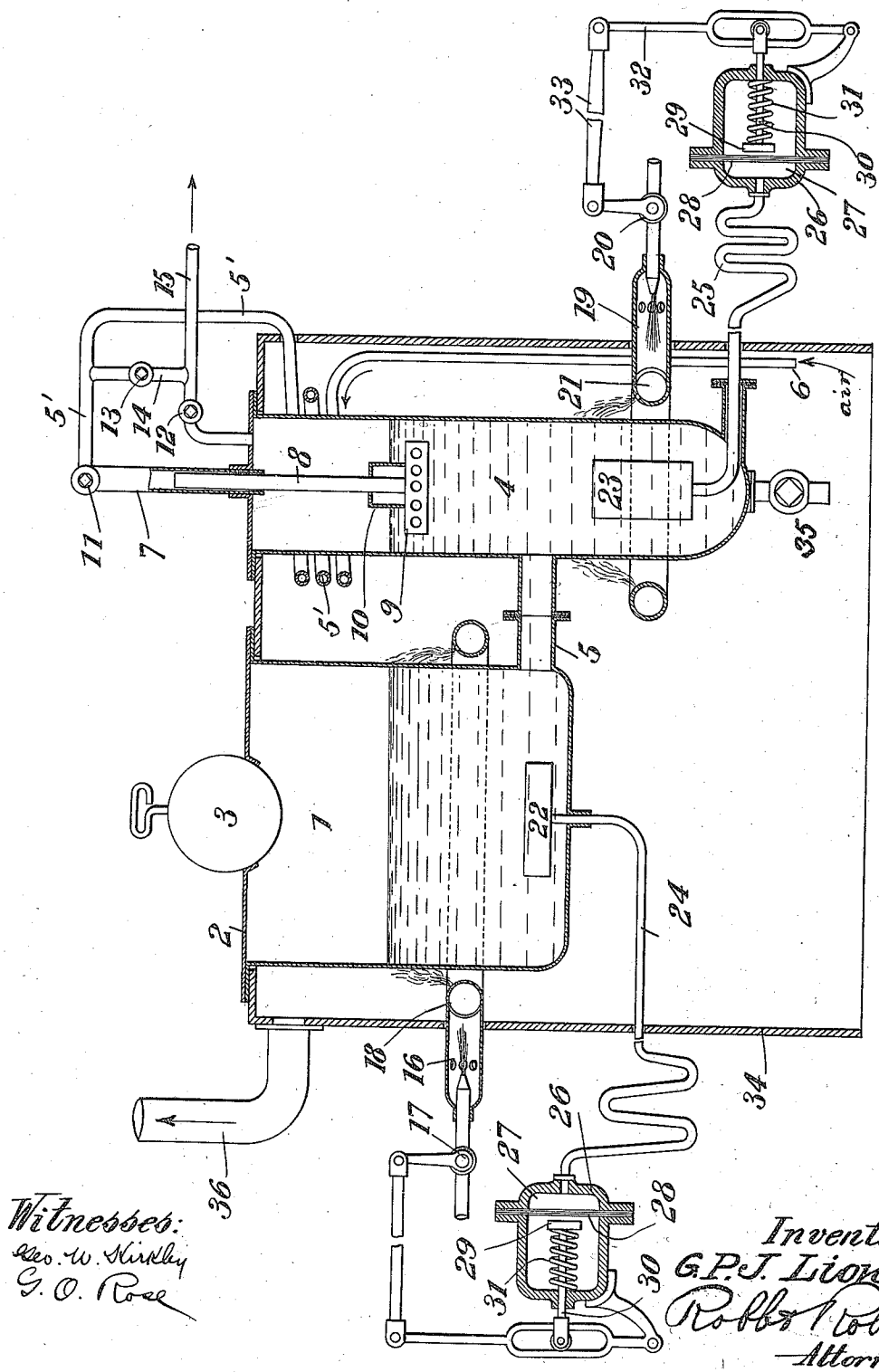
G. P. J. LION.

DEVICE FOR CARBURETING AIR.

APPLICATION FILED OCT. 9, 1912.

1,066,295.

Patented July 1, 1913.



Witnesses:
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UNITED STATES PATENT OFFICE.

