Oct. 30, 1934. C. H. MORROW 1,979,008

BAFFLE FOR WATER HEATERS

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Fig. 1

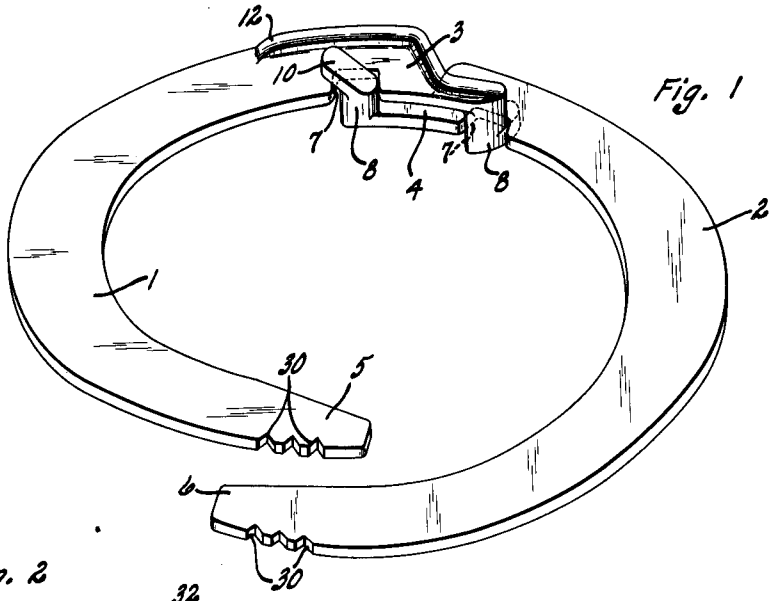
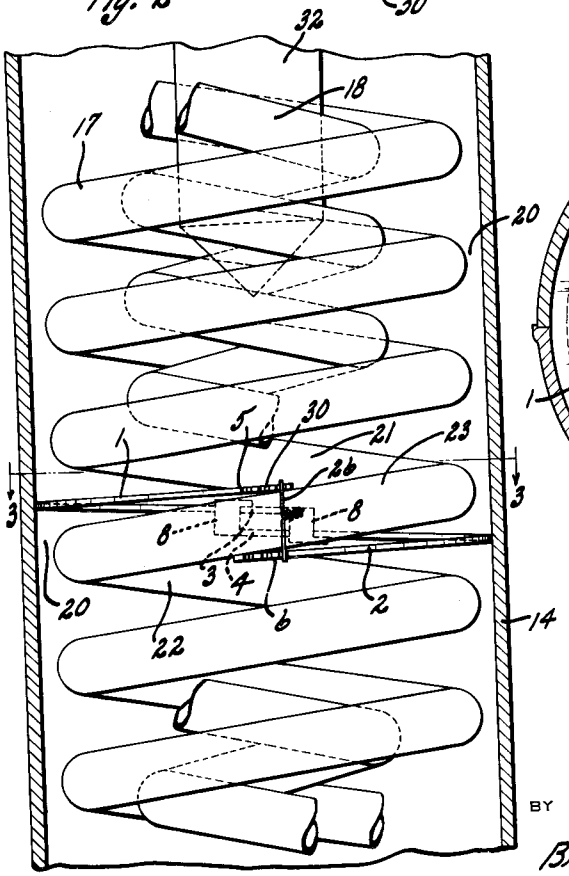


Fig. 2



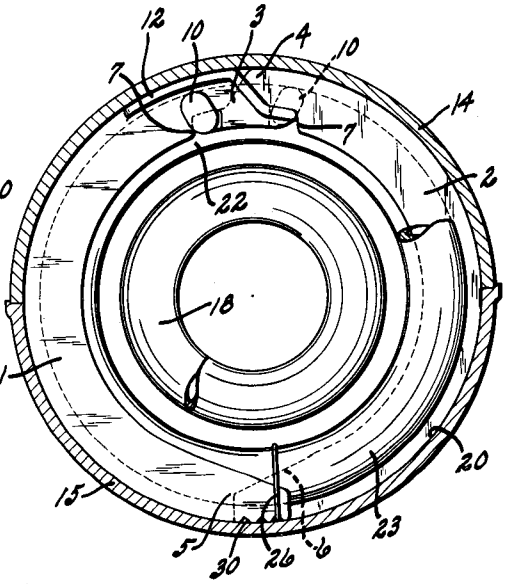


Fig. 3

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BAFFLE FOR WATER HEATERS

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7 Claims. (Cl. 122—250)

