

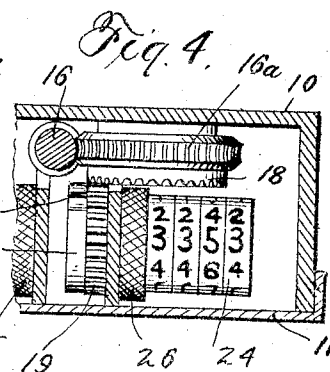
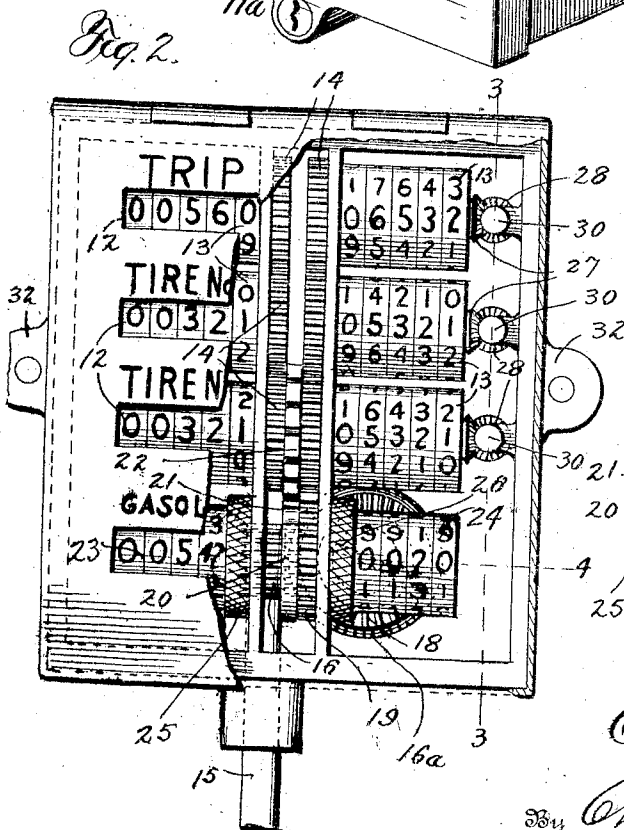
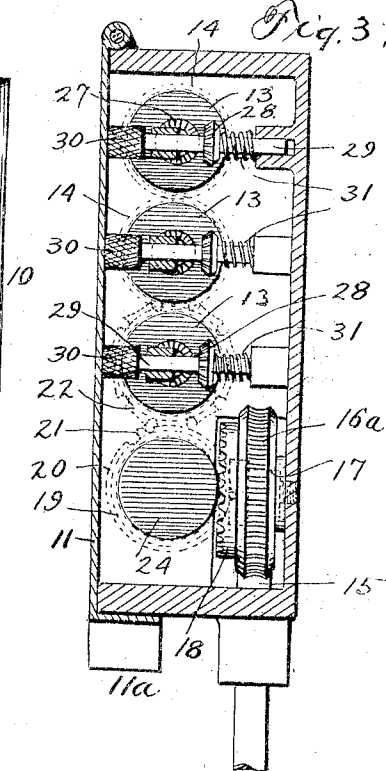
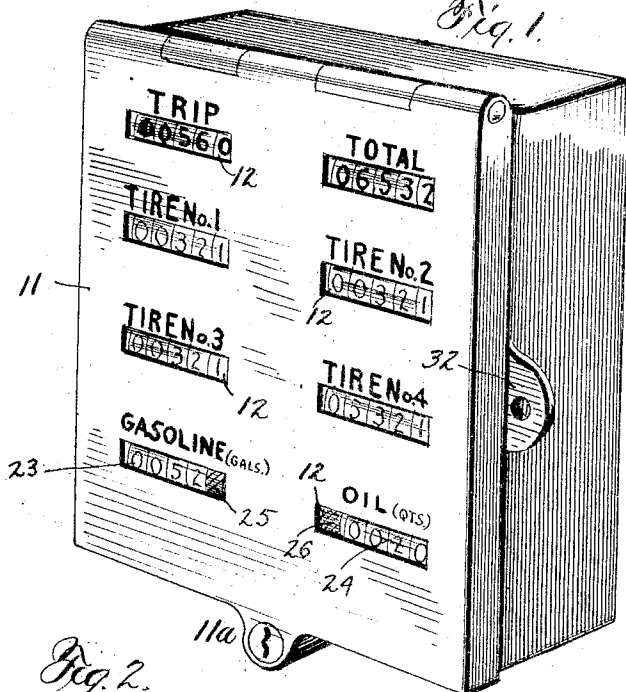
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C. F. MILLER

