(No Model.)

J. S. HEATON.

WATER HEATER.

No. 521,314. Patented June 12, 1894.

Fig. 1.

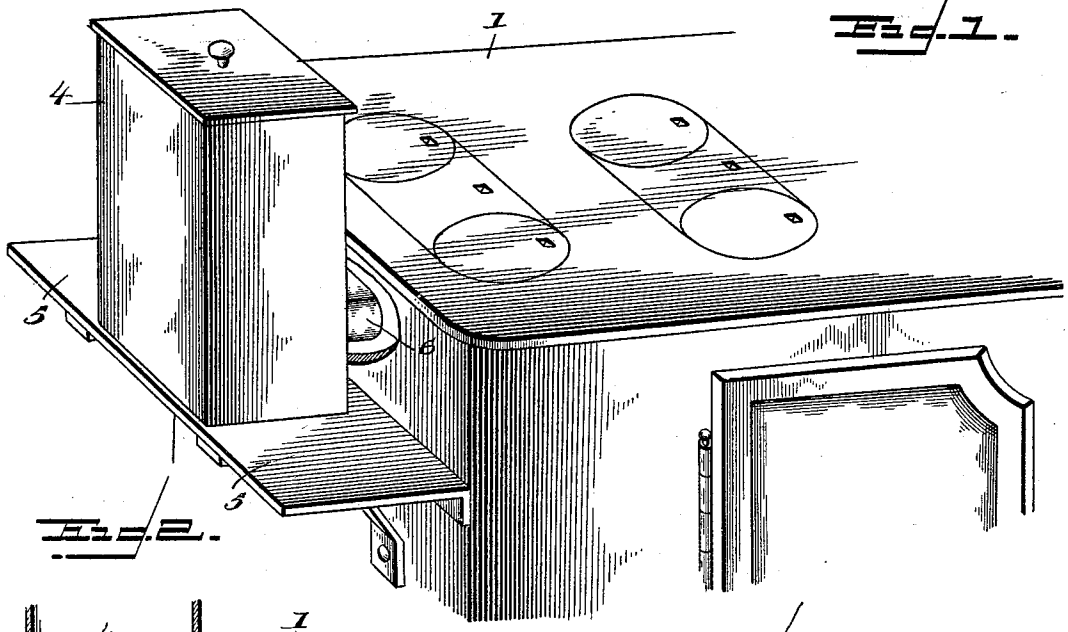

Fig. 2.

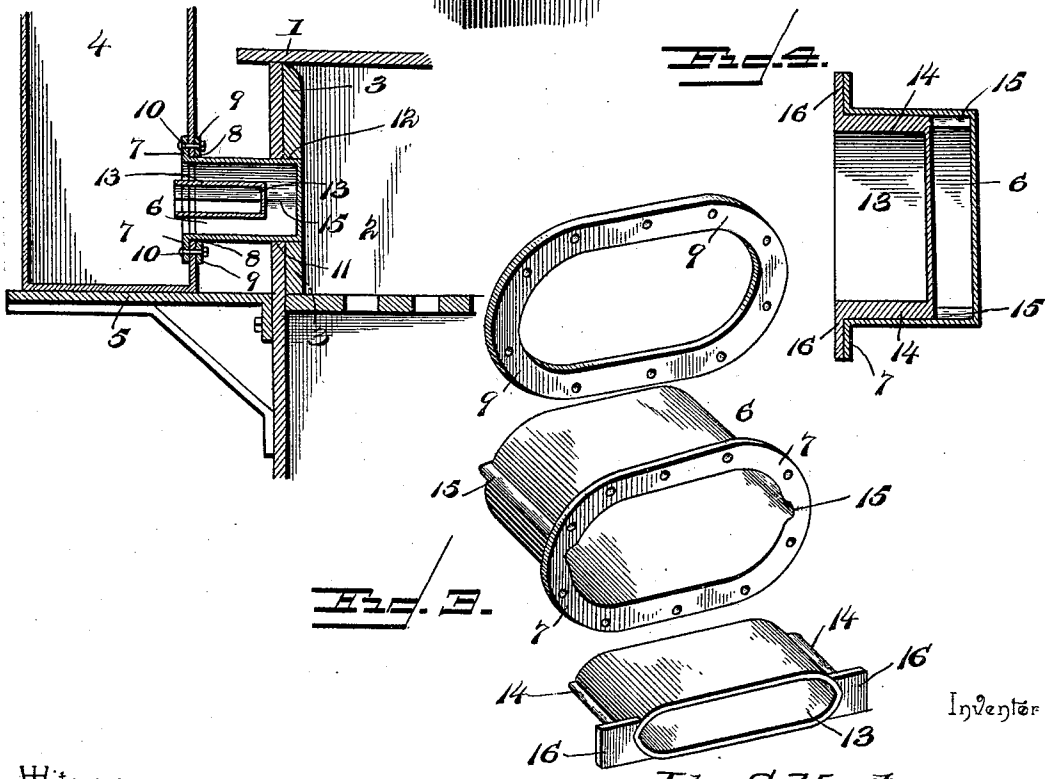

Fig. 4.