This invention relates to improvements in baffles, the invention having particular relation to baffles for domestic hot water heaters of the type having water circulating coils of helical shape surrounded and enclosed by generally cylindrical casings.

The general object of the present invention is the provision of an improved baffle of generally annular form for bridging or spanning the annular space between the helical water circulating coil of a water heater and the cylindrical casing thereof, to the end that the heated products of combustion traveling upwardly through said casing will not flow, rapidly and directly, through said space along the outside of said coil but will flow, slowly and indirectly, through and about the turns or convolutions of said water circulating coil, with obvious maximum efficiency as to heating effects.

A more specific object of the present invention is the provision of an improved baffle of the character described which comprises two simple members, of identical construction, and preferably formed by a simple and inexpensive casting operation.

Another more specific object of the present invention is the provision of an improved baffle of the character described which is easily and quickly attached to or associated with the helical water circulating coil of a water heater, in proper baffling position, and which baffle can be just as conveniently removed therefrom. The present baffle is therefore adapted for use not only with new heaters but also, with water heaters already installed, it being unnecessary to modify the coils or the casings of said heaters in any way whatsoever.

Further objects of the present invention will be apparent and others thereof will be pointed out as the description of the invention proceeds.

The invention will be readily understood from the following description of one embodiment thereof, reference being had to the accompanying drawing in which

Fig. 1 is a perspective view of the present improved baffle, the two members thereof being shown in interconnected or interlocked relation; Fig. 2 is a side view of a water heater, the casing of said heater being in section and the present improved baffle being attached, in baffling position, to the outer one of the two water circulating coils of said heater; and Fig. 3 is a horizontal cross-sectional view of said heater on the line 3—3, Fig. 2.

As above mentioned, the present improved baffle comprises two simple members 1 and 2, said members being of indentical construction for convenience of manufacture and ease of assembly. Both of said members are preferably of metal and in one piece, one inexpensive and satisfactory way of forming them being by a casting operation.

As clearly shown in Fig. 1, each of the two members of the baffle is of generally flat form and of generally semi-annular shape. In use, the two members are interconnected or interlocked to form a generally annular baffle, the two end portions 3 and 4 of said members being the parts which are interconnected or interlocked, the other two end portions 5 and 6 of said members being free of connection to each other and lying in spaced relation one above the other, as shown.

To enable the end portions 3 and 4 of said baffle members to be easily and quickly interconnected or interlocked, each of said end portions is provided in its inner edge with a notch 7 and at its end, adjacent its inner edge, with a locking lug 8 extending at substantially right angles to the general plane of said end portion, which plane is, of course, the general plane of the entire baffle member. At its outer end, the locking lug 8 of each baffle member is provided with a laterally or horizontally extending locking head 10.

When interconnected or interlocked, the baffle member end portions 3 and 4 lie in overlapping relation, with the locking lug 8 of each member in the notch 7 of the other, and due to the laterally extending heads 10 of said lugs, accidental vertical separation of said end portions is effectively prevented. As clearly shown in Fig. 1, the locking lug of the underlying end portion 4 of the right hand baffle member 2 is upwardly disposed, while the locking lug of the overlying end portion 3 of the left hand baffle member 1 is downwardly disposed, and as best shown in Fig. 3, when the two baffle members are in proper interconnected or interlocked relation, forming a generally annular baffle, each of said locking lugs 8 is at the inner end of its notch 7. For strengthening purposes, a suitable rib 12 is preferably provided along the outer edge of the connecting end portion of each baffle member, said rib being located on the surface opposite to that from which the locking lug 8 extends. In other words, the rib 12 of the end portion 3 of baffle member 1 lies on the upper surface of said end portion, as viewed in Fig. 1, while the rib 12 of the end portion 4 of baffle member 2 lies on the lower surface of said end portion.

