May 19, 1942. W. A. DISOTELL 2,283,427

FIREPLACE

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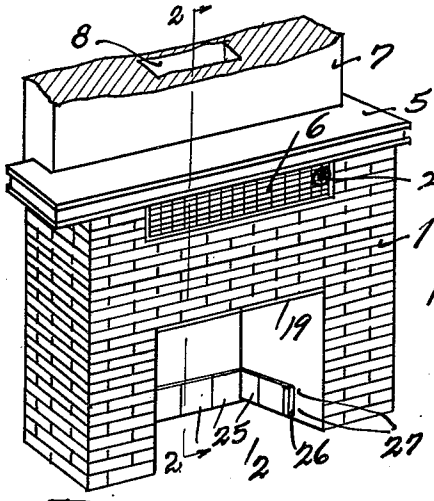


Fig. 1

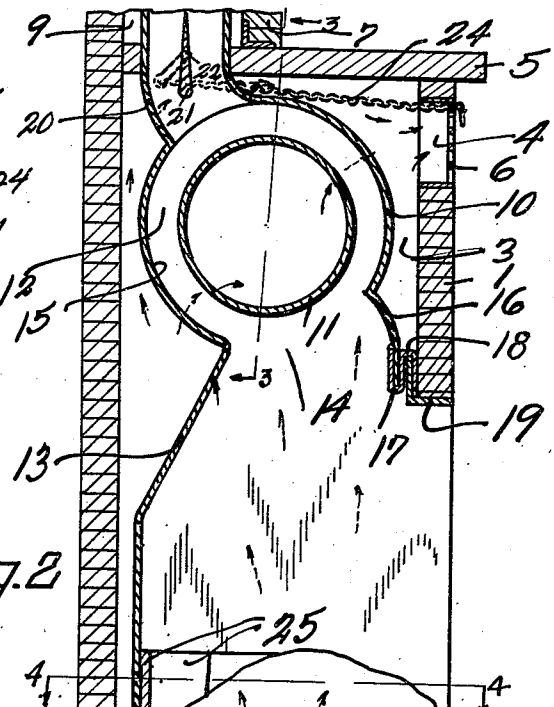


Fig. 2

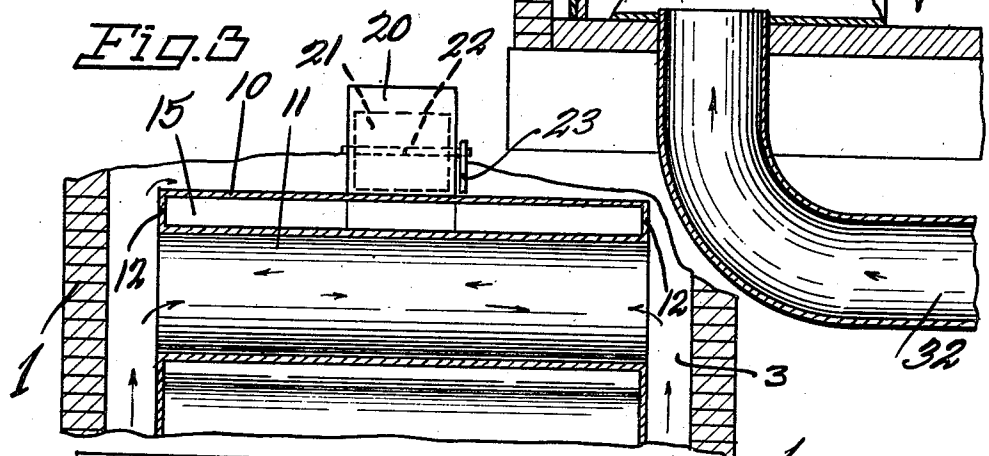


Fig. 3

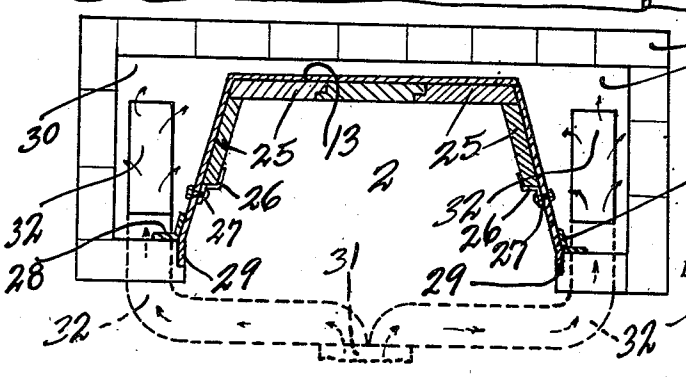


Fig. 4

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FIREPLACE

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2 Claims. (Cl. 126—121)

This invention relates to an open fireplace and it is one object of the invention to provide a fireplace having associated therewith means for heating air and delivering the heated air into the room in which the fireplace is located.

Another object of the invention is to provide a combined fireplace and air heating apparatus wherein air enters an air chamber within the fireplace and, after passing about a heating drum, is discharged through a grating into the room in which the fireplace is located.

Another object of the invention is to provide a drum mounted in the fireplace transversely thereof above the grate opening or throat of the fireplace in space through which the incoming air passes, the drum being so formed that products of combustion passing through it will quickly heat air.

