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 AUTOMATIC ACCELERATOR AND FUEL REGULATOR.
 APPLICATION FILED OCT. 8, 1919.

1,394,015.

Patented Oct. 18, 1921.

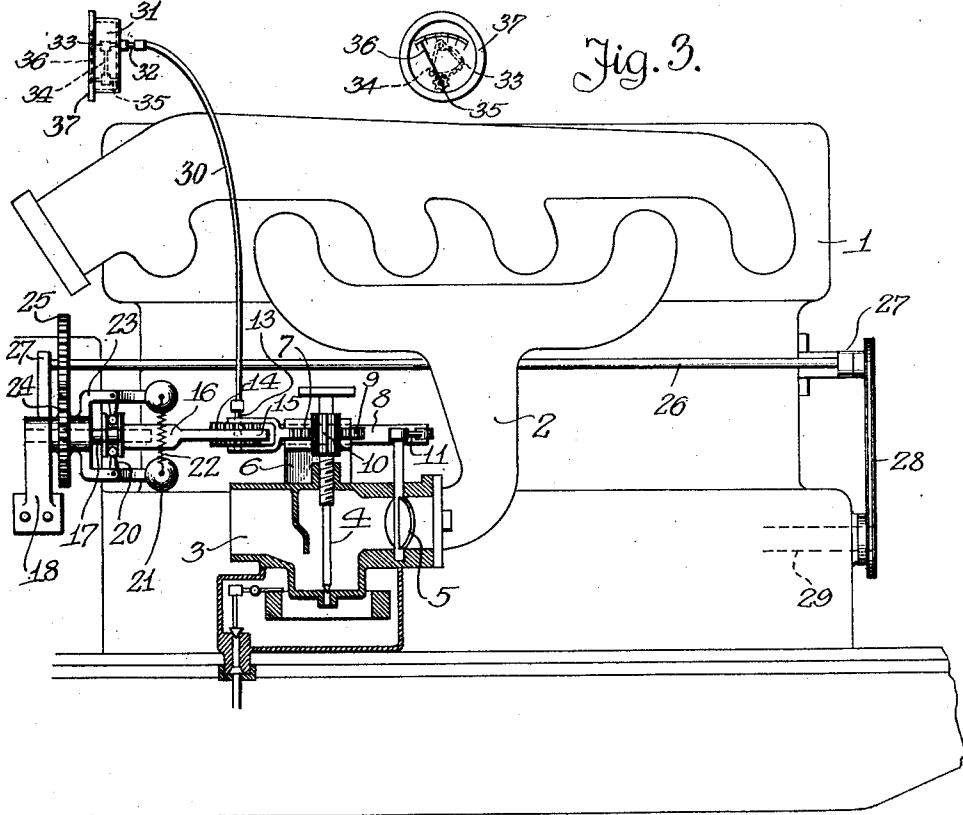


Fig. 3.

Fig. 1.

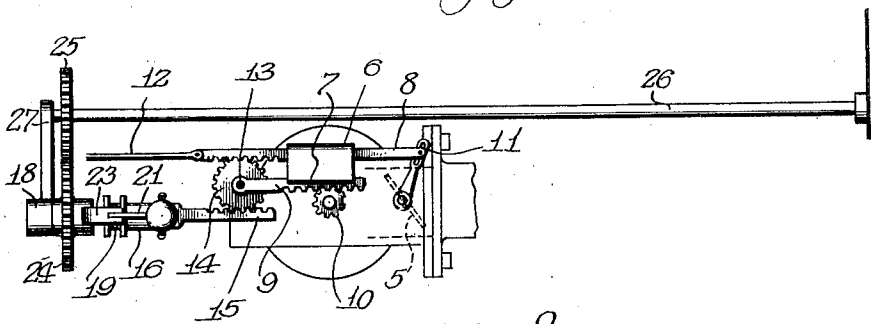


Fig. 2.

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AUTOMATIC ACCELERATOR AND FUEL-REGULATOR.

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Specification of Letters Patent.

Patented Oct. 18, 1921.

Application filed October 8, 1919. Serial No. 329,359.

To all whom it may concern:

Be it known that I, GEZA HORVATH, a citizen of the United States of America, residing at Highland Park, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Automatic Accelerators and Fuel-Regulators, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to an automatic accelerator and fuel regulator for internal combustion engines, either vertical, horizontal, stationary, portable, single or multi-cylinder type, but particularly of that type forming the power plant of an automobile or similar vehicle.

My invention aims to provide a novel device which may be easily and quickly installed in connection with an engine to obviate the necessity of repeatedly accelerating or adjusting the fuel supply of the engine.

My invention further aims to provide manually actuated means for simultaneously regulating the supply of fuel to a carbureting device and regulating the supply of an explosive mixture to an engine served by the carbureting device.

My invention further aims to provide governor means actuated from some driven part of the engine and adapted, through the medium of a portion of manually operated means, to regulate the fuel supply to a carbureter, the manually operated means controlling the throttle of the carbureter and the needle valve thereof independent of the governor means.

My invention may also be considered as means for manually increasing the speed of an automobile and automatically increasing the fuel to the carbureter in proportion to the load in the engine served by the carbureter, and associated with said means is an indicator by which the driver of an automobile may ascertain the number of miles traveled per gallon of fuel consumption.

Just how I attain the above results will be hereinafter explained and reference will now be had to the drawing, wherein—

Figure 1 is a side elevation of a conventional form of internal combustion engine served by a carbureter provided with a fuel regulator in accordance with my invention.