METERING AND REGISTERING DEVICE

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Inventor
Charles F. Miller
By Chas. F. Williamson
Attorney

UNITED STATES PATENT OFFICE.

CHARLES F. MILLER, OF LANCASTER, PENNSYLVANIA, ASSIGNOR, BY MESNE ASSIGNMENTS, TO MARVIN SMITHEY, OF LAWRENCEVILLE, VIRGINIA.

METERING AND REGISTERING DEVICE.

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It is highly desirable in the case of automobiles or motor cars, in addition to the trip and total mileage registering mechanism to measure and register the mileage of each of the tires, as well as to record other data in connection with the running of the car, such as the quantity of gasoline and lubricating oil consumed. Such a device obviously requires the use of quite a number of odometers or counting mechanisms. It is, therefore, very desirable that the number of parts or members composing the organization shall be a minimum, to the ends that cost of manufacture may be low, involving as that consideration does, the number of parts to be made and time required for assembling them, and that liability to derangement may be eliminated and thus the device be efficient and dependable and annoyance, or inconvenience, and expense of repair avoided. In making my invention, I have had these important considerations in mind, and have produced a device which fills these requirements.

In the accompanying drawings, I illustrate my invention embodied in a device designed especially for motor truck use, but without intending to limit myself to an embodiment of my invention only to that particular case.

In such drawings—
 Fig. 1 is a perspective view illustrating said invention;
 Fig. 2 is a front elevation thereof with a portion of the cover broken away;
 Fig. 3 is a vertical section on the line 3—3 of Fig. 2;
 Fig. 4 is a horizontal section on the line 4—4 of Fig. 2.

In the embodiment of my invention shown in the drawings, I show six odometers, two of which respectively register the trip and total mileage and each of the four others registers the mileage of one of the four tires, and all of which receive motion from the same shaft (the usual flexible shaft), which is geared to one of the wheels of the car. In addition to the six odometers, I provide two counters or registers, one for registering the gasoline supply in gallons, and the other for registering the oil supply in quarts, and these two counters are manually operative since their function is not dependent on the mileage of the car, and they simply are registering devices that are operated when the fuel and oil supplies are replenished to register the amount placed in the tank or container. For supporting and housing the mechanism I provide a box-like casing 10, having a back, top, bottom and two sides and with a front wall in the form of an openable cover 11, which is hinged at the top, so that it swings open from the bottom and at the bottom a key-operated lock 11^a is preferably provided as to prevent unauthorized access to the interior of the casing. Said cover 11 is utilized as the face plate or dial of the instrument, it being provided for that purpose with narrow horizontal glazed slots or windows 12 through which may be seen the registration of the odometers or counters, there being printed adjacent each slot the designation of the odometer or counter, such as the words, "Trip", "Total", "Tire No. 1", "Tire No. 2", "Tire No. 3", "Tire No. 4", "Gasoline", and "Oil". The odometers or counters shown are of the side by side ring type with the numerals on the peripheries of the ring, and they are compactly arranged in two vertical side by side series in the casing, there being in the case shown in the drawing four in each series. On the shaft of each odometer 13 at the end thereof is a spur gear 14 and the spur gear of one odometer meshes directly with the spur gear of the adjacent odometer of the vertical series so that motion transmitted to one spur gear of the series will be transmitted to all the others. By the direct meshing of the spur gears of adjacent odometers, the numerals rings of adjacent odometers rotate in opposite direction and this necessitates the reversal of the direction of the index numbers of the rings, but obviously it is immaterial in what direction the series of numbers on a ring move, since the thing of importance is the exhibition of a number at the display opening. I am thus enabled to dispense with an intermediate idler gear with the result that the number of parts is reduced and compactness of the mechanism secured.