GASTON PAUL JEAN LION, OF LEVALLOIS-PERRET, FRANCE.

DEVICE FOR CARBURETING AIR.

1,066,295. Specification of Letters Patent. Patented July 1, 1913.

Application filed October 9, 1912. Serial No. 724,717.

To all whom it may concern:

Be it known that I, GASTON PAUL JEAN LION, a citizen of the French Republic, and resident of Levallois-Perret, France, have invented certain new and useful Improvements in Devices for Carbureting Air with Crude Naphthalene, of which the following is a specification.

The present invention consists now in simplifying various parts of a device applied to explosive motors for carbureting air with crude naphthalene and in modifying said device in such a manner that the crude naphthalene melting tank and the naphthalene heating tank, instead of being heated by means of the exhaust gases of the motor, are provided each with special heating means which are entirely independent of the motor. Furthermore the float chamber provided between both above named tanks in previously proposed constructions, has been eliminated, both of said tanks being connected with each other by a simple duct, so that the melted naphthalene is always at a level in said tanks, said level falling accordingly as the vaporized naphthalene is sucked off by the working motor. Consequently the two main improvements or characteristic features of the present invention consist: (1) in that the level of the naphthalene in the vaporizing tank varies; (2) in that both naphthalene tanks are no more heated by the exhaust gases of the motor, each of said tanks being provided with a special heating device which is separately and automatically regulated in such a manner that each of said tanks may be kept at any desired temperature.

The accompanying drawing shows a vertical cut through the whole device.

The main or melting and feeding tank 1, preferably of circular shape, is provided with a flanged cover 2 tightly applied on top of the tank. Said cover has a central circular opening in which fits a removable heavy ball shaped plug 3 which is readily removable in order to periodically supply the tank 1 with crude naphthalene. The cover 2 is only removed in order to effect the cleaning of the tank. Said melting tank 1 is connected with the vaporizing or heating tank 4 by means of a duct 5. the naphthalene being continuously at level in both tanks which level is falling simultaneously in both tanks accordingly to the vaporized fuel being drawn to the motor.

The vaporizing tank 4 is of suitable size and shape and provided with an air duct 5′ partially surrounding the tank in shape of a coil so that the air flowing to the tank 4, is previously heated by the combustion gases proceeding from the heating device of said tank as hereinafter explained. Said tube 5′ is open at one end 6, while the opposed end 7, vertically projecting within the tank 4 and secured to the top of said tank, is telescopically surrounding a pipe 8 projecting upward from a perforated ring or crown 9 held dipped to a certain extent into the liquid naphthalene by means of a float 10, in such a manner that both tubes 7 and 8 are sliding telescopically with respect to each other when the level of the liquid naphthalene varies.

A duct 15 connects the upper portion of the tank 4 with the motor and a piping 14 connects both tubes 5′ and 15. Cocks 11, 12 and 13 are provided respectively onto the ducts 5′, 15 and 14.

When the cocks 11 and 13 are closed, the motor being working, naphthalene vapors only are drawn from the tank 4 to the motor. When it is desired to draw carbureted air to the motor, cock 13 is closed, cocks 11 and 12 being opened; the sucking of the motor causes a vacuum in the tank 4 and the outer air flowing through the air tube 5′, bubbles through the perforated ring 9, becomes carbureted and is drawn to the motor through the tube 15, in a heated state being heated by the combustion gases proceeding from the heating device of the tank 4. Accordingly as carbureted air is sucked to the motor, the level of the naphthalene in the tank 4 is falling. The perforated ring 9, owing to the special arrangement of the pipes 7 and 8, is continuously and automatically dipping to the same extent into the liquid naphthalene of the tank, whatever may be the variations of said level.

