

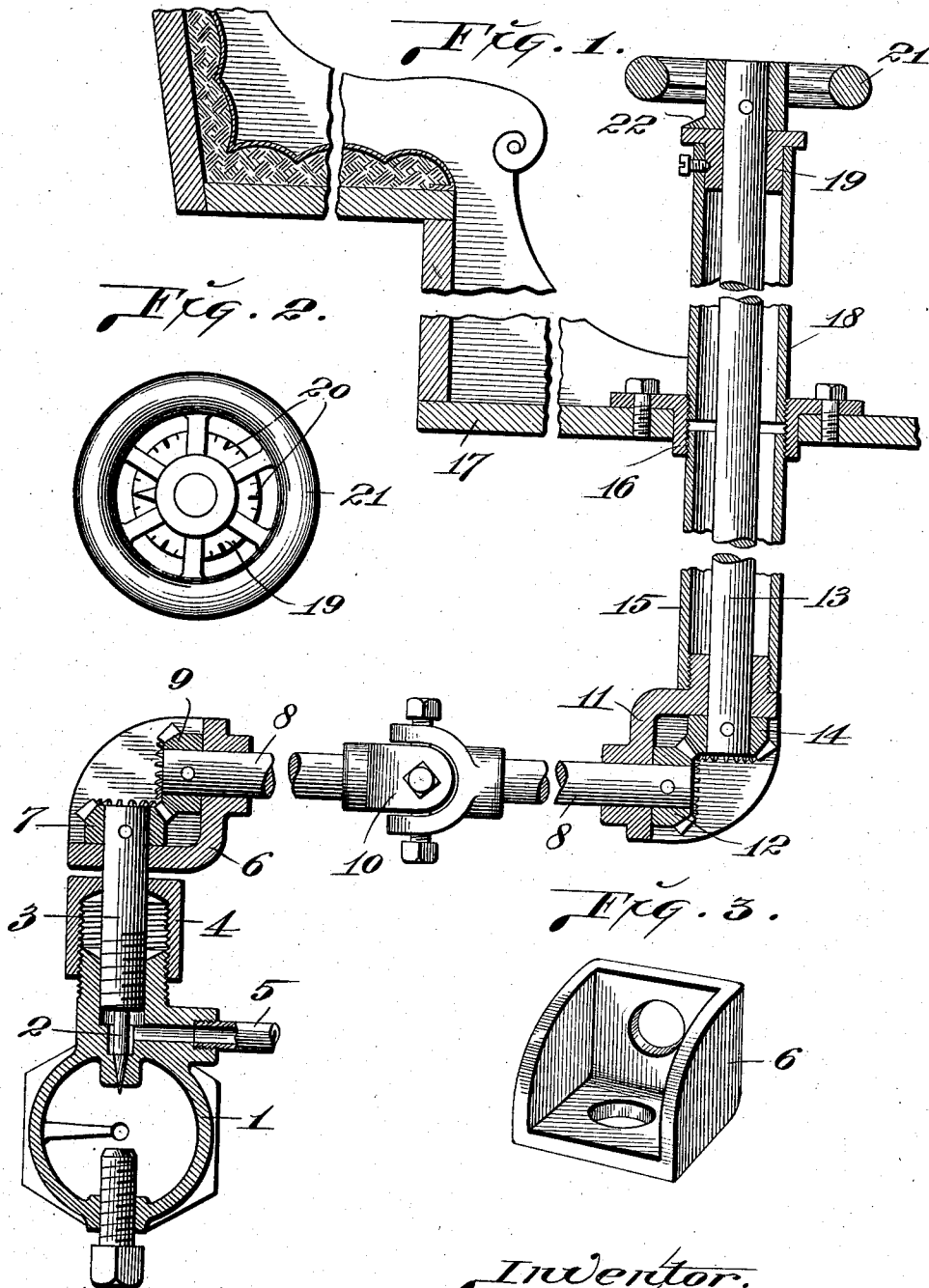
No. 867,605.

PATENTED OCT. 8, 1907.

W. F. ROTHE.

FUEL VALVE CONTROLLER FOR HYDROCARBON ENGINES.

APPLICATION FILED JAN. 12, 1906.



Attest.
Wm. Smith
Edw. M. Harrington

Inventor.
Wm. F. Rothe.
By Nigdon & Longan.
Attys.

UNITED STATES PATENT OFFICE.

WILLIAM F. ROTHE, OF EAST ST. LOUIS, ILLINOIS.

FUEL-VALVE CONTROLLER FOR HYDROCARBON-ENGINES.

No. 887,605.

Specification of Letters Patent.

Patented Oct. 8, 1907.

Application filed January 12, 1906. Serial No. 295,785.

To all whom it may concern:

Be it known that I, WILLIAM F. ROTHE, a citizen of the United States, and a resident of East St. Louis, Illinois, have invented certain new and useful Improvements in Fuel-Valve Controllers for Hydrocarbon-Engines, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

10 My invention relates to a fuel valve controller for hydrocarbon engines, and the object of my invention is to provide a simple construction whereby the supply of oil or gas to the carbureter of a hydrocarbon engine can be very accurately regulated.

15 A further object of my invention is to construct a fuel valve controller that is particularly adapted for the engines of motor vehicles, and which controller is within easy reach of the operator of the vehicle, and to provide said controller with a graduated dial so that the operator can tell exactly the degree to which the fuel valve is opened.

In some carbureters of the present construction, and which are in use upon motor vehicles, it is necessary to stop the vehicle in order to adjust the valve that controls the supply of oil or gas to the carbureter. In other forms of carbureters the air inlet is increased or decreased by means of valves of various kinds, operated by levers without indicators, and I propose to provide a construction wherein the operator of the engine, or controller of the vehicle has accurate control of the engine at any speed, thereby decreasing the liability of accident through failure to properly control the engine while the vehicle is in motion.

