May 8, 1956 A. Q. JOHNSON 2,744,568

GAS-OIL CONVERSION BURNER TUBE

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Fig. 1.

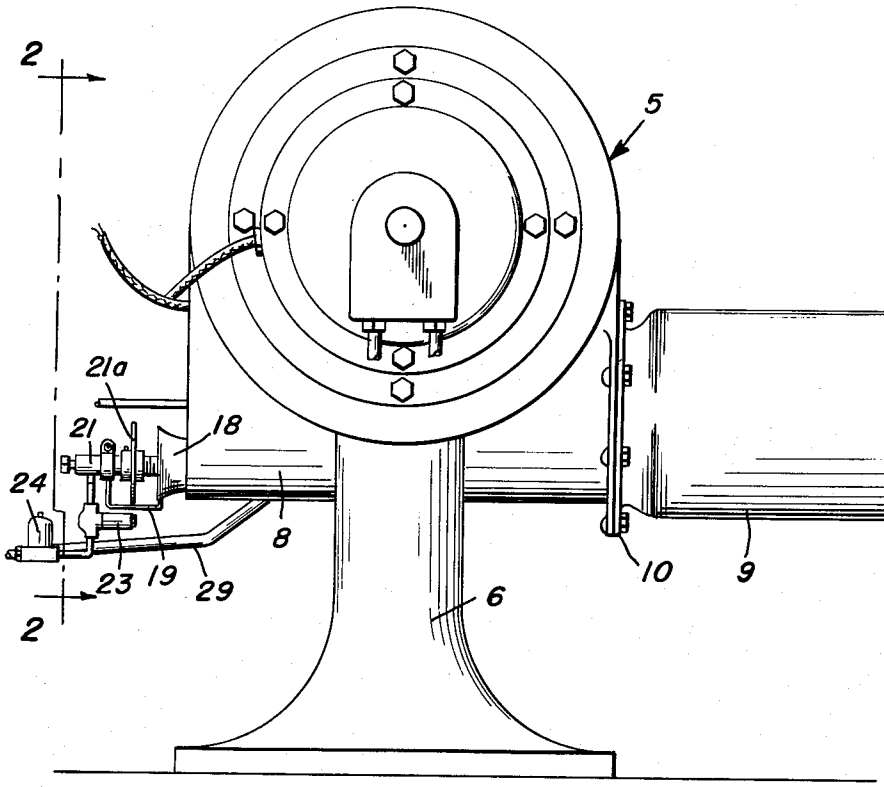
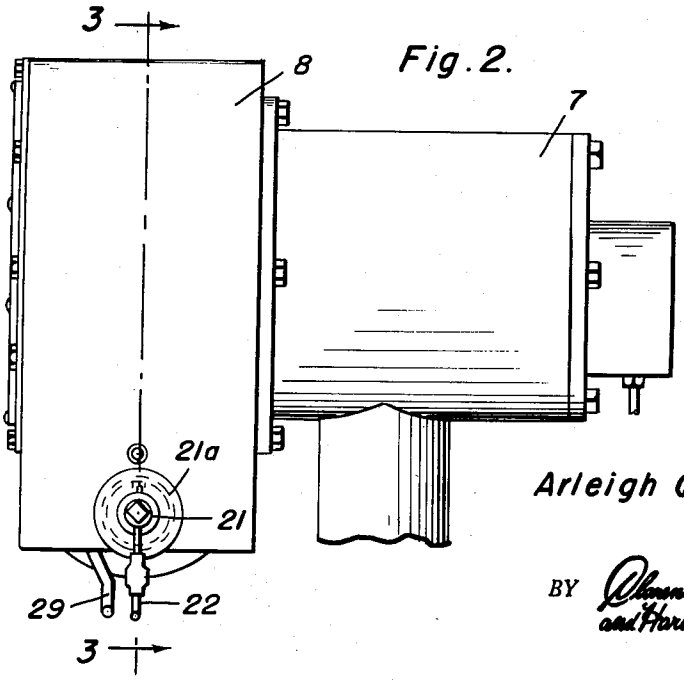


Fig. 2.



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Fig. 3.

