

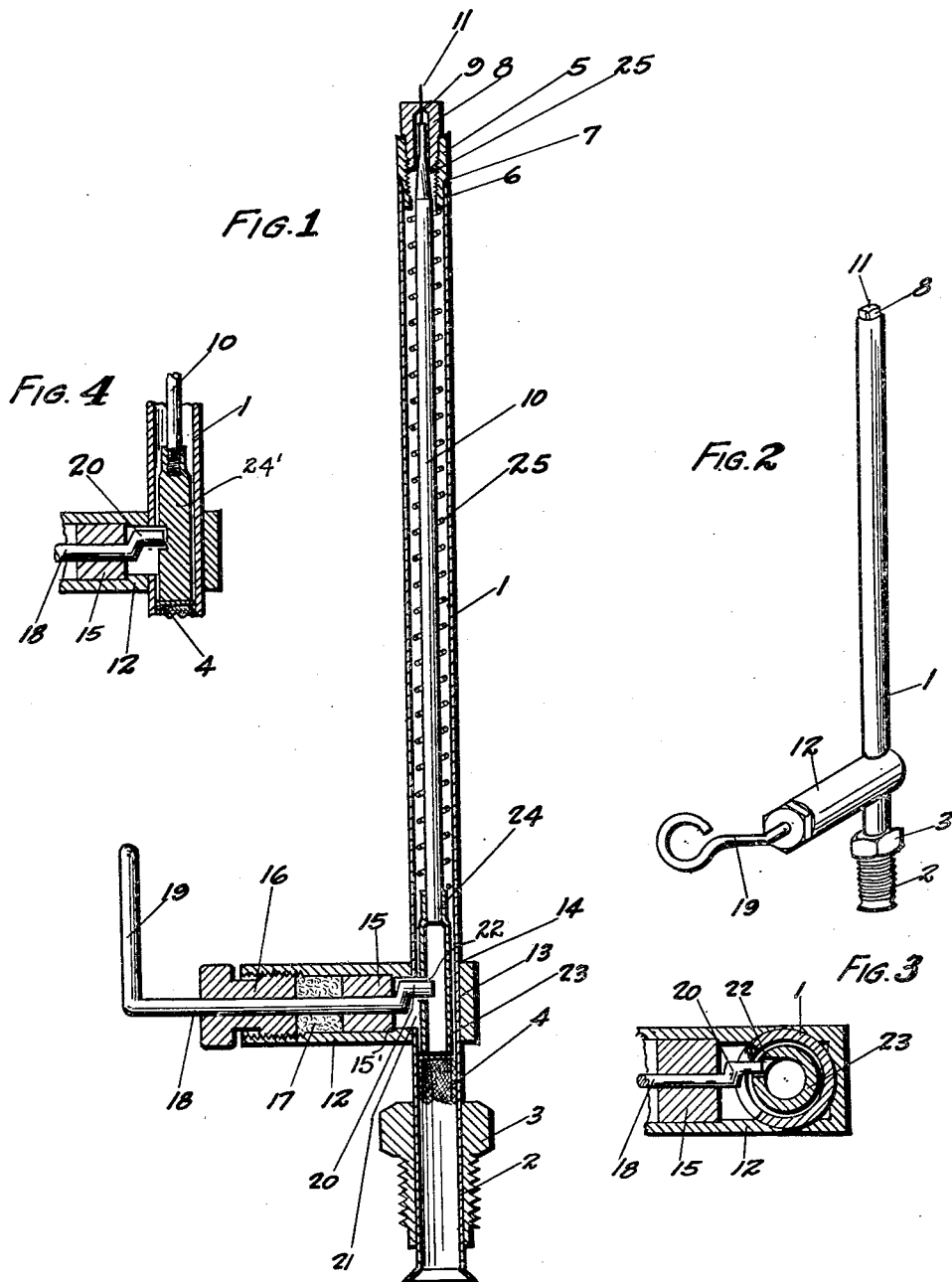
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VAPORIZING GENERATOR

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# UNITED STATES PATENT OFFICE

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## VAPORIZING GENERATOR

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6 Claims. (Cl. 158-53)

This invention relates to fuel controlling devices for hydrocarbon burners, and the primary object of the invention is to provide a device of this class which has certain advantages over 5 known devices and which may be cheaply manufactured and easily assembled.

The novelty of the invention will be understood by reference to the following description in connection with the accompanying drawing in 10 which—Figure 1 is a sectional view through a fuel controlling device constructed in accordance with my invention.

Figure 1 is a longitudinal sectional view of the device.

15 Figure 2 is a perspective view of the device.

Figure 3 is an enlarged sectional view on the line 3-3 of Figure 1, and

Figure 4 is a detail view of a modified form of needle holder and its actuator.

20 The reference numeral 1 designates a vapor generating tube, the lower end 2 of which may be secured to the fount or fuel reservoir in any well known manner, for example by a nut 3. A strainer 4 is located in the lower end of the tube, 25 and at the other end is a tip bushing 5 having a constricted end 6 which is pressed into the end of the tube 1 and soldered thereto as at 7. The tip bushing 5 carries a tip 8 with a vapor outlet orifice 9. It will be noted that the tube 1 is of 30 sufficient length to permit liquid fuel to be vaporized by heat applied to the tube. The tube 1 discharges into a mixing chamber of a burner where the vapor combines with air to provide a combustible mixture and the burner supplies the 35 heat to the tube so as to vaporize the liquid supplied to said tube.

