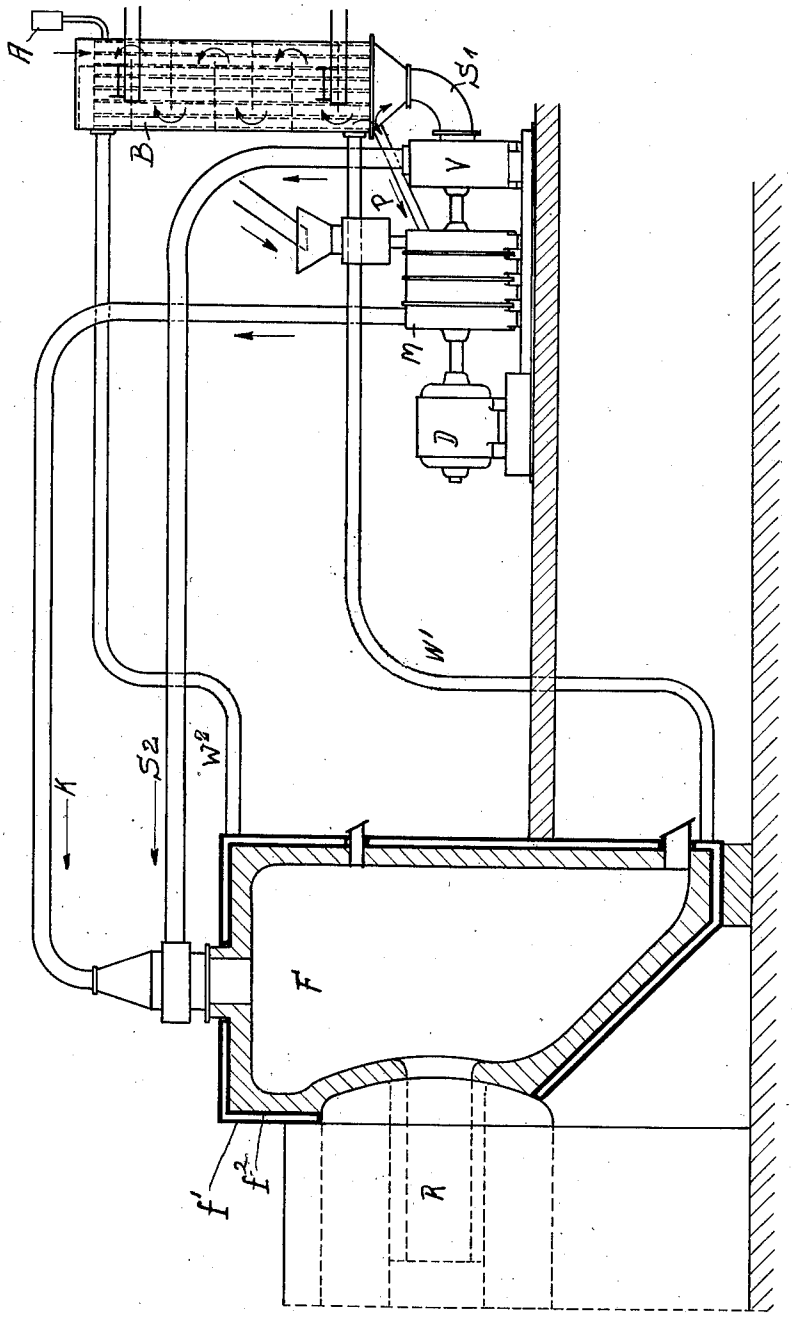
Nov. 30, 1926. 1,608,996

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MEANS FOR COOLING THE MASONRY FOR COAL DUST FURNACES

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UNITED STATES PATENT OFFICE.

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MEANS FOR COOLING THE MASONRY FOR COAL-DUST FURNACES.

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With coal-dust furnaces it is of decisive importance that the masonry be maintained in useful condition, and to this purpose it has already been proposed to surround it with a cooling water-jacket. This is done in my present invention, but besides abstracting the heat which is liberated in a large quantity at the most imperiled parts of the masonry by means of a jacket containing cooling water I conduct this heat to another part of the coal-dust furnace, or of the plant to which it pertains, this heat being then utilized either for improving the flame or for promoting the combustion by heating the combustion-air or by heating the coal dust or the mixture of coal and air.

This structure renders possible on one hand the use of comparatively large amounts of cooling water in order to ensure under all circumstances the maintenance of a proper temperature of the masonry of the coal-dust furnace, and on the other hand it is rendered possible to heat the combustion-air etc. to a requisite degree because a liquid carrier of the heat is most suited to abstract a big amount thereof.

My invention may be carried into practice by means of the arrangement and combination of parts illustrated in the accompanying drawing, which is an elevational view partly in section. The fire-chamber F is provided with a double sheet-metal mantle f^1 f^2, the thickness or strength of which is such that the walls need not be anchored by any other means. The intermediate space is filled with cooling water, and is connected by tubes W^1 W^2 with a tubular cooler B provided with a compensation vessel A. Owing to the different density and therefore different specific weight of the differently heated portions of the cooling water this latter circulates as long as the furnace is in operation. The water is conducted in a zig-zag way through the cooler B so that the heat the water has taken up in the jacket is transmitted practically completely from the water to the air propelled by fan V, the high heat-transmission coefficient between the water and the air being materially assisted by the metallic walls.

Also the primary air P sucked by the combined pulverizer and blower M is sucked through the cooler B. The heated air flows through the pipe S^2, and passes further, mixed with the coal-dust, from the pipe K and into the furnace F as indicated by arrows in the drawing.

It is obvious that the device can be used, appropriately modified, also in connection with an extended furnace of any other suitable kind.

I claim:

In a pulverized fuel burning apparatus, a burner, a combined pulverizer and blower, a conduit leading therefrom to the burner, an air preheater, a conduit leading from the preheater to the burner, a fan in said second conduit, means for conducting preheated air from the preheater to the combined pulverizer and blower, and a motor for operating both the combined pulverizer and blower and the fan.

In testimony whereof I affix my signature.

HEINRICH REISER.