Feb. 23, 1932. E. E. GOEHLER ET AL 1,846,716

OIL BURNER

Filed May 27, 1930 2 Sheets-Sheet 1

Fig. 1.

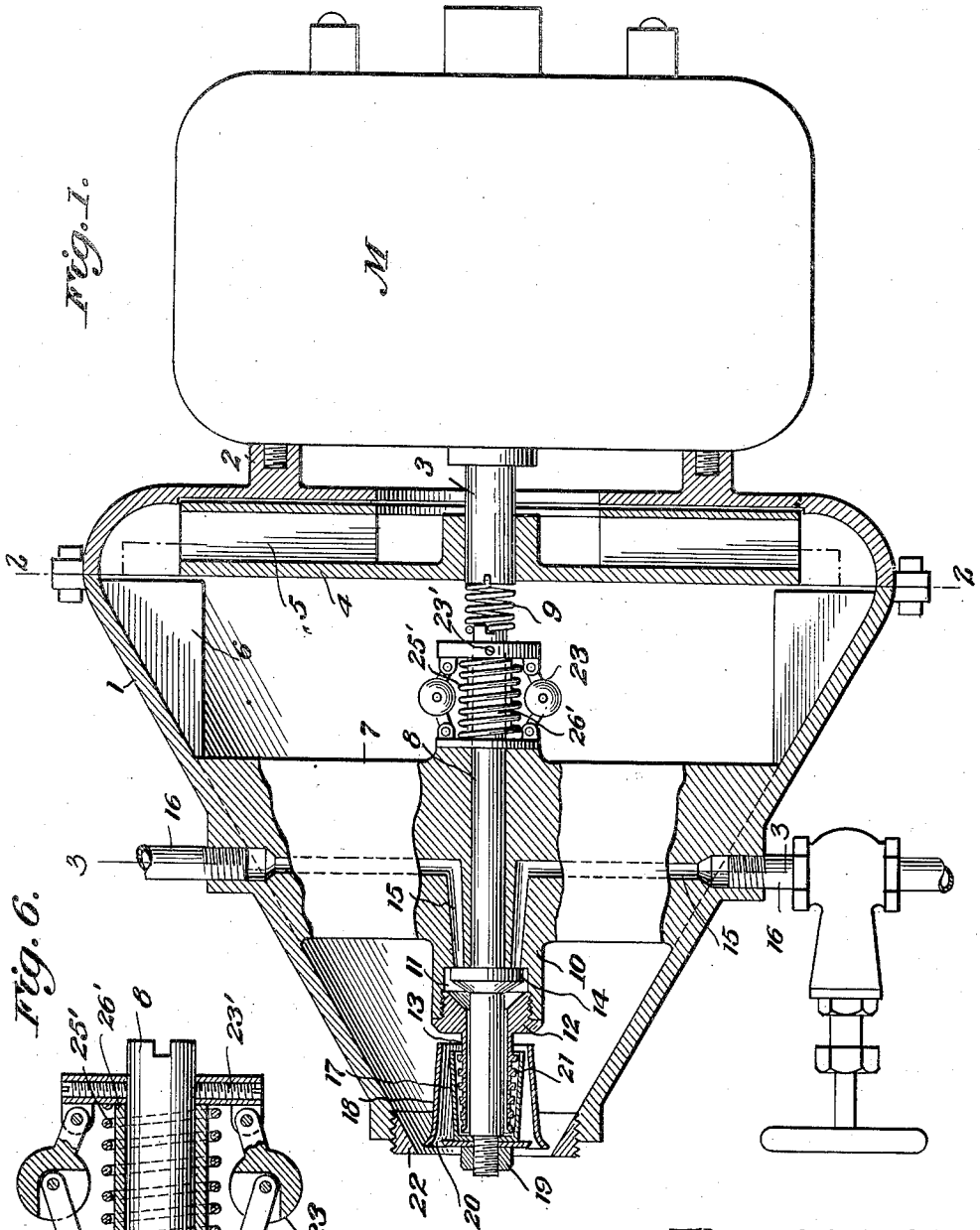


Fig. 6.

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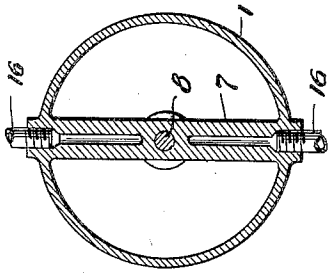


Fig. 3.