As best shown in Fig. 1, the locking lugs 8 of the two baffle members are of sufficient length

to enable either of said members to be cocked or tilted relative to the other, to thereby permit the free end portions 5 and 6 of said members to be appreciably separated. This enables the present baffle to be used with a helical coil, it being possible for the higher disposed free end portion 5 of the upper baffle member 1 to overlie one turn or convolution of a water heater coil and the lower disposed free end portion 6 of the lower baffle 2 to underlie said turn, as shown in Fig. 2.

In Figs. 2 and 3, parts of an ordinary domestic water heater are shown, said heater having a vertically disposed cylindrical casing 14, a part of the front of which comprises a swingingly mounted door 15. Within said casing are two vertically disposed water circulating coils of helical shape, there being an outer coil 17 and an inner coil 18.

The purpose of the present baffle is to bridge or span the annular space 20 between the outer coil 17 of the heater and the cylindrical casing 14 thereof, for the purpose of compelling the heated products of combustion arising from the heater burner, (not shown) arranged below the water circulating coils, to travel inwardly, slowly and circuitously, through the turns or convolutions of said coils, rather than travel, rapidly and directly, through said annular space 20 between the outer coil 17 and the heater casing 14.

The present baffle is attached to or assembled with the outer coil 17, and such attachment or assembly is simple an easy to attain. With the door 15 of the heater open, one of the two baffle members, say member 2, is laid on one of the turns or convolutions of the outer coil, at about the height of the coil desired, said member being placed on said coil with its connecting end portion 4 to the front and with the locking lug 8 of said end portion extending upwardly. The locking lug 8 of the connecting end portion 3 of the other baffle member 1 is then inserted into the notch 7 of the connecting end portion 4 of baffle member 2 and both members are turned in a clockwise direction, Figs. 2 and 3, so as to move the connected or interlocked end portions 3 and 4 of said members to the rear of the outer coil 17, the free end portions 5 and 6 of said members being thus brought to the front of said coil. In such position, as best indicated in Fig. 2, the connected or interlocked end portions 3 and 4 of the baffle members will lie between the rear portions 21 and 22 of two turns of the coil 17, the upper disposed free end portion 5 of baffle member 1 will lie upon the upper surface of the front portion 23 of a turn or convolution of said coil and the lower disposed free end portion 6 of the baffle member 2 will lie below said coil front portion 23, all as shown in Fig. 2.

To securely maintain the two baffle members 1 and 2 in such position, bridging or spanning, and thus baffling, the annular space 20 between the outer coil 17 and the heater casing 14, a wire, cord or other flexible connecting means 26 is wrapped around the coil front portion 23 and the free end portions 5 and 6 of the two baffle members, as shown in Fig. 2, the ends of said wire or the like being suitably interconnected. If desired, and as shown, the free portions 5 and 6 of the baffle members 1 and 2 may be provided on their outer surfaces with suitable notches 30 to receive said wire, cord or other connecting means 26, as will be readily understood.

To baffle the passageway within the inner coil 18, a baffling device 32 may be employed, as is usual, said device being of any suitable construction and being maintained in place by any suitable means.

It is to be understood that the invention in its broader aspects is not limited to the precise construction of outer baffle here shown and described, as many changes may be made in the details thereof without departing from the main principles of the invention and without sacrificing its chief advantages.

What I claim is:

1. In combination with a water heater having a vertically disposed water circulating coil surrounded by a vertically disposed casing arranged in spaced relation thereto, of a generally annular baffle bridging or spanning the space between said coil and said casing, whereby the heated products of combustion travelling upwardly through said casing are prevented from flowing directly or uninterruptedly through said space, said baffle comprising two members each of generally semi-annular shape, said baffle member having two of their end portions arranged in overlapping relation and interconnected or interlocked by means of vertically disposed headed locking lugs and a cooperating lug receiving notch.

