

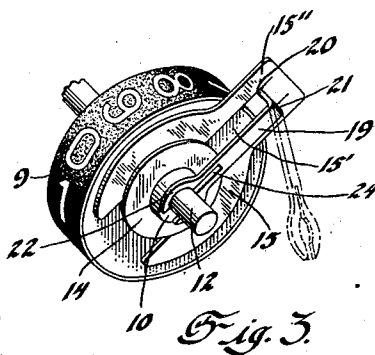
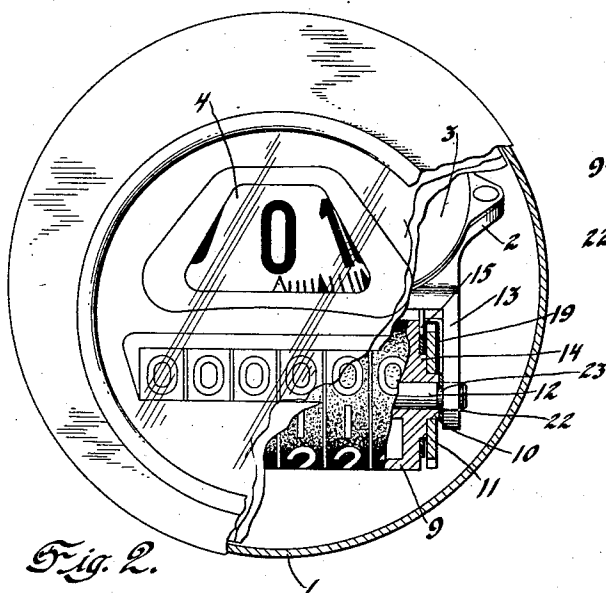
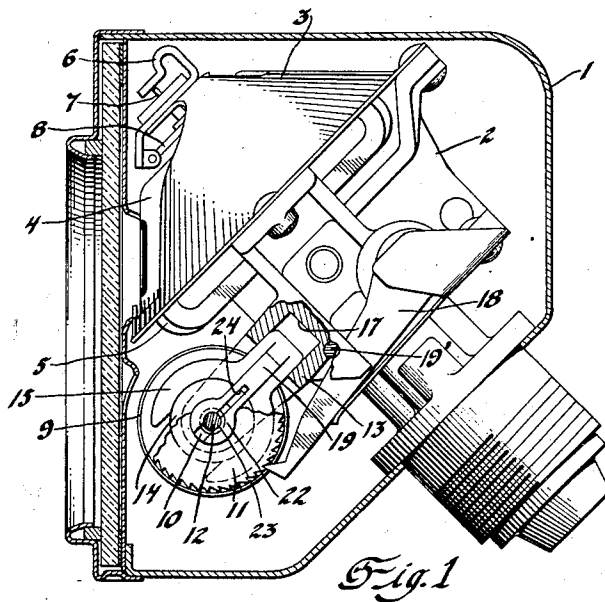
May 27, 1930.

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1,760,264

ATTACHMENT FOR ODOMETERS

Filed Nov. 15, 1928



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ATTACHMENT FOR ODOMETERS

Application filed November 15, 1928. Serial No. 319,541.

This invention relates to measuring instruments and has been designed more particularly as an improvement in the odometer element of a combined speedometer and odometer as used on motor vehicles.

An object of the invention is to provide a device for holding firmly in position of adjustment one of the odometer wheels, preferably the wheel of lowest denomination, that wheel which is driven and which itself drives through a star pinion the next adjacent wheel.

As a further object the invention provides a combined brake for holding such a figure wheel and a retainer for the shaft upon which the series of figure wheels are mounted.

Other objects such as simplicity, efficiency, and economy both in manufacture and assembly, will be apparent from the following description.

Fig. 1 is a side elevation of a speedometer and odometer combination, parts being in section. Fig. 2 is a view in front elevation, parts being broken away and in section. Fig. 3 is a detail in perspective.

Referring by reference characters to the drawing, numeral 1 is a casing housing a frame 2. On the frame is mounted the speedometer including a fixed field plate 3 and a rotating speed cup 4, these parts being as shown conical in shape. A magnet 5 rotates within the speed cup. It is a bar magnet with up-turned ends as shown. Numeral 6 indicates a combined hair spring regulator and spindle retainer. Its upper end is bent to overlie the end of spindle 7 and its lower end is connected to the hair spring 8. The regulator 6 is preferably mounted on the extreme upper portion of the field plate 3.

The invention is shown applied to a ratchet driven internally operated figure wheel type of odometer. The odometer is provided with first or decimal figure wheel 9. This wheel is preferably die cast and formed with hub 10 on which a ratchet wheel 11 is press-fitted. The assembly is journaled on an odometer shaft 12 supported by the frame arms 13. The figure wheel of higher denominations are coaxially positioned on the shaft 12 and are driven the one from the other by driving lugs, internal gear teeth and transfer pinions

in the usual way. These details not constituting a part of this invention are not more fully illustrated.

The ratchet wheel 11 is actuated by a pawl 18 preferably driven by an eccentric on the end of the usual second worm shaft. This second worm shaft is, as usual, driven from the first worm shaft or rotor shaft, the rotor shaft being that shaft which is driven by the flexible cable. It is also the shaft which drives the rotating part of the speedometer, in this case the magnet 5. These details also are only partially illustrated inasmuch as they are conventional and not a part of the invention herein claimed.