The heating means of the tanks 1 and 4, are identical in construction, consisting of Bunsen burners 16 and 19 provided with perforated crowns 18 and 21, the feeding of the gaseous fuel being regulated by means of cocks 17 and 20 respectively. Said cocks are automatically controlled by thermostatic devices of any known type. The crown 18 is arranged to surround the melting tank 1, while the crown 21 surrounds the vaporizing tank 4. According to the drawings, the thermostatic devices used in the present instance comprise round cups 27 over the circular edges of which are

stretched yielding diaphragms 28 which bear against one end 29 of rods 30 under the action of coil springs 31 and guided in stirrups, by means of connecting rods 32, 33 controlling the cocks 20 of the fuel inlet ducts. Bodies 22 in tank 1 and 23 in tank 4, filled with air, and submerged in the naphthalene of said tanks, are connected by means of narrow ducts 24 and 25 respectively with the spaces 27 provided between the rigid cups 26 and the yielding diaphragms 28. When the temperature in the tanks 1 and 4 rises, the air contained in the hollow bodies 22 and 23 expands and presses the diaphragms 28 against the ends 29 of the rods 30, which in turn are pressed outwardly and operate the cocks 17 and 20 through the means of the connecting rods 32 and 33, thus reducing the amount of fuel flowing to the burners. The burner 19 heats the tank 4, as well as the air in the pipe or coil 5′ above the same, and which is located around said tank. Both tanks 1 and 4 are located in a casing 34. A cock 35 is provided for removing the impurities of the crude naphthalene settling on the bottom of the tank 4.

I claim:—

1. A device for producing naphthalene vapors from crude naphthalene, comprising a main tank in which the naphthalene is melted, a naphthalene heating and vaporizing tank, a connecting duct between both said tanks, a casing surrounding both said tanks, means for heating the melting tank, means for heating the vaporizing tank, an air inlet duct for conveying atmospheric air to said vaporizing tank, means for heating the air of said inlet duct, means for subjecting said previously heated air to carbureting in the vaporizing tank, a duct for drawing the gaseous products from said vaporizing tank, a piping interposed between said air inlet duct and the last named duct, cocks provided on both said ducts and on said piping in order to cause carbureted air or naphthalene vapors only to be drawn from the vaporizing tank, means for accurately regulating the temperature of said main or melting tank and means for accurately regulating the temperature of said vaporizing tank.

2. A device for producing naphthalene vapors from naphthalene, comprising a main, naphthalene melting tank, a naphthalene heating and vaporizing tank, a connecting duct between both said tanks, a Bunsen burner at the lower part of said melting tank, a perforated burner crown connected with said burner and surrounding said melting tank, a duct supplying gaseous fuel to said Bunsen burner, a fuel regulating cock on said duct, a thermostatic heat regulating device controlling said regulating cock, a second Bunsen burner at the lower part of said vaporizing tank, a perforated burner crown connected with said burner and surrounding said last named tank, a duct for supplying gaseous fuel to said burner, a fuel regulating cock on said duct, a thermostatic heat regulating device controlling said regulating cock, a coiled pipe for conveying atmospheric air to said vaporizing tank, said coil being located within the upward flowing combustion gases proceeding from said Bunsen burner, means for subjecting said previously heated air to carbureting in said vaporizing tank, an outlet from said vaporizing tank through which duct the gaseous products are drawn from said tank, a piping interposed between said air inlet duct and the last named duct, cocks provided on both said ducts and on said piping in order to have carbureted air or naphthalene vapors only and means for accurately regulating the temperature of said melting tank and of said vaporizing tank.

3. A device for producing naphthalene vapors from crude naphthalene, comprising a main tank in which the crude naphthalene is melted, a naphthalene heating and vaporizing tank, a connecting duct between both said tanks, means for heating both said tanks independently from each other, a coiled air inlet duct for conveying atmospheric air to said vaporizing tank, means for previously heating the air flowing through said air inlet duct, a strainer freely dipping to a desired extent within the hot naphthalene of the vaporizing tank, a float on said strainer, a tube upwardly projecting from said strainer and telescopically engaging the lower end of said air inlet duct, in order to allow said strainer to freely follow the varying level of the hot naphthalene, while the previously heated atmospheric air from the air inlet tube bubbles through the openings of said strainer and through the hot naphthalene, in order to become carbureted, an outlet duct from said vaporizing tank, a piping interposed between said air inlet duct and said last named duct, cocks provided on both said ducts and on said piping in order to permit passage of carbureted air or naphthalene vapors only to the outlet duct, and means for accurately regulating the temperature of said vaporizing tank and said air inlet duct.

In testimony whereof I have hereunto set my hand in presence of two witnesses.

GASTON PAUL JEAN LION.

Witnesses:
GEORGE E. LIGHT,
LUCIEN MEMMINGER.