Sept. 9, 1947. W. M. SCHWEICKART 2,427,329

CENTRAL TUYERE FOR STOKERS

Filed July 17, 1944

FIG. 1.

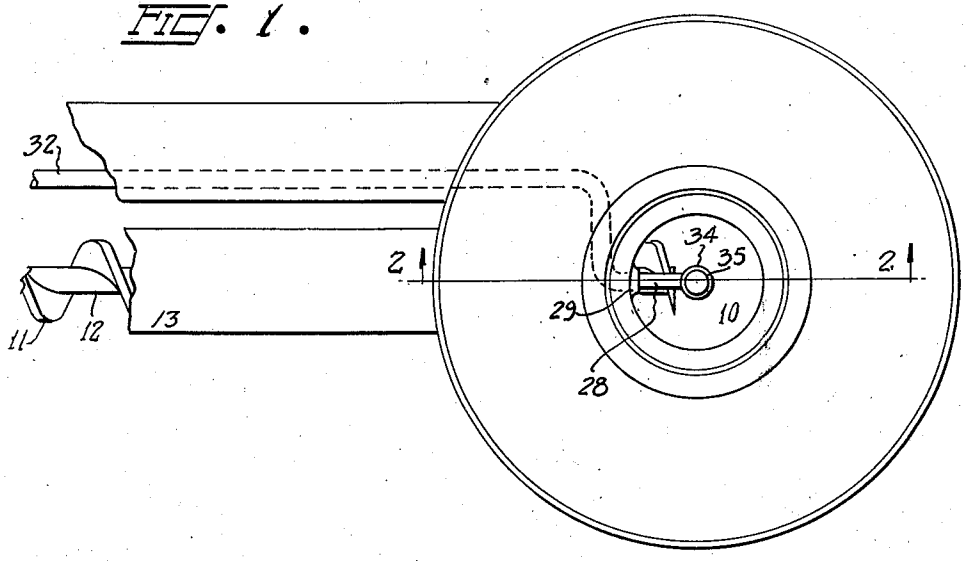
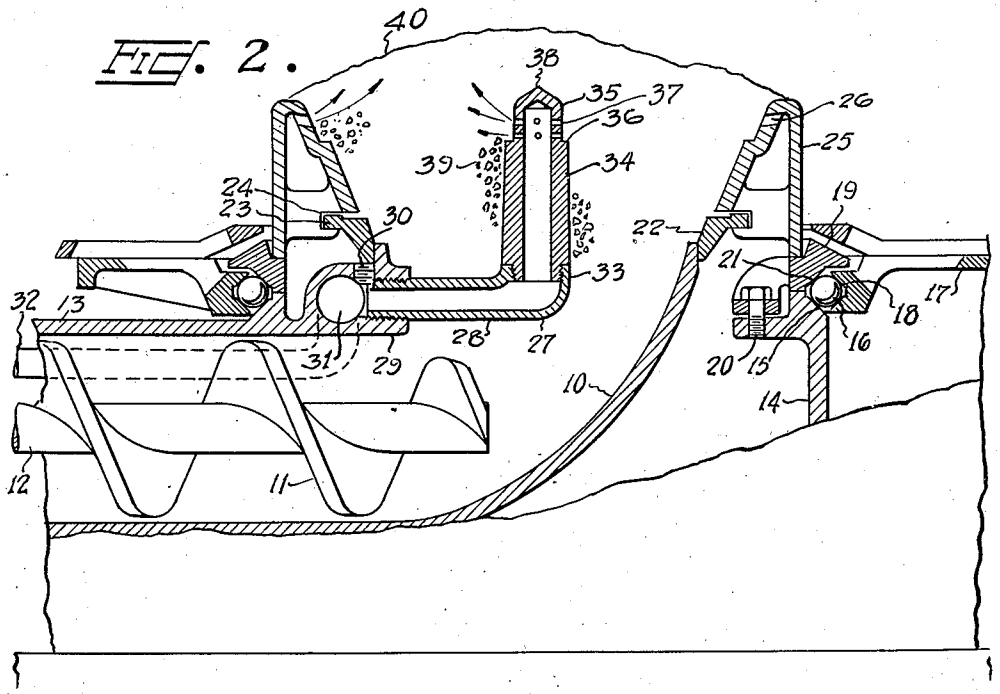


FIG. 2.



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CENTRAL TUYÈRE FOR STOKERS

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1 Claim. (Cl. 110—45)

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This invention relates generally to stokers for burning solid fuel and particularly to a central tuyère to be used in conjunction therewith.

