A. DOBLE.

ELECTRIC PREHEATER FOR PILOT BURNERS.

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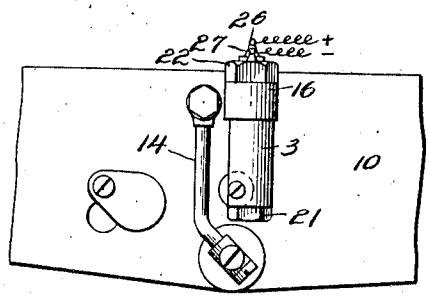
Fig. 3.



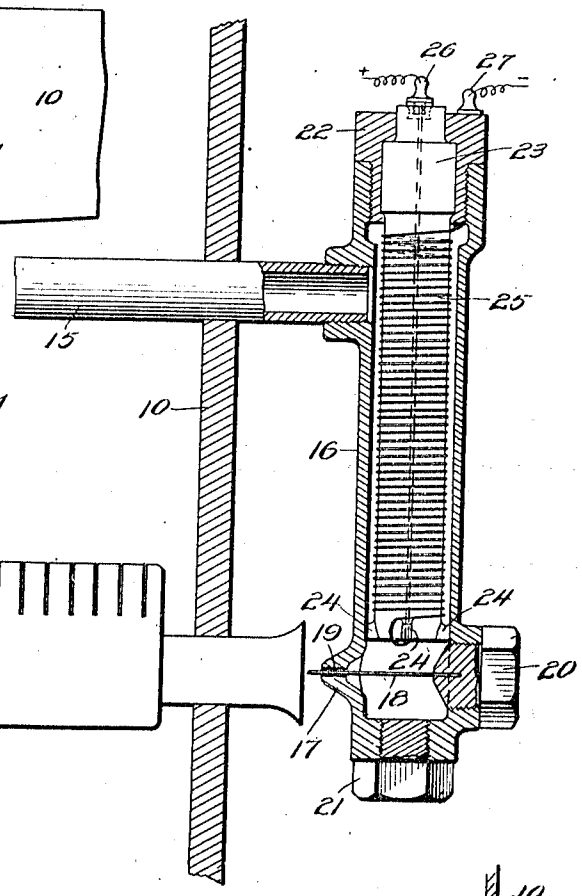
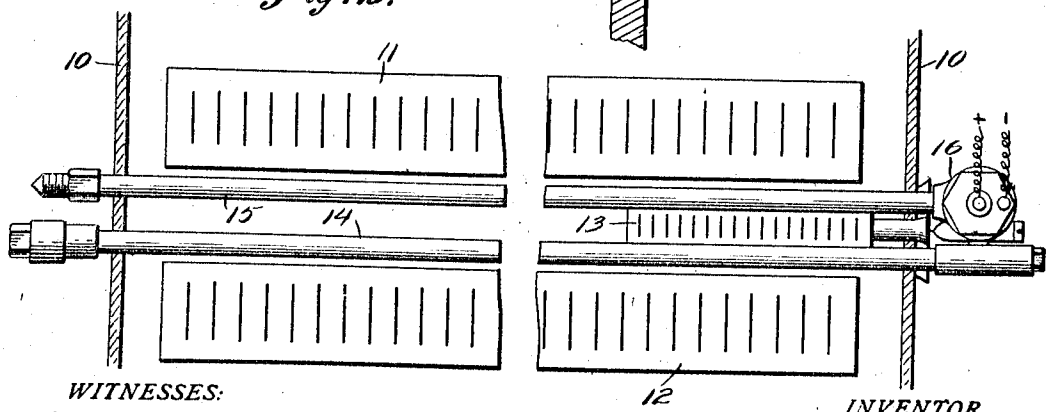


Fig 1

Fig. 2.



WITNESSES:

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ELECTRIC PREHEATER FOR PILOT-BURNERS.

1,040,289. Specification of Letters Patent. Patented Oct. 8, 1912.

Application filed June 1, 1912. Serial No. 701,104.

To all whom it may concern:

Be it known that I, ABNER DOBLE, a citizen of the United States, residing at Brookline, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Electric Preheaters for Pilot-Burners, of which the following is a specification.

This invention relates to liquid fuel burners and more particularly to devices for preheating and vaporizing the fuel before it is delivered to the burner.

The objects of the invention are to provide an electrical pre-heater which is simple in construction, efficient in operation, and which is readily accessible for cleaning and repair.

The invention is particularly applicable to steam automobiles, the burner being associated with the boiler in which the steam is generated.

The invention is illustrated in the accompanying drawings, in which,

Figure 1 is a longitudinal section of the pre-heater and burner casing, the burner being shown in elevation; Fig. 2 is a plan view of the burner with the casing therefor shown in section; Fig. 3 is a side elevation of the pre-heater and parts associated therewith.

