

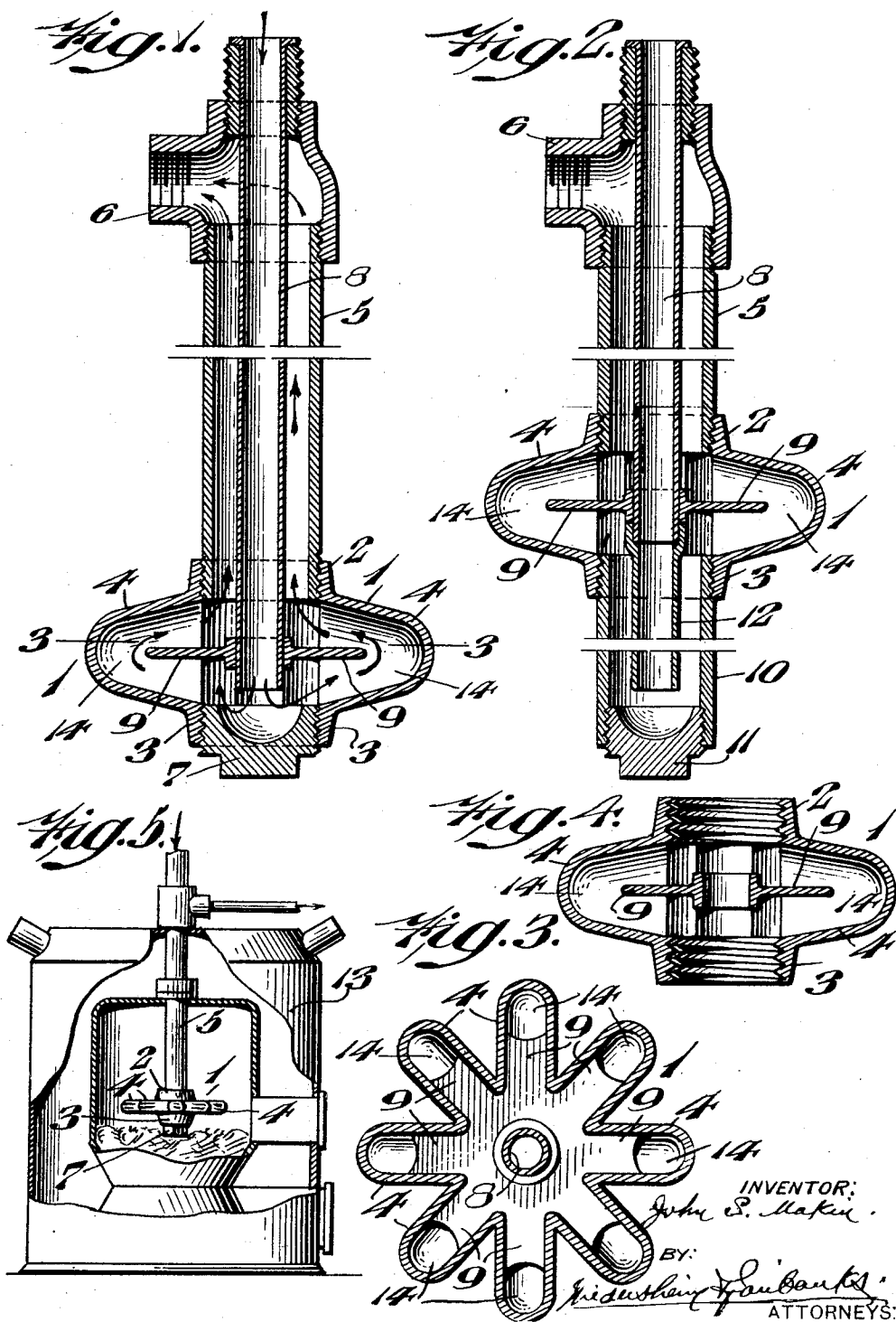
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J. S. MAKIN

AUXILIARY WATER HEATER

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UNITED STATES PATENT OFFICE.

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AUXILIARY WATER HEATER.

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This invention, generally stated, relates to an auxiliary water heater arranged to be supported within the fire pot or combustion chamber of a furnace, stove, or gas heater, and has more especial relation to the type of auxiliary water heater shown, described and claimed in Letters Patent of the United States No. 1,022,148, dated April 2, 1912, granted to myself and H. A. Shellman, jointly.

While the auxiliary water heater in the past has given excellent results, practice demonstrates that cooled water as returned to the radiating hollow branches as manufactured under the patent aforesaid too quickly passes to the element to be heated, as for instance a radiator, with the result that full efficiency of the auxiliary water heater is not obtained.

The leading object of the present invention is to overcome this disadvantageous feature and provide an auxiliary water heater of the character stated in which the radiating hollow branches of the auxiliary water heater are so arranged that cooled water as returned to the auxiliary water heater is baffled, deflected, and retarded sufficiently to become more or less heated from the furnace, stove or gas heater prior to its being delivered to the element to be heated, as for instance a radiator.

