No. 816,477. PATENTED MAR. 27, 1906.

G. W. KELLOGG.

CARBURETER.

APPLICATION FILED FEB. 3, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

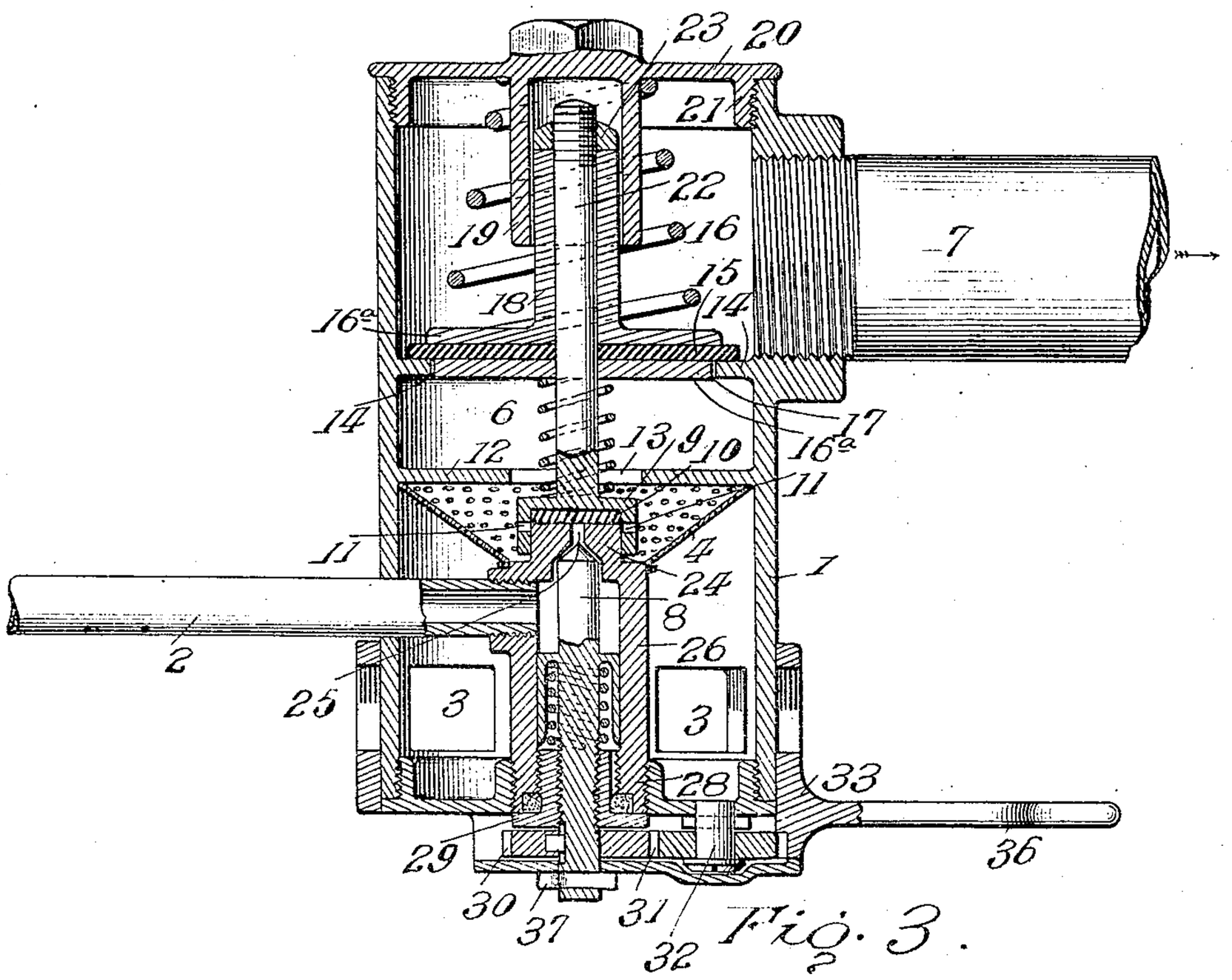
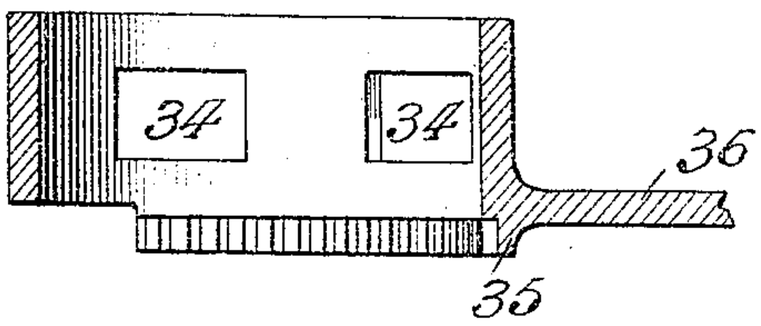
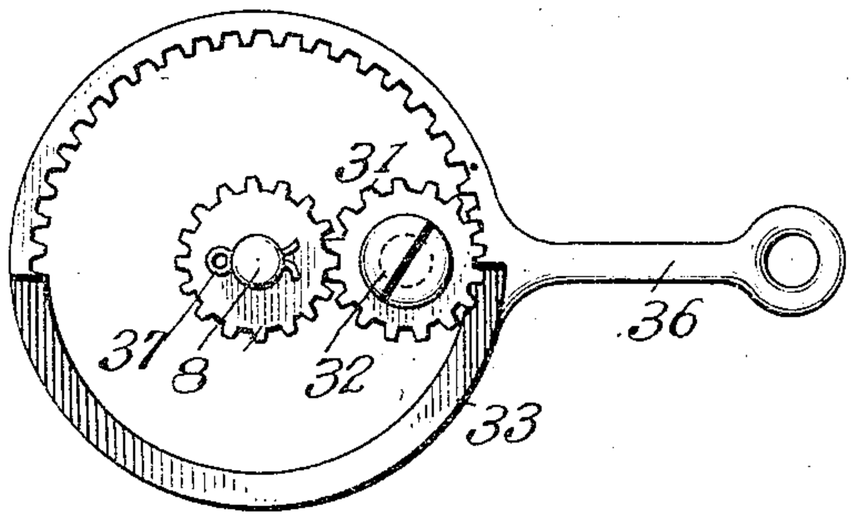


