W. H. REED.

Feed-Regulators for Carbureters.

No. 212,502. Patented Feb. 18, 1879.

Fig. 1.

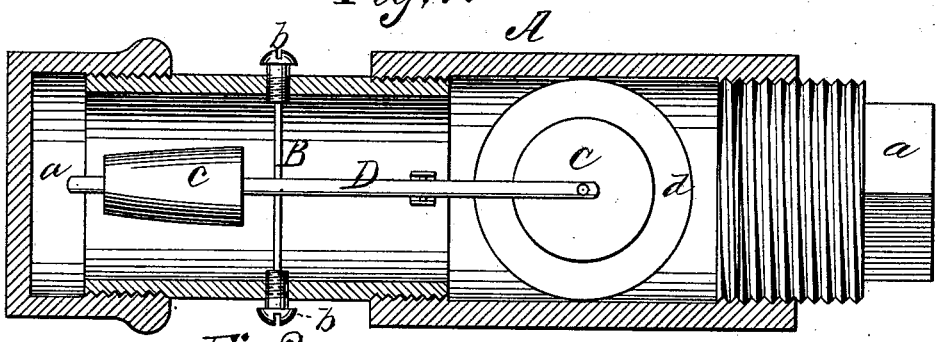


Fig 2

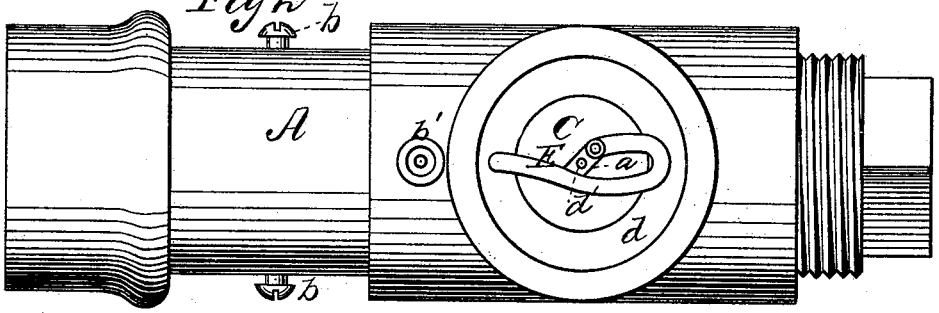
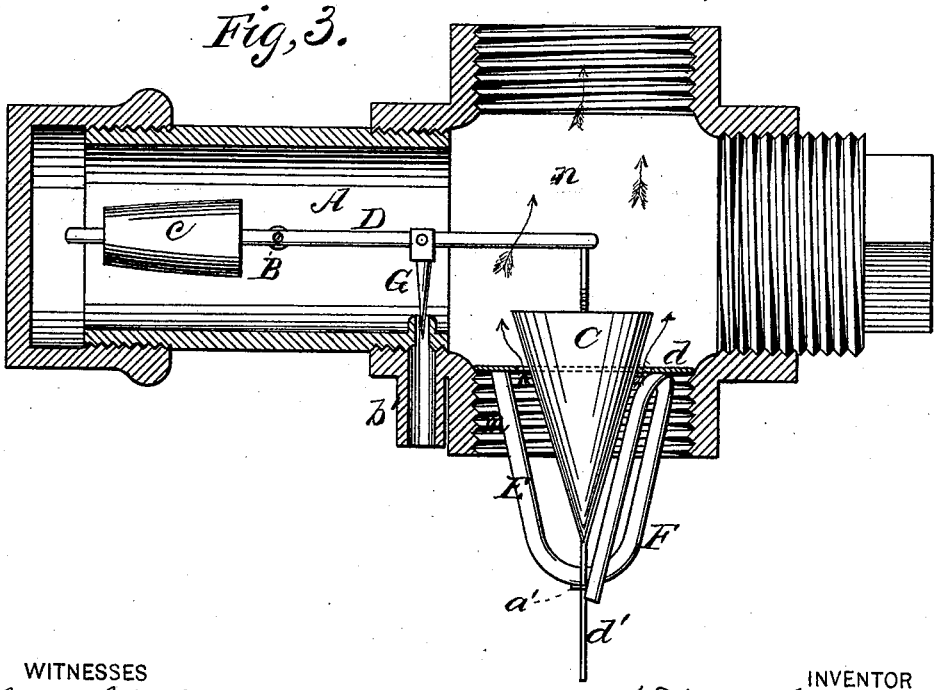


Fig. 3.



WITNESSES

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WILLIAM H. REED, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN FEED-REGULATORS FOR CARBURETERS.

Specification forming part of Letters Patent No. **212,502**, dated February 18, 1879; application filed June 22, 1878.