The main object of this invention is to reduce the formation of coke columns and thereby overcome the difficulties arising from the formation thereof.

The second object is to provide a central tuyère which will introduce air to the center of the rising column of coal, whereby ignition is maintained at all times.

The third object is to produce a tuyère of the class described in which the green coal is ignited in the center of the column, thereby burning the column from within in addition to the normal combustion on the outside of the column.

The fourth object is to so supply air to the center of the tuyère that only a weak column will be formed, which breaks apart before it rises an appreciable height above the surface of the fuel bed.

The fifth object is to improve the efficiency of the stoker by so burning the material in the central column that when broken down the resulting fuel bed is denser and without blow-holes, and whereby there is produced a more efficient fire.

The sixth object is to produce a tuyère of the class described which can be easily installed and replaced, and in which the parts exposed to heat are air cooled.

The seventh object is to provide a central tuyère in which the removable top is made of heat resistant material and which is so constructed as to insure the air ports being kept open and thereby prevent the loss of ignition.

The eighth object is to provide a central tuyère which will assist in the banking of the stoker.

I accomplish these and other objects in a manner set forth in the following specification as illustrated in the accompanying drawing, in which

Fig. 1 is a fragmentary plan of a retort in which the central tuyère is installed.

Fig. 2 is a fragmentary vertical section taken along the line 2—2 in Fig. 1.

Similar numbers refer to similar parts throughout the several views.

Referring in detail to the drawing, there is shown a retort 10 into which fuel is conveyed by a worm 11, whose shaft 12 is propelled by any convenient prime mover (not shown). The worm 11 is disposed within the coal tube 13 which extends between the retort 10 and a fuel storage hopper or bin (not shown). Surrounding the retort 10 is a base 14 whose circular inclined edge 15 is a burying face for the anti-friction balls 16,

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which support the ash table 17, the balls 16 fitting into the groove 18 formed in the table 17. The details of construction of the table 17 will not be explained further here, as they will form a part of another application.

Secured to the base 14 is a ring 19 by means of the bolts 20. The face 21 of the ring 19 is complementary to the edge 15. Mounted on the retort 10 is a ring 22 whose outer edge 23 engages the slots 24 in the sectional tuyères 25, whose air outlet 26 projects radially toward the center of the retort. Suitable means are provided for rotating the ash table 17 for the purpose of carrying the ashes to a common pick-up point.

Referring particularly to my invention, same will be seen to consist of an elbow 27 whose horizontal portion 28 is threaded or otherwise secured in the retort portion 29. If threaded, it is desirable to prevent movement by means of a locking screw 30. The horizontal portion 28 of the elbow 29 communicates with the cavity 31, which is connected by means of a pipe 32 to a source of air supply, preferably to a point of high velocity at the fan itself, although not necessarily so.

Threaded into the vertical portion 33 of the elbow 27 is a stand pipe 34 whose reduced upper end 35 is provided with a shoulder 36, the presence of which prevents the rising column of fuel from blocking the air ports 37 formed in the side of the upper end 35. The uppermost tip 38 of the member 34 is closed and preferably shaped as shown. It is desirable to construct the members 27 and 34 of a heat resistant material, although much of the heat absorbed by these elements is carried away by the air flowing through the ports 37.

It can be seen from the foregoing that the green coal 39 rising upwardly around the stand pipe 34 protects that element and as it begins to volatize and ignite, it is immediately supplied with sufficient air to consume it internally, thereby preventing the formation of a strong coke column and insuring the crumbling of the upwardly moving mass of fuel before it reaches an objectionable height, that is, one which might later fall over against the fire door and open same, or at least disrupt the contour of the fuel bed 40.

While I have thus illustrated and described my invention, it is not my desire to be limited to the precise form shown herein, and I intend to cover such forms and modifications of the invention as fall fairly within the appended claim.

I claim:

In a stoker, the combination of a coal feeding tube terminating in an upwardly turned circular

retort, a feed worm in said tube extending to a point near the vertical axis of the retort, a base surrounding said retort and forming a plenum chamber therewith, an air standpipe extending along the vertical axis of said retort above the end of said feed worm, means for supplying air to the lower end of said standpipe, the upper end of said standpipe having lateral outlet openings, a race ring mounted on said base, said ring and base having a balled groove formed therebetween, an internally grooved ash table surrounding said balled groove, anti-friction balls between said ash table and race ring, a tuyère locking ring resting on said retort and a plurality of tuyère blocks adapted to have their outermost edges rest upon said race ring and having notches on their inner side adapted to receive said locking ring.

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