

S. ASH.
GAS HEATER.

APPLICATION FILED AUG. 1, 1911.

1,053,695.

Patented Feb. 18, 1913

2 SHEETS—SHEET 1.

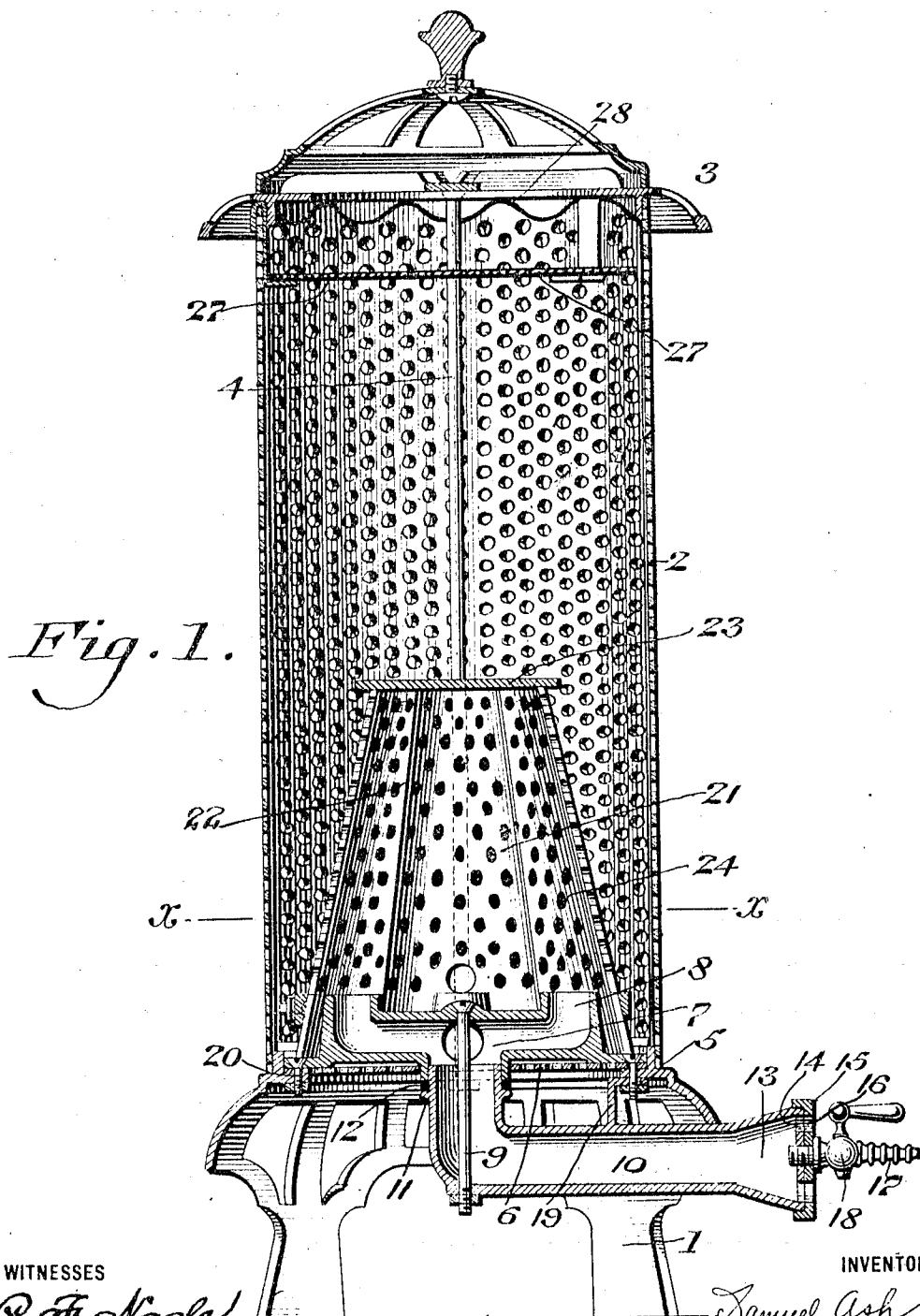


Fig. 1.

WITNESSES

P. F. Nagle.
L. Couville.

BY

INVENTOR

Samuel Ash.
Wiedersheim & Hainke.
ATTORNEYS

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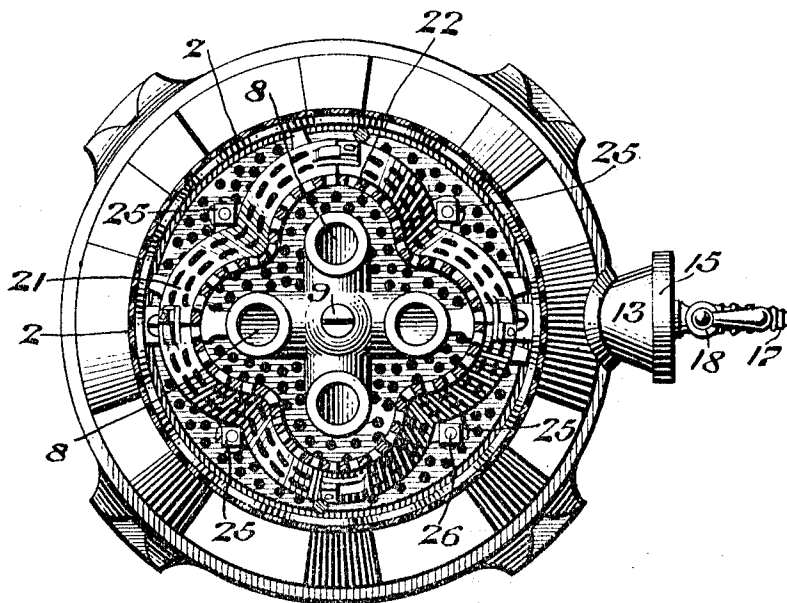


Fig. 2.

