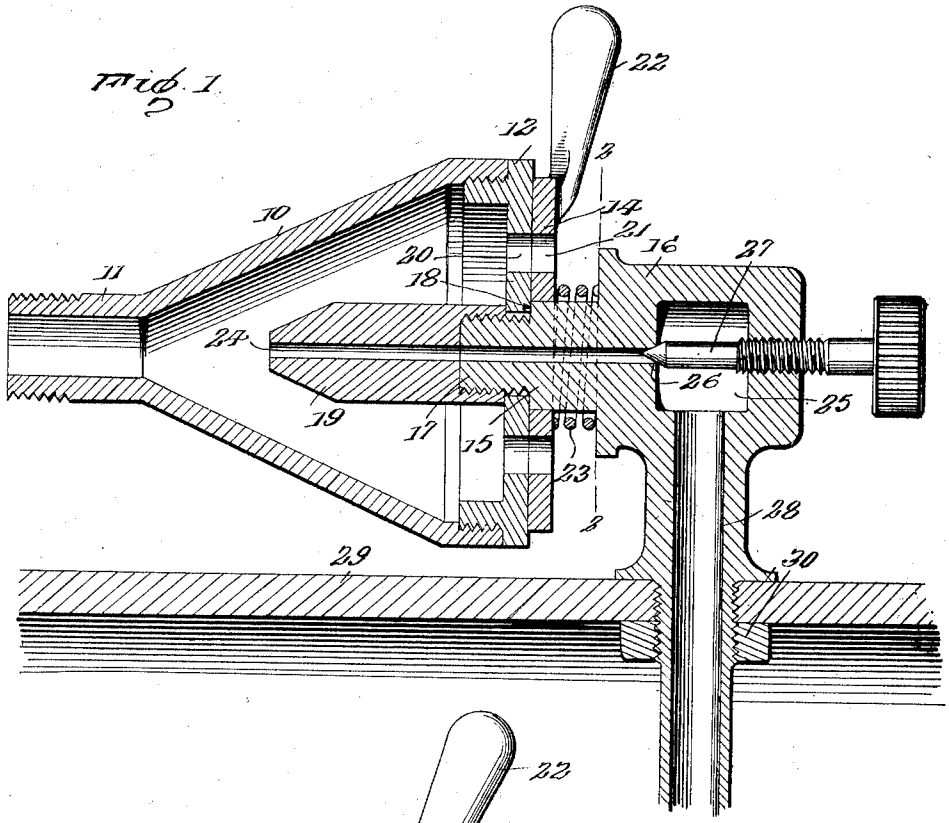
E. E. DOLAND.

GAS ENGINE ATTACHMENT.

APPLICATION FILED SEPT. 17, 1918.

1,334,355. Patented Mar. 23, 1920.

Fig. 1.



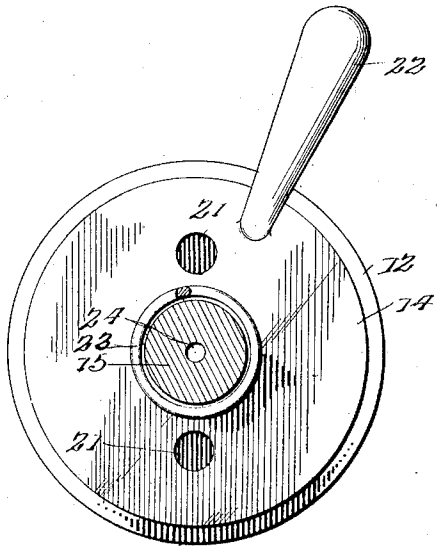


Fig. 2.

Witnesses

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UNITED STATES PATENT OFFICE.

ELMER E. DOLAND, OF BOONTON, NEW JERSEY.

GAS-ENGINE ATTACHMENT.

1,334,355. Specification of Letters Patent. Patented Mar. 23, 1920.

Application filed September 17, 1918. Serial No. 254,503.

To all whom it may concern:

Be it known that I, ELMER E. DOLAND, a citizen of the United States, residing at Boonton, in the county of Morris and State of New Jersey, have invented certain new and useful Improvements in Gas-Engine Attachments, of which the following is a specification.

This invention has relation to improvements in internal combustion engines, and the nature and objects thereof will be readily apparent to those skilled in the art to which it appertains, in the light of the following description of the accompanaying drawings, illustrating what I now believe to be the preferred embodiment or mechanical expression of my invention from among other forms and arrangements within the spirit thereof and the scope of the appended claim.