Another object of the invention is to provide a device of this character wherein the lining for the fireplace merges into the entrance of the drum and the outlet of the drum communicates with the chimney, a damper being mounted in the smoke pipe for controlling flow of smoke and other products of combustion through the pipe and adjusted by means of a chain passing through the air outlet grating.

Another object of the invention is to provide an air heating attachment for a fireplace which is simple in construction, easy to install, and not liable to get out of order.

The invention is illustrated in the accompanying drawing, wherein:

Fig. 1 is a perspective view of a fireplace equipped with the improved air heating means.

Fig. 2 is a sectional view taken vertically through the fireplace.

Fig. 3 is a vertical sectional view taken transversely through the fireplace and the air heating drum on the line 3—3 of Fig. 2.

Fig. 4 is a transverse sectional view on the line 4—4 of Fig. 2.

The fireplace 1 is of the open fireplace type and may be built of brick, stone, or other suitable material. The usual open hearth 2 is formed at the bottom of the fireplace and above this open hearth is an air chamber 3 having an outlet 4 located under but close to a mantle shelf 5 and shielded at its outer end by a grating 6. A chimney 7 rises from the fireplace and is formed with the usual smoke passage 8, the lower end of this smoke passage being blocked by a portion of the shelf 5 through which an opening 9 is formed.

In order that air may be heated and smoke prevented from flowing out through the air passage 4 into a room, there has been provided a drum 10 which is formed of sheet metal. This drum extends transversely of the air chamber 3 in which it is located and has an inner tubular sleeve 11 and annular heads 12 at its ends. The drum is united to the upper end of the lining or heat reflector 13 of the open fireplace and, by referring to Fig. 2, it will be seen that the drum is open along its bottom to form a smoke inlet opening or throat 14 extending the full length of the drum and of such width that soot will be prevented from accumulating in the lower portion of the annular space or heating chamber 15 within the drum. The short wall 16 extending downwardly at the front of the inlet opening, has its lower portion engaged in the channeled portion 17 of a supporting strip 18 carried by a binding strip 19 formed of angle metal and constituting a support for the bricks forming the portion of the fireplace over the open hearth. Since the wall 16 rests in an open channel it will be well supported but may expand and contract in response to heat and cold.

A smoke pipe 20 extends upwardly from the drum, midway the length thereof, and into the chimney 7 through the opening 9, so that smoke will pass from the annular space 15 of the drum up through the smoke pipe and out through the chimney. A damper 21 is pivotally mounted in the smoke pipe by a pivot shaft 22 journaled through the pipe and carrying a lever 23 to which is attached one end of a pull chain 24. The chain extends forwardly and out through the grating 6, near one end thereof and, when pull is exerted on the chain, the damper will be swung about its pivot toward closed position. When the chain is released, the weight of the thickened lower end portion of the damper will cause it to swing to open position.

The reflector 13, which may be referred to as a casing or lining for the firebox, has lower portions of its rear and side walls faced with tiles 25 formed of cast metal and held in place by metal clips 26 held firmly against the side walls of the casing by bolts 27. Metal strips 28 extend vertically along side edges of the firebox or open hearth and cooperate with the forwardly projecting edge portions 29 of the side walls of the lining to form seals along side edges of the firebox. The lining or reflector is spaced from walls of the fireplace and cooperates with walls of the fireplace to provide the air chamber with side extensions 30. These extensions have inlets at their lower ends so that cold air passing from the air pipe 31 through branches 32, may enter

the extensions **30** and flow upwardly through the same into the air chamber **3** and about the drum to the outlet **4** of the air chamber. The air not only passes about the drum but also through the tubular sleeve of the drum. The drum and its inner sleeve are heated to a high temperature by the smoke and other products of combustion passing through the annular space **15** of the drum and contact of incoming air with the drum will cause the air to be heated before it passes out through the outlet opening **4** and the grating **6**. By properly adjusting the damper the speed at which the products of combustion pass through the drum may be controlled and the temperature of the air regulated.

Having thus described the invention, what is claimed is:

1. In a fireplace, a body defining a firebox open at its front and an air chamber over the firebox provided with an air outlet adjacent its upper end, a drum extending horizontally in the air chamber and having an upper outlet and a lower inlet, a smoke pipe leading from said drum about the outlet, a lining for the firebox constituting a reflector and having side walls and a rear wall united to the drum along marginal edges of the inlet of the drum, a front wall extending downwardly from the drum along the front edge of the inlet of the drum, a supporting bar carried by the front wall of the body along the top of the firebox and provided with an upstanding inner flange, and a supporting strip carried by the inner flange of said bar and having a channeled portion receiving the lower portion of the front wall of the lining to support the same and allow for expansion and contraction.

2. In a fireplace, a body defining a firebox open at its front and an air chamber over the firebox provided with an air outlet adjacent its upper end, a drum extending horizontally in the air chamber and having an upper outlet and a lower inlet, a smoke pipe leading from said drum about the outlet, a lining for the firebox constituting a reflector and having side walls and a rear wall united to the drum along the rear and side edges of the inlet of the drum, a front wall extending downwardly from the drum along the front edge of the inlet of the drum, and a support carried by the front wall of the body and loosely engaging the lower edge portion of the front wall of the lining.

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