WITNESSES

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UNITED STATES PATENT OFFICE.

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GAS-HEATER.

1,053,695.

Specification of Letters Patent.

Patented Feb. 18, 1913.

Application filed August 1, 1911. Serial No. 641,763.

To all whom it may concern:

Be it known that I, SAMUEL ASH, a subject of the Emperor of Russia, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Gas-Heater, of which the following is a specification.

This invention relates to gas heaters and more particularly to a portable type of heater adapted for use with gas or fluid fuel, such as oil or the like, and the object of my invention is to provide a heater which is not only simple in construction, but one in which the elements forming the complete unitary device are assembled and arranged in such a manner as to utilize the maximum calorific value of the fuel.

It has for a further object to provide a combustion chamber of novel construction, whereby the heat and flame from the burner are directed into contact with the surface of the combustion chamber and heat the same to a state of incandescence, so that the outside air surrounding the chamber and in contact therewith is thoroughly heated and uniformly distributed.

For the purpose of illustrating my invention, I have shown in the accompanying drawings one form thereof which is at present preferred by me, since the same has been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of these instrumentalities as herein shown and described.

Figure 1 represents a vertical central section of a heater embodying my invention. Fig. 2 represents a section on line $x-x$, Fig. 1.

Similar numerals of reference indicate corresponding figures in the drawings.

Referring to the drawings, 1 designates a suitable base for a heater embodying my invention, supported upon which is an outer perforated casing 2, carrying a suitable top 3, the said parts being secured together by rods 4 or other well known means, as will be apparent.

5 designates a flange preferably formed integral with the base 1 and of annular construction, the function of the same being to support the bottom plate 6 of the heater,

the said plate preferably being perforated to permit air to pass to the interior of the casing 2 and circulate therethrough. This plate 6 is apertured to receive the burner proper, the latter, in the present instance, consisting of a tubular casting 7 having a plurality of discharge nozzles 8 angularly disposed, in order to project the flame longitudinally of the casing 2. This casting is preferably secured by means of a bolt 9 or like fastening device to a Bunsen mixing tube 10 which, as here shown, is in the form of an elbow fitting having a flange 11 between which and the casting 7 is located a packing 12 to prevent leakage at the joint formed therebetween. The intake 13 of the tube 10 is provided with a plurality of openings 14 and has a cap 15 movably secured thereto and provided with openings 16, adapted to align with the openings 14 in certain positions to admit the proper quantity of air to form a combustible mixture.

17 designates a supply pipe coupling suitably secured to the cap 15 and having a valve 18 therein for the usual purpose of regulating or cutting off the supply of fuel to the burner. 19 designates a lug preferably formed integral with the mixture tube 10 and forming a means whereby the said tube may be supported by the base 1. In connection with the securing of the tube 10, the plate 6 and the burner 7, to the base 1, it will be noted that I preferably provide a plurality of stove bolts 20 which pass through the several parts and firmly unite the same with the plate 6 between the burner 7 and the base ring or flange 5. This construction is particularly advantageous since it readily permits the several parts being disassembled and any one part being easily replaced should such part become broken or otherwise impaired.

21 designates an inner perforated casing here shown as sectional and forming a combustion chamber, the material of which the same is composed being preferably of metal, sheet or cast, whereby when it is subjected to the heat of the products of combustion it will become incandescent thereby effecting a more complete combustion and also exposing a large surface to the air to be heated. In connection with this latter feature, it will be noted that the casing 21 is provided with a plurality of corrugations 22, each of which, in the present instance, partially en-

circles one of the flame discharge nozzles and substantially confines the heat from that particular nozzle to a distinct zone. Furthermore, attention is directed to the shape of this inner casing 21 as to its vertical section, since, in the present instance, the sides of the casing 21 converge from the base and form substantially a truncated cone with side corrugations.

- 23 designates a top plate suitably secured to the inner casing 21 which serves, not only the purpose of an additional heating surface, but also as a deflector or baffle to retain the products of combustion a suitable length of time within the casing 21, and also to deflect the said products outwardly through the perforations 24 of the inner casing. This inner casing 21 is preferably provided with suitable lugs 25, positioned at intervals about the base thereof and adapted to receive stove bolts 26 or like fastening devices, for securing the casing to the bottom plate 6.

In view of the fact that provision is made for some of the cold air entering the heater to pass exterior of the inner casing 21, I preferably provide, at a suitable point, above the said inner casing, a deflector 27 for the purpose of retarding and holding the mixed products and air within the heater a sufficient length of time to promote, as nearly as possible, complete combustion but not to allow them to remain sufficiently long to cause carbon monoxid to be formed. It

will of course be understood that the top 3 is provided with suitable apertures 28 to allow the air and products to pass exterior of the casing and create within the same a sufficient circulation to promote combustion.

What I claim as my invention and desire to secure by Letters Patent, is:—

A gas heater comprising a hollow member formed of a plurality of side sections, each of said sections having perforations and being curved to form when assembled a corrugated wall for said hollow member, a burner positioned within said hollow member and adjacent the bottom thereof, said burner comprising a plurality of spaced upwardly disposed nozzles having a common inlet, each nozzle being located substantially axially with respect to a curved section, a perforated casing inclosing said parts, a plate having openings therein forming the bottom of said hollow member, and a top for said hollow member completely closing the upper end thereof and serving as an additional heating surface and as a deflector, whereby the products of combustion are directed therefrom downwardly within the hollow member and are entirely consumed while the heat escapes through the side perforations only.

SAMUEL ASH.

Witnesses:

C. D. McVay,
F. A. Newton.