An object of the invention is to provide means for introducing aqueous vapor into the manifold, intake or cylinders of an internal combustion engine, accompanied simultaneously with a predetermined proportion of air.

Another object of the invention is to provide a device of the character above set forth embodying means for regulating independent of each other the amount of aqueous vapor and air, and to permit the regulation of said means so as to vary the relative proportions of vapor and air admitted.

A still further object of the invention is to provide a device of the character described designed to and capable of rendering a more economical operation of the engine by insuring the proper combustion of the fuel, thereby resulting in a saving of the amount of fuel consumed per unit of energy developed, and by preventing the formation of carbon, as well as other uses and advantages which will become apparent as the nature of the device is more readily understood.

In addition to the foregoing, this invention comprehends improvements in the details of construction and arrangement of parts, to be herewith set forth and more specifically pointed out in the appended claims.

In the accompanying drawings, in which similar and corresponding parts are designated by the same characters of reference throughout the several views in which they appear,

Figure 1 is a view in longitudinal section of a device constructed in accordance with my invention, and

Fig. 2 is a transverse section taken on the line 2—2 thereof.

With reference to the drawings, 10 indicates a conical casing, formed at its apex with a tubular, externally threaded extension 11, and open and internally threaded at its base portion. A cap for this base portion is provided in the form of a disk 12 having an externally threaded flange 13 integrally formed on one face, to engage the threads of the base portion of the casing. An air regulating disk 14 is applied to the outer face of the cap, the latter and the disk being centrally apertured to receive an extension 15 of a valve casing 16. The extension is cylindrical and of a diameter to closely fit the opening of the disk 14, and a reduced threaded portion 17 is formed on the extension to enter the opening of the cap, said opening being slightly smaller than that of the disk. As a result a shoulder 18 is formed on the extension 15 to bear against the cap and to bind the latter between the shoulder and a nozzle 19 which is applied to the threaded portion 17 and is inclosed within the casings. The cap and disk 14 are each formed with air shift openings 20 and 21 respectively and designed to register or to be lapped by rotation of the disk, a handle 22 being provided upon the disk for that purpose. A coil spring 23 is encircled about the extension 15 and bears against the valve casing 16 and the disk 14 to retain the latter seated. The valve casings, extension 14 and nozzle 19 are formed with alined bores 24 which are also in alinement with the center of the casing and nipple 11. The bore of the valve casing opens into a chamber 25 and a valve seat 26 is formed at the juncture thereof, engaged by a needle valve 27. A lateral branch 28 of the valve casing is formed to extend into a receptacle 29 to contain water, a flange and nut arrangement 30 being provided to secure this device to said container.

In use, the intake manifold of an internal combustion engine may be drilled and tapped to receive the nipple 11. The container 29 is supplied with water, and the

needle valve 27 adjusted to open position. The disk 14 is rotated by means of the handle to cause the openings 20 and 21 to register. It will be obvious that owing to the partial vacuum produced in the manifold during the normal operation of the engine, water will be drawn up through the branch 28 into the chamber 25 and through the bore 24. Owing to the fine aperture of said bore a spray will be formed and with a certain proportion of air admitted through the openings 20 and 21 will enter the manifold and mix with the fuel vapor. The relative proportion of water and air may be varied by adjustment of the needle valve and disk 14 in the manner stated.

While I have illustrated and described my invention with some degree of particularity, I realize that in practice various alterations therein may be made. I therefore reserve the right and privilege of changing the form of the details of construction or otherwise altering the arrangement of the correlated parts without departing from the spirit of the invention or the scope of the appended claim.

Having thus described my invention, what I claim as new and desire to secure by United States Letters Patent is:

A device of the character described including a conical mixing chamber having its base portion open and a tubular extension on its apex, a cap applied to the base portion having a central opening and a series of air inlet openings, a disk having a central opening and a series of openings applied to the cap, a valve casing, an extension thereof, to enter the central opening of the disk; a threaded portion on the extension to enter the central opening of the cap, a nozzle applied to the threaded portion, a coil spring encircling the extension and bearing against the casing and disk to retain the latter in seated position, a handle on the disk for rotating the same, a valve in the casing to control passage of material through the nozzle, a branch of said casing, and a receptacle to receive said branch.

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

ELMER E. DOLAND.

Witnesses:

NELSON C. DOLAND,
WILLIAM R. BAILEY.