

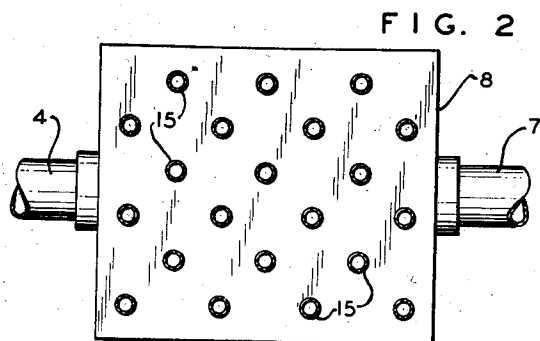
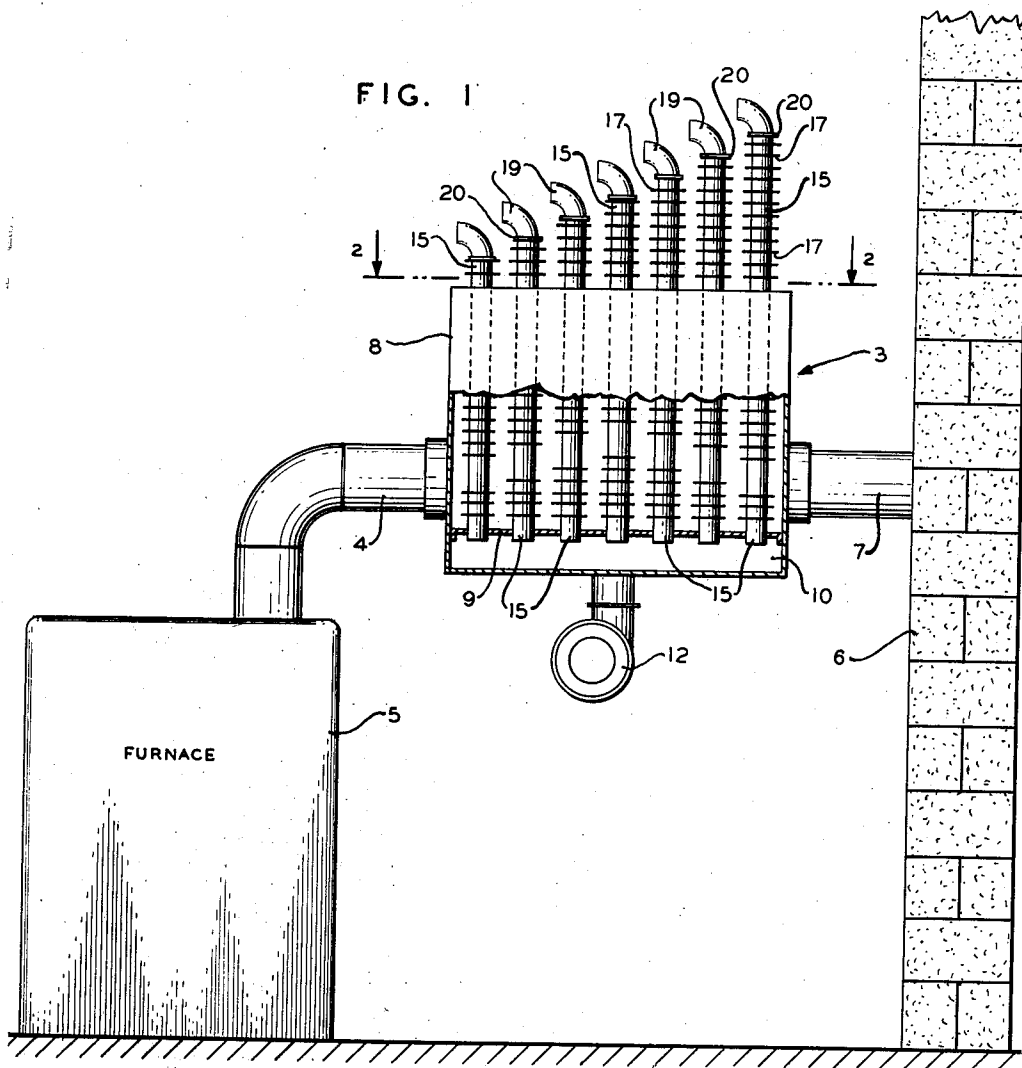
Sept. 1, 1959

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2,902,265

HEAT RETRIEVER

Filed May 28, 1957



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2,902,265

HEAT RETRIEVER

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Application May 28, 1957, Serial No. 662,237

1 Claim. (Cl. 257—171)

This invention relates to an improved heat retriever.

