

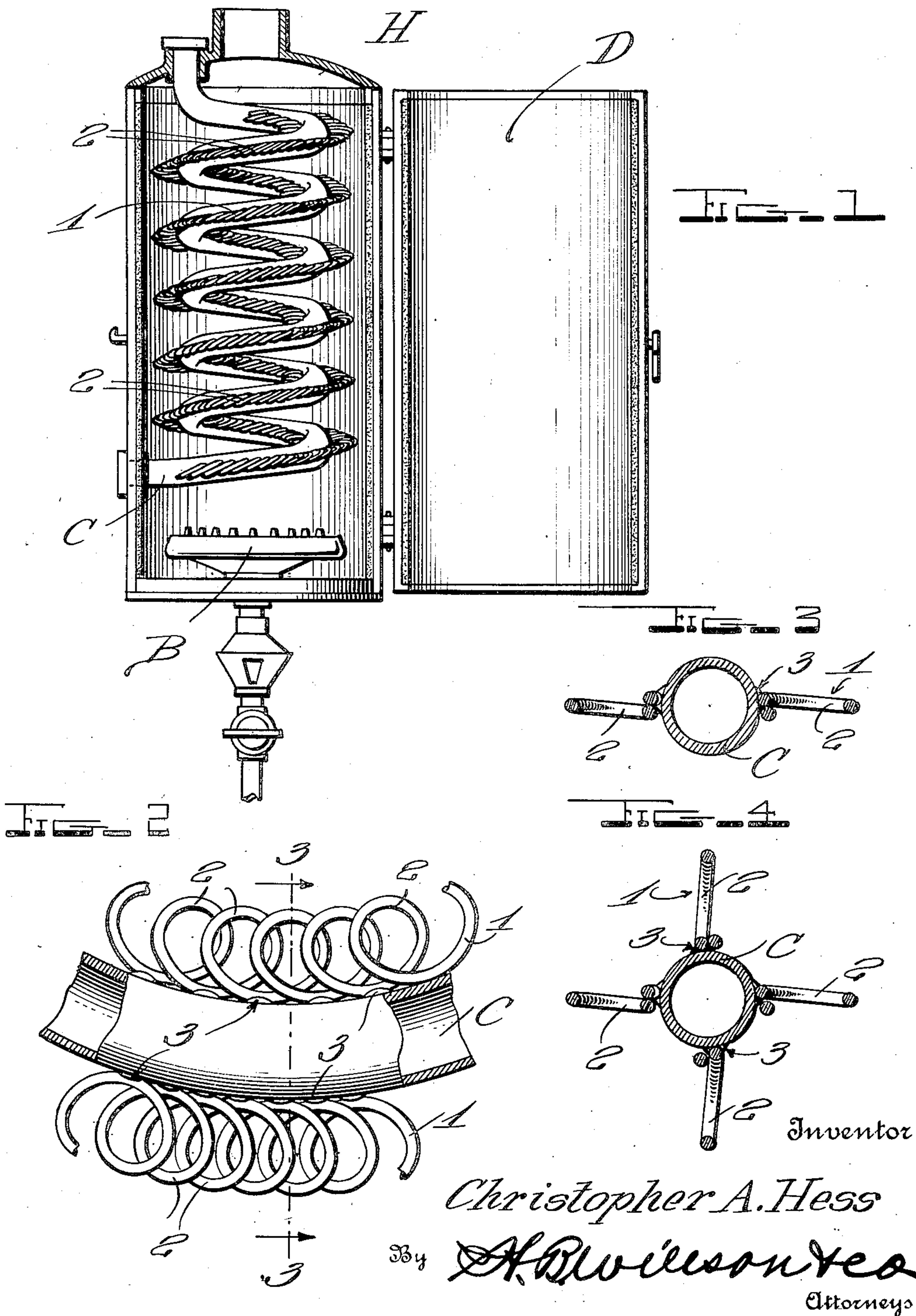
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C. A. HESS

WATER HEATER

Filed Aug. 25, 1921





# UNITED STATES PATENT OFFICE.

CHRISTOPHER A. HESS, OF ERIE, PENNSYLVANIA.

WATER HEATER.

Application filed August 25, 1921. Serial No. 495,394.

