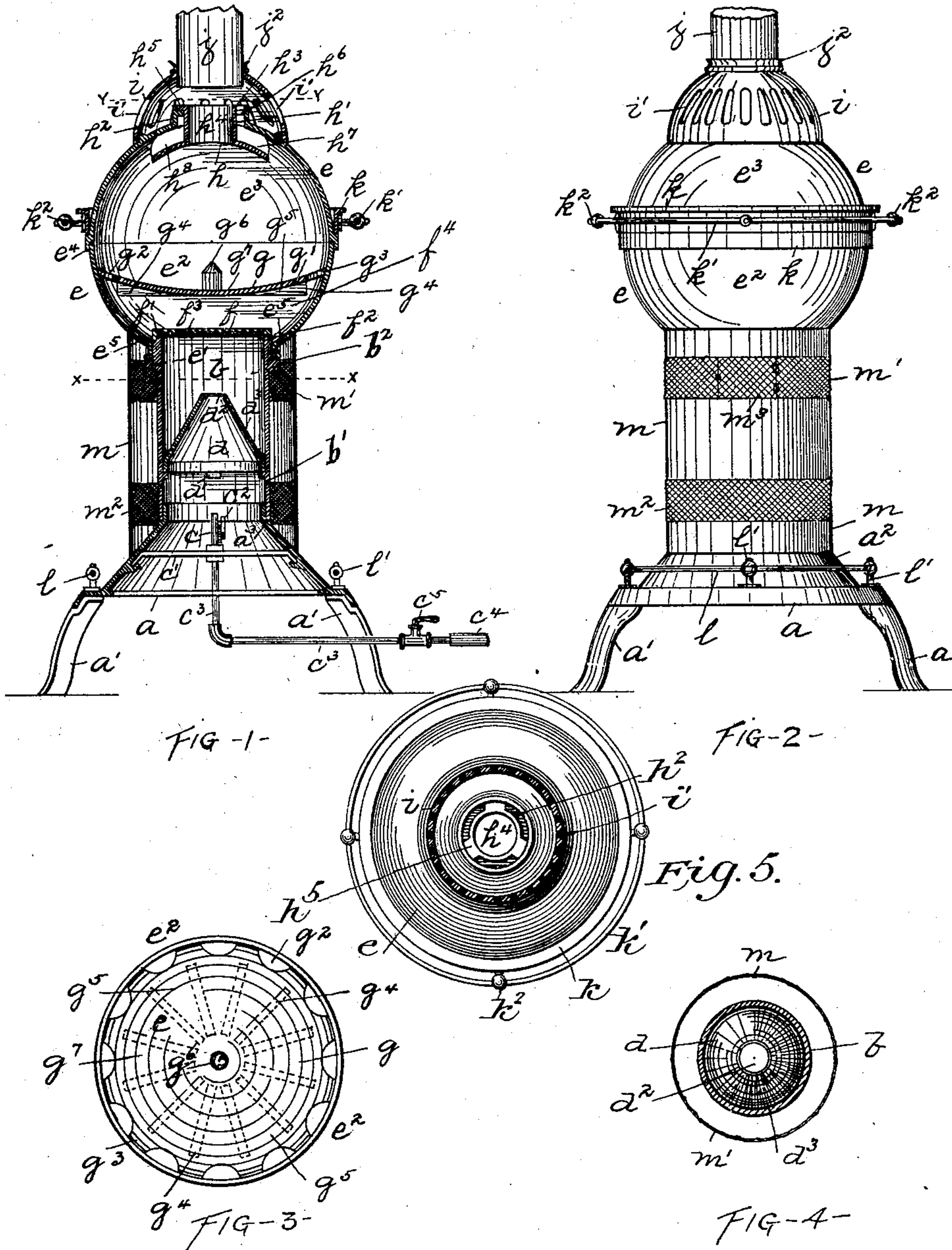


(No Model.)

M. ZIPPLER.
GAS HEATER.

No. 605,560.

Patented June 14, 1898.



Witnesses:
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UNITED STATES PATENT OFFICE.

MICHAEL ZIPPLER, OF ALLEGHENY, PENNSYLVANIA.

GAS-HEATER.

SPECIFICATION forming part of Letters Patent No. 605,560, dated June 14, 1898.

Application filed May 10, 1897. Serial No. 635,794. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL ZIPPLER, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Gas-Heaters; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to improvements in gas-heaters.

The object of my invention is to provide a heater which is simple and cheap in construction and one which will be economical in the use of gas and still have a large heating capacity.