It is known that flue gases ordinarily have a temperature of several hundred degrees, being 600°–700° with oil burners, and that much heat is lost thereby. The present invention is capable of lowering the temperatures of such gases by as much as fifty percent or more, thereby affording a means for very substantially reducing the amount of fuel necessary for heating purposes.

The invention also provides an inexpensive heat retriever and one which may be easily and quickly installed in both new heating systems and those already in use.

The heat retriever of this invention is preferably connected between a furnace and a chimney, in the basement of a house or other structure, extracting heat from the furnace gases to heat the basement, now frequently used for living purposes, as play or work space. It is estimated that from 20% to 30% of the total fuel bill is thereby saved, of what it would cost to heat the basement without the retriever and using conventional means, as radiators, not counting the cost of radiators and piping therefor and installation expense. The heating of the basement also heats the floors of the rooms above, thereby diminishing the heat required for the latter. The heating of the basement also prevents dampness and the consequent damage to goods therein.

A feature of my invention is that provision is made whereby the heat saved may be directed to one or more parts, sections or rooms of a basement, or may be directed into one or more of the ducts serving the upper part of the house or other structure. And another feature is that the construction is such that an effective draft is not interfered with.

One embodiment of the invention is shown in the accompanying drawings, in which:

Figure 1 is an elevational view of the retriever, the housing or enclosing envelope of which is broken away to show interior construction, the view also showing the connections to a furnace, a chimney, and a blower; and

Fig. 2 is a plan view of the retriever.

Referring to the drawings for a more detailed description thereof, the numeral 3 indicates the heat retriever as a unit. The unit is connected by means of pipe 4 to a furnace 5, and to a chimney 6 by means of pipe 7, so that the furnace gases may flow through it. The unit comprises a housing or enclosure 8, made of any suitable material, as galvanized sheet iron for example. A horizontal

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partition 9, near the bottom of the enclosure, forms, with the lower part of the latter, a chamber 10 which functions as a manifold or header into which air is blown from a blower 12. The partition 9 supports a group of staggered tubes 15, disposed vertically, and parallel, the top of the enclosure also serving to hold the tubes in proper position. The size of the enclosure is such that the staggered tubes do not interfere with the draft. The tubes may be of copper, and they are provided with external, horizontal and parallel fins 17, which may be of aluminum. The high heat conductivity of the copper tubing and the aluminum fins provide for excellent heat transfer and consequent efficiency.

It will be seen that the fins are omitted from a portion of each tube, in a manner to provide an indirect and longer path for the flue gases, thereby to increase the heat exchange area.

The mentioned tubes preferably extend above the top of the housing, and terminate in elbow 19 at different levels, which elbows are swivelly connected to the main parts of the tubes by joints 20, so that heated air may be directed to one or more areas of the basement.

In operation, the hot flue gases heat the fins and tubes in an efficient manner, and thus the air blown through the tubes is heated for any desired distribution. Obviously, the heated air from the tubes may be partly or entirely sent through air ducts for distribution throughout the house or structure in which it is located.

What is claimed is:

30 A heat retriever consisting essentially of an upright gas-tight enclosure having aligned inlet and outlet orifices adjacent the lower end thereof to respectively receive and discharge hot gases from a heater, a horizontal partition within the enclosure and below said orifices and above the bottom of the enclosure, to define a manifold, a plurality of spaced rows of open-ended, spaced vertical tubes supported on said partition and opening into the manifold, the tubes of each row staggered relative to the tubes of an adjacent row, said tubes extending above the receptacle and the rows of tubes being of different lengths, to form an ascending series of rows, a plurality of heat-conducting fins around each tube both within and above the enclosure and at right angles to the lengths of the tubes, a rotatable terminal elbow secured to the upper end of each tube to form a rising series of rows of terminals, the tubes being free of fins over limited parts of their lengths to define a path for gases, said path rising from the inlet orifice and then descending to the outlet orifice, and a blower adapted to blow air into said manifold and upwardly through the tubes.

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