To the above purposes, my invention consists in 35 certain novel features of construction and arrangement of parts, which will be hereinafter more fully set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which:—

Figure 1 is a vertical section taken through the 40 center of my improved controller, and showing the carbureter in vertical section, and a portion of the motor vehicle to which the controller is fixed; Fig. 2 is a plan view of the hand wheel used in connection with my improved controller, and showing the graduated scale whereby the controller is regulated; Fig. 3 45 is a perspective view of an angle frame such as is used in my improved controller.

Referring by numerals to the accompanying drawings:—1 designates the carbureter in which the oil or 50 gas and air is mixed prior to its passage into the engine cylinder.

2 designates the needle valve that controls the inlet of oil or gas into the carbureter; 3 the valve stem which is threaded in the upper portion of the carbureter 1, and extends upwardly through a packing nut

4, and 5 the tubular connection that conveys the oil or gas to the carbureter. The upper end of the stem 3 passes through an angle frame 6, and fixed upon said stem within said frame is a beveled pinion 7.

Journalled in the vertical portion of the frame 6 is a 60 horizontally arranged shaft 8, and fixed on the end thereof within the frame is a pinion 9 that meshes with the pinion 7. Located at a suitable point in the shaft 8 is a universal joint 10 of any suitable construction. The opposite end of the shaft 8 passes through the vertical 65 arm of an angle frame 11, similar to the angle frame 6, and fixed on the end of said shaft 8 within the frame 11 is a beveled pinion 12. Journalled in the horizontal member of the angle frame 11 is the lower end of a vertically arranged shaft 13, to which is fixed, within 70 the frame 11, a beveled pinion 14 which meshes with the pinion 12. All of the pinions, 7, 9, 12, and 14, are of uniform size so that the shafts 8 and 13, and the valve stem 3 have the same rotation.

Screw seated on the upper end of the frame 11 is the 75 lower end of a tube 15 that extends upwardly, and is screw seated in the flange 16 that is fixed to the floor 17 of a motor vehicle. Screw seated in the upper portion of this flange 16 is the lower end of a tube 18, in the upper 80 end of which is fixed a bushing 19, having a flat top surface, around the edge of which is arranged a series of graduated marks 20. The upper end of the shaft 13 is journalled in the bushing 19, and on the upper end of said shaft is fixed a hand wheel 21 that carries a finger 85 22 which rides directly upon the top surface of the bushing 19. In some instances, this hand wheel 21 may be replaced by a hand lever.

The operation of my improved controller will be readily understood, it only being necessary to manipulate the hand wheel 21 to rotate the valve stem 3, which 90 consequently seats or unseats the needle valve 2. The rotary motion of the shaft 13 is transmitted by the beveled pinions 12 and 14 to the horizontally arranged shaft 8, and from thence to the valve stem 3 by means of the beveled pinions 7 and 9. The operator moves the hand 95 wheel 21 so that the finger 22 carried thereby is shifted around from one graduated mark 20 to another, in order to properly open or close the valve opening from the fuel supply pipe 5 into the carbureter. The frames 6 and 11 being loosely mounted upon the ends of the 100 shafts 8 and 13, and the valve stem 3, permit the shaft 8 to be extended to any point beneath the body of the motor vehicle, and the universal joint 10 allows a slight variation in height of the frame 6 relative the frame 11. This universal joint also allows for the vertical motion 105 of the valve stem 3 as it moves upwardly or downwardly in the upper portion of the carbureter 1.

The fuel oil or gas is supplied through the tube 5, and passes from thence past the open needle valve 2 into the carbureter, and the degree to which this needle valve 110

is open determines the quantity of oil or gas that is admitted to the carbureter to mix with the air. Thus, the operator by means of the hand wheel and the indicator can set the fuel valve to any position desired within the range of the threaded stem 3, and thus accurately gage the supply of explosive mixture that enters the engine cylinder, and which mixture may be varied even while the engine is in operation.

The carbureter has a fixed area through which the air passes, and the fuel supply into the carbureter can be very accurately regulated by my improved controller.

I claim:—

1. In a device of the class described, the combination with a carbureter, of a valve for controlling the supply of hydrocarbon to the carbureter, the stem of which valve is screw threaded; a beveled pinion fixed on the upper end of the valve stem, a horizontally arranged shaft, beveled pinions on each end thereof one of which meshes with the pinion on the valve stem, a vertically arranged shaft, a beveled pinion on the lower end thereof which meshes with the pinion on the opposite end of the horizontal shaft, angle frames loosely mounted on the ends of the shafts around the meshing beveled pinions; and an

operating handle fixed on the upper end of the vertical shaft: substantially as specified.

2. The combination with a carbureter, having an inlet valve, the stem of which is screw threaded, of a beveled pinion fixed on the upper end of the valve stem, a horizontally disposed shaft in the center of which is arranged a universal joint, beveled pinions on each end of said shaft, one of which meshes with the pinion on the upper end of the valve stem, an angle frame loosely mounted on the upper end of the valve stem and the adjacent end of the shaft around the meshing pinions, a vertically disposed tube, a plug fixed in the upper end thereof, a shaft passing through said tube and journaled for rotation in the plug, a pinion fixed on the lower end of said vertical shaft and meshing with the beveled pinion on one end of the horizontally disposed shaft, an angle frame loosely mounted on the ends of the shafts and surrounding the last mentioned pair of beveled pinions, a handle fixed on the upper end of the vertical shaft, and an indicating finger carried thereby.

In testimony whereof, I have signed my name to this specification, in presence of two subscribing witnesses.

WILLIAM F. ROTHE.

Witnesses:

M. P. SMITH,
E. L. WALLACE.