

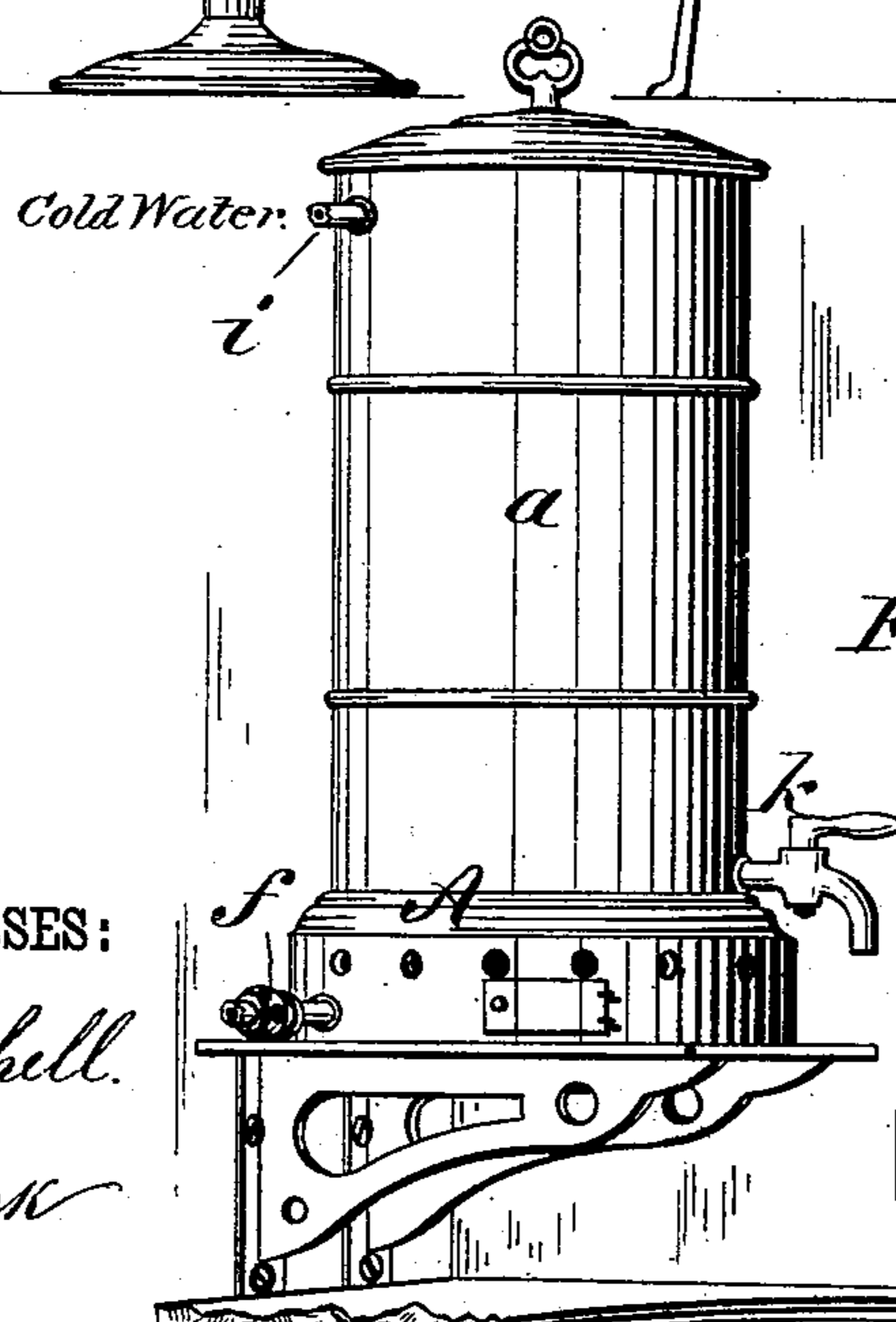
