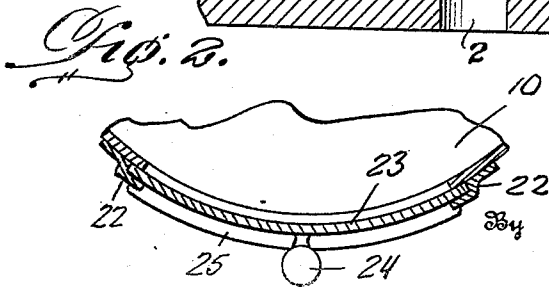
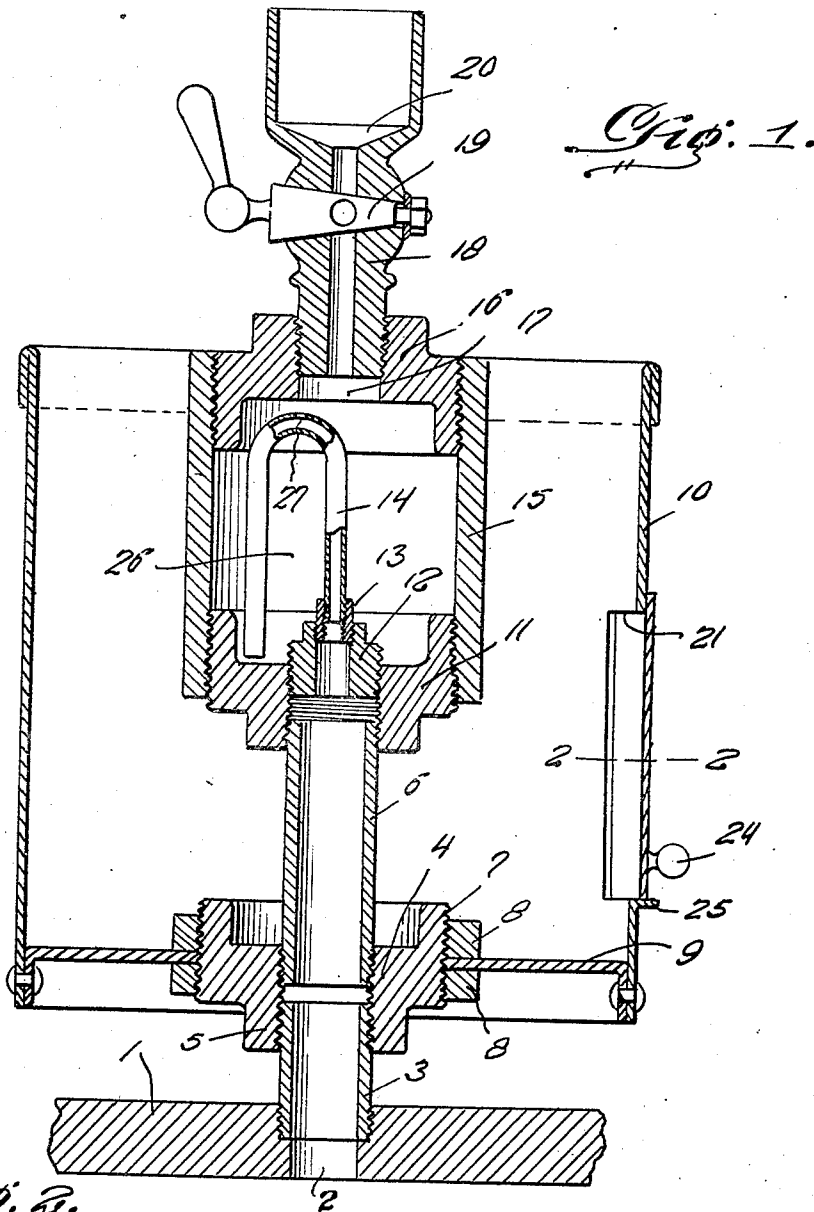


Feb. 23, 1926.

W. O. FIGORS
GASOLINE ENGINE STARTING DEVICE
Filed Feb. 25, 1924

1,573,995



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UNITED STATES PATENT OFFICE.

WILLIAM O. FIGORS, OF FERNEY, SOUTH DAKOTA.

GASOLINE-ENGINE-STARTING DEVICE.

Application filed February 25, 1924. Serial No. 695,009.

To all whom it may concern:

Be it known that I, WILLIAM O. FIGORS, a citizen of the United States, residing at Ferney, in the county of Brown and State of South Dakota, have invented a new and useful Gasoline-Engine-Starting Device, of which the following is a specification.

This invention relates to improvements in gasoline engine starting devices.

The invention is more particularly directed to providing a starting device especially adapted for use on gasoline tractor engines, and to provide means for aiding in readily starting these tractor engines in cold weather.

An object of the invention resides in providing an attachment for gasoline engines, which includes a gas saver producing chamber connected for communication with the combustion chamber of the engine or to the manifold, which is surrounded by a suitable heating jacket for vaporizing fluid fuel within said vaporizing chamber.