A further object of the present invention resides in the provision of a baffle plate having radiating extensions, the general configuration of the baffle plate being somewhat star shaped, the extensions of said baffle plate either having the edges thereof integral with or closely fitted against at least a portion of the side walls of each of the radiating branches of the heating chamber of said auxiliary water heater.

With these and other objects in view, the invention consists of the novel construction hereinafter described and finally claimed.

The nature, characteristic features and scope of the invention will be more fully understood from the following description taken in connection with the accompanying drawings forming part hereof, and in which:

Fig. 1, is a view in vertical section of the auxiliary water heater.

Fig. 2, is a similar view illustrating the water heater chamber extended.

Fig. 3, is a view in horizontal section taken upon the line 3—3 of Fig. 1.

Fig. 4, is a detached view in central section of the water heating chamber and its complemental baffle plate.

Fig. 5, is a view in elevation, partly sectioned, showing the auxiliary water heater positioned within a furnace.

For the purpose of illustrating my invention I have shown in the accompanying drawings one form thereof which is at present preferred by me, since the same has been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of the instrumentalities as herein shown and described.

Referring now to the drawings in detail, the reference numeral 1 designates a water heating chamber, preferably formed of cast metal, and provided top and bottom with internally threaded nipples 2 and 3 respectively. These nipples 2 and 3 are centrally arranged and radiating therefrom are a plurality of hollow branches 4. These hollow branches 4 in effect provide a generally star shaped water heating chamber as best seen in Fig. 3. In practice the water heating chamber 1 is supported by a pipe 5, the lower end of said pipe having screw-threaded relation with the upper nipple 2. The upper end of pipe 5 carries a connection 6 for the passage of heater water to a suitable heating element as a radiator, not shown in the drawings. The bottom of the water heating chamber 1, as shown in Fig. 1, is closed by a plug 7. Arranged within pipe 5 is a pipe 8 connected for the return of cooled water to the water heating element 1, the said pipe 8 being spaced from the walls of pipe 5. The pipe 8, as clearly shown, projects into the heating chamber and supports the baffle plate forming my novel structure. The baffle plate consists of a number of radiating extensions 9 equal in number to the hollow branches 4, as clearly shown in Fig. 3. This construction of baffle plate provides, generally stated, a star shaped arrangement of parts. These extensions 9 of the baffle plate extend well along the respective hollow branches and may be formed integral with the side walls of the hollow branches or closely fitted against the side walls thereof, as is very clearly shown in Fig. 3. This arrangement of parts provides a baffle plate of maximum

area so that cooled water being returned through pipe 8 is baffled or retarded temporarily so that the said water may be more efficiently heated than it is in the auxiliary water heater mentioned in the patent aforesaid. Retarding or baffling the cooled water as returned to the water heating chamber so that said water may be additionally heated adds materially to the efficiency of the auxiliary water heater since when the water is additionally heated as by my present device, the heater water passing to connection 6 obviously has the tendency to bring the water passing through pipe 8 to a higher temperature than is possible in the aforesaid patented device.

If it is desired to extend the heating surface of the heating chamber 1, a pipe or water leg 10 may be screw-threaded into the lower nipple 3, as clearly shown in Fig. 2, and a plug 11 secured to the bottom of pipe 10. In this case an extension 12 is secured with respect to pipe 8 so that the water being returned from a radiator is directed to the bottom of the water leg 10.

In Fig. 5, a furnace 13 is shown which may be of any particular type and to which my novel form of auxiliary water heater is applied.

It will be noted in the connection that all of the figures illustrate a water heating chamber in which the baffle plate extensions 9 terminate short of the outer ends of the hollow branches of the water heating chamber. Thus, considered in plan, as clearly illustrated in Fig. 3, relatively circular openings 14 are provided in each hollow branch of the water heating chamber for the passage of water to the pipe 5.

It will now be apparent that I have devised a novel and useful construction which embodies the features of advantage enumerated as desirable in the statement of the in-

vention and the above description and while I have in the present instance shown and described the preferred embodiment thereof which has been found in practice to give satisfactory and reliable results, it is to be understood that the same is susceptible of modification in various particulars without departing from the spirit or scope of the invention or sacrificing any of its advantages.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A device of the character stated, comprising a water heating chamber having a plurality of radially extending hollow branches, a baffle plate arranged within said chamber, said plate having extensions equal in number to and coincident with said hollow branches, said extensions extending into and terminating short of the outer ends of said branches and closely engaging the side walls of said branches, an inlet pipe for conveying cooled water to the bottom of said chamber and an outlet pipe surrounding said first mentioned pipe for the exit of heated water.

2. In a device of the character stated, comprising a water heating chamber having a plurality of radially extending hollow branches, a baffle plate arranged within said chamber, said plate having extensions equal in number to and coincident with said hollow branches, said extensions extending into and terminating short of the outer ends of said branches and closely engaging the side walls of said branches, the ends of said extensions and the ends of said branches, considered in plan, forming relatively circular openings, an inlet pipe for conveying cooled water to the bottom of said chamber, and an outlet pipe surrounding said first mentioned pipe for the exit of heated water.

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