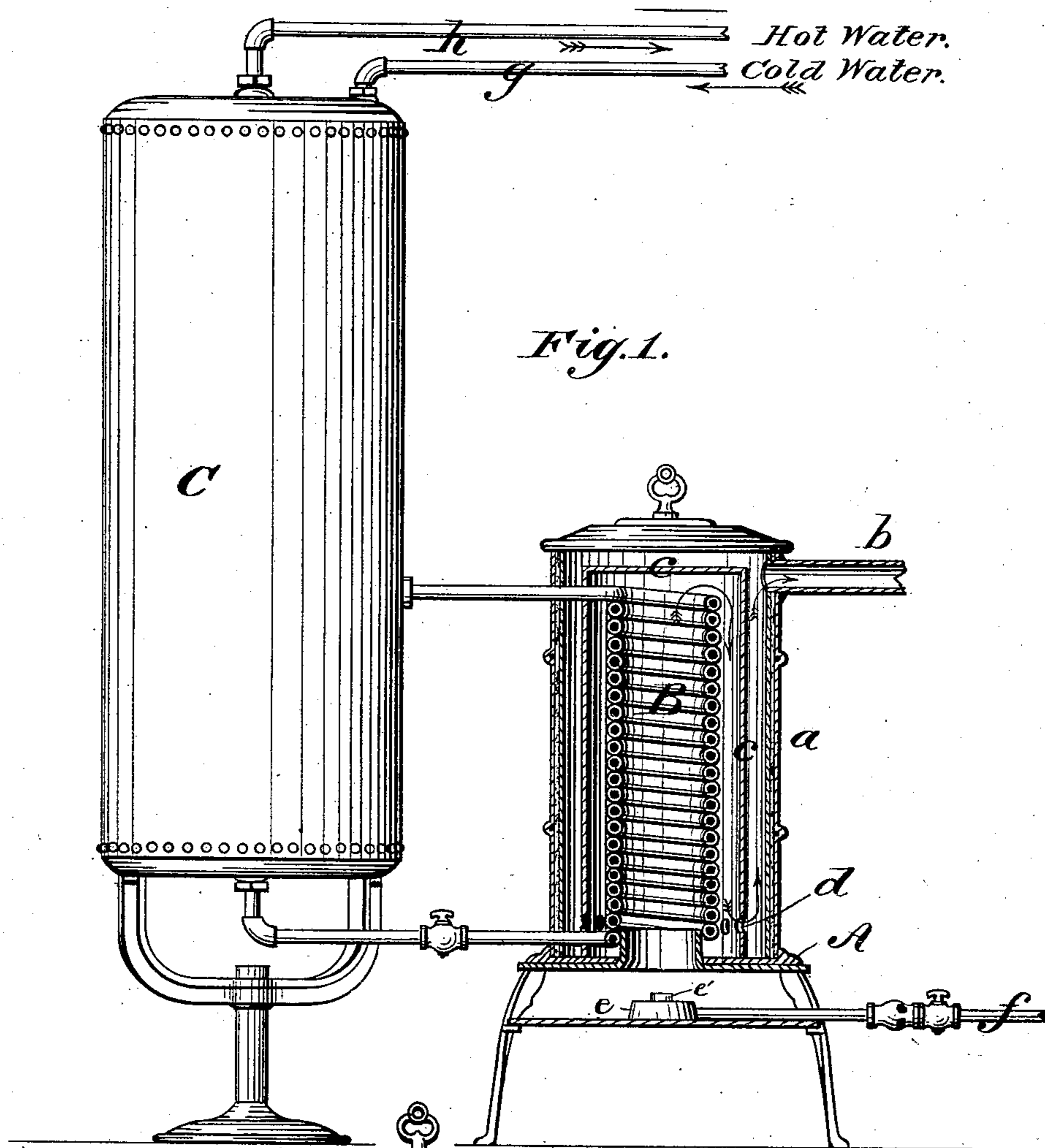
(No Model.)

