Jan. 4, 1927.

1,613,034

J. T. JANETTE

MOTOR DRIVEN APPARATUS

Filed Nov. 9. 1921

Fig. 1.

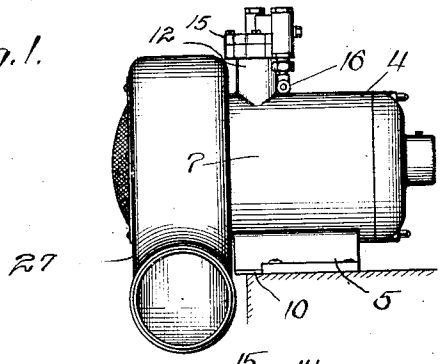


Fig. 2.

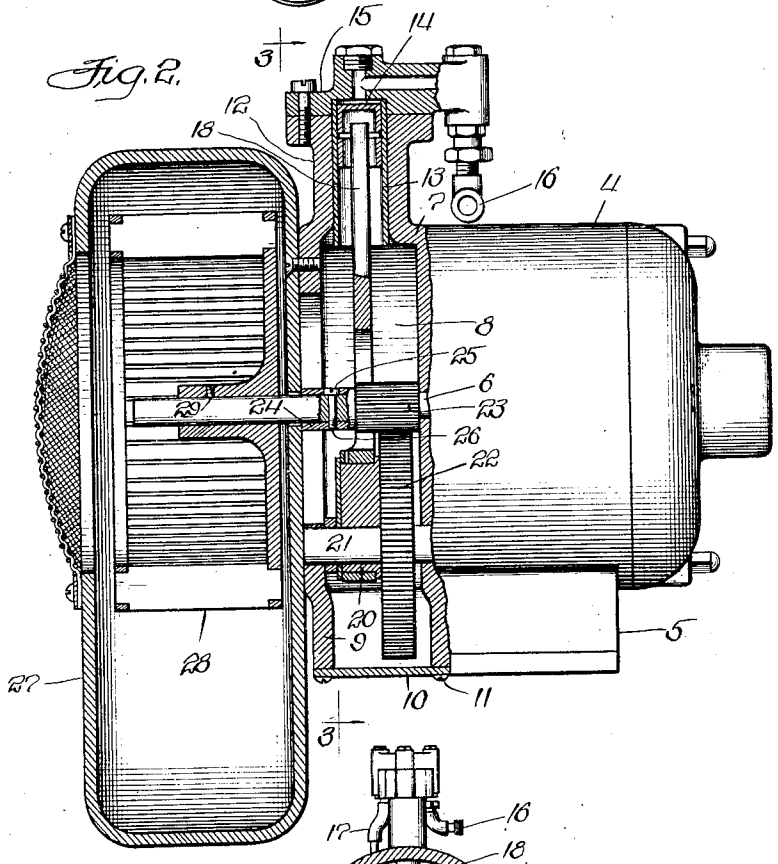
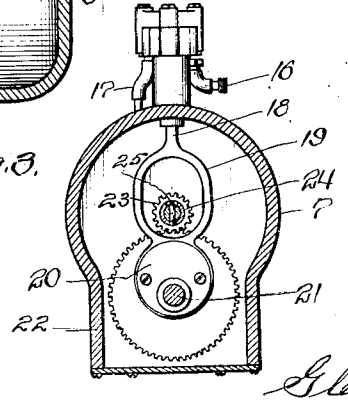


Fig. 3.



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Patented Jan. 4, 1927. 1,613,034

UNITED STATES PATENT OFFICE.

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MOTOR-DRIVEN APPARATUS.

Application filed November 9, 1921. Serial No. 513,882.

In certain heating apparatus utilizing kerosene or other liquids for fuel, the burners are supplied with air from motor driven fans and air pumps are also used in conveying the fuel to the burners. As at present constructed the ordinary motor is used and extension shafts and couplings are utilized for driving the fans and pumps. In accordance with the present invention I provide a combination outfit including a motor and fan and also an air pump.

The objects of this invention are to provide an improved power plant for heating apparatus or the like; to provide a combined motor, fan and air pump which will occupy but little space and which will be exceedingly compact in construction; to provide an apparatus of this character which will be approximately noiseless in operation and in general to provide such improved features as will be described more fully hereinafter.

In the accompanying drawings illustrating this invention:

Figure 1 is a side view;

Figure 2 is a side view with parts shown in section and also on a larger scale; and

Figure 3 is a transverse sectional view taken on the line 3—3 of Figure 2.