2. In combination with a water heater having a vertically disposed water circulating coil surrounded by a vertically disposed casing arranged in spaced relation thereto, of a generally annular baffle bridging or spanning the space between said coil and said casing, whereby the heated products of combustion travelling upwardly through said casing are prevented from flowing directly or uninterruptedly through said space, said baffle comprising two members each of generally semi-annular shape, said baffle members having two of their end portions arranged in overlapping relation and interconnected or interlocked by means of locking lugs and cooperating lug-receiving notches, each of said overlapping end portions being provided with such a lug and such a lug-receiving notch, said lugs being provided at their outer ends with enlarged locking heads.

3. In combination with a water heater having a vertically disposed water circulating coil of helical shape surrounded by a vertically disposed generally cylindrical casing arranged in spaced relation thereto, of a generally annular baffle bridging or spanning the annular space between said coil and said casing, whereby the heated products of combustion travelling upwardly through said casing are prevented from flowing directly or uninterruptedly through said annular space, said baffle comprising two members each of generally semi-annular shape, said baffle members having two of their end portions interconnected or interlocked, the other two or free end portions of said members being free of interconnection and lying in appreciably spaced relation one above the other.

4. In combination with a water heater having a vertically disposed water circulating coil of helical shape surrounded by a vertically disposed generally cylindrical casing arranged in spaced relation thereto, of a generally annular baffle bridging or spanning the annular space between said coil and said casing, whereby the heated products of combustion travelling upwardly through said casing are prevented from flowing directly or uninterruptedly through said annular space, said baffle comprising two members each of generally semi-annular shape, said baffle members having two of their end portions interconnected or interlocked, the other two or free end

portions of said members being free of interconnection and lying in appreciably spaced relation one above the other, said baffle being carried by said coil.

5. In combination with a water heater having a vertically disposed water circulating coil of helical shape surrounded by a vertically disposed generally cylindrical casing arranged in spaced relation thereto, of a generally annular baffle bridging or spanning the annular space between said coil and said casing, whereby the heated products of combustion travelling upwardly through said casing are prevented from flowing directly or uninterruptedly through said annular space, said baffle comprising two members each of generally semi-annular shape, said baffle members having two of their end portions interconnected or interlocked, the other two or free end portions of said members being free of interconnection and lying in appreciably spaced relation one above the other, said baffle being carried by said coil and the free end portions of said baffle members being secured to said coil.

6. In combination with a water heater having a vertically disposed water circulating coil of helical shape surrounded by a vertically disposed generally cylindrical casing arranged in spaced relation thereto, of a generally annular baffle bridging or spanning the annular space between said coil and said casing, whereby the heated products of combustion travelling upwardly through said casing are prevented from flowing directly or uninterruptedly through said annular space, said baffle comprising two members each of generally semi-annular shape, said baffle members having two of their end portions interconnected or interlocked, the other two or free end portions of said members being free of interconnection and lying in appreciably spaced relation one above the other, said baffle being carried by said coil and the free end portions of said baffle members being secured to said coil by a connecting means encircling said free end portions and a turn of said coil.

7. In combination with a water heater having a vertically disposed water circulating coil of helical shape surrounded by a vertically disposed generally cylindrical casing arranged in spaced relation thereto, of a generally annular baffle bridging or spanning the annular space between said coil and said casing, whereby the heated products of combustion travelling upwardly through said casing are prevented from flowing directly or uninterruptedly through said annular space, said baffle comprising two members each of generally semi-annular shape, said baffle members having two of their end portions interconnected or interlocked, the other two or free end portions of said members being free of interconnection and lying in appreciably spaced relation one above the other, said baffle being carried by said coil and the free end portions of said baffle members being secured to said coil by a connecting means encircling said free end portions and a turn of said coil, said free end portions being provided with notches for receiving said connecting means.

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