2 Sheets—Sheet 1.

W. W. GOODWIN.
HOT WATER GENERATOR.

No. 247,040.

Patented Sept. 13, 1881.



WITNESSES:

D. P. Twitchell.
C. Sedgwick

INVENTOR:

W. W. Goodwin
BY *Mum & Co*
ATTORNEYS.

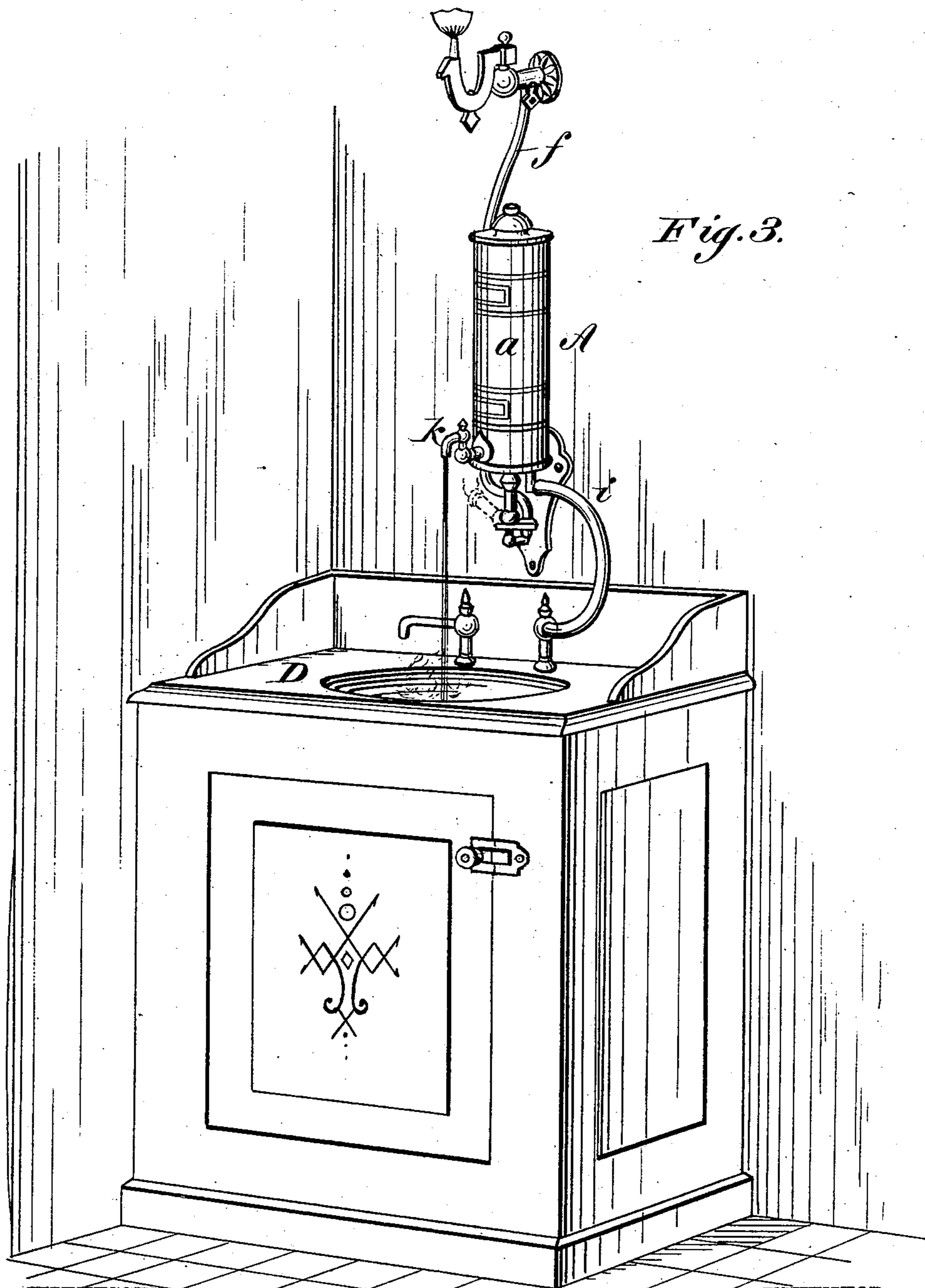
(No Model.)

2 Sheets.—Sheet 2.

W. W. GOODWIN.
HOT WATER GENERATOR.

No. 247,040.

Patented Sept. 13, 1881.



WITNESSES:

Donn P. Twitchell.
C. Sedgwick

INVENTOR:

W. W. Goodwin
BY *Munn & Co*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

WILLIAM W. GOODWIN, OF PHILADELPHIA, PENNSYLVANIA.