A further object of my invention is to provide a heater which can easily and rapidly be put together and taken apart without the use of bolts, rivets, &c.; and a still further object of my invention is to provide a gas-heater so constructed as to permit free access to any of its parts for the purpose of cleaning or repairing the same.

My invention consists, generally stated, in the novel construction, combination, and arrangement of parts, as hereinafter specifically set forth and described, and particularly pointed out in the claims.

To enable others skilled in the art to which my invention appertains to construct and use the same, I will describe the same more fully, referring to the accompanying drawings, in which—

Figure 1 is a vertical central section of my improved gas-heater as applied to a stove. Fig. 2 is an elevation of the same. Fig. 3 is a top view of the lower deflecting-plate, showing the upper part of the heater removed. Fig. 4 is a cross-section on the line $x x$, Fig. 1; and Fig. 5 is a cross-section on the line $y y$, Fig. 1.

Like letters herein indicate like parts in each of the figures of the drawings.

As illustrated in the several figures of the drawings, a represents the stand or base of the stove, which supports the different parts of my improved heater and is provided with the legs a' thereon for supporting the same and the inclined portion a^2 for supporting the cylinder-column or mixing-chamber b , which extends above the same and rests upon the seat or ledge a^3 .

Supported within the inclined portion a^2 of the base or stand a on the burner-support c' is the jet c , which is provided with the regulator c^2 for regulating the supply of gas fed to the stove. The jet c is connected to a pipe c^3 , which leads from a source of supply by the flexible connection c^4 , and is provided with the cock or valve c^5 thereon for opening and closing the supply of gas to the jet c .

Supported within the mixing-chamber b , by means of lugs d' , is the cone-shaped plate d , which divides the chamber b into the lower mixing-chamber b' and upper mixing and heating chamber b^2 and is provided with the opening d^2 therein and is adapted to form the pocket d^3 for any back pressure of the products of combustion within the stove from any cause. The upper mixing and heating chamber b^2 is provided on its exterior surface with the seat or ledge e' for the reception of the lower section e^2 of the heating-chamber e , which is preferably made of cast-iron in globular form and in two sections, the upper section e^3 being provided with a flange e^4 , which fits over and around the top of the lower section e^2 . A series of openings e^5 is formed in the lower section e^2 near the seat or ledge e' on the mixing-chamber b^2 for the entrance of air into the heating-chamber e . The body of the mixing-chamber b^2 above the ledge e' is formed thicker, so as to form a collar f' and seat f^2 for the supporting of a wire-gauze f , which is secured in a ring f^3 , engaging with the collar f' and seat f^2 and extending across the top edge of the mixing-chamber b .

Resting within the lower section e^2 of the heating-chamber e , above the wire-gauze f and mixing-chamber b^2 , is the spreader g , which is formed of concavo-convex shape, so as to present the convex face g' to action of the flame in the heating-chamber e , and acts to form the burner-chamber f^4 between its under face thereof and the wire-gauze f . The spreader g is provided with a series of openings g^2 on its outer edge and lugs g^3 , which rest against the interior wall of the lower section e^2 of the heating-chamber e , and a series of radial ribs g^4 are formed on the convex face g' , so as to form pockets g^5 and direct the flame and products of combustion over to the outer edge of the spreader g against the inner walls of the heating-chamber e , so

that they pass up through the openings g^2 and circulate within the heating-chamber e . A post g^6 is formed in the center of the spreader g on the upper or concave face g^7 for raising and lowering the spreader g to place.

The upper section e^3 of the heating-chamber e is provided with an opening h^1 at its upper end, surrounded by the circular flange or collar h^2 , within which fits the deflecting-plate h , provided with a collar h^3 , having an opening h^4 therein for the escape of the products of combustion. The deflecting-plate h is of circular form, corresponding to the interior wall of the heating-chamber, and is held therein by means of lugs h^5 on the exterior of the collar h^3 , engaging with lugs h^6 on the interior of the collar h^2 in the upper section e^3 of the heating-chamber e . The deflecting-plate h is provided with a series of ribs h^7 on its upper face, which bear against the interior wall of the heating-chamber, so as to form pockets h^8 for the escape of some of the products of combustion, which pass out between the collars h^2 h^3 into the cap i , resting on top of the upper section e^3 of the heating-chamber e . The cap i is provided with a series of openings i^1 therein for the escape of heat into the apartment from the products of combustion in passing out through the flue j , entering within the cap i through a collar j^2 . The flue j can lead to the chimney-flue of the apartment in which the stove is located and can be provided with any suitable form of damper located therein. A ring k , having rails k^1 , supported in brackets k^2 , attached thereto, is placed around the heating-chamber e , resting upon the flange e^4 on the upper section e^3 of the same, and rails l , supported in standards l^1 on the base or stand a , can be used for adding finish and appearance to the stove.

