

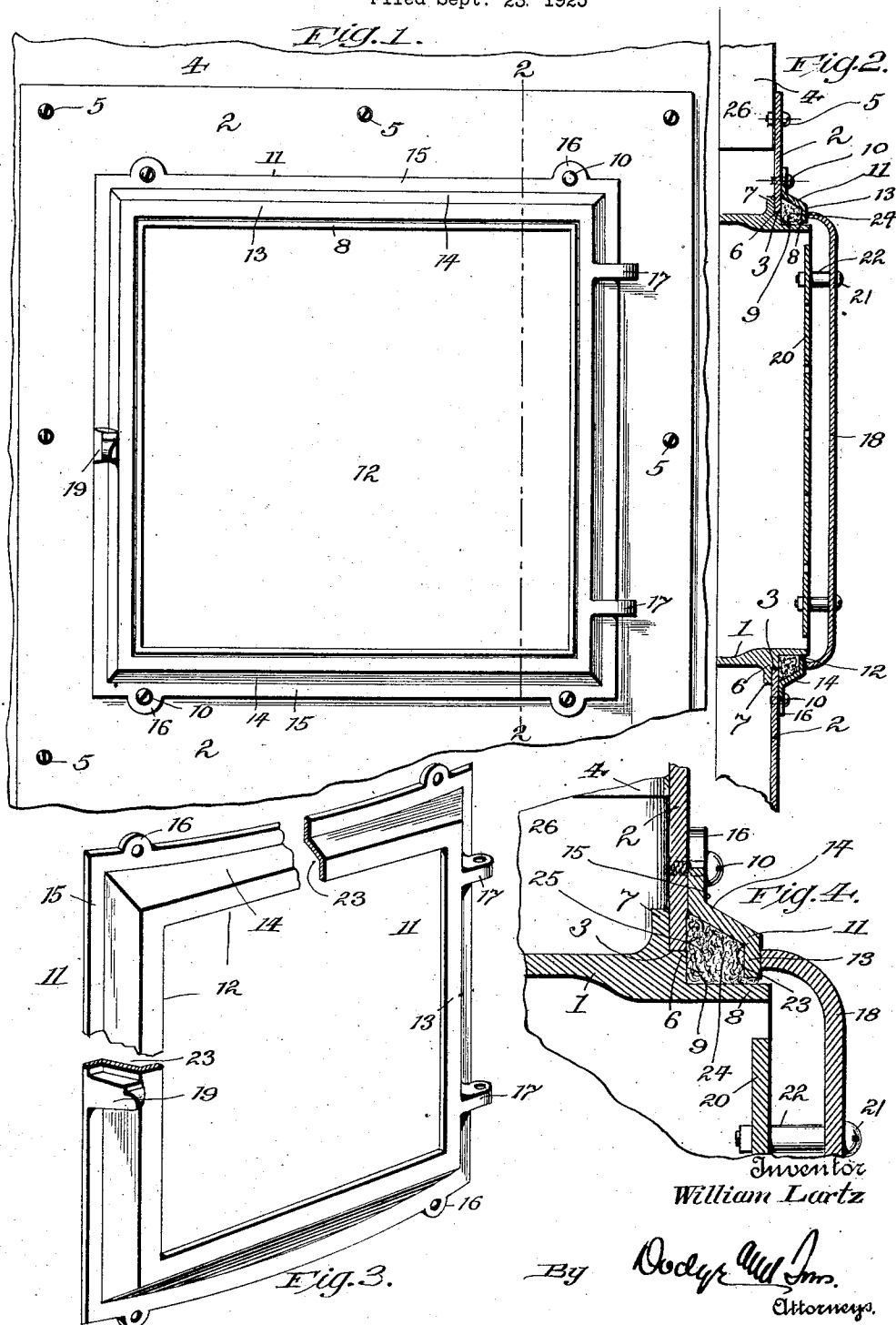
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FURNACE

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FURNACE.