Fig. 3.

Fig. 2.





Witnesses

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2 SHEETS—SHEET 2.

Fig. 4.

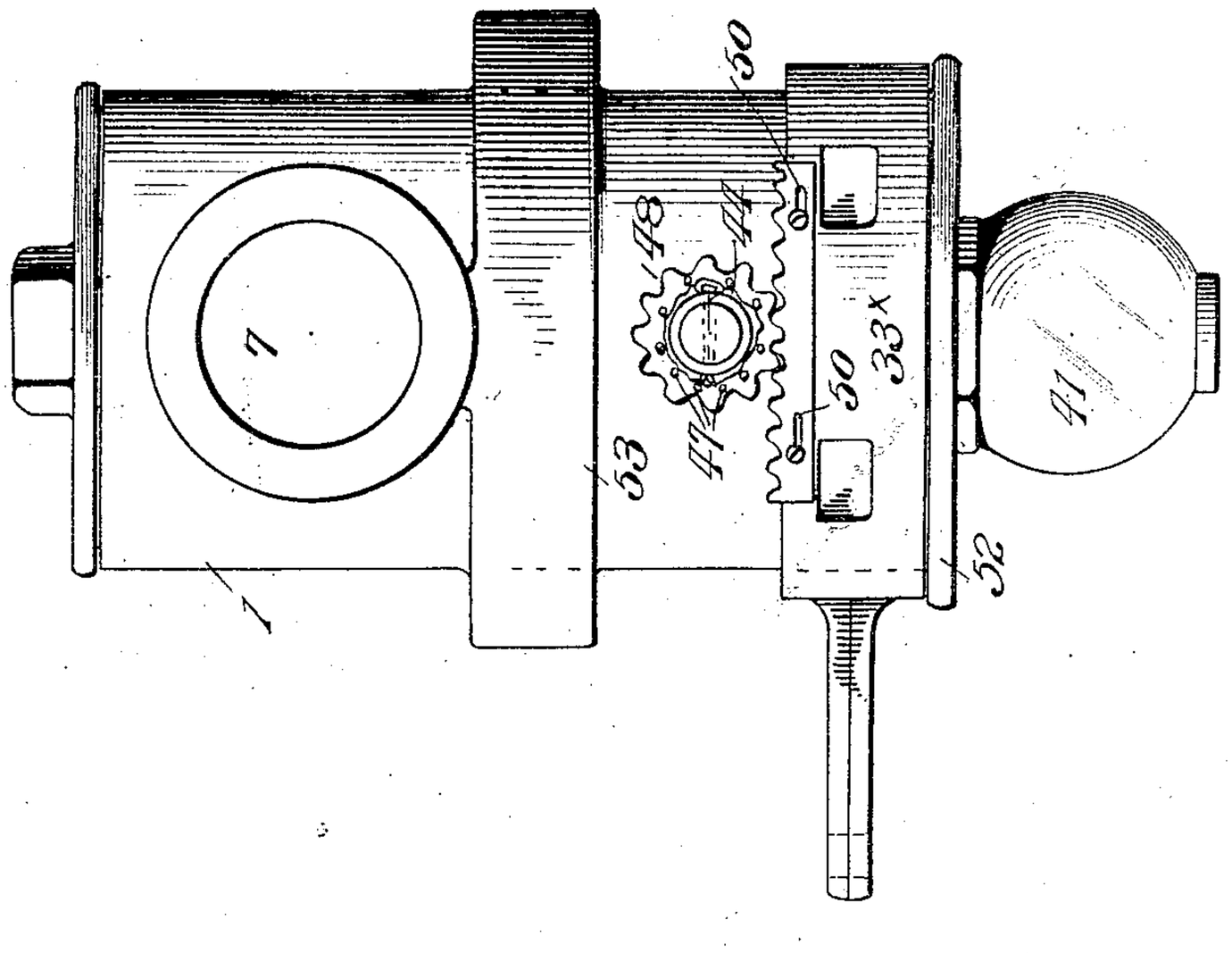

Fig. 5.

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CARBURETER.

No. 816,477. Specification of Letters Patent. Patented March 27, 1906.

Application filed February 3, 1905. Serial No. 243,960.

To all whom it may concern:

Be it known that I, GEORGE W. KELLOGG, a resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Carbureters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

This invention relates to means for carbureting air by mixing it with gasolene or other hydrocarbon fluid; and its object is to provide a compact and efficient device for the purpose.

The invention consists in the construction hereinafter described and pointed out.

In the accompanying drawings, forming part of the specification, Figure 1 is a central longitudinal section. Fig. 2 is a section of an air-valve or damper. Fig. 3 is a bottom view of said damper. Fig. 4 is an elevation of another form of the device, and Fig. 5 a central longitudinal section thereof.

Numeral 1 indicates the circumferential casing or body of the device; 2, a gasolene-supply tube; 3, air-inlets; 4, an air-distributer; 6, a fluid-mixing chamber, and 7 a conduit leading to an explosion-chamber. (Not shown.) The perforated part 4, such as customarily used in lanterns and the like and styled "air-distributers," divides or distributes the air as it enters the space surrounding the fuel-distributing ports in the cup or part to be described both above and below said latter ports, with the effect to promote the mingling of the fluids.

The supply of gasolene or other fluid fuel is regulable by a needle-valve 8 and a cup-valve 9, the latter having a face 10, of leather or other soft material. This cup or part 9 is a distributer and preferably distributes fuel in a plane transverse to the axis of the needle-valve and in approximately the middle of an air-receiving