
Samuel Grundy Forst, of Toronto, Ontario, Canada.

Oil and Gas Burner.

1,172,869.


To whom it may concern:

Be it known that I, Samuel Grundy Forst, a citizen of the United States, residing in the city of Toronto, county of York, Province of Ontario, Canada, have invented certain new and useful Improvements in Oil and Gas Burners, of which the following is a specification.

My invention relates to improvements in oil and gas burners, and the objects of my invention are, firstly, to construct a device of the class described which will be simple in construction, and easily taken apart to permit the same to be cleaned when necessary, and the component parts of which can be assembled without the employment of screws or bolts and the like; secondly, to provide a device which while cheap to manufacture is yet durable and efficient; thirdly, to construct a device of this class with an inner annular chamber so as to permit gas to pass therethrough from the generator to "superheat" a quantity of the gas, so to speak so that this "superheated gas" will raise the temperature of the mixing air and gas within the flue of the device high enough to consume any smoke that may be in the flue, and fourthly, to design a device of this class which can be used to burn ordinary illuminating or heating gas, and the preferred construction of my device will be hereinafter particularly set forth and what I claim as new will be pointed out in the claims.

In the drawings:—A is any suitable priming basin, provided with a threaded hub B through which screws the threaded lower end of the feed pipe C. The said feed pipe is suitably coupled to any suitable coupling D which leads to a source of fuel supply, not shown. The said priming basin is provided with a plurality of lugs E, preferably notched as shown at F to support the base member G of the flue H. The inner corner I of said base member G is preferably chamfered as shown, so as to permit the air to readily pass up into said flue. The top edge J of the priming basin A is spaced below the bottom of the base member G so as to provide a passage-way a for the air. The threaded hub B is preferably provided with a plurality of air holes K. Resting upon the base member G is the upper member L of the flue H. The inner lower edge of the upper member L is preferably chamfered as shown at 2 and rests upon the outer upper chamfered edge 3 of the base member G. Depending below the upper member L are a plurality of lugs 4 which overlap portion of the base member G. The construction just described is that which I preferably use to support the upper member L in proper relationship to the base member G. As illustrated in the drawings, the flue H is preferably tapered so that the upper end thereof is of less diameter than the base of the flue, to assist in the creating of a draft therethrough. Carried by the upper end of the feed pipe C is a sleeve 5 which surrounds said feed pipe. The internal bore of said sleeve is greater than the external diameter of said feed pipe, thereby providing an annular chamber 6. The said sleeve is preferably provided with a conical base 7, and resting upon said base and housing the said sleeve 5 is the generator 8. The said generator is preferably integrally provided with a plurality of spacing lugs 9 which are designed to prevent any undue lateral displacement of the said generator in respect of the sleeve 5. As is usual in a device of this class, the priming basin is utilized to initially generate heat to heat the generator and other parts of the device. When the device is first started, the liquid oil passes through the hole 10 formed in the plugged upper end 11 of the feed pipe C, and flows over the top and down the sides of the sleeve 5. As the device becomes thoroughly heated, gas is formed within the pipe C and escapes through the hole 10 into the generator 8, and the same escapes from said generator at its lower end through the passage ways 12 formed in the inner lower edge of the base of the generator. As the gas escapes through said passage ways into the flue, it mixes with the air passing into said flue through the air openings described, and the mixture is ultimately consumed. The bore of the lower portion 13 of the generator 8 is of greater diameter than the rest of the bore of the generator, thus providing an expansion chamber at the base of said generator, thus permitting of the rapid escape of the generated gas from the upper portion of said gen-
erator. The passage-ways 13 are quite small, and the result is that the gas in the said expansion chamber shall be raised to the desired temperature by the time it escapes through the said passage-ways.

Formed in the sides of the sleeve 3 are one or more holes 14, positioned within the lower portion 13 of the said generator, and the function performed by said holes is to permit gas to escape from the said expansion chamber into the annular chamber 6. This gas naturally becomes ignited within the said annular chamber, and so assists in vaporizing the oil in the feed-pipe C. The burning gas within said annular chamber 6 can only escape therefrom through the opening 15 formed in the conical base 7, and it naturally follows that as a result of the commingling of the burning gases from the said chamber 6, with the burning gases in the flue H, the temperature of the air and gases within the said flue will be raised high enough to consume any smoke that may result from the combustion of the gas passing through the passage-ways 12.

The preferred shape of the base 7 facilitates the escape of gas from the expansion chamber formed in the lower portion 19 of the generator 8.

The construction described particularly in respect of the feed pipe C and the threaded hub B enables me to adjust the position of the device in respect of the top of the stove, not shown.

In Fig. 2 I show my device mounted within the fire box 16 of any suitable stove. In order that my device operate properly, I must place a plate 17 around the base member G, and this plate should fit the fire box. Since the said plate rests against the flange 19 of the base member G, no draft can escape by said plate to impair the action of my device.

From my experiments I have found that I can use my device as a gas burner. That is to say, ordinary illuminating or heating gas can be piped to my burner and consumed therein.

