

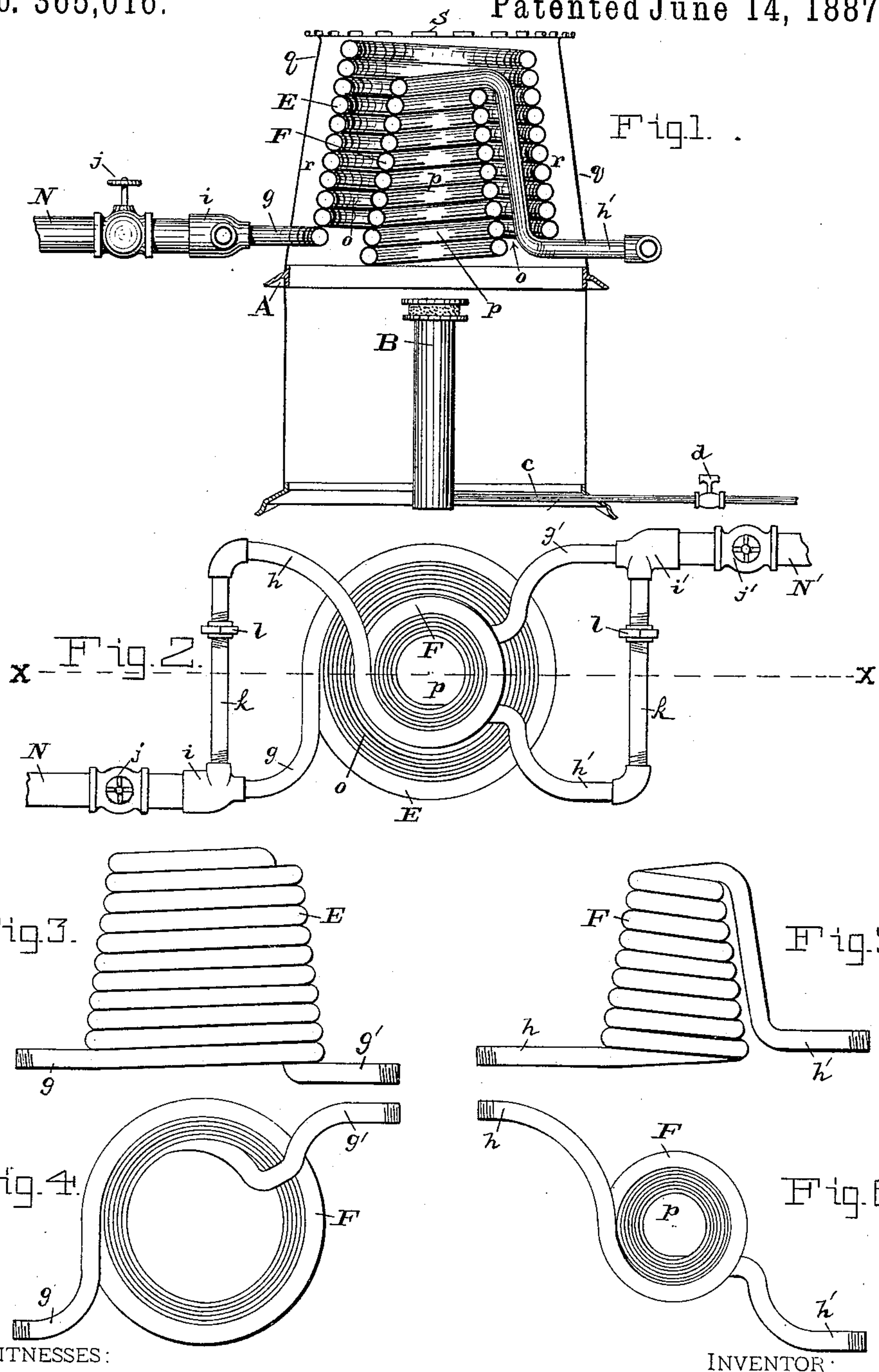
(No Model.)

M. MÜLLER.

WATER HEATER.

No. 365,016.

Patented June 14, 1887.



WITNESSES:

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MELCHIOR MÜLLER, OF BALTIMORE, MARYLAND.

WATER-HEATER.

SPECIFICATION forming part of Letters Patent No. 365,016, dated June 14, 1857.

Application filed June 10, 1886. Serial No. 204,729. (No model.)

To all whom it may concern:

Be it known that I, MELCHIOR MÜLLER, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Water-Heaters, of which the following is a specification.