The driving shaft 15 is passed vertically through the bottom of the casing and in the latter has a worm 16 which meshes with a worm wheel 16^a journaled on a horizontal stud shaft 17 projecting inward from the back wall of the casing. Upon the outer side of said worm wheel is a crown gear 18

that meshes with the teeth of a gear 19 mounted to turn on an axis 24 parallel with the odometer axes. On or secured to the side of said gear 19 is a disk 20 having a single tooth 21 which coacts with the complementary disk 22 of a Geneva stop mechanism, said disk 22 being secured to rotate with the spur gear 14 of the lowermost odometers of the series. Thus, the lowermost odometers are driven from the shaft by the reducing gearing that includes the worm gear and the Geneva stop and the other odometers of the series receive their motion through the intermeshing spur gears as before described. The reducing gearing employed is a compact one requiring but little space and it acts positively in effecting the step by step rotation of the odometer indexes and it positively locks or holds them against accidental displacement or turning. The train of gearing beginning with the crown gear driven wheel 18 and reaching through the series of odometers is centrally located, or is in the space between the two series of odometers.

The form and arrangement of reducing gearing I employ provides a space in front of the worm and crown gears below each of the two series of odometers, in which I place in axial alinement the gasoline register 23 and oil register 24. The gasoline register 23 has at one end a knurled disk 25 for turning the counter wheels by hand and the oil register has a similar knurled disk 26 for turning its counter wheels by hand.

Preferably, a zero resetting device is provided for each of the odometers. For this purpose, on each odometer shaft is a pinion 27, into and out of engagement with which a pinion 28 on a longitudinally movable shaft 29 may be placed. Said shaft 29 has a knurled head or button 30 that may be grasped for moving the shaft longitudinally and revolving the same when the pinions are in mesh. A coiled spring 31 applied to the shaft acts to move and to hold the pinion 28 in mesh with the pinion 27. Said resetting mechanism is situated at the outer end of each odometer in a space just inside the side wall of the casing 10, with the turning head or button in position to be engaged and pressed inward by the cover lid 11 when in its closed position, and thereby the pinion 28 placed and held out of mesh with the pinion 27, and thus the resetting mechanism held

inactive when the lid is closed. When the lid is opened, they are automatically placed in condition for use. Any suitable arrangement may be employed which will prevent the resetting of one odometer affecting the others. As my invention is not concerned with means for doing this, it is not necessary to illustrate and describe the same.

The casing 10 on its exterior is provided with flanges or lugs 32 for its convenient and secure attachment to the instrument board of the car, and said lugs are so located as to result in a minimum projection of the instrument beyond the face of the instrument board.

It will be evident that the device shown embodying my invention has remarkably few parts in view of the functions to be performed, so that the parts are capable of quick manufacture and quick and easy assembly, and it may be depended upon for accurate work.

While I show six odometers, it is to be understood that the number may be varied. For example, a greater number may be used so as to provide for the registry of the mileage of extra tires.

While I show in the drawings the tire designations as being "Tire No. 1," "Tire No. 2," "Tire No. 3," "Tire No. 4," it is to be understood that other designations may be used in practice if desired, and I do not limit myself to such a detail as this, nor in fact, do I limit myself to any of those features of constructions illustrated in the drawings which may be modified or varied without involving any departure from the real scope of my invention.

Having thus described my invention what I claim is—

In a mechanism of the class described, an odometer casing having a movable cover, an odometer resetting device within the casing having a manually operable shaft that is accessible only when the cover is open, and a spring acting normally to place said shaft in odometer setting position, said shaft being held by the action of the cover casing thereon when in a closed position in an inoperative position, the shaft being moved to operative position automatically by the spring when the casing cover is opened.

In testimony that I claim the foregoing I have hereunto set my hand.

CHARLES F. MILLER.