In the particular form of the apparatus as shown in these drawings, 4 represents the frame or casing of the motor which has a base 5. The motor may be of any ordinary or preferred construction and has a driving shaft 6 which is mounted in suitable bearings in the main frame or casing 4. The casing 4 has an extension 7 at one end thereof which forms a chamber 8 and preferably has an outer wall 9. The chamber 8 extends down to the bottom of the base and is closed by a cover plate 10 which may be secured in any suitable manner as by means of screws 11. The extension 7 has an integrally formed tubular projection 12 which forms the cylinder for the air pump. This projection preferably has a tubular lining 13 in which the piston 14 reciprocates. The upper end of the projection 12 is covered by a cap 15 having suitable passage-ways for the intake and exhaust of the air necessary for the air pump. The particular construction of this pump does not form a part of the present invention and need not be further described except to note that it has an intake pipe 16 and an exhaust 17 which leads to the interior of the chamber 8 for the purpose of muffling the exhaust of the pump. The chamber is open to the atmosphere, so that any air pumped into it is free to escape, but the exhaust will be muffled by being directed into such chamber. It will, however, be noted that when the pump is to be used for supplying air under pressure instead of supplying a partial vacuum, the exhaust 17 may be connected to any suitable pipe.

The piston 14 is connected to a piston rod 18 which is bent or bifurcated as shown at 19 so that it may operate past the shaft 6. The lower end of the rod 18 engages with an eccentric 20 on a counter shaft 21 which is mounted in suitable bearings in the lower part of the extension 7. This counter shaft is driven by means of a gear 22 which meshes with a pinion 23 on the main shaft 6.

The arrangement for securing the pinion 23 to the shaft 6 forms one of the novel features of this invention. In place of the usual key, the pinion has an integrally formed sleeve 24 which is connected to the drive shaft by means of a screw 25. The screw 25 is threaded at the end 26 to engage with the correspondingly threaded hole in the sleeve 24 while the head of the screw passes through a hole in the opposite side of the sleeve and bears against the shaft 6. It will be seen that the screw tends to draw the sleeve closely against the shaft and its head serves as a driving member for rotating the sleeve.

The fan casing 27 is secured directly to the wall 9, or if desired may be formed integrally with the main frame or casing 4. The fan rotor or blades 28 is secured to the main shaft 6 by means of a set screw 29 or other suitable fastening means.

The chamber 8 is preferably partially filled with a suitable lubricant for lubricating the gears and also the piston. When the pump is being used for producing a partial vacuum, there will be a tendency to draw the oil up past the piston and into the pump. However, this excess oil will be returned to the chamber through the exhaust pipe 17 so that the excessive lubrication will not be objectionable. When the pump is being used for compression, there is not the same tendency toward drawing the oil into the pump and consequently the connection to the chamber will not be necessary.

From this description it will be seen that I provide an exceedingly simple and compact power plant for liquid fuel burners

and one which will operate with a minimum amount of noise or vibration. By combining the fan and compressor and operating them both with one motor a suitable amount of air and fuel will be supplied to the burner and by properly designing these elements the air and fuel may be furnished in substantially the desired proportions without waste of power. It will also be apparent that the device may be varied in size and in the details of construction without departing from the scope of this invention and therefore I do not wish to be limited to the exact construction shown, except as specified in the following claims:

I claim:

1. In an apparatus of the character set forth, the combination with a motor having a casing, of a chamber at one end of the casing having its walls formed integrally with the casing and closed from the casing, said motor having its shaft extending through the chamber, a pump on said chamber, a counter shaft mounted in the chamber below the motor shaft, means for driving the counter shaft from the motor shaft, an eccentric on the counter shaft, a connecting rod engaging with the eccentric for driving the pump, said connecting rod having an opening therethrough for the motor shaft.

2. The combination with an electric motor having a body with a chamber formed at one end of the motor, of an air pump cylinder formed integrally with the body, a piston for said cylinder, an eccentric rod for driving the piston, said rod having an opening therein, through which the motor shaft passes while permitting the operation of the eccentric rod, a counter shaft having an eccentric thereon mounted in the chamber and coacting with the eccentric rod and gears for driving the counter shaft from the motor shaft.

3. The combination with an electric motor having a chamber formed integrally with the body thereof at one end of the motor, of a counter shaft mounted in the bottom of the chamber, gears for driving the shaft from the motor, an eccentric on said shaft, an eccentric rod engaging with said eccentric and having an opening therethrough for the motor shaft, a piston connected with said eccentric rod, a cylinder at the top of the chamber for receiving the piston, a cap for said cylinder and intake and outlet means connected with the cap to complete an air pump, the outlet from the pump being directed to the chamber.

4. The combination with an electric motor, of a chamber at one end of the motor, an air pump on the motor casing, means for driving the pump from the motor and a passageway from the pump exhaust to the chamber whereby oil carried into the pump may be returned to the chamber.

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