My invention relates to a water-heater designed for heating the water in a closed boiler, and is illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of the heater. Fig. 2 is an inverted or bottom plan view of the double cone-shaped coils of pipe. Fig. 3 is a side view of the outer cone coil of pipe separate from the inner coil. Fig. 4 is an inverted plan or bottom view of the outer cone coil. Fig. 5 is a side view of the inner cone coil of pipe separate from the outer coil. Fig. 6 is an inverted plan or bottom view of the inner cone coil.

The letter A designates a suitable base, which supports the heating-coils. This base in this instance is a metal cylinder. A gas-burner, B, is attached to the base, and has a pipe, c, connected with it to supply the gas. This pipe has a stop-cock, d. Any other kind of a burner than one to burn gas may be used—such, for instance, as a spirit-lamp or an oil-burner. Two cone-shaped coils of pipe—an outer cone, E, and an inner cone, F—are mounted upon the base. These two cone coils are entirely separate. One is within the other, and they have their terminals connected together.

The letter g designates the inlet terminal, and g' the outlet terminal, of the outer cone, E, and h the inlet terminal, and h' the outlet terminal, of the inner cone, F. A T-connection, i, makes the union of the two inlet terminals, and another T-connection, i', the union of the two outlet terminals. To facilitate this connection of the terminals of the two cone coils, a short section of pipe, k, is used to enter each T-connection. At one end this short section has a left-hand screw-thread, and the other a right-hand, and a union-nut, l, which has both a left and right hand screw-thread, effects a connection between the said short section k and the terminal h or h'.

The supply-pipe N is attached to the T-connection i, and the delivery-pipe N' is attached

to the T-connection i'. A valve, j, controls the inlet of water, and another valve, j', the outlet. The pipes comprising the two cone coils are necessarily of small caliber, in order that only a small quantity of water may flow through them, a small quantity being speedily heated. While this is necessary for the coil, the supply and delivery pipes should be of a size or caliber double that of which the coils are made. In connecting the two coils together, an annular space, o, is formed between the two coils, and a central flue, p, is formed by the inner coil. The coils commence at the bottom and extend upward, and from the top of each outlet terminal passes down the annular space o. (See Figs. 1 and 2.) By having the coils cone-shaped the central flue, p, is made to taper, being largest below and contracted above; and the same is also true of the annular space o between the two coils. This taper to the central flue, p, and the annular space o affords the advantage that each separate or individual coil of pipe is more exposed to the direct ascending current of heat from the burner or burners located below. Thereby said heat-currents are fully utilized. A jacket or casing, q, surrounds the two coils and confines the heat, and excludes the cold air from the coils. This jacket is enough larger than the outer coil to form an annular space, r, between its interior and said outer coil. At the top of this casing q is a seat, s, of any form, for anything which it is desired to heat. A pan, kettle, or other vessel may be placed on the seat s, or a sad-iron may be heated there. The coils and the jacket or casing are seated upon the base, and may be lifted therefrom. The arrangement of the two independent coils and the supply and delivery pipes makes an efficient heater.

In operation the volume of water from the supply-pipe N is divided in the T-connection i. Part of it passes in the pipe of the outer coil, E, and part in the pipe of the inner coil, F. Thus two separate and wholly independent currents of water are subjected to the heat of the burner. The separate currents of water are then united at the T-connection i'.

In order to apply this heater to a closed water-boiler, such as a boiler attached to a kitchen-range, it is simply necessary to disconnect the pipes leading from the said boiler

to the water-back in the range, and then connect the inlet and outlet pipes N N' of this heater with the said boiler. Upon the burner B being lighted a circulation of water will be
5 at once established.

Having described my invention, I claim and desire to secure by Letters Patent of the United States—

1. A water-heater having two separate coils
10 of pipe, one within the other, having their lower ends bent outwardly, as shown, the upper ends of said coils bent down the sides thereof to form on opposite sides at the bases of the coils inlets and outlets, as shown and de-
15 scribed, and for the purpose set forth.

2. A water-heater having two separate coils of pipe, one within the other, forming an annular space and central flue, the lower ends of the coils being bent outwardly to form inlets
20 and their upper ends bent to extend down the bodies of the coils within the annular space with their terminals forming outlets, said

inlets and outlets being on opposite sides of the coils and at their bases, as shown and described, and for the purpose set forth, 25

3. In a water-heater, the combination, with the outer coil having its ends bent, as shown, to form an inlet, of an outlet on opposite sides of said coil, the inner coil interposed within the outer coil, and having correspondingly-
30 bent ends forming an inlet and outlet on opposite sides thereof, said coils also forming an annular space between them for the bend of the outlets, and the inner coil forming at its central portion a flue, and said inlets and out-
35 lets being arranged at the bases thereof, as shown and described, and for the purpose set forth.

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

MELCHIOR MÜLLER.

Witnesses:

JOHN E. MORRIS,
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