This invention relates to a novel fuel gasifier and pressure regulator, particularly adapted to natural and hydrocarbon gaseous fuels. When natural or hydrocarbon gaseous fuels are used as fuel they are compressed and stored in a tank prior to use in an engine. Due to this compression it is necessary to heat these gases before they are introduced into an engine, and the purpose of my invention is to effectively heat the fuel to gasify the same, and also to simultaneously regulate the pressure so that a substantially constant pressure is maintained on the fuel as it is fed to the carburetor.

An object of my invention is to provide a novel fuel gasifier and pressure regulator in which the fuel is conducted against a heated plate and is held in contact with this plate for a period of time necessary to gasify the fuel.

Another object of my invention is to provide a novel fuel gasifier and pressure regulator in which the incoming fuel is deflected downwardly against a heated plate, and is held in contact with this plate as the gaseous fuel moves away from the intake.

Other objects, advantages and features of invention may appear from the accompanying drawing, the subjoined detailed description and the appended claims.

In the drawing:
Figure 1 is a vertical sectional view of my fuel gasifier and pressure regulator.
Figure 2 is a sectional view taken on line 2—2 of Figure 1.

Referring more particularly to the drawing, the numeral 1 indicates a housing into which hot water is conducted through the intake pipe 2 and withdrawn through the outlet pipe 3. Circulation of hot water through the housing will thus heat the upper wall 4 of the housing which will be termed the vaporizing wall. A ring 5 rides from the wall 4 and a cap 6 is removably mounted on the ring 5 to form a regulator chamber as follows: A flexible diaphragm 7 is mounted between the ring 5 and the cap 6. This diaphragm divides the space below the cap 6 into an upper chamber 8 and a lower chamber 9. A fuel intake pipe 10 projects into the housing 1 and is bent upwardly and passes through the vaporizing wall 4. The intake pipe 10 has a nozzle 11 on the upper end thereof and positioned within the chamber 9. The nozzle 11 has a small port or opening therein through which the gaseous fuel flows. An electrically operated valve 12 is provided in the intake pipe 10 and is controlled by the operator to enable him to shut off the fuel when the engine is not operating. A hood 13 is mounted within, in the chamber 9 and is positioned over the valve 11. This hood is attached to one end of a lever 14, which is pivotally mounted on the stand 15 within the chamber 9. The other end of the lever 14 is attached to the diaphragm 7. A spring 16 is positioned within the chamber 9 and bears against the diaphragm 7 to urge this diaphragm downwardly against whatever pressure may exist in the chamber 9. The tension of the spring 16 can be adjusted by means of the control rod 17 which rotates the hood of the adjusting screw 18. In the lowered position of the hood 13 it will engage and close the nozzle 11 and prevent flow of fuel therethrough. In the raised position of the hood 13 relative to the nozzle, fuel flows under the hood 13 and is deflected downwardly into contact with the vaporizing wall 4 where the fuel is heated and properly vaporized.

In order that the fuel may be held in contact with the wall 4 for a period of time, I provide a horizontal disc 19 which is spaced somewhat above the wall 4, and is also spaced inwardly from the ring 5 so that an annular space 20 is thus provided through which the gaseous fuel can flow upwardly and inwardly towards the outlet pipe 21. The disc 19 is attached to and supported by the pipe 21 and is thus held in its proper fixed position. The pipe 21 extends downwardly through the housing 1 and into a reservoir 22 which is provided on the bottom of the housing 1. An outlet pipe 23 extends from the reservoir 22 and this pipe extends to the carburetor or other use of the fuel.

In operation
Hot water flows through the housing 1 to heat the vaporizing wall 4. Fuel is introduced through the pipe 10 and thence through the nozzle 11. The hood 13 is held in a slightly raised position above the nozzle 11 by the tension of the spring 16 against the diaphragm 7. The fuel flows into the hood 13 and thence downwardly under the disc 19 and in contact with the hot wall 4. The vaporized fuel flows around the periphery of the disc 19 and thence inwardly to the outlet pipe 21 and thence to the reservoir 22. If pressure of the vaporized fuel builds up in the reservoir 22 this pressure is exerted against the diaphragm 7 and will deflect this diaphragm upwardly against the tension of the spring 16. This movement of the diaphragm 7 will swing the lever 14 and push the hood 13 downwardly against the nozzle 11 to close this nozzle. When pressure in the reservoir 22 is reduced (by use of the fuel) the spring 16 will move the diaphragm 7 downwardly and this action transmitted through the lever 14, will raise the hood 13 and permit fuel to again flow from the nozzle 11.

