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J. F. MUSTEE

2,108,691

WATER HEATER

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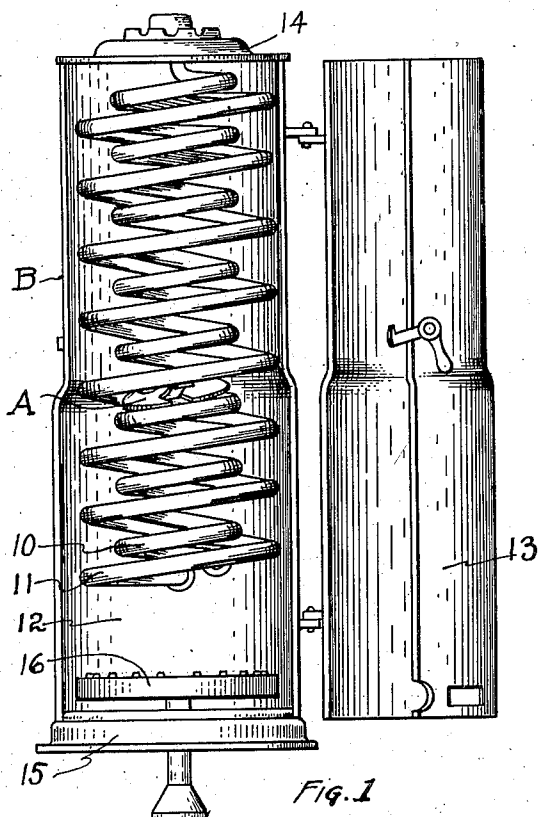


Fig. 1

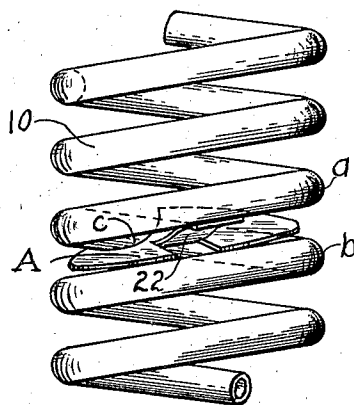


Fig. 2

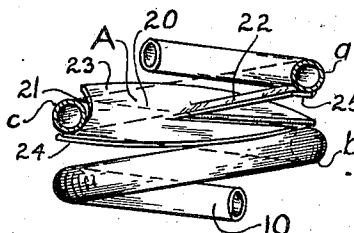


Fig. 3

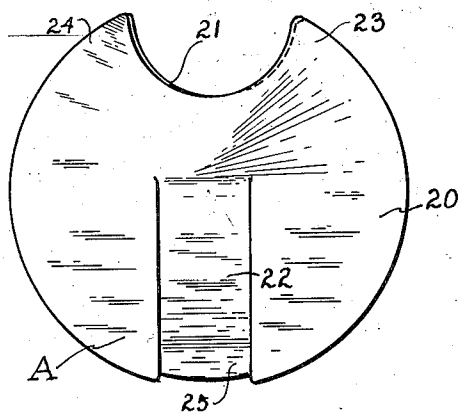


FIG. 4

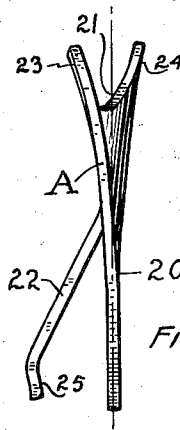


FIG. 5.

INVENTOR.
Joseph F. Mustee
BY
Hwis, Hudson & Kent.
ATTORNEYS

UNITED STATES PATENT OFFICE

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WATER HEATER

Joseph F. Mustee, University Heights, Ohio

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3 Claims. (Cl. 122-250)

The present invention relates to coil type water heaters and more particularly to baffles insertable within the convolution of the coil or coils thereof for controlling the flow of the hot gases therethrough in a manner to increase the efficiency of the heater.

An object of the present invention is the provision of a novel, improved baffle for use in coil type water heaters which can be readily detachably assembled within the convolutions of the coils.

Another object of the invention is the provision of a novel, inexpensive, improved baffle for use in coil type water heaters, which can readily be detachably assembled within the convolutions of the coil and which when assembled in the heater will remain in place without the necessity of providing supplemental means for holding the same in position.

Another object of the invention is the provision of a novel, efficient coil type water heater comprising a baffle detachably assembled within the coils for directing the flow of the hot gases therethrough in a manner to increase the efficiency of the heater within the coils, which baffle is held in place by its own resiliency and without the provision of supplemental means.

The present invention resides in certain novel details of construction, combination and arrangements of parts, and further objects and advantages thereof will be apparent from the following description of the preferred embodiment thereof, described with reference to the accompanying drawing forming a part of this specification, in which similar reference characters designate corresponding parts throughout the several views, and in which:

Fig. 1 is a perspective view of a double coil type water heater, embodying the present invention, with the jacket door open;

Fig. 2 is an enlarged perspective view of a portion of the inside coil of the heater shown in Fig. 1.

