

Oct. 30, 1928.

1,689,675

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FURNACE BURNING PULVERIZED FUEL

Filed Oct. 18, 1923

Fig. 1.

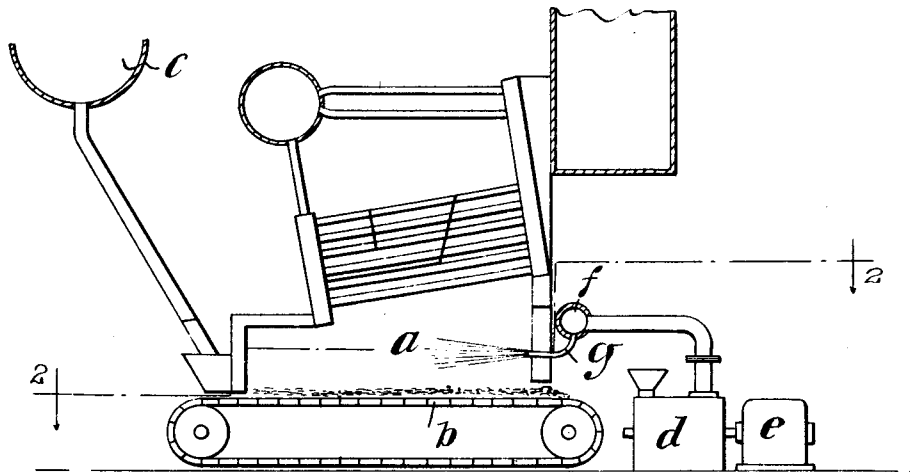
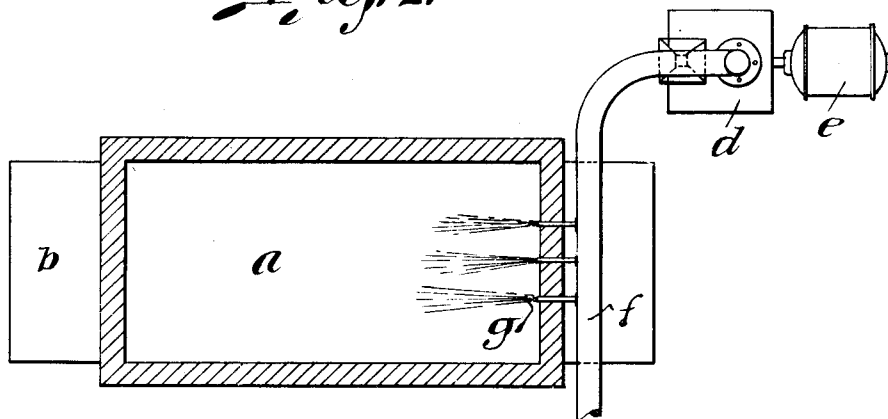


Fig. 2.



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FURNACE BURNING PULVERIZED FUEL.

Application filed October 18, 1923, Serial No. 669,263, and in Great Britain October 23, 1922.

The combustion chamber in a boiler furnace having a mechanical stoker on which the fuel is substantially completely burnt by air passing through the stoker, is used at
5 greatest efficiency only when there is a certain minimum proportion of uncombined oxygen in the gases leaving the chamber. There is difficulty in attaining this efficiency because, for several reasons, combustion on
10 the stoker is not satisfactory unless an excess of air is passing, particularly at the rear of the stoker.

This invention increases the combustion in the chamber, thus reducing the uncombined oxygen in the combustion gases, by injecting pulverized fuel into the furnace, in an improved manner, namely in such a manner that the pulverized fuel is suspended in the combustion gases over the rear part of
20 the stoker. The degree of pulverization should be such that the proportion of fuel which falls upon that burning on the stoker is small. There is thus obtained a cloud of fuel at the place where there is most uncombined oxygen.
25

One advantage of this extra combustion over the rear part of the grate is that there is produced the effect of those special devices, such as an extended arch, intended to
30 radiate upon the fresh fuel fed to the stoker and thereby to ensure its rapid ignition.

Another advantage is since there is sufficient radiation from the fuel on the stoker to ensure ignition of the injected powder,
35 the injection may be intermittent and a means is afforded for forcing the boiler by increasing the combustion in the combustion chamber when an over-load has to be met.

Finally the regulation of the air supply to
40 the furnace to that necessary for combustion is facilitated because the excess of air con-

tained in the gases leaving the mechanical stoker can be used for the combustion of the pulverized fuel.

The invention includes the combination 45 with a boiler furnace chamber of a traveling grate stoker therein and a pulverizer adapted to pulverize fuel and to inject it into the furnace so as to create a cloud of the fuel over the rear part of the stoker. 50

I have more or less diagrammatically illustrated my invention in the accompanying drawings, wherein

Fig. 1 is a vertical section thru a boiler furnace *a* having a well known traveling 55 grate stoker *b* fed with fuel from a hopper *c*; and

Fig. 2 is an irregular transverse section, substantially on the line 2—2 of Fig. 1.

At the rear of the furnace is a fuel pulverizer *d* of a rotary type driven by a motor 60 *e*. The pulverizer projects the fuel into a pipe *f* from which spring a number of jet-pipes *g* extending into the furnace at a level above the traveling grate. 65

Having thus described the nature of the said invention and the best means I know of carrying the same into practical effect, I claim:—

In combination with a boiler furnace having an offtake above the rear of the furnace chamber and a traveling grate adapted to carry the burning fuel toward the rear of the furnace, a plurality of fuel jet pipes projecting through the rear wall of the furnace 70 above the grate, adjacent the path of exit of the stream of furnace gases, and adapted to deliver jets of pulverized fuel into said gas stream. 75

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

WARNER LULOFS.