To all whom it may concern:

Be it known that I, WILLIAM H. REED, of Chicago, in the county of Cook and State of Illinois, have invented a new and valuable Improvement in Naphtha-Feed Regulators for Carbureters; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a horizontal section of my automatic feed-regulator. Fig. 2 is a bottom view thereof, and Fig. 3 is a vertical central section of the same.

This invention relates to improvements in automatic feeders for gas-carbureters.

The object of the invention is to devise means for utilizing the gas-pressure to open the hydrocarbon-supply valves and deliver the enriching material to the carbureter.

The nature of the invention consists in the combination, with a pipe-coupling joint having independent oil and gas inducts, of a weighted lever in said coupling, carrying at one side of its axis of vibration valves closing the said inducts, and provided in the seat of the gas-induct valve with a trap-pipe, which delivers the hydrocarbon to the carbureter, but excludes the gas from the fitting or coupling, whereby the gas-pressure is made to open the valves and admit gas and oil to the said coupling automatically, as will be hereinafter more fully set forth.

In the accompanying drawings, the letter A indicates a preferably T-shaped coupling or joint, having the ends of its horizontal branch closed by the screw plugs or caps *a*. The vertical branch *n* of the joint is connected at its lower end to the vaporizing-chamber of a carbureter, and at its upper end to the mains or supply-pipes of a building.

B indicates a transverse rock-shaft, arranged in the horizontal arm of the joint, and having its bearings in the adjustable screws *b*. Upon this shaft is a vertically-vibrating lever, D, from one end of which is suspended a conical valve, C, and carrying upon the other an adjustable weight, *c*, the object of which will be hereinafter set forth.

This valve is preferably of metal and made hollow, so as to be sufficiently light, and it fits snugly in a metallic seat-ring, *d*, in the lower part of the vertical branch of the joint A, forming a close joint therewith.

From the apex of valve C projects downward a guide-rod, *d'*, that passes through a guide, *a'*, on a pipe, E. This pipe extends through the seat-ring *d*, is carried downward below the valve, is bent into V form, and then carried downward again a suitable distance, forming a trap, F, that prevents the upward escape of gas otherwise than through the seat-ring aforesaid.

Intermediate the seat-ring and the rock-shaft B in the lower wall of the joint is a tube, *b'*, the upper end of which is closed by a small conical valve, G, suspended from the lever D. The lower end of pipe *b'* communicates with a hydrocarbon tank arranged above the pipe-fitting A, and the gasoline or other hydrocarbon oil used is admitted into the fitting only through it.

The valves G C are nearly balanced by the weight *c* on the lever, and the said weight is adjustable thereon, for the purpose of securing the exact preponderance of the said valves.

The operation of this device is as follows: As gas is enriched in the carbureter it passes up around the large conical valve, and accumulates until it is sufficient to float the said valve off of its seat. The gas then escapes, in the direction indicated by the arrows, through the valve-seat, and passes into the supply-pipes ready for consumption. The raising of the large valve thus described also lifts the valve G off its seat in the pipe *b'*, and permits the hydrocarbon oil to pass into the fitting through said pipe. Equilibrium being re-established above and below valve C, it drops upon its seat, cuts off the upward flow of gas, and, by lowering the small valve upon its seat, closes the induct-pipe, and thus cuts off the oil-supply from the coupling A. The oil in the latter fills up the seal-tube E, and drips from its lower end into the carbureter. The bend of tube E is at all times filled with oil, so that the passage of gas upward from the carbureter to the supply-pipes otherwise than by raising the valve is effectually prevented.

It will be seen from the above description that as gas accumulates under the valve C,

caused by the vaporizing of the hydrocarbon oil and the decrease of the latter in the carbureter, the pressure of the gas raises the said valve and opens the oil-induct b' automatically, thus supplying the hydrocarbon oil as fast as it is wanted.

The valves G C are adjustable upon their stems in order to their more ready adjustment on their seats, and the weight c is adjustable to or from the shaft B, in order to regulate the gas-pressure required to raise valves G and C.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a device for feeding hydrocarbon oils to carbureters, the combination, with the pipe-coupling joint A, having a gas-passage way, n, the annular seat d, and oil-induct pipe b', of a transverse rock-shaft, B, lever D, vibrating on said shaft, the adjustable weight c, and the valves G and C, closing respectively the oil and gas inducts, substantially as set forth.

2. In an automatic oil-feeder for carbureting machines, the combination, with a coupling having oil-induct b' and gas-induct m, provided with an annular valve-seat, d, of the vibrating lever D, carrying valves G C, closing respectively the oil and gas inducts, and suspended from said beam, an adjustable weight, c, and a trap-pipe, E, substantially as set forth.

WILLIAM H. REED.

In presence of—
J. M. SOUTHWORTH,
J. J. FARNSWORTH.