

Sept. 27, 1927.

W. J. HADDOCK

1,643,889

FUEL BURNER

Filed Dec. 28, 1926

2 Sheets-Sheet 1

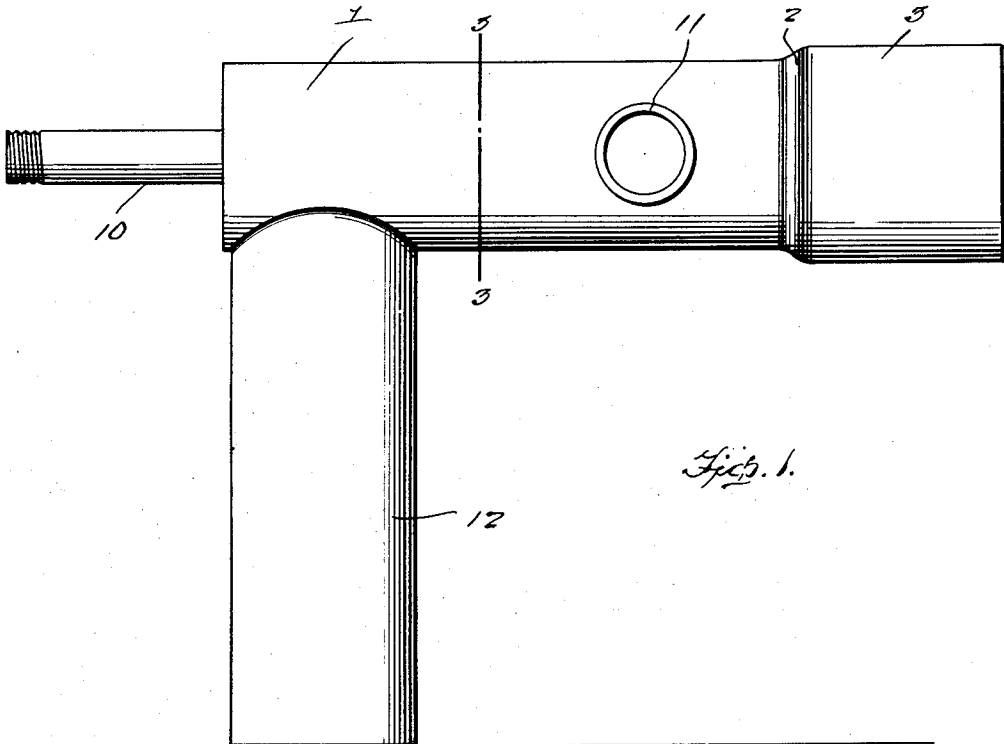


Fig. 1.

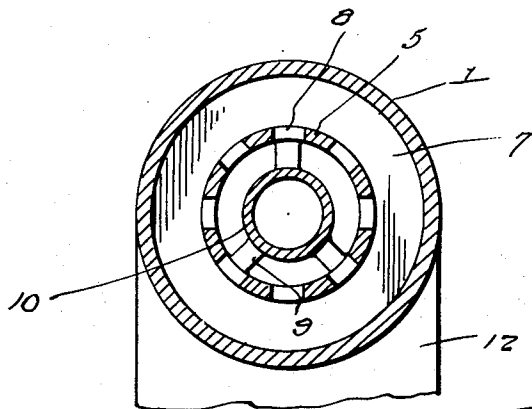


Fig. 3.

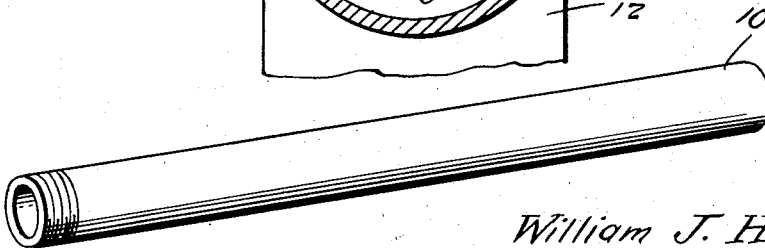


Fig. 6.

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Fig. 2.