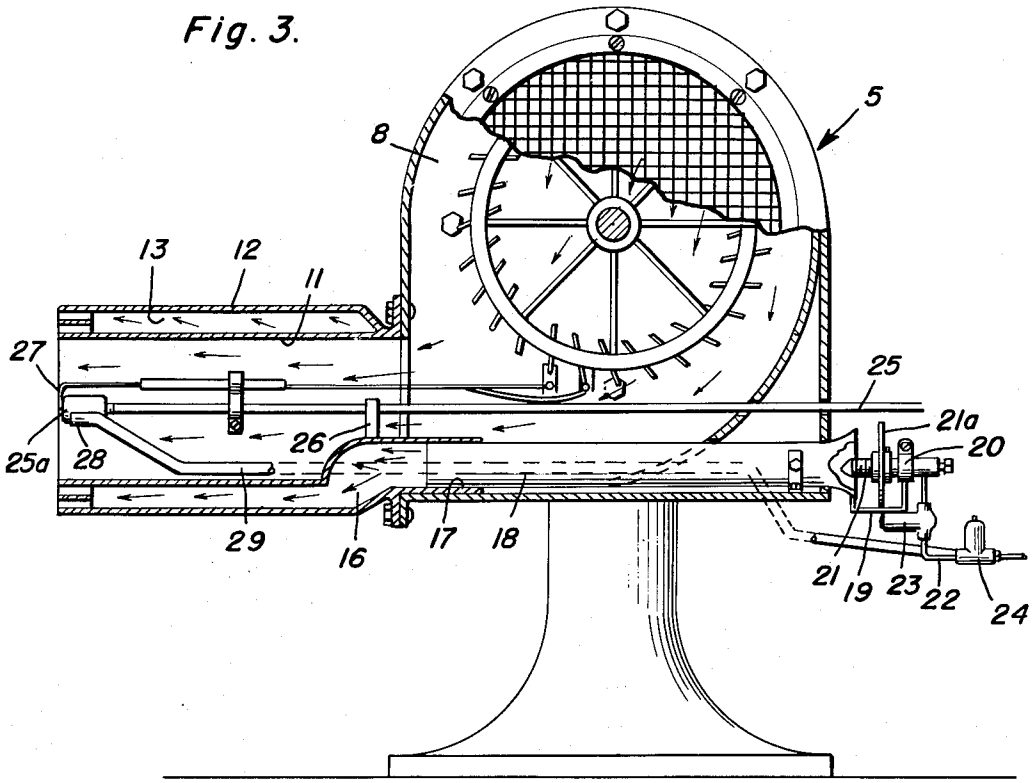


Fig. 4.

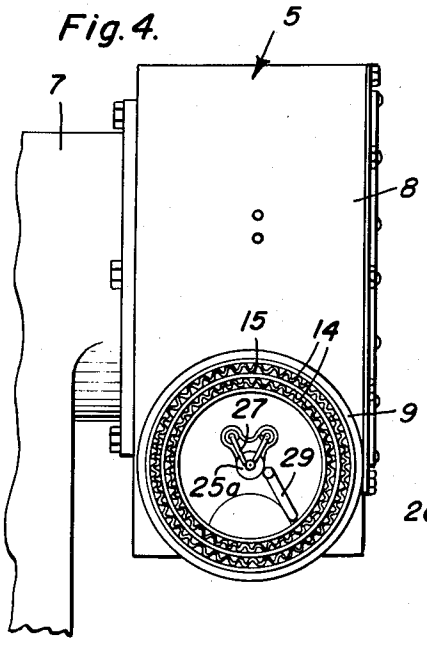
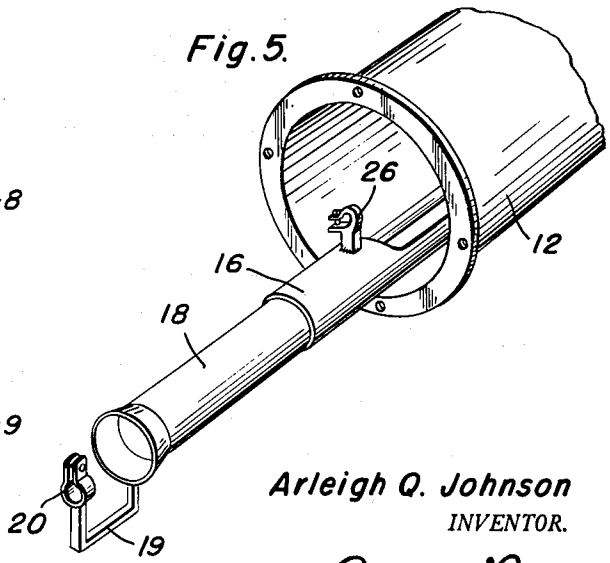


Fig. 5.



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GAS-OIL CONVERSION BURNER TUBE

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Application April 21, 1952, Serial No. 283,357

1 Claim. (Cl. 158—11)

The present invention relates to new and useful improvements in automatic gas and oil burners capable of burning either gas or oil and including a single igniting means for both types of fuel.

