

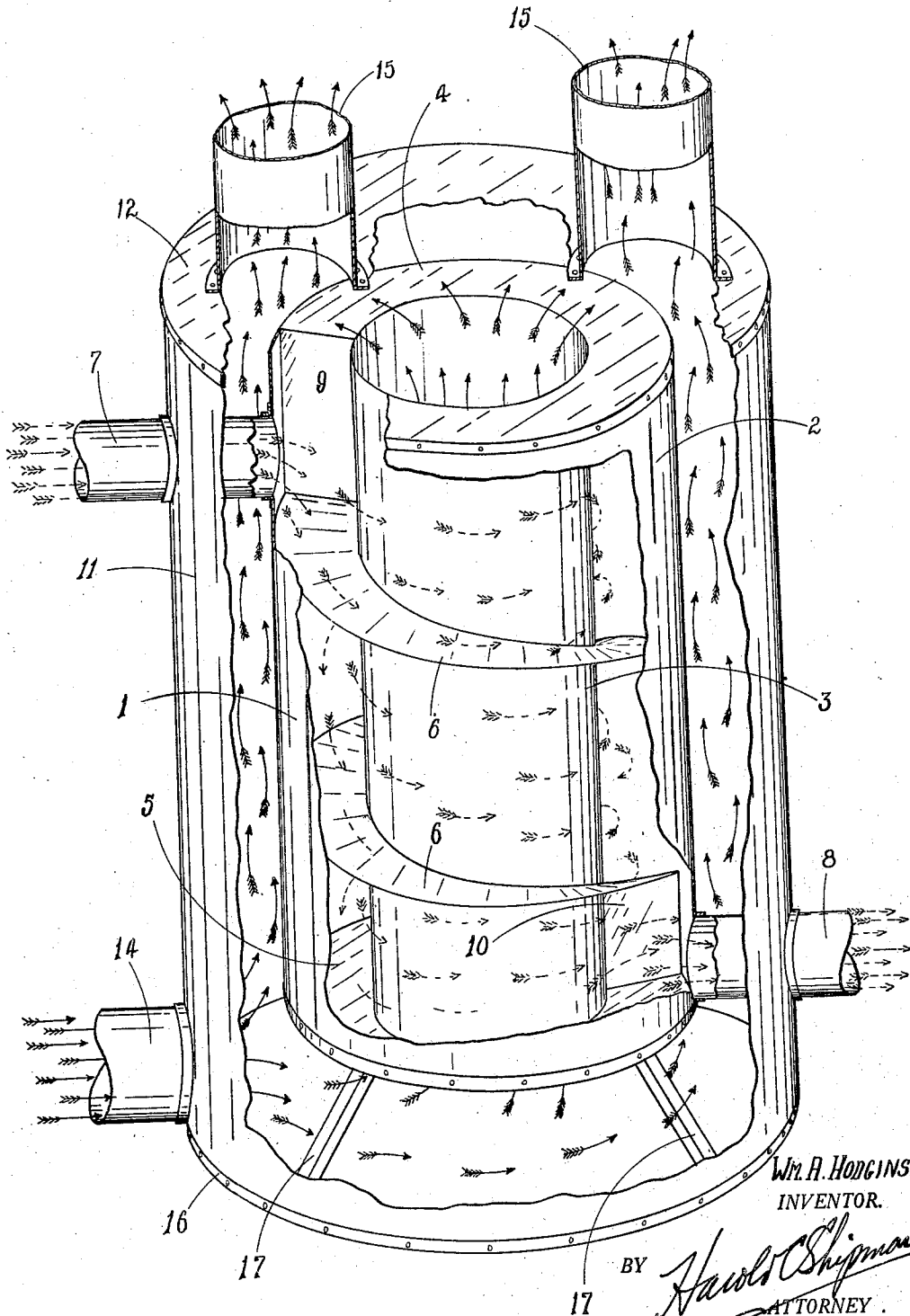
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HEAT SAVER

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# UNITED STATES PATENT OFFICE

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## HEAT SAVER

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This invention relates to a heat saver and more particularly to a means for utilizing the heat which still remains in the hot products of combustion after the same has passed around the various heating chambers of a furnace or other heating unit.