Fig. 3.

Inventor

John S. Heaton

Witnesses
E. K. Stewart.

By his Attorneys.

Cashow & Co.

THE NATIONAL LITHOGRAPHING COMPANY,
WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN S. HEATON, OF SHELBYVILLE, KENTUCKY.

WATER-HEATER.

SPECIFICATION forming part of Letters Patent No. 521,314, dated June 12, 1894.

Application filed December 23, 1893. Serial No. 494,565. (No model.)

To all whom it may concern:

Be it known that I, JOHN S. HEATON, a citizen of the United States, residing at Shelbyville, in the county of Shelby and State of Kentucky, have invented a new and useful Water-Heater, of which the following is a specification.

My invention relates to a water heater for cooking stoves, ranges, &c.; and it has for its object to provide a simple, inexpensive, and efficient device connected to and carried by a boiler and adapted to be fitted in an opening in the side of the fire-box of a stove or range, whereby the inner end thereof is brought into direct contact with the heat within the fire-box, said device being hollow and containing a removable part or member, which when in place forms a positive circulation through the heater.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claim.

In the drawings: Figure 1 is a perspective view of a water heater embodying my invention, applied in the operative position to a cooking stove. Fig. 2 is a vertical section of the same showing parts of the boiler and stove. Fig. 3 is a detail view, in perspective, of the heating device, with the parts thereof disassembled. Fig. 4 is a transverse section of the heating device to show the connection between the shell and the detachable member.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 represents an ordinary cooking-stove, having a fire-box 2, which is walled by the ordinary fire-brick lining 3, and 4 represents a boiler which is supported upon a bracket or shelf 5, secured to the side of the stove, or supported in any other suitable manner.

6 represents the attachment or heating device embodying my invention, and it consists essentially of an outer shell or box which may be of any preferred shape in cross-section, and is provided with one open end in communication with the interior of the boiler and surrounded by a flared flange 7, which is arranged in contact with the inner surface of the boiler around the opening 8, which is formed in the side of the boiler for the reception of the body of the shell. The outer end of the shell, or that end which is remote from the boiler, is closed, and a rim or collar 9 surrounds the body-portion of the shell, is arranged in contact with the outer surface of the boiler, and is provided with perforations agreeing with corresponding perforations in the side of the boiler and in the flange 7, for the reception of fastening bolts 10.

From the above description, it will be understood that the shell of the improved heating device forms, essentially, a lateral extension of the boiler, being in direct communication with the interior of the latter, and being carried by the same. An opening 11 is formed in the side of the stove, and a corresponding opening 12 is formed in the lining 3 of the fire-box, said registering openings 11 and 12 being of a size to agree accurately with the cross-section of the shell of the improved heater, whereby said heater may be inserted to bring its inner closed end flush with the inner surface of the lining. If greater heating surface is required, the shell of the heater may be inserted a greater distance so as to project beyond the inner surface of the lining, and, when desired, the heating device may be removed entirely from the stove by moving the boiler from the latter.

No fastening devices are provided to secure the heating device to the stove, and therefore the shell of the former fits slidably and adjustably in the opening provided for its reception in the latter.

In addition to the above-described construction I employ a hollow detachable part or member 13, of smaller cross-section than the shell and adapted to fit within the latter to form a partition or wall, which terminates short of the outer closed end of the shell, and thus forms a passage above and below and in rear of said member, which is adapted to cause a circulation of water from the lower levels of the boiler toward the upper levels thereof, as indicated by the arrows in Fig. 2. This detachable part or member is of a horizontal width corresponding with that of the shell, and is provided with lateral ribs 14, which fit in horizontal grooves or channels 15 in the sides of the shell, and it is provided furthermore at its inner end with lateral ears

or stops 16 to limit the insertion, and prevent the outer end of the movable part or member from coming in contact with the outer end of the shell and interfering with the above described circulation. The inner end of the part or member 13 is open and in communication with the boiler, and the outer end thereof is closed.

It will be understood that the device is operative and effective without the detachable part or member; but I preferably employ such part or member inasmuch as its arrangement in the shell produces a more direct and positive circulation of the water in the boiler. Said part or member may be detached and replaced without the adjustment or manipulation of retaining bolts or other fastening devices, being held in position by its lateral ribs, which are in engagement with the grooves or channels in the sides of the shell.

It will be understood, furthermore, that inasmuch as the heater is devoid of pipes and similar circulating means, and as the interior of the shell is in direct communication with the boiler, the accumulation of sediment or deposits does not interfere with the operation of the parts. Furthermore, there is less liability of freezing, and when the contents of the heater become frozen bursting cannot ensue as when pipes are used, because the large opening at the mouth of the shell enables the ice to expand into the boiler.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

A water heating device for attachment to boilers, consisting of a shell carried by and arranged to communicate with the interior of the boiler, and a hollow part or member fitting removably in the shell with its sides in contact with the sides of the shell and removed from the latter at its top, bottom and outer end to provide a circulating passage, and interior of said part or member being in communication with the interior of the boiler, and its outer end being closed, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN S. HEATON.

Witnesses:
M. F. PERRY,
B. B. COZINE.