An important object of the invention is to provide means for converting any pressure atomizing oil burner into a burner that will burn either gas or oil and whereby one type of fuel may be substituted for the other without necessitating substitution of any of the parts of the burner.

Another object is to provide a burner tube adaptable to replace the usual blast tube of any pressure atomizing oil burner and with a minimum change in furnace construction to convert it for burning either gas or oil.

A further object is to provide a device of this character of simple and practical construction, which is efficient and reliable in operation, relatively inexpensive to manufacture and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a side elevational view of the combined burner unit;

Figure 2 is a front elevational view;

Figure 3 is a vertical longitudinal sectional view taken on a line 3—3 of Figure 2;

Figure 4 is a rear elevational view showing the delivery end of the burner tube; and

Figure 5 is a perspective view of the telescoping tube for feeding the gas-air mixture to the burner tube.

Referring now to the drawings in detail, wherein for the purpose of illustration I have disclosed a preferred embodiment of my invention, the numeral **5** designates the unitary gas and oil burner generally and includes a pedestal and base **6** supporting the motor housing **7** and fan housing **8**.

A cylindrical burner tube or casing **9** is formed at one end with an attaching flange **10** for attaching to the outlet side of fan housing **8** at the inner or rear end of the burner, the tube **9** being constructed of inner and outer sleeves **11** and **12** united with each other at the attached end of the tube and spaced one within the other to form an annular passageway **13** leading toward the open or delivery end of the tube. A pair of undulated or corrugated diffusing rings **14** are arranged concentrically in the open or delivery end of passageway **13** with a separator ring **15** therebetween. The passageway **13** at the delivery end of the burner tube forms an annular gas burner.

The closed end of passageway **13** is formed with a throat

16 from which a tube **17** projects into the bottom of fan housing **8** and in which the inner end of a gas-air mixture tube **18** is telescopically received. The front end of tube **18** is flared and projects outwardly at the front of the fan housing and is formed with a bracket **19** and clamp **20** for supporting a nozzle **21** centrally at the front of tube **18** and to which a gas supply pipe **22** is connected. Gas pipe **22** is provided with the usual automatic gas valve **23** and standard gas burner controls **24**. The nozzle **21** is adjustable inwardly or outwardly of tube **18** by clamps **20** and a primary air regulating plate **21***a* is adjustable on the nozzle to provide a primary air adjustment.

The oil line **25** leads through the fan housing **8** to a burner tip **25***a* at the delivery end of the burner tube **9** and is supported centrally in the delivery or open end of tube or casing **9** by a bracket **26** and the usual electrodes **27** are provided adjacent the burner tip for igniting the fuel.

A gas pilot **28** at the delivery end of a gas line **29** is also supported adjacent the electrodes and forms part of the gas burner.

In the operation of the device, the burner unit is equipped to selectively burn either gas, by means of the supply pipe **22**, gas-air mixing tube **18** and passageway **13** feeding the gas to the delivery end of burner tube or casing **9**, or to burn oil by means of oil supply pipe **25**. Both fuels are ignited by the electrodes **27**, the oil-air mixture directly at the burner tip **25** and the gas-air mixture indirectly through the gas pilot **28** which is ignited by the electrodes **27** and ignites the gas-air mixture at the delivery end of the tube or casing **9**, and the supply lines for both fuels are provided with the usual automatic burner controls.

Primary air for mixing with the gas enters the open front end of tube **18** and secondary air for both the gas and oil fuel is supplied to burner tube or casing **9** by the fan, as shown by the arrows in Figure 3.

In view of the foregoing description taken in conjunction with the accompanying drawings it is believed that a clear understanding of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and the scope of the appended claims.

Having described the invention, what is claimed as new is:

In a burner including a fan housing having an outlet side and a burner tube having one end attached to said side and an opposite open fuel delivery end, a sleeve in said tube communicating at one end with said housing through said side and forming with said burner tube an annular gas passageway terminating at and delivering gas to said fuel delivery end of said tube, an enlarged throat extending from said passageway at the attached end of said tube into the bottom of the fan housing, a gas and air mixing tube in the bottom of the housing extending through an opposite side of the housing into said throat, valved control means for supplying gas under pressure to said tube, an oil line extending through said housing and sleeve to said delivery end of said tube, a burner tip on said oil line at the delivery end of said tube, a gas pilot in said sleeve at the delivery end of said tube for igniting gas delivered to said delivery end of said

tube, and electrodes in said sleeve for igniting both said burner tip and said pilot.

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