*To all whom it may concern:*

Be it known that I, CHRISTOPHER A. HESS, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Water Heaters; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improved water heater of the type used for domestic purposes, the principal object of the invention being to provide means for attachment to the coil through which the water passes for intensely heating the water without requiring the consumption of additional fuel.

Another object of the invention is to generally improve upon devices of this class by providing a structure which is extremely simple in construction, effective in operation, inexpensive to manufacture and such that it can be placed in position by unskilled hands.

A further object of the invention is to provide water heating means which is preferably constructed from lengths of wire bent to form a number of closely spaced coils and to extend these coils from the point of entrance of the water to the point of escape so that the heat will travel through the coils from one point to the other and the latter will absorb and maintain a great quantity of heat and thus insure effective heating of the water passing through the tortuous water coil or tube.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the accompanying drawings forming a part of this specification and in which like numerals are employed to designate like parts throughout the same:

Figure 1 is an elevational view of a conventional type of water heater equipped with heating means constructed in accordance with this invention.

Figure 2 is an enlarged top plan view, with parts broken away and shown in section, of a portion of the water tube showing the arrangement of the heating coils more clearly.

Figure 3 is taken substantially on the plane of the line 3—3 of Fig. 2.

Figure 4 is a similar view showing a slightly modified form of the invention.

In the drawings H designates generally a housing or casing of the conventional type of water heater which has its open side closed by a hinged door D. Arranged in the casing is a burner B and positioned over this burner is the usual hollow coiled tube through which the water passes. It is with this part of the heater that my invention is associated. In carrying out the invention I make use of two or more heat absorbing and conducting elements, each being formed from a single length of wire 1, and each length of wire being bent upon itself as indicated to provide a plurality of closely spaced over-lapping coils 2. Each of the coils 2 is disposed substantially in a plane which extends substantially longitudinally of the adjacent portion of the tube. It may be stated here, that the wire is composed preferably of some material which will not readily be destroyed and which will not easily corrode. The connecting portions of the coils are brazed or otherwise permanently secured to the water tubing C as indicated at 3 and in one form of the invention, the wires forming the coil are arranged at diametrically opposite points, and there are only two of such wires employed. However, in some instances, it is desired to employ more than two heat absorbing and conducting wires and to arrange them around the water tubing as indicated in Fig. 4 at approximately ninety degrees apart. This arrangement provides an extremely intense heat, yet I find from practical experience that the form first referred to and clearly shown in Fig. 3 will suffice under ordinary circumstances.

With an arrangement of the type shown it will be seen that the flame from the burner in playing on the water coil will thoroughly heat the coils of wire which are attached to this water coil and these wire coils will maintain the heat and serve to additionally heat the water coil so that the water passing therethrough will be heated to a greater degree from its point of entrance to its point of escape.

While I have shown and described my



improved superheater as being used in connection with the types of water heaters employed for domestic purposes and the like, I wish it to be understood that it is not to be limited to this particular use, as it can well be associated with instantaneous heaters, or in fact any kind of heaters embodying tubing upon which my wire heat absorbing and conducting elements can be brazed or otherwise secured. I also wish to emphasize the fact here that by employing a device constructed in accordance with my ideas, a great saving of fuel will be assured as the water will be heated in a much shorter time than is required by the types of heaters now commonly used.

By carefully considering the description in connection with the drawings, persons familiar with devices of this class will doubtless be able to obtain a clear understanding of the invention. Therefore, a more lengthy and detailed description is deemed unnecessary.

Since probably the best results may be obtained with the construction and arrangement herein shown and described, this is taken as the preferred embodiment of the invention. However, I wish it to be under-

stood that minor changes coming within the scope of the subjoined claims may be resorted to if desired.

I claim:

1. A fluid heating tube provided with external heat absorbing and conducting fins radiating therefrom, each of said fins being formed from a single length of wire bent into a series of coils, each coil being disposed substantially in a plane extending substantially longitudinally of the adjacent portion of the tube.

2. In a fluid heater, a vertically disposed helical fluid heating tube having external heat absorbing and conducting fins radiating therefrom and disposed at substantially diametrically opposite points, each fin being formed from a single length of wire bent to provide a plurality of overlapping coils, each coil being disposed substantially in a plane extending substantially longitudinally of the adjacent portion of the tube, the portions of wire between said coils being integrally connected with said tube to conduct heat thereto.

In testimony whereof I have hereunto set my hand.

CHRISTOPHER A. HESS.