Referring to the drawings, 10 indicates the burner casing and 11 and 12 two of the main burners arranged therein. Between the burners 11 and 12 is arranged a pilot-burner 13. The object of the pilot burner is to maintain a small flame under the boiler to keep the water hot when the automobile is not running and also to provide means for instantly lighting the main burners when the fuel is supplied thereto.

The fuel to the main burners may be supplied by means of a pipe 14 and the fuel to the pilot burner may be supplied by a pipe 15, these pipes preferably extending across the burner casing above the burners whereby the fuel is pre-heated before it reaches the burners.

Arranged on the exterior of the casing 10 is a vertical tubular member 16 which has its upper part connected with the pipe 15. At the lower end of the member 16 is a nozzle 17 for supplying fuel to the burner 13. Ordinarily only a very small quantity of fuel is required by the pilot burner 13 and therefore in order to restrict the flow through the nozzle 17 to the amount required a wire 18 is arranged in the opening 19 in the nozzle. This wire also serves as a convenient means for cleaning the opening 19. The wire 18 is preferably arranged in a plug 20 which is secured in a suitable opening in the member 16 opposite the nozzle 17. A plug 21 may also be arranged at the lower end of the member 16 whereby any foreign substances collecting at the bottom of the member 16 may be readily removed. The upper end of the tubular member 16 is provided with a screw-threaded opening in which is arranged a plug 22 which carries a rod 23 of porcelain or other insulating material. At its lower end the rod 23 may be provided with the radially extending lugs 24 which engage the wall of the tubular member 16 and hold the rod securely in position.

Coiled on the exterior of the rod 23 is a resistance wire 25, one end of which is preferably connected with the plug 22 and the other end of which is bent around one of the lugs 24 and passed upwardly through a central opening in the rod and connected with a terminal 26 at the upper end of the rod. The plug 22 may also be provided with a terminal 27 and since the plug 22 is made of conducting material such as brass, it will be seen that when the terminals 26 and 27 are connected in an electric circuit the current will pass through the coil 25 from one terminal to the other. It will be observed that there is an annular passage between the rod 23 and the inner wall of the tubular member 16, which permits the fuel to pass freely from the tube 15 to the nozzle 17.

In the operation of the device the fuel for the burner 13 will be normally pre-heated and vaporized in the tube 15 so that when the fuel is discharged from the nozzle 17 it will readily mix with the air. When it is desired to light the pilot burner after the vehicle has been standing for a considerable time with all the burners out so that the fuel in the tube 15 is at substantially the same temperature as the surrounding atmosphere, a current is passed through the coil 25 and the heat generated in the coil raises the temperature of the fuel in the tubular member 16 to a sufficient degree to cause the fuel to be vaporized. As soon as the burner 13 is lighted the heat from the burner will heat the fuel in the tube 15 sufficiently to permit

the coil 25 to be cut out by opening the circuit which supplies the coil. It will thus be seen that it is intended to use the pre-heating coil only at such times as when there is no heat available from the burners to pre-heat the fuel in the supply tube. By removing the plug 22 from the tubular member 16, the rod 23 with the coil 24 thereon may be taken out and cleaned or repaired and also permit the interior of the tubular member to be cleaned.

Having thus described my invention, what I claim is:

1. In a device of the class described, the combination of a casing, a pipe for supplying fuel to one end of the casing, a nozzle at the opposite end of the casing, a plug secured in the casing, and a pre-heating coil secured to said plug and arranged in said casing and coöperating with the latter to form a restricted passage between the supply pipe and the nozzle.

2. In a device of the class described, the combination of a casing, a fuel supply pipe connected with the casing near one end thereof, a nozzle at the other end of the casing, a plug having screw-threaded engagement with the casing, a rod of insulating material secured to said plug and extending longitudinally of said casing and provided with laterally projecting lugs adapted to support the inner end thereof, and a pre-heating coil arranged on said rod and having one end thereof connected with the plug and the other end insulated from the plug.

3. In a device of the class described, the combination of a casing, a fuel supply pipe connected with the casing near one end thereof, a nozzle at the other end of the casing, a plug having a screw-threaded connection with the casing near said supply pipe, a rod of insulating material carried by said plug and extending longitudinally of said casing between the supply pipe and the nozzle, said rod projecting through said plug and being provided with a terminal on its outer end, and a resistance coil arranged on said rod and having one end connected with said plug and the other end with said terminal.

4. In a device of the class described, the combination of a casing, means for supplying fuel to one end of said casing, a nozzle at the other end of said casing, a pre-heating coil arranged in said casing between said supply means and said nozzle, a plug arranged in said casing adjacent said nozzle, and a wire secured to said plug and extending through said nozzle.

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

ABNER DOBLE.

Witnesses:
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EDWARD W. BAKER.