operate to move the sleeve 15 in an upward direction with the result of actuating the pointer-carrying shaft 26 in the manner hereinbefore described.

34 designates a reflecting lamp casing of suitable construction with which the casing 1 of the speedometer is suitably associated. Said lamp casing is provided with a movable supported closure 35 carrying the gas cock 36 which will thus be conveniently accessible for lighting. The lamp casing car-

ries the large dial 30 which is constructed of semi-transparent or opalescent material, such as frosted or sand-blasted glass, and in rear of the dial the lamp casing is provided with a plain glass 37 combining with the dial 30 to form a casing or housing for the hand or pointer 28. Suitably associated with the lamp casing is a supporting bar 38 having downwardly projecting arms or brackets 39 for the passage of fastening members, such as screws or bolts 40, whereby the device may be mounted in position for operation upon the dash board 41 of a motor vehicle. Said dash board has been shown as being equipped with an upwardly extending transparent wind shield 42 of glass or other suitable material which, while it serves to protect the lamp casing and the speedometer dial, does not interfere with the reading of the said dial. The small dial 31 may be protected by a transparent cover 43 combining therewith to form a housing for the hand or pointer 29. It is preferred that the speedometer casing be brightly polished or white enameled, so that it will assist in reflecting the light from the burner in the lamp casing.

As will be seen from the foregoing description, taken in connection with the drawings hereto annexed, we have produced a speedometer of very simple and efficient construction in which the centrifugal principle is applied in a simple and efficient manner through the medium of the governor ring or weight 8 to effect the movement of an indicator hand whereby the speed will be correctly indicated. We have also provided the speedometer with a large dial and indicator hand in addition to the relatively small dial exposed in front of the operator, the said large dial being conspicuously exposed above the dash board of the vehicle so as to be capable of being readily observed and read by persons at a distance, and thus enabling those charged with regulating traffic to see at a glance whether the established regulations are being complied with, thus avoiding future disputes. The construction of the improved device is simple, and it has proven to be thoroughly efficient for the purposes for which it is provided.

Having thus described the invention, what is claimed as new, is:—

1. In a speed indicating device, a shaft supported for rotation and having a longitudinal slot, an annular weight pivoted on the shaft, a sleeve longitudinally movable upon the shaft, a pin extending through the sleeve and through the slot in the shaft, means associated with the pivoted weight and engaging the pin to effect longitudinal movement of the sleeve, a yoke swiveled with relation to the sleeve and having arms constituting, respectively, a rack bar and a guide bar, a rock shaft having a pinion

meshing with the rack bar, and disks or flange members upon the rock shaft adjacent to the pinion and embracing between them the arms of the yoke.

5 2. In a speed indicating device, a cylindrical casing, a shaft supported for rotation axially therein, an annular weight pivotally connected with the shaft, a sleeve longitudinally slidable upon the shaft, means connecting the sleeve with the shaft for rotation therewith, means associated with the pivoted weight and with said connecting means to move the sleeve longitudinally upon the shaft when the weight is tilted about its pivot, a yoke member pivotally connected with the sleeve for longitudinal movement therewith, said yoke member having arms constituting respectively a rack bar and a guide bar, a rock shaft supported for rotation diametrically in the casing and having a pinion engaging the rack bar, flange members upon the shaft embracing the rack bar and the guide bar between them, a large and a small indicator hand connected with opposite ends respectively of the rock shaft, and suitably supported dials having corresponding characters to cooperate with the indicator hands.

30 3. In a speed indicating device, a lamp casing having a transparent glass and an opalescent plate constituting a dial, said

glass and plate cooperating to constitute a housing, a speedometer casing associated with the lamp casing and having a rock shaft extending diametrically therethrough, 35 one end of said rock shaft being equipped with an indicator hand operating in the housing formed by the transparent glass and the semi-transparent plate, a relatively small indicator hand at the opposite end of the 40 rock shaft, and a dial cooperating with the latter hand.

4. In a speed indicating device, a lamp casing having a housing including an opalescent plate constituting a dial, a speedometer 45 casing associated with the lamp casing and having a rock shaft, an indicator hand upon one end of said rock shaft operating over the dial within the housing, a relatively small indicator hand upon the opposite end 50 of the rock shaft, a dial cooperating with the latter hand, and means for supporting the lamp casing and the parts associated therewith in position for operation upon the dash board of a motor vehicle. 55

In testimony whereof we affix our signatures in presence of two witnesses.

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CARL S. HOMSHER.

Witnesses:

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FRANKLIN H. JOHNSON.