chamber. Gasolene passes through fuel-distributing ports 11, situated, by preference, in the sides of the valve 9, as indicated. Air entering ports 3 passes through the numerous distributing-perforations in the conical distributer 4, above which these fluids are partially mingled, passing thence between the cup-valve and the diaphragm 12, fixed to casing 1, and through the opening 13 in said diaphragm into the chamber 6, where the air and gasolene are further mixed preparatory to an escape through the circumferential opening 17 in the diaphragm 14, which is normally closed by a valve 15 under the influence of a spring 16.

The valve 15 comprises a part of leather or other flexible material held between two plates 16^a, the lower one of which is movable into opening 17. This valve has a tubular stem 18, movable in a hollow post 19, fixed to the casing-cap 20, having a flange 21 with screw-thread connection with the casing. The cup-valve 9 has a stem 22 extending through valve 15 and its stem 18 and held therein in a regulable manner by a nut 23. The cup-shaped body of valve 15 has a diameter a little less than that of opening 17, substantially as indicated. The leather piece 10 is fixed in the bottom of the cup and above the gasolene-exit ports 11. Said cup fits over the casing 24 of the needle-valve, and its soft face normally closes or nearly closes the port 25, receiving at its inlet end the point of the needle-valve. The casing 24 may be integral with the tube 26, fixed to the base 27 of the casing 1, as by screw-threads at 28.

29 indicates a thimble of a stuffing-box, which has a screw-thread connection with the screw of the needle-valve. The stem of the needle-valve has fixed thereto a pinion 30, meshing with a pinion 31, rotating on a stud 32.

33 denotes a circumferential damper having ports 34 adapted to register with ports 3 in the casing 1. It has a flange 35 approximately semicircular, provided with teeth and constituting a rack to drive the pinions.

