E. LAWLER.

HOT-WATER APPARATUS.

No. 189,314. Patented April 10, 1877.

Fig. 1.

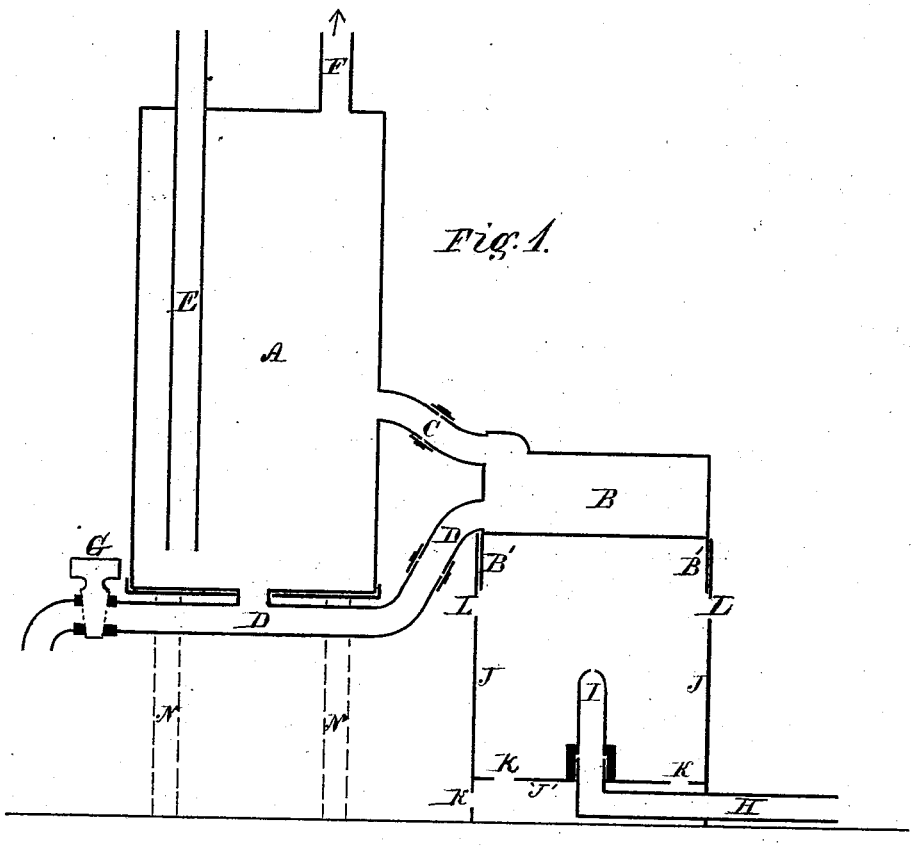
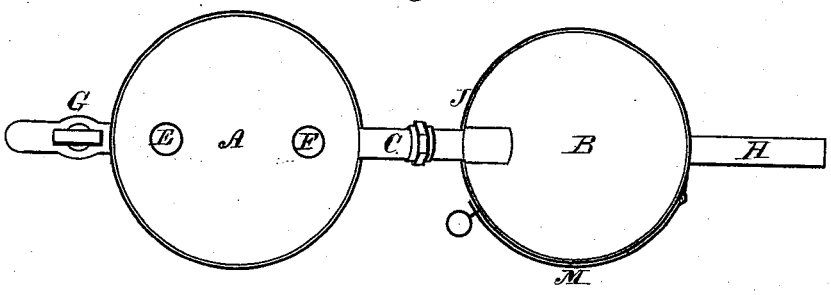


Fig. 2.



Witnesses.

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EDWARD LAWLER, OF HARTFORD, CONNECTICUT.

IMPROVEMENT IN HOT-WATER APPARATUS.

Specification forming part of Letters Patent No. **189,314**, dated April 10, 1877; application filed March 6, 1877.