HOT-WATER GENERATOR.

SPECIFICATION forming part of Letters Patent No. 247,040, dated September 13, 1881.

Application filed May 12, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. GOODWIN, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Improvement in Hot-Water Generators, of which the following is a specification.

My improvements relate to apparatus for heating water by gas.

The object of my invention is to furnish a portable heater for use in heating water for bath-tubs, basins, &c., as required, or for use, in connection with a boiler, for maintaining a supply of hot water, either as a separate apparatus or in connection with gas cooking stoves and ranges.

My invention consists in a closely-wound water-coil inclosed within a double cylindrical casing arranged so that the heated air passes lengthwise of the coil in both directions, and through the outer casing to the escape-flue, whereby the heat is utilized to the greatest extent and the water in the coil is rapidly heated.

In the accompanying drawings, forming part of this specification, Figure 1 is a vertical section of the generator, which is shown in connection with a boiler or reservoir. Figs. 2 and 3 are elevations of the heater as fitted for use with basins and bath-tubs.

Similar letters of reference indicate corresponding parts.

A is the generator, having a suitable stand or base, on which is fixed a cylindrical shell, *a*, of sheet metal, which forms the outer casing of the generator. This shell *a* is preferably made double, and fitted with a non-conducting material to prevent radiation of heat, and it is provided at the upper part with an escape-pipe, *b*, whereby the products of combustion can escape to the upper portion of the room or to a chimney or flue, if desired. Within the outer casing, *a*, and concentric therewith, is a sheet-metal shell, *c*, that rests on base A, and is provided around its lower portion with a series of holes, *d*, that give communication with space between the two shells *a c*, the top of the latter being closed.

B is the water-coil, the same being a tube wound closely, to form a straight or more or less tapering coil, having its ends extending

through the casings *a c*. The coil B is tightly wound, and is of smaller diameter than the case *c*, so that there is a space around the coil, between it and the case *c*, from top to bottom. Two concentric coils may be used, if preferred. Beneath the coil B is the gas-burner *e*, that is supplied with gas by pipe *f*. The burner *e* is a Bunsen burner of any desired construction, and should have within it a smaller burner, *e'*, for use alone to keep the water hot after it has been heated by the larger burner.

In operation the products of combustion first pass upward through coil or coils B, then down at the outside of the coil to the openings *d* in shell *c*, and thence upward to pipe *b*. The coil is thus subjected to the heat on both sides by direct contact, and the heated products of combustion are utilized to the greatest possible extent.

At C, I have shown a hot-water boiler of usual construction, having water supply and outlet pipes *g h*, and connected with the coil B of the heater. This arrangement is for use where a supply of hot water is to be kept on hand, and is independent of the cooking stove or range. The generator may, however, be combined with a gas stove or range and placed outside or within the body of the stove.

For heating water for basins and bath-tubs, without circulation, the generator will be made smaller and in more portable form, as shown in Figs. 2 and 3. In this case the generator A is sustained on a shelf or bracket above an ordinary permanent wash-stand, D. The cold water is supplied by pipe *i* to the upper end of the coil, or the lower end when a double coil is used, and the lower end, *k*, of the coil-box projects over the basin and is provided with a cock. *f* is the gas-pipe supplying the Bunsen burner. By this apparatus, when hot water is wanted, the gas is to be lighted and the water drawn as required. The generator can be applied in the same manner in connection with a bath-tub, and constitutes a convenient and cleanly arrangement for supplying hot water as required.

When two water-coils are used they will be arranged one within the other, with a space between for passage of heat. The heating-surface will thus be doubled.

Having thus fully described my invention,

I claim as new and desire to secure by Letters Patent—

1. The hot-water generator A, consisting of water-coil, inner and outer cases provided with
5 openings, escape-pipe, and gas-burners, combined for operation substantially as shown and described.

2. The combination of the hot-water generator A, consisting of water-coil, inner and

outer cases provided with openings, escape-pipe, and gas-burners, with the hot-water reservoir C, to which the coil of the generator is connected, substantially as shown and described.

WM. W. GOODWIN.

Witnesses:

GEO. D. WALKER,
C. SEDGWICK.