Aug. 26, 1941. R. E. DRAWZ 2,253,694

STOKER

Filed July 18, 1938

Fig. 1

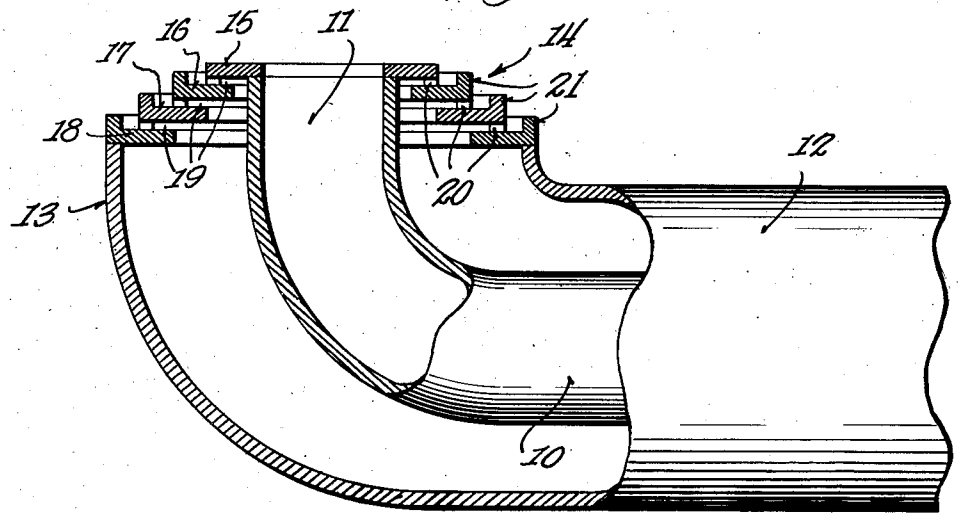
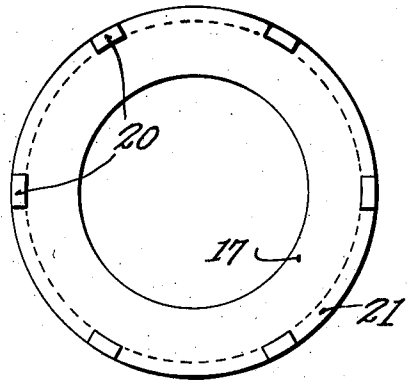


Fig. 2



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STOKER

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2 Claims. (Cl. 110—45)

This invention relates to stokers and particularly to tuyères therefor.

The prior patent to Palda, No. 1,800,747, issued April 14, 1931, discloses a type of stoker in which air is supplied to the fire bed above the grate through a horizontal tuyère disposed concentrically of and about the discharge end of the fuel supply tube or conduit.

An object of the present invention is to provide an improved tuyère for a stoker of that type which will effect efficient distribution of the air charge, which will not be materially affected by the temperatures to which it may normally be subjected, and which may be inexpensively produced.

Other more specific objects and advantages will appear, expressed or implied, from the following description of an illustrative embodiment of this invention.

In the accompanying drawing—

Figure 1 is a view part in section and part in elevation of the discharge end of a stoker embodying the present invention.

Fig. 2 is a bottom plan view of one of the tuyère rings shown in Fig. 1.

The stoker partially shown in Figs. 1 and 2 is of a type disclosed in the patent above identified, and includes the usual fuel conductor tube 10 through which fuel is directed in a well known manner, from a conventional hopper and power driven feed mechanism, through the grate to the fire bed thereabove. The tube shown has the usual upturned discharge end 11. The stoker shown also includes an air channel 12, surrounding the tube 10 and having an upturned end 13, through which air is blown into the fire bed to promote combustion.

In this instance the air conductor channel 12 terminates in a tuyère 14 specially designed to effect efficient distribution of the discharged air into the fire bed and to effectively resist the high temperatures involved and thereby avoid the consequent deteriorating effects thereon, such as is ordinarily experienced in stokers of this type heretofore used. The tuyère shown in Fig. 1 comprises a plurality of separate and separable concentric rings 15, 16, 17 and 18 preferably of different diameters, stacked one upon another, and spaced apart to provide circular gaps 19 therebetween through which the air may flow radially between the rings. To insure such spacing and to determine the width of the resulting gaps, spacer lugs 20 are provided, preferably upon the bottom of each upper ring for engagement with the ring below.

In the tuyère of Fig. 1, the upper ring 15 is the smallest and is attached to the upturned end 11 of the fuel conductor tube, the lower ring 18 is considerably larger and is attached to the upturned end 13 of the air conductor channel, and the intermediate rings 16 and 17 are of different intermediate diameters so that the resulting composite tuyère is of tapered substantially conical form. Although the several rings are preferably circular and of substantially uniform width, they may be rectangular, hexagonal, or other polygonal shape.

It will be noted that the rings, and particularly the rings 16, 17, and 18 are provided with upstanding ribs 21, or otherwise thickened, at their outer peripheries, so as to increase the heat absorbing capacity of those portions which are exposed to the heat of the fire bed, the unexposed bodies of those rings extending inwardly from the outer thickened portions serve to dissipate the heat thus absorbed. It will also be noted that the upstanding peripheral rib formation on each ring tends to deflect the air upward about and along the outer surface of the ring above to effectively cool the latter. Furthermore, these ribs by thus deflecting the air tend to break the force of the air blast and thereby effect a better distribution of the air throughout the fire bed. Also, this upward deflection of the air and reduction in the force of the blast somewhat reduces the tendency of the ash to be blown from the burner to the sides of the fire bed and results in a building up of the fire bed to a height above the burner, thus insulating the rings from the heat of the fire and also reducing the tendency of the incoming fuel to coke prematurely.

Various changes may be made in the embodiment of the invention hereinabove specifically described without departing from or sacrificing the advantages of the invention as defined in the appended claims.

I claim:

1. A tuyère for stokers comprising a plurality of concentric rings of graduated sizes superposed to form a hollow substantially conical structure, spacer lugs separating said rings to provide gaps therebetween for the radial discharge of air therebetween, upstanding concentric ribs formed along the outer peripheries of said rings, each of said ribs having an ash-supporting top face and also having an upright inner face encircling and covering but spaced from the gap below the next adjacent upper ring thereby to break the force of the issuing air

stream and to direct the air at low velocity upwardly past the periphery of the next adjacent upper ring without disturbing ash lodged upon said top faces of said ribs.

2. A tuyère for stokers comprising a plurality of concentric rings of graduated sizes superposed to form a hollow substantially conical structure, said rings being provided with openings therebetween for the radial discharge of air therebetween, upstanding concentric ribs formed along the outer peripheries of said rings, each of said ribs having an ash-supporting top face and also having an upright inner face encircling and covering but spaced from the opening below the next adjacent upper ring thereby to break the force of the issuing air stream and to direct the air at low velocity upwardly past the periphery of the next adjacent upper ring without disturbing ash lodged upon said top faces of said ribs.

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