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This invention relates to an improved furnace construction.

Considerable difficulty has been experienced by heating engineers in designing heating plants, particularly those of the hot air type, in which the joints in the outer casing of the furnace are gas- and dust-tight. It is the purpose of the present invention to provide such a joint.

Ordinarily, in furnaces of the type mentioned the fuel feed spout fits against the inner face of the ornamental front casting. It is extremely difficult to obtain a tight fit between the spout and ornamental front. Consequently, a relatively wide space generally occurs between the parts through which dust and gas may escape.

It is an object of the present invention to furnish a hot air furnace construction in which a gas- and dust-proof joint is provided between the ornamental front of the furnace, which forms a part of the outer casing, and the fuel feed spout or extension which leads from the exterior of the furnace into the combustion chamber.

A further object of the invention is the provision of a packing frame or member adapted to be secured in place on the outside of the furnace at the outer end of the fuel spout for the purpose of retaining a quantity of packing material in place against the joint between the spout and the furnace front to thus render the joint both gas- and dust-proof.

It is also intended that this packing frame shall be mounted in place so that it may be adjusted to compress the packing material tightly against the joint to prevent leakage therethrough.

An embodiment of the invention now in practical use is shown in the accompanying drawing in which—

Figure 1 is a front elevation of a portion of a hot air furnace showing my packing frame secured in place about the outer end of the fire box extension, the usual furnace door being omitted for sake of clearness;

Fig. 2, a vertical section taken on line

2—2 of Fig. 1, except that the furnace door is shown in place;

Fig. 3, a perspective view of the packing frame removed from the furnace; and

Fig. 4, an enlarged view of the upper part of Fig. 2.

In the drawing, 1 represents the fuel feed spout or extension which projects forwardly from the inner body of the furnace (not shown). The ornamental front casting of the furnace is designated 2, the same being made with an opening 3 therethrough which projects fuel spout 1 as clearly shown in Figs. 2 and 4. The usual sheet metal outer casing 4 of the furnace is attached to the outer edge of ornamental front 2 on the inner face thereof by any suitable means, such for instance as ordinary stove bolts 5 extending through registering openings provided in the parts.

Opening 3 in ornamental front 2 is of a size and shape which permits fuel spout 1 to fit snugly therein, as shown at 6, Fig. 4. Just within opening 3 in ornamental front 2, fuel spout 1 is provided with a continuous flange 7 which extends entirely around the fuel spout and thus serves as an abutment with which the inner face of ornamental front 2 engages to locate the parts in proper position with reference to each other.

The outer end 8 of fuel spout 1 which projects outside of ornamental front 2 is made of a reduced size in transverse cross-section so as to provide a continuous shoulder 9 which extends entirely around the fuel spout and is approximately flush with the outer face of ornamental front 2.

Attached to the outer face of ornamental front 2 by suitable means, such as screws 10, and surrounding the outer end of fuel spout 1, is a packing frame or member 11. The dimensions of opening 12 in frame 11 are slightly greater than the external dimensions of the reduced end portion 8 of fuel spout 1 so that the latter projects freely through the packing frame, as shown in Figs. 2 and 4.

In the form shown in the drawing, pack-

ing frame 11 is of rectangular shape in front elevation, but it is intended that it may be made of any desired shape to correspond with the cross-sectional shape of the outer end of fuel spout 1.

Packing frame 11 consists preferably of a single iron casting made up of an outer flat rectangular portion 13 from the outer edges of which extends a rectangular rearwardly and outwardly flaring portion 14. Along its rear edges flaring portion 14 connects with the inner edges of a rectangular portion 15 which latter, as shown in Fig. 3, is curved transversely to conform to the shape of the furnace.

Perforated lugs 16 are preferably provided on the upper and lower rear edges of portion 15 of frame 11 for the reception of screws 10 which engage with corresponding perforations in ornamental front 2 for securing frame 11 in place.