36 is an operating-handle, and 37 is a cotter to support the damper from the needle-valve stem.

The construction is such that rotating the damper to open the air-ports also opens the needle-valve during a partial rotation of the damper or until the rack 35 escapes from pinion 31, whereupon the air-ports may be further opened without disturbing the needle-valve.

The construction thus far described is simplified in certain details and also modified to secure additional advantages in manner illustrated in Figs 4 and 5, in which a flat or piston valve 38, faced with soft material and coöperating with a cup 39, cast with a valve-casing 40, is employed. Said casing communicates with sediment-receptacle 41 by means of a sediment-conveying tube 42, as clearly shown. 43 denotes the stuffing-

box of a needle-valve 8×. Said valve is regulable by a nut 44, slidably keyed to the valve-stem at 45, the stem having a screw-thread connection with the casing 1. If independent regulation of either the needle-valve or damper is desired, the nut 44 can be disengaged from the pinion by sliding the nut on the valve-stem, the spring being thereby compressed, if it has not previously been removed. The nut being thus disengaged from the pinion can be manipulated to adjust the valve, and the damper can be independently adjusted. Said nut 44 is also adapted to regulate the circumferential damper 33×, having air-admission ports communicating with corresponding ports of the casing, and this regulation may be either simultaneous with or independent of the valve regulation. It is effected by a pin 46, adapted to engage any of the holes 47, formed in a pinion 48 loose on the valve-stem. A spring 49 holds the pin engaged in a removable manner. 50 denotes a rack adjustably secured by screws to the damper and coöperating with the pinion in the shifting of said damper. 51 denotes slots to provide for the adjustment. The damper is supported on a ledge or flange 52 on the casing. The flat or piston valve combined with the cup or cylinder integral with the valve-body acts efficiently, and particularly this construction avoids overflow of gasolene.

To prevent the "freezing-up" of the carbureter, it is provided with a jacket 53, having an opening 54, whereby it communicates with the usual cooling-coil of an engine or with any suitable source of water-supply. Such protection is of special importance in a carbureter necessarily exposed in use to low temperatures.

The construction whereby dirt, water, and other residuum is separated from gasolene is of great practical advantage. Obviously the particular form of the sediment holder or receptacle is not material, and mere mechanical variations not substantially affecting the operation of the device are contemplated herein.

Having thus described the invention, what I claim is—

1. In combination a main casing having air-inlet ports, a fuel-supply pipe, a fuel-regulating valve, the valve-casing 24 having a fuel-admission port 25 regulable by said valve, a fuel-distributing cup-valve having lateral ports 11 to communicate with said admission-port, and an air-distributer having a plurality of perforations and situated between the air and fuel inlets and extending above and below the ports of said fuel-distributing cup-valve, whereby the fuel is distributed in the midst of distributed air.

2. In combination a main casing having a mixing-chamber and air-inlet port, a fuel-supply pipe, a fuel-regulating valve, the valve-casing having a fuel-admission port regulable by said valve, a part having fuel-distributing ports communicating with said fuel-admission port, and an air-distributer having a plurality of perforations and situated between the air and fuel inlets to the mixing-chamber, said fuel-distributing ports being situated in a plane passing through the air-distributer transverse to the main casing whereby fuel is distributed in the midst of distributed air.

3. The combination of the main casing having diaphragms 14 and 12 inclosing a mixing-chamber, valve 15 having tubular stem 18, valve 9 having stem 22, valve-casing 24, and springs normally pressing each valve to its seat.

4. In a carbureter, the needle-valve casing having two ports one receiving gasolene and communicating with a conduit for residuum and the other communicating with the valve-passage to convey the separated gasolene, the said gasolene-port being directed downward and the other upward whereby the gasolene is compelled to descend before it rises to the needle-valve for the better separation of sediment.

5. In combination with a needle-valve of the carbureter, a casing having an admission-port, and a sediment-holder, said valve-casing having a port to direct all fuel toward said holder and away from the needle-valve port.

6. The combination of the main casing provided with air-ports in its periphery, the needle-valve casing, the needle-valve and stem, the circular damper provided with ports in its periphery to coact with the casing-ports, a circumferential rack on the damper, and a pinion loose on the valve-stem, meshing with the rack on the damper, a device for manipulating the damper, a device for manipulating the valve-stem, means to lock said pinion and said valve-operating device together, said device being movable endwise the valve-stem to unloose the locking means.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

GEORGE W. KELLOGG.

Witnesses:
FRED. MUTSCHLER,
F. M. SIMPSON.