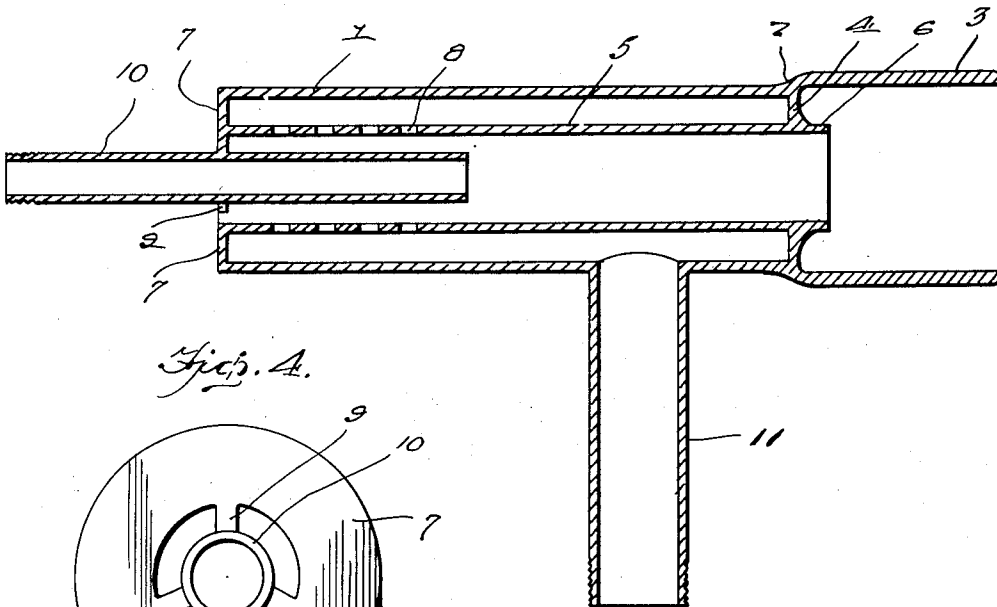


Fig. 4.

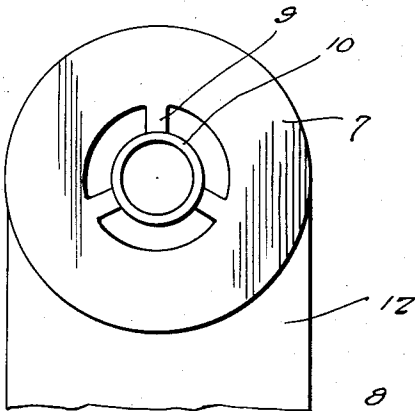


Fig. 7.

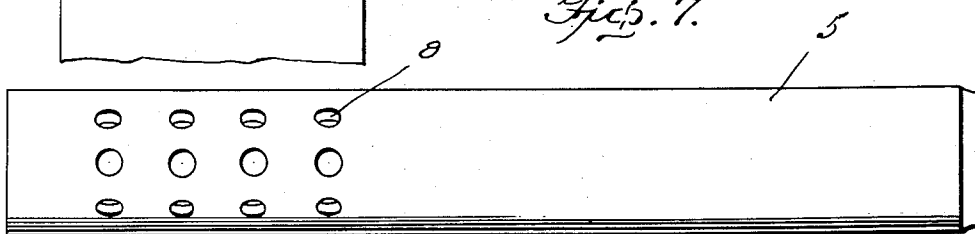
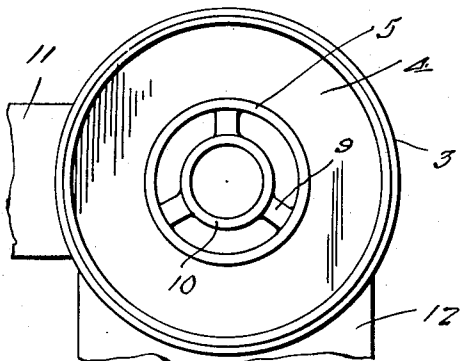


Fig. 5.



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FUEL BURNER.

Application filed December 28, 1926. Serial No. 157,509.

This invention relates to an improved fuel burner constructed for utilizing and effectively consuming natural gas, oil, distillates and low grade fuels.

5 Briefly, the invention has reference to a structure of this character including an outer cylinder terminating at one end in an enlarged burner head and an inner cylinder located in spaced relation within the outer
10 cylinder and terminating within the burner head, a low pressure air supply pipe leading into the inner cylinder, and a low pressure fuel supply pipe connected with and communicating with the interior of the outer
15 cylinder.

My principal aim, is of course, to generally improve upon fuel burners of this character, by providing one which is typified by exceptional simplicity in construction,
20 the parts being properly proportioned and associated in such a manner as to insure efficient operation, a low consumption of fuel, and an intensely hot flame.