Fitting around the mixing-chamber b is the casing m , which rests upon the inclined portion a^2 of the stand or base a and against the exterior surface on the lower section e^2 of the heating-chamber. A series of openings or lattice-work m^1 m^2 is formed in the casing m for the entrance of air therein into the heating-chamber e , and a door m^3 is also formed therein for permitting a lighted taper to be inserted into the openings e^5 for igniting the gas within the heater.

The operation of my improved stove is as follows: The parts being in position, as shown in Figs. 1 and 2, and everything in readiness gas can be turned on into the pipe c^3 from the source of supply through the flexible connection c^1 by opening the valve v^5 , and the gas will pass through the jet c into the mixing-chamber b . The amount of gas fed into the mixing-chamber b of the heater can be regulated by means of the regulator c^2 , which can be set for any amount desired, and the air fed to the mixing-chamber b can enter under the base or stand a between the legs a^1 and pass into the mixing-chamber b . The door

m^3 in the casing m can be opened and a match or lighted taper can be passed into one of the openings e^5 in the heating-chamber e , so igniting the gas and air as they pass up through the mixing-chamber b and wire-gauze f into the burner-chamber f^1 of the heating-chamber e , the air-openings e^5 also taking in air through the openings or lattice-work m^1 m^2 in the casing m and feeding the same into the flame in the heating-chamber e as it passes through the wire-gauze f . The gas and air as they pass up into the lower mixing-chamber b^1 of the mixing-chamber b from the jet c and under the stand or base a will strike against the cone-shaped plate d , where they will be resisted and pass through the opening d^2 in the same and up into the upper mixing-chamber b^2 of the mixing-chamber b through the wire-gauze f and strike against the spreader g in the heating-chamber e . The gas and air when ignited in the burner-chamber f^1 will cause the products of combustion to pass up through the openings g^2 in the spreader g between the lugs g^3 into the heating-chamber e above the spreader g . The heated products of combustion as they pass into the heating-chamber e will heat the same and strike against the deflecting-plate h , so confining the gases within the heating-chamber e to a certain extent and allowing them to escape out through the opening h^4 and pockets h^7 into the flue j , where they can escape into the chimney-flue, as desired.

It will thus be seen that my improved gas-heater is capable of great heating capacity with an expenditure of a small quantity of gaseous fuel. It is cheap and simple in its construction and strong in its parts. It is constructed without bolts, screws, &c., and can easily and rapidly be taken apart for repairing and cleaning when desired.

It is evident that my improved gas-heater can be applied to other forms of stoves or furnaces, if desired.

Various modifications in the construction, combinations, arrangement, and design of the various parts of my improved gas-heater can be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

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

1. In a gas-heater, the combination of a base or support, a mixing-chamber thereon, a gas-supply for supplying gas to the mixing-chamber, a heating-chamber connected to the upper portion of the mixing-chamber, a cone-shaped resistance-plate within the mixing-chamber and provided with an opening therein, a spreader within the heating-chamber adapted to direct the flame and products of combustion against the walls of the heating-chamber, and a deflecting-plate within the heating-chamber above the spreader, substantially as and for the purposes set forth.

2. In a gas-heater, the combination of a base or support, a mixing-chamber thereon, a gas-

supply pipe for supplying gas to the mixing-chamber, a heating-chamber connected to the upper portion of the mixing-chamber, a cone-shaped resistance-plate within the mixing-chamber provided with an opening therein, a gauze between the heating-chamber and resistance-plate, a concavo-convex spreader within the heating-chamber above the gauze having openings adjacent to its outer edge for the passage of the products of combustion through the same into the heating-chamber, and a deflecting-plate within the heating-chamber above the spreader having an opening therein for the escape of the waste products of combustion, substantially as and for the purposes set forth.

3. In a gas-heater, the combination of a base or support, a mixing-chamber thereon, a gas-supply pipe for supplying gas to the mixing-chamber, a heating-chamber connected to the

upper portion of the mixing-chamber, a gauze between the heating-chamber and mixing-chamber, a concavo-convex spreader within the heating-chamber above the gauze and provided with openings adjacent to its outer edge for the passage of the products of combustion through the same into the heating-chamber, and a deflecting-plate above the spreader and adapted to form spaces or openings between the upper surface of the same and the inner walls of the heating-chamber for the escape of the waste products of combustion, substantially as and for the purposes set forth.

In testimony whereof I, MICHAEL ZIPPLER, have hereunto set my hand.

MICHAEL ZIPPLER.

Witnesses:

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BESSIE R. GALLAGHER.