In many of the furnaces and heating units, there is not sufficient radiation surface over which the products of combustion pass to permit utilization of the heat value, especially in heating units in which there is a forced draft. Thus, considerable of the heat value passes off through the chimney. With the object in view of utilizing the heat which still remains in the hot products of combustion after they have passed around the various heat chambers, I provide the heat saver hereinafter disclosed, which is a separate unit through which the hot products of combustion are directed and further heat value radiated therefrom before passing into the chimney.

With the foregoing and other objects in view as will appear as the description proceeds, the invention consists of the novel construction, combination and arrangement of co-operating elements as hereinafter more specifically set forth, claimed and shown in the accompanying drawing forming a part of this application.

The drawing illustrates a perspective side view of the preferred embodiment of my invention, parts being broken away to more clearly illustrate the interior detail.

1 is a heat radiator, which radiator is a hollow, cylindrical casing formed of an outer cylindrical wall 2, an inner cylindrical wall 3, a top capping 4 and a bottom capping 5. The interconnecting edges between the respective cappings 4-5 and the cylindrical walls 2 and 3 may be seamed, fused, riveted or in any other way connected to make an air-tight joint. The interior between the cylindrical walls 2 and 3 is provided with a spirally formed baffle plate 6, which forms a spiral flue through which the hot products of combustion are carried during their travel from the smoke pipe to the chimney. The smoke pipe 7 from the furnace is connected in an opening in the side of the outer wall 2 adja-

cent to the upper end of the radiator, while the smoke pipe 8 is connected in an opening in the side of the outer wall 2 adjacent to the lower end of the heat radiator. If desired, an upright partition wall 9 may be positioned at the upper end of the baffle plate 6, as a closure between the outer wall 2, the inner wall 3 and the capping 4. In a similar manner, if desired, a partition 10 may be positioned at the lower end of the baffle plate 6.

11 is an outer casing provided with a top capping 12. This casing has a registering opening through which the smoke pipe 7 extends and another registering opening through which the smoke pipe 8 extends. Adjacent the lower end of the casing 11, I provide an opening to which one end of the air inlet pipe 14 is connected. The other end of the air inlet pipe leads from a cold air register or pipes connected thereto. The capping 12 is provided with one or more warm-air pipes 15, which will lead to and have an outlet into any desired part of the building being heated.

The outer casing 11 is preferably provided with a reinforcing ring 16 around its lower end. If desired the casing 11 may have a base capping, but preferably it is seated directly upon the floor. The heat radiator 1 is supported on a plurality of legs 17 in the desired position relative to the outer casing 11, so as to provide heating space below, through, around and above the heat radiator 1, the direction of air flow being indicated by the arrows in full lines, the direction of flow of the hot products of combustion being shown by the arrows in dotted lines.

When the heat saver is properly connected up and in operation, the exhaust products of combustion will be delivered by the smoke pipe 7 from the furnace into the heat radiator 1 and spirally conveyed downwardly to the smoke pipe 8 leading to the chimney. When it is being spirally conveyed, it is slightly retarded in contact relationship with the entire inner faces of the side walls 2 and 3, so as to permit the greatest possible heat radiation to the warming chamber between the heat radiator 1 and the outer casing 11.

The foregoing specification and annexed drawing disclose the preferred embodiment of my invention, but it is to be understood that minor changes may be resorted to in the commercial adaptation of my invention without departing from the scope of the invention as hereinafter claimed.

What I claim as new is:

A heat saver comprising a heat radiator unit, composed of inner and outer tubular walls; a spiral flue formed intermediate said walls and end closure caps for the opposite ends of said flue; an outer casing enclosing said unit; means for supporting said unit in said casing and in entire spaced relation therefrom; an intake pipe, for the hot products of combustion, communicating with one end of said flue; an outlet pipe communicating with the opposite end of said flue and warm air ducts extending from said casing.

In testimony whereof, I affix my signature.

WILLIAM ASA HODGINS.

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