(No Model.)

H. C. FELLENBAUM.

FLUID FUEL ATOMIZING AND BURNING APPARATUS.

No. 546,397. Patented Sept. 17, 1895.

Fig. 1

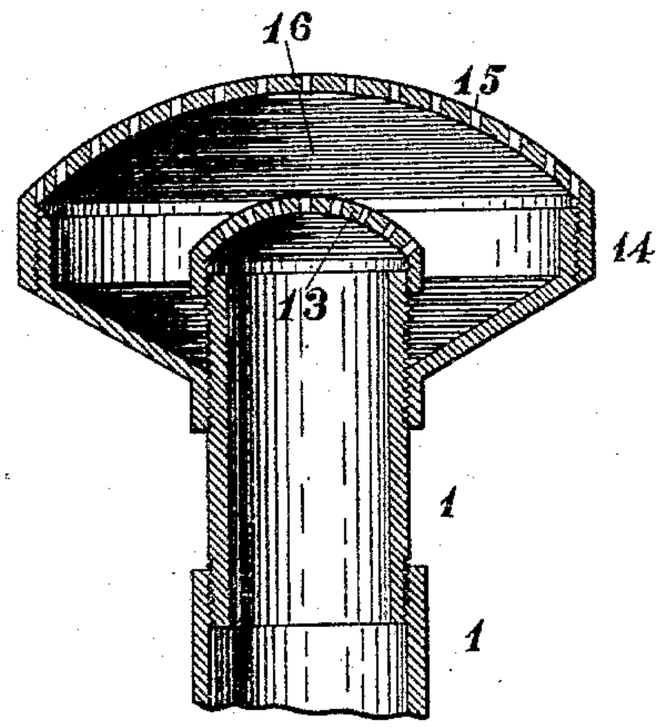
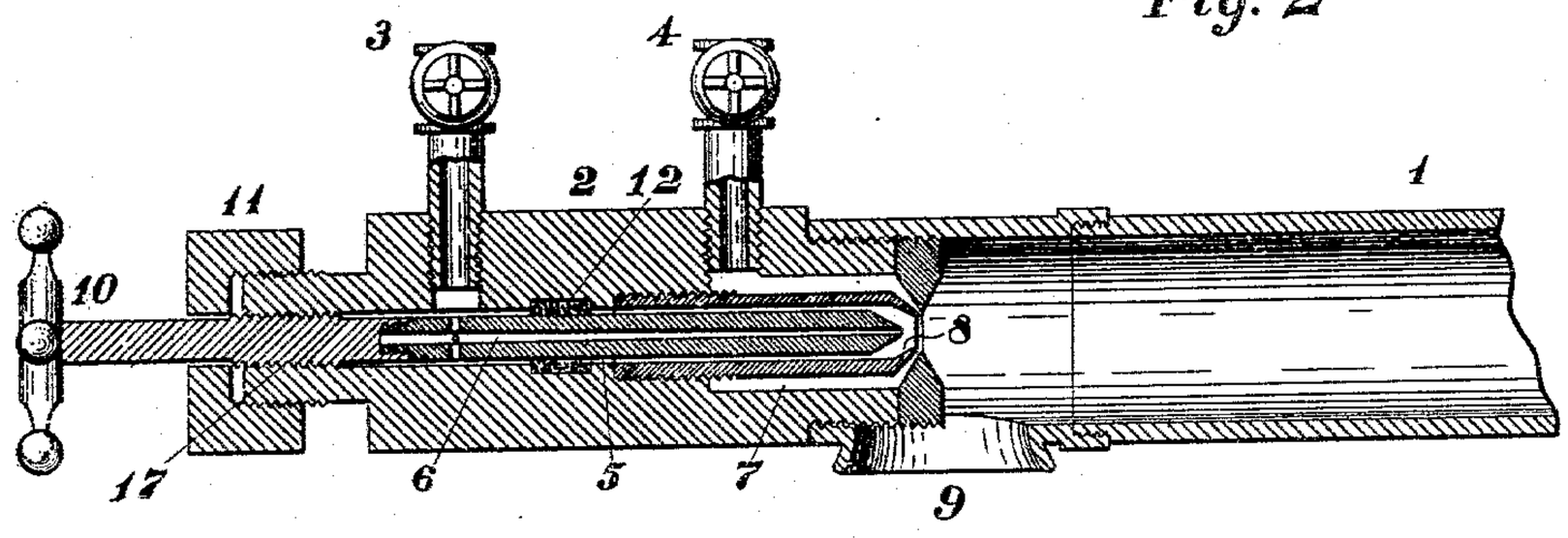


Fig. 2



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FLUID-FUEL ATOMIZING AND BURNING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 546,397, dated September 17, 1895.

Application filed August 27, 1894. Serial No. 521,392. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. FELLENBAUM, a citizen of the United States, residing at the city of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Fluid-Fuel Atomizing and Burning Apparatus, of which the following is a specification.

