

(No Model.)

W. A. SHEPARD.
PORTABLE HEATER.

No. 578,470.

Patented Mar. 9, 1897.

Fig.1.

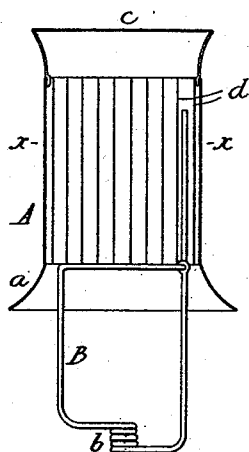
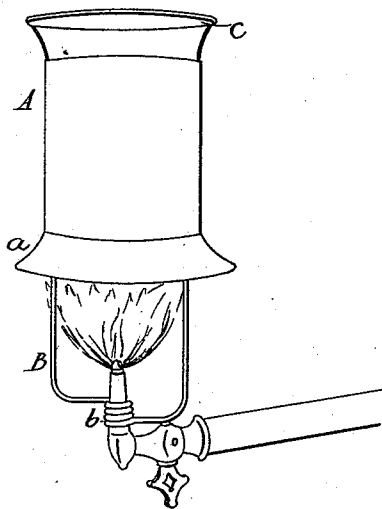


Fig.2.

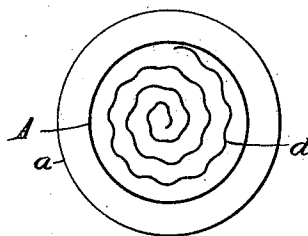


Fig.3.

Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM ALBERT SHEPARD, OF PHILADELPHIA, PENNSYLVANIA.

PORTABLE HEATER.

SPECIFICATION forming part of Letters Patent No. 578,470, dated March 9, 1897.

Application filed November 15, 1895. Serial No. 569,051. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ALBERT SHEPARD, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Portable Heaters; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in heaters of that type which are adapted for attachment to a gas or other burner; and it consists in a portable device of this character possessing advantages in point of extreme economy of structure and great efficiency in operation, and added to these the device is so constructed as to afford both light and heat simultaneously in that the flame is not disturbed nor caused to impinge on any part of the device, the light, on the contrary, being augmented in power by reason of the provision of a reflector, which also coöperates with the heater to enhance its effectiveness, all of which, together with other advantages, will appear in the following detailed description.

In the accompanying drawings, Figure 1 is a perspective view of my improved heater as applied to a gas-burner. Fig. 2 is a vertical sectional view. Fig. 3 is a cross-sectional view on line *xx* of Fig. 2.

Referring to the drawings, A denotes a casing, of sheet metal, which may be circular or polygonal in cross-section and is open at each end and forms, with a series of internally-arranged partitions presently to be described, the heater proper. A wire support B is affixed to the lower end of this casing in any suitable manner, said support being provided with a sleeve *b* for attachment to a gas-burner tip or with any other suitable arrangement by which the heater may be applied to an oil or other lamp.

In the construction shown in Fig. 1 the heater is supported above the gas-flame, whereby the light is in no degree destroyed. On the other hand, I employ a reflector in the

nature of a depending outward-flaring flange *a*, secured to the bottom of the casing, which flange reflects and intensifies the light and also serves as a deflector or conserver of the air-currents, as will be presently made clear. Above the casing is supported a plate *c*, which operates to deflect the heated air-currents radially outward from the heater and incidentally furnishes a convenient stand or support on which receptacles containing substances to be heated may be placed.

The object of the heater is to rapidly raise the temperature of air in an inclosure, as, for instance, a room, and to this end unobstructed passages or channels are provided in the heater proper through which the air-currents pass unobstructed, receiving in their passage a high degree of heat and thereby promoting a circulation of air within the inclosure. These passages or channels may be formed in various ways and I have illustrated a number of different forms of partitions forming said passages or channels, first of which is the spirally-arranged corrugated or fluted plate *d*, which is secured at one end to the inner side of the casing, is vertically disposed, and forms thereby a series of vertical channels through which the air passes freely. With this arrangement a very large area of heating-surface is obtained, the heat being derived from the flame, and the air passing between the turns of the plate is raised in temperature rapidly and finds its way through buoyancy out through the upper end of the heater, when it is deflected outward by the plate *c*.

In practice the air, by the employment of vertically-disposed channels, is caused to pass into and rapidly through the heater and by its contact with the highly-heated cylinder and plates or tubes, as the case may be, receives therefrom a high degree of heat. While of course some heat is radiated from the heater in all directions the major portion thereof is contained in the plates, so that the induced air-currents receive in passing through the channels the maximum heat units.

The employment of the plate *c*, which, as shown, extends laterally beyond the cylinder, causes a check in the swift current of hot air

and deflects and disseminates it in all directions. This, with the flaring flange at the base of the heater, increases the efficiency of the device, as the flange serves to collect and
5 deflect air-currents to the heater which would otherwise be dissipated.

The whole device may be constructed of sheet metal and wire, and hence may be very cheaply produced. It is light of weight, there-
10 by readily handled, and will not strain the gas-bracket or other light-supplying means, and is susceptible of high ornamentation.

I claim—

1. A heater comprising a casing having at
15 its lower end an outwardly-flared flange, a spirally-formed corrugated or fluted plate vertically disposed within said casing to provide a plurality of unobstructed air-passages,

and a support attached to said casing and adapted to elevate the same above a flame. 20

2. A portable heater for attachment to a gas or other burner, comprising a cylindrical casing having at its base an outwardly-flared flange, a spirally-formed corrugated or plated
25 plate vertically disposed within said cylinder and providing a plurality of unobstructed air-passages, a plate supported above but in proximity to the top of the cylinder, and a support attached to the lower end of the cylinder for holding the same above a flame. 30

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

WILLIAM ALBERT SHEPARD.

Witnesses:

W. T. NORTON,

ARTHUR BROWNING.