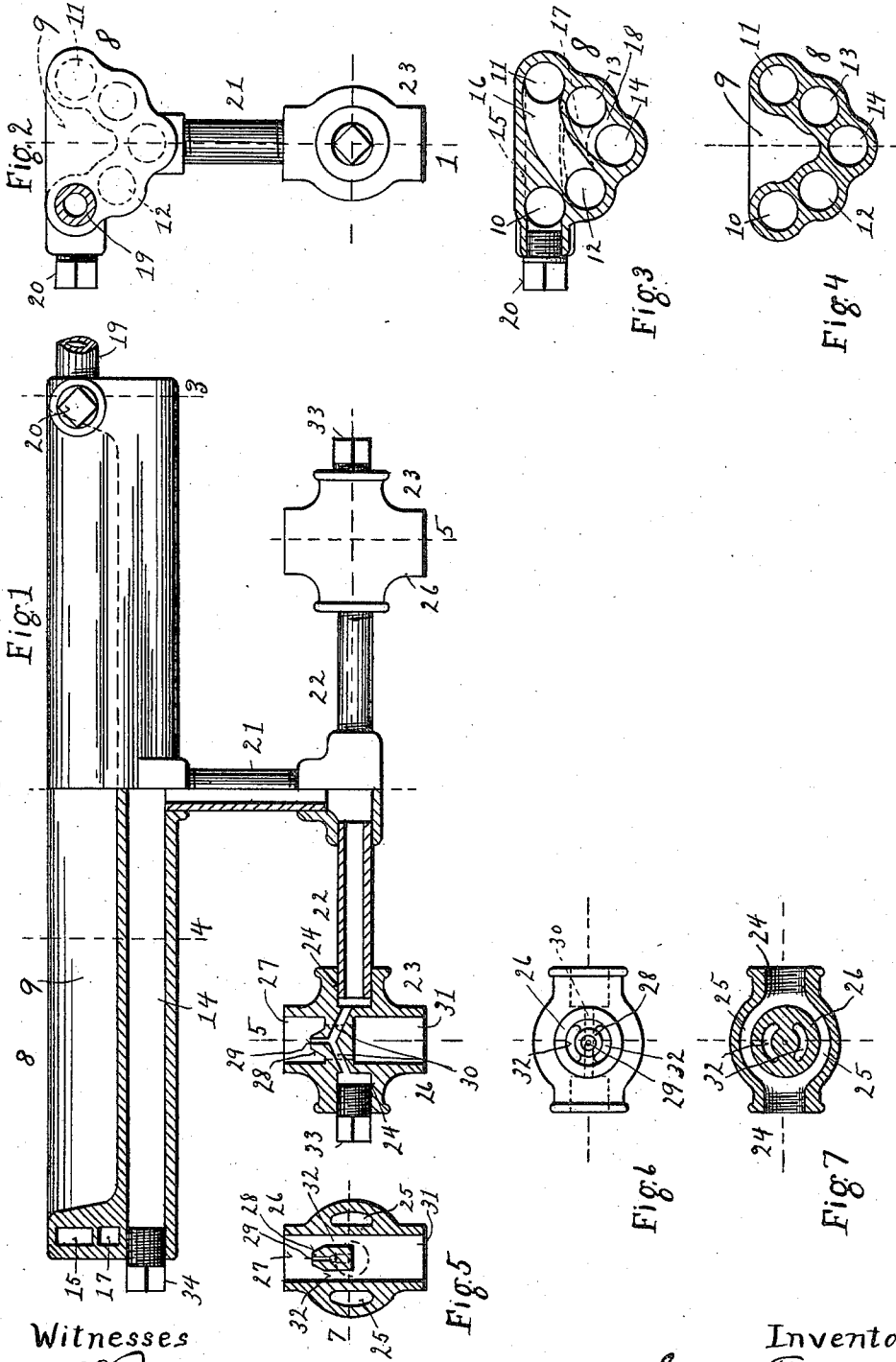


G. FRASER.
OIL BURNER.

APPLICATION FILED MAY 20, 1912.

1,063,190.

Patented June 3, 1913.



Witnesses

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UNITED STATES PATENT OFFICE.

GEORGE FRASER, OF TOPEKA, KANSAS.

OIL-BURNER.

1,063,190.

Specification of Letters Patent.

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Application filed May 20, 1912. Serial No. 698,413.

To all whom it may concern:

Be it known that I, GEORGE FRASER, a citizen of the United States, residing at Topeka, in the county of Shawnee and State of Kansas, have invented certain new and useful Improvements in Oil-Burners, of which the following is a specification.

My invention is an oil burner that is adapted for use in stoves and furnaces, special reference being made to its use for burning the lower grades of oil for domestic purposes. And it comprises a generator of special construction; also a burner or mixer proper of special design and construction; also the combination of generator and burner or mixer; also the parts, improvements, and combinations hereinafter set forth and claimed. Its object is to provide a simple, economical, and efficient burner of the kind described that will secure perfect combustion with a minimum amount of smoke; also that can be cheaply made and easily installed in the ordinary stove or furnace.