To all whom it may concern:

Be it known that I, EDWARD LAWLER, of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Apparatus for Supplying Hot Water Under Pressure; and I do hereby declare that the following is a full, clear, and exact description thereof, whereby a person skilled in the art can make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon.

Like letters in the figures indicate the same parts.

My improvement relates to an apparatus designed to furnish hot water in such places as it may be needed to be kept in readiness for immediate use; but more especially in shops where hot coffee, chocolate, or other drinks are kept for sale. It is intended to be attached to the water-mains, or other source of supply under pressure, and to be automatic in its action, so as to be kept constantly full. It is also intended to be portable, so that it can be used in any place where a pipe can be led from a water-supply.

My invention consists in the combination and arrangement of the several parts, as will be hereinafter described.

In the accompanying drawing, Figure 1 shows a vertical section through my improved apparatus. Fig. 2 shows a top view of the same.

A is the reservoir for the hot water. B is the boiler where the water is heated. C and D are connecting-pipes between A and B. E is the pipe by which the reservoir A is supplied with cold water. F is the pipe by which the heated water is drawn off for use. G is a cock by which the contained water can be drawn out from the interior of the chambers A and B, when it is desired to clean them, or when the apparatus is not in use.

The reservoir A and the boiler B are preferably made of cast-iron, for ease of construction, and to avoid the danger resulting from the heating of the water in copper, zinc, or other poisonous metals.

The pipes C, D, E, and F are intended to be screwed into the cast-iron shells of the reservoir and boiler, and the pipes C and D to be afterward connected by couplings in any usual manner. The boiler B is furnished at the bottom with a cylindrical flange, B′, extending downward all around, so as to form a chamber for retaining the heat from the heating mechanism. H is a gas-pipe leading to the burner I, which passes upward through the bottom J′ of the cylindrical heating-chamber J. This chamber is furnished at the bottom with the holes K K extending around its circumference, for the purpose of admitting air to the interior to mix with the gas, and cause more perfect combustion. Near the top of the chamber J are a series of holes, L, situated just below the lower edge of the flange B′ of the boiler, for the purpose of allowing the products of the combustion to escape. The top of the heating-chamber J is open, and the boiler B rests upon it, and forms a cover.

Upon one side of the heating-chamber J there is a door, M, which can be opened to light or extinguish the flame.

As shown in the drawing, the boiler is placed on one side of the water-reservoir, and the latter is supported by the legs N, two of which are shown by dotted lines in Fig. 1. Sometimes, however, it is more desirable to place the reservoir directly over the boiler and heater. In this case the pipes C and D can be placed directly between the two parts A and B; or one or both of them may be placed upon the outside, the only requisite being that they shall commence and terminate at the proper relative height in the two chambers.

The pipe C should communicate from the top of the boiler B to a point some distance above the bottom of the pipe E, which lets in the cold water, and its point of entrance into A must be above the top of B. The pipe D should enter at or near the bottom of both chambers.

In the place of the gas-flame shown in the foregoing description, a lamp can be used in the heating-chamber J, if desired.

The operation of my invention is as follows: The cold water enters by the pipe E and fills the chambers A and B. The water in the boiler B is heated by means of the flame in the heating-chamber J. This lessens its gravity, and it rises into the reservoir A through the pipe C, while its place is filled by water

of a lower temperature flowing into B through the pipe D. The circulation thus continues until all the water in A is heated. When hot water is drawn off through the pipe F an equal quantity of cold water flows in through E to replace it. This becomes heated as before described. A constant supply of hot water is obtained, as the colder portion remains at the bottom of A, by its greater specific gravity, until it becomes heated.

What I claim as my invention is—

1. The combination of the flat cylindrical boiler B, having the flange B′, the reservoir A, and the pipes C D E F, with the chamber J for heating by means a flame, all constructed and arranged substantially as and for the purpose herein set forth.

2. The combination of the flat cylindrical closed boiler B, the reservoir A, and the pipes C D, with a mechanism for heating by means of a gas-flame, substantially as herein described.

EDWARD LAWLER.

Witnesses:

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