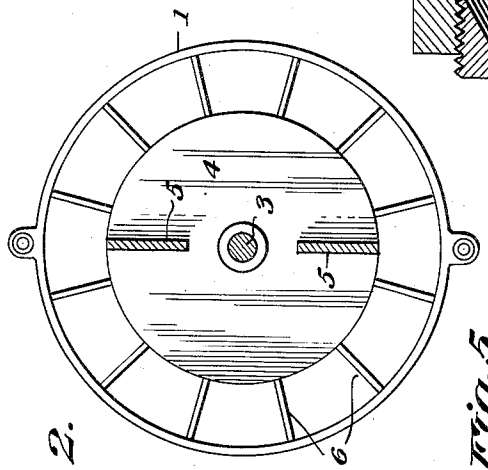
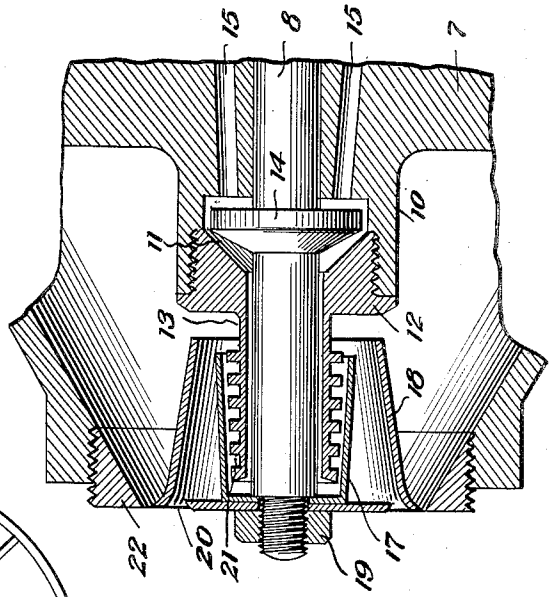


Fig. 2.

Fig. 4.



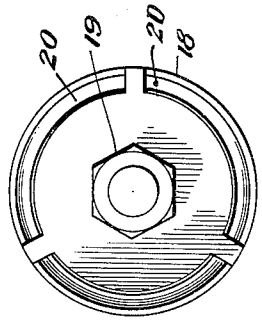


Fig. 5.

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UNITED STATES PATENT OFFICE

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OIL BURNER

Application filed May 27, 1930. Serial No. 456,258.

This invention relates to an oil burner, the general object of the invention being to provide a revolving head, with means for feeding the fuel thereto around the shaft of the head, the head being so constructed that the fuel will be discharged therefrom through centrifugal force, with means for causing air to pass through the head, which eliminates danger of combustion in the head.

Another object of the invention is to provide a valve on the shaft of the head for controlling the flow of fuel to the head, with means to seat the valve during nonrotation of the shaft and a governor for actuating said means to free the shaft for longitudinal movement during the rotation of the latter and permit the valve to be unseated by the pressure of the fuel.

A further object of the invention is to provide means for preventing a whirling motion of the air from the fan, which increases pressure and permits the use of a smaller motor for operating the device.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claims.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is a sectional view through the improved burner, showing the motor in elevation.

Figure 2 is a section on line 2—2 of Figure 1.

Figure 3 is a section on line 3—3 of Figure 1.

Figure 4 is an enlarged vertical view of the head and its associated parts.

Figure 5 is a view of the outer end of the head.

Figure 6 is a detail sectional view illustrating a governor.

In these views, the numeral 1 indicates a substantially dome-shaped casing formed in two parts, with the parts suitably connected together and the outer part having a flange 2 thereon which is bolted or otherwise fastened to the casing of the motor M. The shaft 3 of the motor extends into the outer part of the casing 1 at the center thereof, and this shaft carries the fan 4, the blades of which are shown at 5. This fan delivers the air into the outer part of the casing 1 at the sides thereof, and fins 6 are connected with the casing adjacent the point where the fan delivers the air to the casing, these fins acting to prevent a whirling motion to the air, whereby the pressure of the air is increased and this enables the device to be driven by a small motor.