In the drawings accompanying and forming part of this specification, and in the description of the drawing, I have shown my invention in its preferred form, and have shown what I deem to be the best mode of applying the principles thereof, but it is to be understood that, within the scope of the appended claims, I contemplate changes in form, proportions, and materials, the transposition of parts, and the substitution of equivalent members, without departing from the spirit of my invention.

Figure 1 is a longitudinal elevation of a burner, complete, made in accordance with the principles of my invention, the right half being a side elevation, and the left half being a central sectional elevation. Fig. 2 is an end elevation thereof. Fig. 3 is a section of the generator on a plane indicated by the line 3 in Fig. 1; and Fig. 4 is a section on a plane indicated by the line 4 in Fig. 1. Fig. 5 is a vertical sectional elevation of the mixer or burner proper on a plane indicated by the line 5 in Fig. 1. Fig. 6 is a top view of the same. Fig. 7 is a sectional plan view on a plane indicated by the line 7 in Fig. 5.

Similar reference characters indicate like or corresponding parts throughout the several views.

For a generator, I construct an elongated trough 8, closed at the ends so as to form a

channel 9. In the sides and bottoms are parallel passages 10, 11, 12, 13, and 14.

19 is the intake pipe, which may, of course, be provided with suitable controlling valve, and the fuel oil may be carried therethrough by any suitable means; a most simple manner being by connecting it with an elevated tank so that the oil will flow into the generator by the force of gravity.

20 is a plug in the front of the generator, its purpose being merely to enable the intake pipe to be connected in front instead of in the end, if desired. The passages 10 and 11, at the top, are connected by the passage 15 through the end opposite the intake; the passages 11 and 12 are connected by the passage 16 at the intake end; the passages 12 and 13 are connected by the passage 17 at the opposite end; and the passages 13 and 14 are connected by the passage 18 at the intake end; thus forming a continuous passage from the intake through the several passages to the outlet pipe 21 which is connected with the bottom passage 14. The pipe 21 is centrally located and has two branches 22, 22, each of which is provided with a gas burner proper and mixer 23, of special construction and design. This burner proper and mixer has a threaded opening 24, in each end, these two openings being connected by passages 25, 25 which extend around the central portion 26, in the upper part of which is an opening or mixing chamber proper 27, in the bottom of which is a nipple 28 through which is a small hole 29 which connects with two branches 30, 30 extending laterally out to the respective openings 24, 24.

31 is an air inlet extending up from the bottom and connecting with the mixing chamber by the slots or holes 32 so located as not to connect with any of the longitudinal passages, as clearly shown in the drawings.

33 is a plug screwed into one of the openings 24, while the other opening is screwed onto the pipe 22.

34 is merely a plug, representing any number which may be required or desired to close openings left in the casting for holding the core and removing the sand, it being understood that I prefer to make the generator proper of a single iron casting.

It is a feature of my burner proper and mixer that it may also be made of a single

casting, properly cored, the holes 29, 30, 30, being drilled. Also I prefer the two holes 30, 30, delivering the gas to the hole 29 from opposite sides thereof, as the two give a
 5 better feed of the gas and tend to produce a swirl or rotary motion of the gas through the hole 29, thereby securing a better mixing with the air in the mixing chamber proper.

I start my burner by placing a small
 10 quantity of oil in the trough, with paper or waste, if necessary, and letting it burn there, at the same time letting some oil flow into the generator. This starts the generation of the gas. Then the oil may be
 15 turned on and the gas lighted at the burners; after which the heat from the burners will continuously generate the gas from the oil as it flows through the generator. The long passage insures a perfectly generated gas,
 20 and the special form of burner affords a proper mixture of air and gas, to secure the most perfect combustion of the gas, thereby securing the maximum efficiency from the oil, and a minimum amount of smoke.

Another feature of my special form of
 25 burner is that, if desired, the plug 33 may be removed and a pipe connected in its place to lead the gas elsewhere, as to another burner, or to a suitable gas lamp for lighting
 30 purposes.

What I claim is:

1. In an oil burner, the combination of an elongated casting formed as a trough with closed ends and having a series of
 35 parallel passages extending through its side walls and bottom, which passages are connected through the ends so as to form one single continuous passage through said casting, said casting being formed with an inlet
 40 to and an outlet from said passage; a bur-

ner proper arranged below said casting; and a pipe leading from said outlet to said burner proper.

2. In a burner, a body having a central passage extending therethrough, a nipple
 45 within said passage for emitting gas thereinto, arms extending from said nipple across said central passage to the surrounding portion of said body, the surrounding portion
 50 of said body having an annular passage about said central passage, said arms provided with passages communicating with the passage in said nipple and said annular
 55 passage, and said surrounding portion having threaded openings communicating with said annular passage and disposed at diametrically opposite sides of said annular
 passage and communicating therewith.

3. In a burner, a body having a central passage extending therethrough, a nipple
 60 within said passage for emitting gas thereinto, arms extending from said nipple across said central passage to the surrounding portion of said body, the surrounding portion
 65 of said body having an annular passage about said central passage, said arms provided with passages communicating with the passage in said nipple and said annular
 70 passage, and said surrounding portion having openings communicating with said annular passage and disposed at diametrically opposite sides of said annular passage and communicating therewith.

In testimony whereof I have affixed my signature in presence of two witnesses.

GEORGE FRASER.

Witnesses:

J. S. STEVENSON,
 J. M. STARK.