Another object of the invention resides in providing a starting device for gasoline engines including a vaporizing chamber connected with the combustion chamber or manifold of said engine, having means whereby supply of fuel may be placed in said chamber with a surrounding tank for receiving a quantity of fuel adapted to be ignited for heating the vaporizing chamber for supplying vapor to the combustion chambers of said engine.

Other objects and improvements in the details of construction and arrangement of parts will be more particularly pointed out in the following detailed description and in the claims, directed to a preferred form of the invention, it being understood, however, that various changes in the specific construction and arrangement of these parts may be made without departing from the spirit or scope of the invention as set forth herein.

In the drawing, forming a part of this application:

Figure 1 is a vertical sectional view through the invention, showing it applied to a portion of an internal combustion engine,

Figure 2 is a sectional view, taken on the line 2—2 of Figure 1.

1 indicates the head of a cylinder of an internal combustion engine or a portion of the manifold, which is provided with a

threaded opening 2, in which is mounted a nipple 3. A fitting, illustrated at 4, is provided with a reduced threaded extension 5, which is fitted on said nipple 3, the threaded bore extending entirely through the fitting 4 and receiving in the opposite end a pipe section 6, while the outer periphery of the fitting is threaded as indicated at 7, for receiving a pair of cooperating hexagonal members 8, adapted to rigidly mount the bottom 9 on said fitting 4, which cooperates with the cylindrical member 10 secured thereto to form a tank and heating jacket.

A fitting 11, identical in construction with the fitting 4 is mounted on the upper end of the pipe section 6, by having the pipe section 6 threaded in the bore through said fitting, the upper end of which bore receives a reducing nipple 12 mounting the bushing 13, in the end of which is threadedly mounted a U-shaped pipe member 14, the free end of which extends upwardly from said bushing, within the vaporizing chamber of the device, and downwardly again within said chamber so that the free end of the pipe member terminates adjacent the upper face of the fitting 11. A cylindrical member 15 is mounted on the fitting 11 and projects upwardly therefrom and cooperates therewith to form a closed vaporizing chamber for fuel to be supplied to the manifold or combustion chamber of the cylinder and is closed, at the upper end by a fitting 16, identical in construction with the fittings 11 and 4, the fitting 16 being reversed in position with respect to the fittings 11 and the bore 17 thereof, receiving a priming cup 18 having a cut-off valve 19 therein, to permit the closure of the passage 20, through said cup to the vaporizing chamber to be opened or closed, as desired.

One side of the cylindrical tank member 10 is provided with an opening 21, in the sides of which are suitable guides 22 for a door 23, slidably mounted therein, and provided with a suitable operating handle 24. The lower edge of the door opening is provided with an outwardly extending lip 25, which forms a stop for the downward movement of the door, so that the same may be raised or lowered slidably, for permitting the insertion of a suitable igniting means to ignite liquid placed in the bottom of the tank 10, forming the heating jacket, and which is adapted to heat the vaporizing

chamber formed within the cylindrical member 15, as indicated at 26.

When it is desired to prime an internal combustion engine, and particularly tractor engines, for permitting the easy starting thereof in cold weather, with the use of the starting device, above described, the valve 19 is opened, and a quantity of liquid fuel for the engine is poured into the vaporizing chamber through the priming cup 18, following which the valve is closed or may be left partly open to admit air. A quantity of the fuel is then poured into the bottom 9 of the tank formed by the bottom plate 9 and the cylindrical member 10 and the same ignited, the heat of said fuel heating the cylindrical member 15 and the fittings 11 and 16, to a sufficiently high degree to cause fuel within the vaporizing chamber 26 to become vaporized, so that the same may be drawn in through the U-shaped pipe section 14, when the crank shaft of the engine is turned over on the suction stroke thereof. The central portion of the pipe section 14, at the bend thereof is provided on the outer side of the bend with an opening 27, so that the vapor, as well as the portion of the heating liquid within the vaporizing chamber is drawn into the cylinder or manifold of the engine, and if desired, the valve 19 may be left open so that a quantity of air may be drawn into the cylinder with a quantity of

the vapor and fuel to provide a highly heated mixture, so that the same will readily explode and aid the starting of the cold engine. 35

What is claimed is:

1. A device of the class described comprising a fitting adapted for attachment to the cylinder of an internal combustion engine, a cylindrical member having a vaporizing chamber formed therein and provided with means connecting the same with said fitting to provide communication with the cylinder of said engine, and a jacket forming member mounted on said fitting and surrounding said cylindrical member for forming a heating jacket about the same. 45

2. A priming device for internal combustion engines comprising a member mounted on the cylinder of said engine having a chamber communicating with the combustion chamber of said engine, means for restricting the passage between the chamber of said member and the combustion chamber of said internal combustion engine, a valve controlled inlet to said chamber to permit the filling thereof with priming fluid, and a jacket member surrounding said first mentioned member and carried thereby for receiving a supply of heating fluid ignitable for heating said member to vaporize the priming fluid therein for supply to the combustion chamber of said engine. 60

WILLIAM O. PIGORS.