A spider 7 extends across the casing 1 intermediate the ends thereof and this spider has its central part forming a bearing for a shaft 8 which is connected with the motor shaft by a coil spring 9 so that the shaft 8 can be moved longitudinally and yet be driven from the shaft 3. The spider has a central projection 10 forming a valve chamber 11 which is closed by a threaded member 12 which is formed with a tubular extension 13, the interior diameter of which is larger than that part of the shaft which passes through the extension. The shaft is formed with a valve 14 which is located in the chamber and is adapted to control the outlet ends of the fuel passages 15 formed in the spider, with their outlet ends opening into the valve chamber. Fuel is supplied to these passages through the valve controlled pipes 16 under pressure either by gravity or a suitable mechanical means (not shown).

A small conical member 17 and a large conical member 18 have their closed outer ends fastened to a reduced threaded part of the shaft by a nut 19, the outer end of the large cone being formed with the arc-shaped slots 20 for the escape of the fuel and as will be seen, the cones are oppositely arranged, with the small cone enclosed by the large cone and the small cone enclosing the outer end of the extension 13, this outer end of the extension being also of conical shape and formed with the annular ribs 21.

A nut 22, having a beveled inner wall, is

threaded in the outlet end of the casing 1 which acts as an adjustable air nozzle.

A governor 23 has one end secured to the shaft by a set bolt 23′ while the other end is slidably mounted on the shaft and bears against the spider 7 under the influence of a coil spring 25′ mounted on the shaft between the ends of the governor 23 and is adapted to seat the valve while the shaft is at rest. A sleeve 26′ is mounted on the shaft with the spring 25′ resting thereon and is of such a length that the free end of the governor 23 will have a limited movement and sufficient to compress the spring to free the shaft for longitudinal movement during the rotation of the latter. The pressure of the fuel against the valve unseats the valve by moving the shaft longitudinally and permits the fuel to escape from the passages 15 into the chamber 11, it being understood this operation takes place during the rotation of the shaft as the weights of the governor swing outwardly by centrifugal force. The fuel will pass from the chamber through the annular space between the extension 13 and the shaft and then rearwardly through the small cone and as it leaves the small cone, centrifugal force will cause the fuel to enter the large cone and pass through the same and finally escape through the slots 20. A certain amount of air will also pass through the large cone and mix with the fuel. Sufficient air passes through the outer cone shaped member 18 to force the fuel rapidly through the slots to mix with the large volume of air from the fan, when the fuel becomes ignited and burns without the liability of burning within the cone-shaped member 18. The nut or nozzle 22 regulates the shape of the flame and the ribs 21 prevent the fuel from creeping back on the extension 13. The flow of air through the large cone also acts to keep the head, composed of the large and small cones, cool. The air from the fan, after passing between the fins 6, will discharge between the large cone and the nozzle 22, some of this air passing through the large cone.

Thus it will be seen that we have provided a burner which can be driven by a small motor, with the motor located a distance away from the flame and if desired, a stock motor may be used. The flow of oil is automatically stopped by the stopping of the motor.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claims.

Having thus described the invention what we claim is:

1. An oil burner comprising a casing, a bearing portion dividing the casing into a fan chamber and a mixing chamber and having a fuel passage, a nozzle for the mixing chamber, a shaft rotatably and slidably mounted in said bearing portion, a sprayer mounted on said shaft, a valve carried by said shaft for controlling the fuel passages, means for rotating said shaft, a fan in said fan chamber and driven by said means, means to seat the valve, and means to render said second means inoperative by the rotation of the shaft to free the shaft for sliding movement to permit the pressure of the fuel to unseat the valve.

2. An oil burner comprising a casing, a bearing portion in said casing and having fuel passages, a shaft rotatably and slidably mounted in said bearing portion, a sprayer mounted on the end of said shaft, a valve on said shaft for controlling the fuel passages, means for rotating said shaft, a fan operated by said means, means to seat the valve, and a governor for rendering said second means inoperative to free the shaft for sliding movement to permit the pressure of the fuel to unseat the valve.

3. In combination with a motor and a drive shaft therefor, a casing secured to said motor, a fan secured to the drive shaft and located in the casing, a bearing portion in said casing and having fuel passages, a nozzle for said casing, a second shaft slidably and rotatably mounted in said bearing portion, a sprayer mounted on said shaft, a valve operated by the sliding movement of the second shaft, tension means to seat the valve, a governor for rendering said tension means inoperative to free the second shaft for longitudinal movement and permit the pressure of the fuel to unseat the valve.

In testimony whereof we affix our signatures.

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