The outlet orifice 9 is cleaned by a needle tube 10 with a cleaning needle 11. The construction thus far described is old and well known so we do 40 not make any particular claim for novelty for the broad principle of constructing a generator with a needle for cleaning.

It will be noted, however, that the generator tube is made of tubing and that sleeved thereon 45 is a one piece packing carrier 12 having a transverse opening 13 through which the tube 1 projects so that the sleeve 12 is located between the ends of the tube 1. The hollow sleeve 12 is made fast to the tube 1 by hard soldering it thereto as at 50 14. It will be noted that the sleeve 12 is provided with an internal shoulder 15 against which one end of a packing block of brass or suitable material abuts. In the outer end of the sleeve 12 is screwed an adjustable metal packing plug 16 and 55 between the members 15 and 16 is a yielding

packing 17 which can be put under packing pressure by the plug 16.

The needle operating means is shown as comprising a shaft 18 having a handle 19 at one end and a crank 20 at its opposite end. The shaft 60 18 projects through the members 15, 16 and 17 and it is held against longitudinal movement in one direction by the block 15 which serves as stop for the crank 20. The members 15 and 16 constitute bearing members for the shaft 18 so when they are removed the shaft 18 is removed with 65 them. The crank 20 passes through an opening 21 in tube 1 and engages an opening 22 in the needle holder 23. The needle holder 23 consists of a tube slidable in the tube 1 and it has its upper 70 end 24 swaged about the end of the needle sleeve 10. There is a filler coil 25 within the tube 1. One end of the coil rests upon the valve carrier and the other abuts against the tip bushing 5.

The filler coil surrounds the tube 10 and serves 75 as a guide therefor as well as reducing pulsations in the generator. Attention is called to the fact that as the actuator 18 is so connected to the internal sleeve or needle carrier 23 that it will impart a reciprocatory movement to the carrier 80 and to the needle.

It is to be understood of course that the liquid fuel is to be admitted to the generator under pressure and that the flow is controlled by a valve 85 (not shown) on the fount.

Among the advantages of the device above described are the following:

The parts 1, 12 and 23 may be made of commercial tubing and the needle may be fastened to the carrier 23 by a simple swaging operation. 90

In view of the fact that the generator unit above described is a renewal unit sold separately as such, any cost reduction in its manufacture over known types of generator units is a material 95 advantage and its more effective action in use naturally insures better performance of the lamp, lantern or similar device as a whole.

What we claim:

1. A vaporizing generator comprising a liquid vaporizing tube, having a liquid inlet at one 100 end and a vapor outlet at the other, a needle in the generator tube to clean the outlet, a tubular member in the generator tube having one end swaged about the needle stem, a one-piece tubular member closed at one end having a transverse 105 opening near the closed end through which the generator tube projects, a rigid connection between the generator tube and the one-piece tubular member, packing in the one-piece tubular member, a rock shaft surrounded by the 110

packing having a crank projecting through an opening in the generator tube and engaging the first named tubular member so that turning movement of the rock shaft reciprocates the first named tubular member and the needle, and means for rocking the shaft.

2. A vaporizing generator comprising a liquid vaporizing tube, having a liquid inlet and a vapor outlet, a needle for the vapor outlet, a needle holder in the tube, a one-piece tubular packing holder sleeved on the vaporizing tube so that the packing holder extends sidewise from the vaporizing tube, packing in the packing holder and a rock shaft passing through the packing and engaging the needle holder.

3. A vaporizing generator comprising a liquid generating tube having a liquid inlet and a vapor outlet, a needle in the tube to clean the outlet, a one-piece packing sleeve having a transverse opening through which the generator tube projects, said sleeve having a shoulder, a plug against the shoulder, a packing member against the plug, a threaded plug nut in the sleeve against the packing member, and a rock shaft projecting through the plug nut, the packing member and the plug, and having a crank to operate the needle.

4. A vaporizing generator comprising a liquid vaporizing tube having a liquid inlet and a vapor outlet, a tubular packing carrier transversely sleeved upon the vaporizing tube, a needle in the generator tube, a tubular carrier having one end engaging the needle, and a rock shaft projecting through the packing carrier, having a crank shaped end to engage the tubular carrier.

5. A vaporizing generator comprising a liquid vaporizing tube, having a liquid inlet and a vapor outlet tip provided with a restricted opening, a needle in the generator tube movable into the restricted opening, a short tube within the generator tube having one end fast to the needle valve, a one-piece tubular packing gland provided with a transverse opening at one end through which the generator tube extends so that the packing gland is sleeved thereon, and a crank passing through the gland and through the side of the generator tube to actuate the short tube and the needle.

6. A vaporizing generator comprising a liquid vaporizing tube having a liquid inlet and a vapor outlet tip provided with a restricted opening, a needle in the generator tube, a transverse packing gland on the generator tube and a shaft in the packing gland having a crank engaging the needle off center with respect to its axis so as to simultaneously reciprocate and rotate said needle and a coiled centering member in the generator tube against which the needle valve rubs to free it of carbon.

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