Fig. 2 is a plan of the fuel regulator, and

Fig. 3 is a front elevation of the indicator shown in Fig. 1.

The reference numeral 1 denotes an internal combustion engine having an intake manifold 2, and connected to said manifold is a conventional form of carbureter 3 which includes a needle valve 4 and a throttle valve 5, the former controlling the supply of gasoline, kerosene, or other fuel to the carbureter and the latter controlling the supply of the explosive mixture to the intake manifold 2.

Extending upwardly from the carbureter 3 or from some support in proximity to the carbureter, is a bracket 6 provided with a guide 7 and slidable in said guide are rack bars 8 and 9 disposed in parallelism with the rack bar 9 meshing with a pinion 10 on the upper end of the needle valve 4, said needle valve being in screw-threaded engagement with the carbureter body so that when said valve is rotated it is raised and lowered to regulate the supply of fuel to the carbureter.

One end of the rack bar 8 is loosely connected, as at 11, to the throttle 5 so that when the rack bar 8 is reciprocated the throttle 5 will be adjusted. The opposite end of the rack bar 8 is connected to a rod 12 that may extend to the dash of an automobile or the steering column assembly thereof whereby the driver of the automobile may manually actuate said rod to adjust the throttle 5.

The rack bar 9 is loosely connected to the shaft 13 of a pinion 14 meshing with the rack bar 8 and with a governor rack bar 15 disposed in parallelism with the rack bar 8. The rack bar 15 has a tubular end 16 slidable on the shaft 17 carried by a bracket 18 connected to the engine 1 or a suitable support. On the tubular end 16 of the rack bar 15 is a grooved collar 19 and extending into the groove of said collar are the inner opposed ends 20 of governor arms 21, said arms having the outer ends thereof connected by coiled retractile springs 22 so that said arms will be held normally retracted but may be distended by centrifugal force when the governor, which is of a conventional form, is placed in operation. The governor arms 21 are pivotally connected to a spider 23 carried by the hub of a gear wheel 24 rotatable on the shaft 17 and said gear wheel is adapted to be rotated from some driven part of the engine 1. For instance, the gear wheel 24 may mesh with the gear wheel 25 mounted on a longitudinal shaft 26, journaled in bearings 27 carried by the engine 1 or supports

in proximity thereto. The shaft 26 may be driven by sprocket wheels and a sprocket chain, generally designated 28, from the cam, crank, or some other driven shaft 29 of the engine.

Coupled to the shaft 13 of the pinion 14 is a flexible shaft 30 which extends to an indicator casing 31 adapted to be located on the dash of an automobile or a suitable support. The indicator casing has a shaft 32, within the casing 31 provided with a sector gear 33 meshing with a pinion 34, on a shaft 35, journaled on the casing 31 and provided with a hand or pointer 36 movable in front of a calibrated dial 37 of the casing 31. The calibrations or indicia on the dial 37 will indicate the position of the needle valve 4.

Considering the operation of the fuel regulator in connection with an automobile, I will first assume that the engine is idling at low speed or is not running at all. In either instance it is necessary to open the throttle 5 when the automobile is to be moved and the opening of the throttle is accomplished through the medium of the rod 12 which is manually adjusted. It is through the medium of the rack bars 8 and 9 and the pinion 14 that the needle valve 4 is operated in unison with the throttle 5, the needle valve 4 being raised to admit more fuel to the carburetor 3 and the throttle 5 opened to admit the explosive mixture to the intake manifold 2. Of course, when the engine is placed in operation and the automobile picks up speed the governor is actuated which produces a leaner mixture by further closing the needle valve 4, independent of any further adjustment of the throttle 5, since the rack bar 8 remains stationary and the pinion 14 travels against said rack bar.

Assuming that the automobile is traveling along a smooth road at a predetermined speed and encounters a rough or irregular portion of the road, then there is a greater load placed on the engine, in which case the governor, which has been inactive at a predetermined speed, is automatically brought into operation to adjust the needle valve 4 and permit of a greater quantity of fuel entering the carburetor for the engine.

It is possible to proportion the rack bars and pinions and adjust the governor so that

there will be a cooperation between these elements that will insure an automatic acceleration or fuel regulation during the operation of an automobile, thus economizing in fuel and obtaining the best results from the engine under various load condition. As there are many types of engines and carbureters on the market, it is obvious that my regulating device must be constructed in various ways for installation with such carbureters and engines, therefore I do not care to confine myself to the precise construction herein shown and described, other than defined by the appended claims.

What I claim is:—

1. A fuel regulating device for the carbureters of internal combustion engines, comprising means for simultaneously regulating the supply of fuel to the carburetor and the supply of an explosive mixture from the carburetor to the engine, said means including a rolling gear and governor actuated means adapted to regulate the fuel supply to the carburetor by rolling the gear of the first mentioned means independent of any adjustment of remaining elements of the first mentioned means.

2. A fuel regulating device for the carbureters of internal combustion engines forming the power plant of an automobile, comprising means for manually increasing the speed of the automobile and automatically increasing the fuel to the carburetor in proportion to the load on the engine of the automobile, said means including racks and pinions above the carburetor providing connections between the needle valve and throttle of the carburetor that may be manually adjusted and a governor that may actuate some of said racks to adjust the needle valve independent of the throttle.

3. A fuel regulating device as characterized in claim 1, wherein an indicator associated with the first mentioned means of claim 1 indicates the regulation of the supply of fuel to the carburetor.

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

GEZA HORVATH.

Witnesses:

ANNA M. DORR,
KARL H. BUTLER.