The principal object of my present invention is to provide a simple, durable, and comparatively inexpensive fluid-fuel burner that will relight itself, and that may not be readily or accidentally extinguished, and that is especially adapted for use in the smoke-box of a garbage-incinerator, such as is described in my application, Serial No. 507,387, filed April 13, 1894, and that is useful in whole or in part for other purposes.

My invention consists of the improvements hereinafter fully described, and particularly referred to in the claims.

The nature, characteristic features, and scope of my invention will be more fully understood from the following description, taken in connection with the accompanying drawings, forming part hereof, in which—

Figure 1 is a central sectional view of a burner comprising two perforated caps nested together with a space between them and applied to a supply-pipe and embodying features of my invention, and Fig. 2 is a similar view illustrating an injector for mixing and supplying gaseous fuel to the supply-pipe in such manner that volatilized oil may not be driven back by the pressure of steam.

In the drawings, 1 is a supply-pipe, at one end of which is provided an injector and at the other end of which is provided a burner.

2 is an injector-casing provided with a steam-inlet 3 and an inlet 4 for volatilized oil or other fluid fuel. The forward end of the injector communicates with the supply-pipe 1 and is provided with a central aperture 5 for the accommodation of the tubular steam-nozzle 6 and with an annular oil-passage 7, encircling the aperture 5 and communicating with the oil-inlet 4 and discharging beyond and to one side of the seat 8 of the steam-nozzle 6.

From the above construction it follows that volatilized oil may be constantly supplied under moderate pressure to the supply-pipe 1 without danger of the pressure of steam issuing through the tubular nozzle 6 operating to create a back-pressure and prevent the proper feed of oil, because the steam and oil are supplied through separate outlets that communicate independently with the supply-pipe 1, into which air is freely admitted at the orifice or opening 9.

10 is a hand-wheel secured to the nozzle 6 and adapted to shift the same through the intervention of the intermeshing threads 17 in respect to the packings 11 and 12, and in such manner that its discharge or forward end may be adjusted for the production of the most advantageous results.

The burner comprises a perforated cap 13, applied to the end of the supply-pipe 1, and a second cap 14, made in two parts, whereof one is screwed, as shown in Fig. 1, onto the pipe 1, beneath the cap 13, and whereof the other is applied to the periphery of the first and incloses the cap 13 and is perforated, as at 15, opposite the cap 13.

In use gaseous fuel issuing from the supply-pipe 1 enters the space 16, included between the arched or dome-like perforated caps 13 and 15, and under ordinary conditions escapes therefrom without being ignited by reason of the absence of a sufficient supply of air through the perforations in the cap 15, and burns beyond the burner or outside thereof. However, in the event of a draft of air blowing upon one side of the burner it tends to extinguish the flames issuing from the corresponding portion of the outside of the cap 15. However, this draft of air passes through a part of the openings in the cap 15, and thus supplies sufficient air for supporting combustion within the space 16. When this draft of air ceases, gaseous fuel will again issue from all the apertures in the cap 15 and will be relighted and burn beyond the same. This is advantageous, because if the flames arising from the burner are subjected to drafts they will disappear from that part of the burner that is subjected to the drafts and will reappear as soon as the drafts are overcome or cease, and this is important, especially where the burner is intended for use in a location like that of the smoke-box described in my application for Letters Patent above referred to.

Gaseous fuel is supplied to the burner illus-

trated in Fig. 1 by means of the injector shown in Fig. 2 in the following manner: Volatilized oil is admitted under moderate pressure through the inlet 4 and traverses the annular oil-passage 7, from which it escapes freely into the supply-pipe 1. At the same time steam is supplied through the inlet 3 and internal openings of the steam-nozzle 6 and discharged into the supply-pipe 1, and although the steam-nozzle 6 may be adjusted backward and forward it is not possible for steam issuing therethrough to oppose the proper feed or ingress of oil, because the latter is delivered through a separate and independent channel. The requisite supply of air for the fluid fuel is admitted at 9, and the fluid fuel is impelled forward and consumed at the burner, Fig. 1, in the manner above set forth.

Having thus described the nature and objects of my present invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A burner comprising the combination of a supply pipe provided with an air inlet and an injector, a perforated dome shaped cap as 13, fitted to and over the end of said pipe, and an independent or second cap comprising two parts whereof one is attached to said pipe beneath the cap 13, and whereof the other is perforated and applied to the periphery of the first part and incloses the cap 13, whereby a clear space, as 16, to which access is afforded only through the perforations is provided, substantially as described.

2. In an injector the combination with a burner supply pipe having an air inlet 9, and a fixed nozzle between which and the casing is an oil passage and within which is a movable and central steam nozzle, of a centrally perforated diaphragm located between said nozzles and supply pipe and having the walls of its perforation beveled from its opposite sides whereby steam, oil and air are independently discharged through it and caused to mix in the supply pipe and beyond the diaphragm and near the air inlet, substantially as described and shown.

In testimony whereof I have hereunto signed my name in the presence of two witnesses.

HENRY C. FELLENBAUM.

Witnesses:
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