Formed on one vertical side of packing frame 11 is a pair of perforated hinge lugs 17 by means of which a combustion chamber door 18 may be hung in place. On the opposite side of frame 11 there is provided the usual notched lug 19 adapted to cooperate with a corresponding lug (not shown) on door 18 to latch the door in closed position. On its inner side door 18 may be provided with a liner 20 attached to the door by means of bolts and nuts 21 and spacers 22.

From the above description, it will be seen that the construction of packing frame 11 provides a continuous rectangular channel or groove 23 on the inner face thereof having a vertical side formed by the outer portion 13 of the packing frame and an inclined side formed by the flaring portion 14 of the packing frame.

In assembling the construction described, ornamental front 2 is first arranged in place with fuel spout 1 extending through the opening 3 therein. A quantity of suitable packing material 24, such as asbestos, is then placed either about the joint between the ornamental front 2 and fuel spout 1 or in channel 23 in the rear face of packing frame 11. Frame 11 is then slipped over the reduced outer end portion 8 of the fuel spout and pressed firmly towards the ornamental front 2, being secured in place by means of screws 10 while in this position.

With packing frame 11 in place, there is formed, by fuel spout 1, ornamental front 2 and packing frame 11, a continuous, substantially-closed compartment 25 in which packing material 24 is retained about the outer end of fuel spout 1. During the mounting of packing frame 11 in place, packing material 24 will be compressed and packed tightly against and in some cases into the joint between ornamental front 2 and fuel spout 1, thereby rendering the joint tight against

the leakage therethrough of gases and dust from fuel spout 1 into the hot air chamber 26 which is located between the outer casing 4 and the inner body of the furnace. Due to the presence of the vertical and inclined sides of channel 23 in packing frame 11, packing material 24 will be placed under considerable pressure and forced directly against the joint.

Should it at first be unnecessary, in order to secure a gas-tight joint, to draw up screws 10 sufficiently to clamp frame 11 against ornamental front 2, screws 10 will serve as adjustable means for varying the compressive force exerted by the packing frame upon the packing material.

Numerous changes may be made in my improved furnace construction as illustrated in the drawing and described herein without departing from the invention. The invention therefore is not to be regarded as restricted to the construction just mentioned, except as the same may be limited by the appended claims.

What I claim is:

1. In a furnace, the combination of an outer casing having an opening therein; a fuel spout located within the casing and having its outer end extending through said opening and projecting beyond the outer face of the casing; a packing frame surrounding the fuel spout outside of the casing; a quantity of packing material disposed against the joint between the fuel spout and the outer casing on the outside of said casing; and means for securing the frame in place so as to maintain the packing material against said joint.

2. The combination in a furnace of an ornamental front casting having an opening therein; a fuel spout having its outer end extending through and projecting beyond the outer face of the ornamental front and snugly fitting in said opening in the ornamental front; a frame mounted on the outer end of the fuel spout outside of the ornamental front casting, said frame being provided on its inner face with a channel which, together with the outer end of the fuel spout and the ornamental front casting, forms a continuous, substantially-closed compartment around the fuel spout about the joint between the spout and the front casting; a quantity of packing material filling the compartment so formed; and means for securing said frame in place.

3. The combination in a furnace of an outer casing having a rectangular opening therein; a fuel spout, a rectangular in transverse cross section, located within the casing and having its outer end extending through said opening and projecting beyond the outer face of the casing; a rectangular packing frame surrounding the fuel spout outside of

said casing; a quantity of packing material disposed against the joint between the fuel spout and the outer casing and located between said outer casing and the packing frame, said frame being formed with a supporting rim portion, a portion connected to said rim portion and converging inwardly towards the outer end of the fuel spout and a portion connected to the outer edges of said converging portion and extending at its inner edges into close proximity to the fuel spout; and means for securing the supporting rim portion of the packing frame to the outer casing to compress the packing material against said joint. 10

In testimony whereof I have signed my name to this specification. 15

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