It will be understood that the pawl will engage the ratchet wheel at the beginning of its forward stroke and turn the ratchet wheel a single notch, similarly advancing the decimal figure wheel. On the return movement the action of the eccentric pivot of the pawl combined with the co-operating action of a surface of the pawl and a pin 19' lifts the pawl from the figure wheel. This mechanism prevents clicking noises and back-dragging of the ratchet wheel and makes certain that the pawl will engage the next tooth on its next active stroke.

While the pawl is out of engagement with the ratchet wheel there should be provided some means to hold the decimal figure wheel in position and prevent any movement thereof which might result from vibrations. In the present case there is provided a simple brake member exercising a frictional drag on the decimal figure wheel. This brake member consists of a one-piece stamped member 15 having a forked end which is adapted to engage the periphery of a hub portion 14 formed integrally with the decimal wheel 9. This brake member is provided with an extension 15'' which is anchored in a groove 17 of the frame. This groove serves in a well known way to hold the carrier for the star pinions through the instrumentality of which each figure wheel drives the next adjacent figure wheel of higher denomination. A slot 15' is stamped out of this extension from the inner peripheral surface of the gripping end which exerts clamping tension upon

hub-portion 14 so that when the diameter of the inner gripping surface of the brake member, which is of slightly smaller diameter than the hub portion 14 is snapped on said hub portion 14 axially, the forked end will hold the decimal wheel by friction and act substantially as a brake at all times. The said brake serves to prevent any undue movement of said wheel, during disengagement from or when not driven by the said pawl. In this way a simple stamped brake member is provided which is cheap to manufacture, highly efficient in use, and convenient for assembly. Struck up from the brake member 15 is an arm 19 which is angularly bent from the member 15 to form the slot 15' before mentioned. This arm extending outwardly from the said brake member when bent as at 20 is allowed to remain in this position during the assembly of the brake member which, as stated above, is moved axially and snapped upon hub 14 of the wheel 9. After the assembly of member 15, the ratchet wheel 11 is pressed on its respective hub portion 10 of the said decimal wheel. Thereafter the arm 19 is then additionally bent as at 21 so as to bring its forked end 22 into axial alignment with the central opening of the figure wheel. In assembly, the figure wheels as well as the pinion carriers and decimal wheel together with the ratchet wheel and the brake member are assembled on a short assembly shaft and then positioned in axial alignment with the bores of the supporting frame arms 13. The permanent odometer shaft 12 is then pushed through, replacing the assembly shaft and the latter is forced out at the opposite side until a circumferential groove 23 in the odometer shaft 12 is in direct alignment with the forked end 22 of member 15. The opposite furcations of the forked end will then snap into engagement with the groove 23 due to its resiliency, owing to the presence of slot 24, and retain the odometer shaft from movement longitudinally of its axis. The shaft is thus permanently held in assembled position.

The above described construction affords a simple combination brake, and odometer shaft retainer which is formed of a one-piece stamping, cheap to manufacture, efficient in use, and convenient for the purpose of assembly.

I claim:

1. In an odometer, a shaft, a wheel thereon, yielding brake means to frictionally engage said wheel to at times hold it from rotation, and retaining means for holding said shaft from movement in the direction of its longitudinal axis, said retaining means being integral with said brake means.

2. In an odometer, a shaft, a wheel rotatable about the axis of said shaft, a ratchet wheel carried thereby, a driven reciprocable pawl operating said ratchet, brake means in

constant frictional engagement with said wheel, and retaining means to hold said shaft from movement in the direction of its longitudinal axis, said retaining means being integral with said brake means.

3. A resilient brake for an odometer wheel comprising a stamping made from sheet metal and being bifurcated at one end, the furcations being internally of arc shape to radially engage a wheel member, the stamping having a projection at its other end to engage a frame recess whereby the stamping is held from rotation, the stamping also formed with a radial slot between its ends and communicating with the opening between the furcations whereby the furcations may resiliently and frictionally engage the wheel.

4. The invention set forth in claim 3, the material from the slot being bent into parallelism with the plane of the stamping and shaped at its end to engage and hold from longitudinal movement the shaft upon which the wheel is mounted.

5. The invention defined in claim 3, the material from the slot being bent into parallelism with the plane of the stamping and formed with a slot and terminal furcations to engage with a groove in a shaft upon which the wheel is mounted for the purpose of retaining said shaft from longitudinal movement.

6. In combination, a shaft, a wheel thereon having a plurality of stepped annular flanges, a ratchet wheel for driving the wheel, said ratchet wheel secured on the flange of lesser radius, and a brake member having means at one end to hold it from rotation, its other end being slotted and bifurcated to resiliently and frictionally engage the flange of larger diameter.

7. The invention defined by claim 6, said brake member having a stamped-out portion bent into parallelism with the plane of said member and positioned to straddle said ratchet wheel, the end of the stamped-out portion being slotted and bifurcated to engage and hold from longitudinal movement the shaft.

8. In combination, a shaft having a circumferential groove adjacent one end, a wheel on said shaft near said end and having two spaced annular flanges, a driving wheel on one flange, and a brake and shaft retainer straddling said driving wheel, said brake and shaft retainer having a plurality of slotted and bifurcated ends, one of said ends resiliently and frictionally engaging the other of said flanges, and the other of said ends engaging the circumferential groove to hold said shaft from longitudinal movement.

9. The invention of claim 8, said brake and shaft retainer having projections to engage a mounting frame to hold the combined brake and retainer in position.

In testimony whereof I affix my signature.

IVAR T. WEDIN.