Having thus described my invention, I claim:
1. A fuel gasifier comprising a housing, heating means for said housing, a vaporizing wall forming one side of said housing, an inclosure on said vaporizing wall defining a chamber, a fuel pipe extending from the outside of said housing and through said vaporizing wall and into the chamber, a hood within the chamber and positioned over the fuel intake pipe, said hood being open at the bottom thereof, a deflecting disc mounted within the chamber and spaced from the vaporizing wall, the open end of said hood being positioned to deflect fuel under said disc and against the vaporizing wall, and a fuel outlet pipe extending from the inclosure.
2. A fuel gasifier comprising a housing, heating means for said housing, a vaporizing wall forming one side of said housing, an inclosure on said vaporizing wall defining a chamber, a fuel pipe extending from the outside of said housing and through said vaporizing wall and into the chamber, a hood within the chamber and positioned over the fuel intake pipe, said hood being open at the bottom thereof, a deflecting disc mounted within the chamber and spaced from the vaporizing wall, the open end of said hood being positioned to deflect fuel under
said disc and against the vaporizing wall, and a fuel outlet pipe extending from the inclosure, a diaphragm mounted within the inclosure and forming one side of said chamber, spring means bearing against one side of the diaphragm, and means coupling the diaphragm to the hood whereby movement of the diaphragm will move the hood relative to the fuel intake pipe to adjust flow of fuel from said pipe.

3. A fuel gasifier comprising a housing, heating means associated with said housing, a vaporizing wall forming one side of said housing, an inclosure on the vaporizing wall and projecting therefrom and defining a chamber, a fuel pipe extending from the outside of said housing and through the vaporizing wall and into the chamber, a nozzle on the end of the fuel pipe within the chamber, a hood, means mounting the hood within the inclosure and over the nozzle, said hood being open at the bottom thereof, said hood deflecting the fuel downwardly from the nozzle against the vaporizing wall, a disc mounted within the chamber and spaced from the vaporizing wall, said disc being positioned below said hood to receive the fuel deflected from the hood and an outlet pipe extending from the inclosure, said disc being secured to the outlet pipe, and said pipe extending through the disc.

4. A fuel gasifier comprising a housing, heating means associated with said housing, a vaporizing wall forming one side of said housing, an inclosure on the vaporizing wall and projecting therefrom and defining a chamber, a fuel pipe extending from the outside of said housing and through the vaporizing wall and into the chamber, a nozzle on the end of the fuel pipe within the chamber, a hood, means mounting the hood within the inclosure and over the nozzle, said hood being open at the bottom thereof, said hood deflecting the fuel downwardly from the nozzle against the vaporizing wall, a disc mounted within the chamber and spaced from the vaporizing wall, said disc being positioned below said hood to receive the fuel deflected from the hood and an outlet pipe extending from the inclosure, said disc being secured to the outlet pipe, and said pipe extending through the disc, a flexible diaphragm within the inclosure and forming one side of the chamber, spring means bearing against one side of the diaphragm, a lever pivotally mounted within the inclosure, one end of said lever being attached to said hood, and the other end of said lever being attached to the diaphragm whereby flexing of the diaphragm will move the hood relative to said nozzle.

5. A fuel gasifier comprising a housing, a heating means associated with said housing, a vaporizing wall forming one side of said housing, an inclosure on the vaporizing wall and projecting therefrom and defining a chamber, a fuel pipe extending from the outside of said housing and through the vaporizing wall and into the chamber, a nozzle on the end of the fuel pipe within the chamber, a hood, means mounting the hood within the chamber and over the nozzle, said hood being open at the bottom to deflect the fuel downwardly from the nozzle against the vaporizing wall, a disc within the chamber and spaced from the vaporizing wall, said disc being positioned below said hood to receive the fuel deflected from the hood and an outlet pipe projecting from the chamber, said disc being secured to the outlet pipe, and said pipe extending through the disc, a flexible diaphragm within the inclosure and forming one side of said chamber, spring means bearing against one side of the diaphragm, a lever pivotally mounted within the inclosure, one end of said lever being attached to said hood, and the other end of said lever being attached to the diaphragm whereby flexing of the diaphragm will move the hood relative to said nozzle, said housing having a reservoir chamber on one side thereof, said outlet pipe extending into the reservoir chamber, and a discharge pipe extending from the reservoir chamber.

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