Fig. 3 is a view similar to Fig. 2 but at a slightly different angle, with a portion of the coil broken away;

Fig. 4 is an enlarged plan view of the baffle shown in Figs. 1, 2, 3 and 4; and

Fig. 5 is a side elevation of the baffle shown in Fig. 4 looking from the right.

Generally speaking, the baffle of the present invention consists of a plate or body portion formed substantially in the shape of a disc having a cut out portion on one side thereof, and a resilient member projecting from one side of the

body portion. In use, the baffle is inserted between two convolutions of a heater coil until the part thereof which resembles the cut out portion of the disc engages the rear convolution, that is, the part of the coil which connects the two convolutions between which the baffle is inserted. The general plane of the baffle plate assumes that of the front part of the convolutions between which it is inserted from which it follows that the rear part of the baffle plate extends transversely across the rear convolution or that part of the coil with which it engages. This construction limits the rearward movement of the baffle plate. The forward movement of the baffle is limited by the resilient member projecting from one side thereof which engages a portion of the inside circumference of one of the two convolutions between which the baffle is inserted and forces the body portion or plate of the baffle into contact with the other of said two convolutions. The cut out portion at the rear of the baffle plate may be of any desired shape. Preferably it is slightly reentrant and the portions to either side thereof twisted slightly, so that the rear part of the baffle securely engages about the coil where it contacts the same as clearly shown in Fig. 3.

Referring to the drawing, Fig. 1 shows a double coil circulating tank side-arm gas water heater of conventional construction except for the fact that it is provided with a baffle designated generally by the reference character A hereinafter more specifically referred to. The conventional elements of the heater include a double coil heat exchange assembly designated generally as B, comprising inner and outer coils 10 and 11, respectively, enclosed within a jacket 12 comprising a jacket door 13, a top plate 14, and a base ring 15. The burner is designated generally by the reference character 16.

In the present instance the efficiency of the heater is increased and the hot gases prevented from going directly up through the inside coil and out at the flue provided at the top in the top plate 14, by the baffle A inserted between the two convolutions a and b of the inside coil 10. While only one baffle is employed in the preferred embodiment shown it will be understood that two or more baffles may be used in the same heater as desired. The number of baffles employed in any one heater depends upon the size and type etc. of the heater in question.

The baffle shown, which is preferably stamped out of sheet metal in a single operation, generally speaking comprises a plate or body portion 20, resembling a disc having an arcuate shaped

recess or aperture 21 formed in one edge thereof, and a tongue or arm 22 projecting from about the center of the plate at an angle thereto in a radial direction diametrically opposite the recess or aperture 21. The radially extending tongue 22 is formed out of a portion of material of the plate 20 and as previously stated, projects at an angle to the plate 20 from about the center thereof toward the periphery in a direction opposite the aperture 21. The portions of the plate 20 at opposite sides of the aperture 21 are twisted out of the plane of the plate indicated by the dot dash line in Fig. 5, so that the baffle plate will more readily engage about the portion c of the coil 10 to the rear of the two convolutions a and b between which the baffle is inserted. In the particular embodiment shown the section 23 of the plate 20 to one side of the aperture 21 is raised above the plane of the plate proper while the portion 24 on the opposite side of the recess 21 is depressed.

When the baffle is assembled in the coil, the tongue 22 engages the lower inside of the upper convolutions a and forces the plate 20 down into tight engagement with the lower convolution b. The free end of the tongue 22 is slightly rounded as at 25 so as to more securely engage the lower inside part of the convolution a. This construction holds the baffle in position and prevents its movement in an outwardly direction. The fact that the rear convolution c engages within or extends through the aperture 21 in the baffle securely holds the rear part of the baffle in position and prevents its movement in a rearward direction. The manner in which the baffle is held in position between the convolutions of the coil is clearly illustrated in the drawing.

From the foregoing description of the preferred

embodiment of the invention it will be apparent that the objects heretofore enumerated have been accomplished, and that a novel baffle and hot water heater have been provided. While the preferred embodiment of the invention has been herein illustrated and described in considerable detail, I do not wish to be limited to the particular construction shown, which may be varied within the scope of the invention, and I particularly point out and claim as my invention the following:

1. A baffle comprising a body portion or plate substantially the shape of a disc having a cut out portion in one edge, and a resilient member projecting from one side of said plate, said plate adjacent to but at one side of the cut out portion being raised above the general plane thereof and at the other side of the cut out portion being depressed below the general plane of the plate.

2. A baffle comprising a body portion or plate substantially the shape of a disc having an aperture in one edge, and a resilient tongue projecting at an angle from about the center of one side of the plate in a radial direction diametrically opposite said aperture.

3. A water heater comprising a coil type heat exchange unit, a baffle plate positioned within the convolutions of the coil of said heat exchange unit and having a portion which engages a turn of the coil transversely thereof, and a resilient tongue projecting at an angle from about the center of said baffle plate and engaging said coil diametrically opposite the part thereof engaged transversely by the baffle plate for detachably retaining said baffle plate in assembled position within said heat exchanger.

JOSEPH F. MUSTEE.