While I have described what I consider to be the best embodiment of my invention, I desire it to be understood that the principle can be embodied in different forms, and I desire not to be limited beyond the requirements of the prior art and the terms of my claims.

What I claim as my invention is:
1. A gas-generating oil-burner comprising a feed-pipe provided with a hole in its upper end; a hole-provided sleeve supported by said feed-pipe and surrounding the same, the internal bore of said sleeve being greater than the external diameter of said pipe; a conical base for said sleeve; a generator surrounding said sleeve and resting upon said conical base, and provided with one or more passage-ways facing said conical base to permit the escape of gas; the diameter of the bore of said generator being greater than the external diameter of said sleeve; a priming basin carried by the lower end of said feed pipe; a flue surrounding said generator, and means whereby said flue is removably supported above said priming basin to provide air openings; a portion of the gas formed in said generator passing through the holes formed in said sleeve into said sleeve, for the purpose specified.

2. A gas-generating oil-burner comprising a feed-pipe provided with a hole in its upper end; a hole-provided sleeve supported by said feed-pipe and surrounding the same, the internal bore of said sleeve being greater than the external diameter of said pipe to form an annular chamber within said sleeve; a conical base for said sleeve; a generator surrounding said sleeve and resting upon said conical base, and provided with one or more passageways facing said conical base to permit the escape of gas; the diameter of the bore of said generator being greater than the external diameter of said sleeve, and the bore of the lower portion of said generator being greater than the bore of the rest of the generator to form an expansion chamber into which open the holes formed in said sleeve so that a portion of the gas in said expansion chamber may escape into said annular chamber through said holes and out of said annular chamber at the lower end thereof; a priming basin carried by the lower end of said feed pipe; a flue surrounding said generator, and means whereby said flue is removably supported above said priming basin to provide air openings.

3. A gas-generating oil-burner comprising a feed-pipe provided with a hole in its upper end; a hole-provided sleeve supported by said feed pipe and surrounding the same, the internal bore of said sleeve being greater than the external diameter of said pipe to form an annular chamber within said sleeve; a conical base for said sleeve; a generator surrounding said sleeve, and resting upon said conical base, and provided with one or more passageways facing said conical base to permit the escape of gas; the diameter of the bore of said generator being greater than the external diameter of said sleeve, and the bore of the lower portion of said generator being greater than the bore of the rest of the generator to form an expansion chamber into which open the holes formed in said sleeve so that a portion of the gas in said expansion chamber may escape into said annular chamber through said holes and out of said annular chamber at the lower end thereof; a priming basin carried by the lower end of said feed pipe; a flue surrounding...
ing said generator, composed of a base member, and an upper member removably supported upon said base member and means whereby said flue is removably supported above said priming basin to provide air openings.

4. A gas-generating oil-burner comprising a feed-pipe provided with a hole in its upper end; a hole provided sleeve supported by said feed pipe and surrounding the same, the internal bore of said sleeve being greater than the external diameter of said pipe to form an annular chamber within said sleeve; a conical base for said sleeve; a generator surrounding said sleeve and resting upon said conical base, and provided with one or more passageways facing said conical base to permit the escape of gas; the diameter of the bore of said generator being greater than the external diameter of said sleeve, and the bore of the lower portion of said generator being greater than the bore of the rest of the generator to form an expansion chamber into which open the holes formed in said sleeve so that a portion of the gas in said expansion chamber may escape into said annular chamber through said holes and cut of said annular chamber at the lower end thereof; a priming basin carried by the lower end of said feed pipe; a flue surrounding said generator, composed of a base member, and an upper member removably supported upon said base member, and an exteriorly-placed annular flange carried by said base member.

5. In a gas-generating oil-burner, the combination with a feed pipe; gas-generating means housing said feed pipe and supported thereby, and a priming basin screwed onto the lower end of said feed pipe, of a flue surrounding said gas generating means comprising a tubular base member having a chamfered upper-outer corner, and an upper tubular member having an inner chamfered corner at its lower end which rests against the chamfered corner of said base; a plurality of lugs carried on said upper member and overlapping said base member, and means carried by said priming basin for removably supporting said flue above the top edge of said priming basin to provide air passages.

6. A gas-generating oil-burner comprising a feed pipe provided with a hole in its upper end; a hole-provided sleeve supported by said feed pipe and surrounding the same, the internal bore of said sleeve being greater than the external diameter of said pipe; a generator surrounding said sleeve, means for supporting the lower end of said generator, which lower end is provided with one or more passage-ways facing said supporting means to permit the escape of gas from said generator; the diameter of the bore of said generator being greater than the external diameter of said sleeve; a priming basin carried by the lower end of said feed pipe; a flue surrounding said generator, and means whereby said flue is removably supported above said priming basin to provide air openings; a portion of the gas formed in said generator passing through the holes formed in said sleeve into said sleeve for the purpose specified.

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

S. SAMUEL GRUNDY FORST.

Witnesses:

EGERTON R. CASE,
O. M. BURKINSHAW.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."