Other features and advantages of the invention will become apparent from the following description and drawings.

In the drawings:—

Figure 1 is a side view of the complete burner.

30 Fig. 2 is a horizontal section.

Fig. 3 is a cross sectional view taken approximately upon the plane of the line 3—3 of Fig. 1.

35 Fig. 4 is an end view looking in a direction from left to right in Fig. 2, the scale of the drawing being enlarged.

Fig. 5 is likewise an end view looking in the opposite end of Fig. 2.

40 Fig. 6 is a perspective view of the air supply pipe.

Fig. 7 is a side elevation on an enlarged scale, of the inner cylinder, which constitutes an atomizing and vaporizing chamber.

Referring now to the drawings in detail,
45 it will be seen that the reference character 1 designates a horizontally disposed enlarged pipe which may be conveniently referred to as the outer cylinder. At one end, this cylinder merges as at 2 into an enlarged extremity forming what may be referred to as
50 a burner head 3. At the juncture of the head in the body portion of the cylinder, and on the interior is a partition wall 4. The inner cylinder which is of a smaller
55 diameter and which is designated at 5 is

connected with the partition wall and extends beyond it as at 6, the extending portion projecting into the interior of the head 3. The opposite end of this inner cylinder is formed integral with the left hand
60 closed end 7 of the outer cylinder.

At this time, I would direct attention to the provision of a multiplicity of ports or perforations 8 adjacent the last named end
65 of the cylinder. This cylinder 5 is open at its opposite ends and spider arms 9 are disposed at the left hand end and serve as a mounting for an air supply pipe 10, which is of a relatively small diameter.

It will be noticed that this pipe is mounted
70 approximately at its center, one end portion projecting into the interior of the cylinder 5 and beyond the innermost ports 8 and the opposite end projecting outwardly and terminating in screw threads for connection for
75 a suitable source of air supply. In this connection, I would state that a low pressure air supply tank (not shown) is employed and of course a valve is included in the supply line to control the flow.

80 Extending at right angles from the outer cylinder and connected integrally therewith in any appropriate manner, is the fuel intake 11 which is of a diameter greater than the pipe 10 and less than the diameter of the cylinder 5. It is yet to be pointed out that
85 a supporting leg 12 is provided at the left hand end of the structure for supporting it.

It will be obvious from Fig. 2, that the fuel enters the structure through the pipe 11,
90 and in this connection I would remind the reader that the device is capable of consuming natural gas, and other low grade fuel. The air under pressure enters through the pipe 10. The atmospheric air enters through
95 the openings existing between the spider arms 11 and thus produces a suction.

Owing to the production of this suction both by the atmospheric air and the air
100 under pressure, the fuel is drawn into the space between the inner and outer cylinders and enters the interior of the inner cylinder through the ports 8. Here it is partially vaporized and becomes thoroughly mixed
105 with the air in the chamber produced by the inner cylinder 5. The charge is ignited at the discharge end of the cylinder, the flame being produced in the burner heads 3 in an obvious manner.

As before stated, the structure effectively 110

consumes the fuel and produces a highly intensive character of heat.

It is believed that by considering the foregoing description in association with the drawings, a clear understanding of the construction, as well as the operation and advantages of the invention will be had. Therefore, a more lengthy description is thought unnecessary.

Minor changes coming within the field of invention claimed, may be resorted to if desired.

Having thus described my invention, what I claim as new is:—

As a new product of manufacture, a fuel burner of the class described comprising an outer cylinder closed at one end, and merging at its opposite end into a slightly enlarged burner head, a partition wall on the interior of said cylinder and located at its point of connection with said burner head,

an inner cylinder of a diameter less than the outer cylinder and located within the latter, and connected with the closed end of the outer cylinder, and extending through and beyond the center of said partition walls, and terminating within the area of said burner head, said inner cylinder being provided at the first named end with a multiplicity of fuel intake ports, radially disposed spider arms in the last open end of said inner cylinder, an air supply pipe connected with said spider arms and extending into the interior of the inner cylinder and beyond the innermost fuel ports, a right angularly disposed fuel intake pipe connected with the intermediate portion of the outer cylinder, and a supporting leg connected with the closed end of said outer cylinder.

In testimony whereof I affix my signature.
WILLIAM J. HADDOCK.