April 12, 1932. E. G. CROZIER 1,853,408

FUEL BURNER

Filed May 10, 1930

Fig. 2.

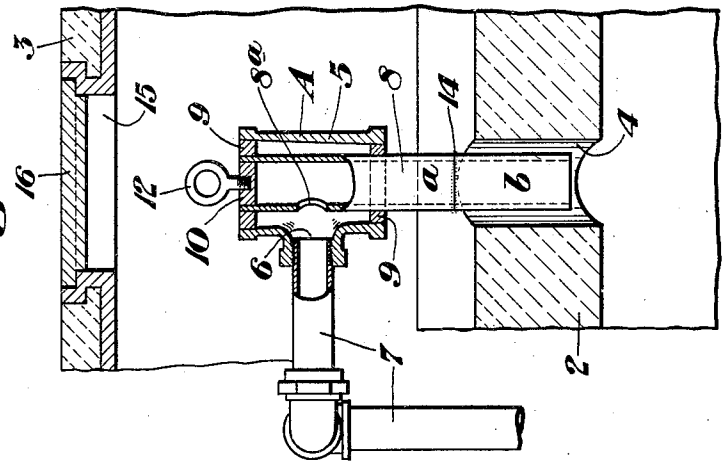
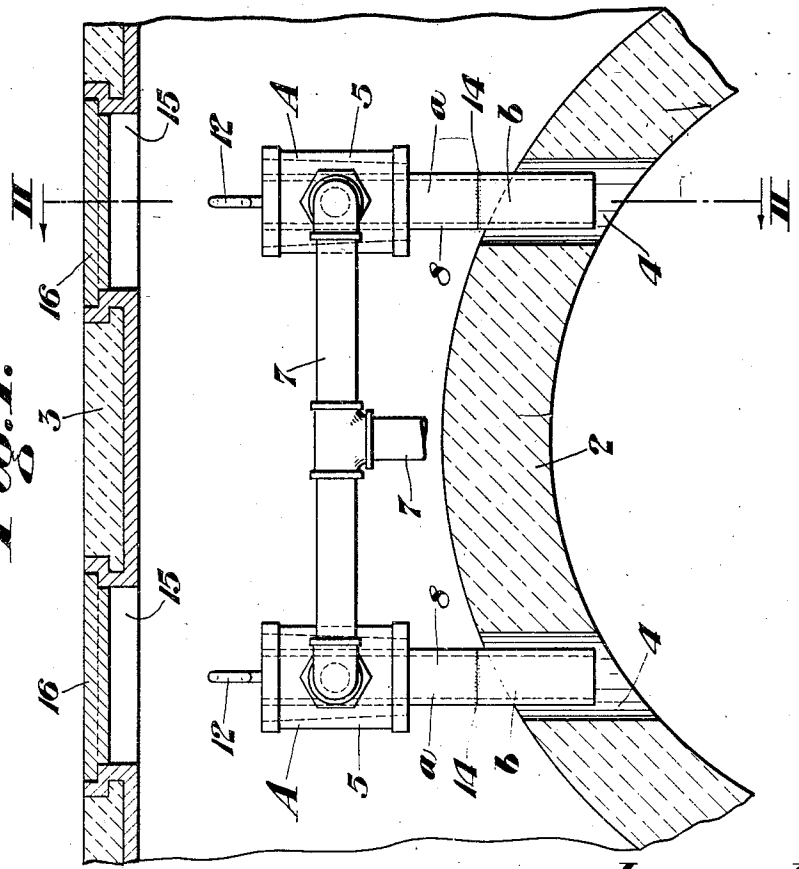


Fig. 1.



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UNITED STATES PATENT OFFICE

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FUEL BURNER

Application filed May 10, 1930. Serial No. 451,464.

This invention relates to burners and, while not limited thereto, relates more particularly to gaseous fuel burners for use with mill pit furnaces and the like and has for one of its objects the provision of a novel form of burner having a quickly removable and replaceable burner pipe.

Another object is to provide a novel form of burner pipe adapted to have frictional sealing engagement with the burner body, thereby permitting quick assembly and disembly of the burner.

A further object is to provide a burner pipe having a renewable nose portion which may be readily replaced when the nose becomes burned or otherwise destroyed.

In the drawings:

Figure 1 is a transverse sectional view through the upper part of a furnace having the novel burners of this invention mounted therein.

Figure 2 is a fragmentary sectional view taken on the line II—II of Figure 1 and showing the burner partly in section.

Referring more particularly to the drawings, the numeral 2 designates the roof of a pit furnace which is constructed below the mill floor 3. The roof 2 is provided with burner ports 4 to receive the burner pipes of the burners A of this invention.

The burners A are composed of standard pipe and pipe fitting and comprise a body portion 5 formed from a T-fitting which has the internal bore of its head reamed on a taper. The side opening of the T-fitting forms a fuel inlet port 6 which is connected to a fuel supply pipe 7.

A burner pipe 8 is mounted in the body 5 and extends a material distance beyond said body so as to enter the burner ports 4. The ports 4 are materially larger than the pipe 8 so as to provide an annular space around the pipe through which the air to support combustion passes into the furnace.

The pipe 8 is of materially smaller diameter than the body 5 in which it is mounted and is spaced centrally therein by combined spacer and sealing rings 9 which are spaced longitudinally on the pipe 8 so as to close the upper and lower ends of the body 5. The side faces of the rings are tapered to match the taper of the internal bore of the body 5 so as to have a sealing fit therewith.

The outer end of the pipe 8 is closed by a permanent plug 10 which is welded in place. an eye 12 is secured in the plug 10 to facilitate the removal of the burner pipe. The pipe 8 is provided with an opening 8^a in its side wall in line with the fuel inlet port 6 in the body 5 to permit the fuel to enter the pipe 8.

The pipe 8 is formed in two pieces *a* and *b* which are welded together, as at 14, so that when the nose or furnace end becomes burned it may be removed by cutting along the weld line and a new nose-piece substituted. If desired, the nose-piece *b* may be formed from special alloy capable of withstanding the heat better than standard pipe.

The floor 3 above the furnace roof 2 is provided with openings 15 above each burner through which the burner pipes may be withdrawn. The openings 15 are normally closed by cover plates 16.

In operation, when the nose *b* of the burner pipe 8 becomes burned and it is desired to replace it, the cover plate 16 in the floor 3 immediately above the burner is removed and the burner pipe 8 withdrawn from the body 5 by applying a lifting force either manual or mechanical, as by a hoist, to the eye 12 in the burner pipe. After the burned pipe 8 is removed it may be immediately repaired and replaced, or, if desired, a new pipe may be substituted. In either case, the operation may be quickly performed and no permanent connections need be disturbed.

While I have shown and described one specific embodiment of my invention, it will be understood that I do not wish to be limited thereto since various modifications may be made without departing from the scope thereof, as defined in the appended claims.

I claim:

1. A fuel burner comprising a cylindrical body portion open at each end and having a fuel inlet port in its side wall, said body portion having a tapered internal bore, a burner tube of materially smaller diameter than said body portion removably mounted

centrally within said body portion and extending appreciably beyond said body so as to enter the burner port of a furnace, a plug secured in the outer end of said burner tube, and rings on said burner tube having tapered side walls and adapted to engage and seal with the internal bore of said body portion to close each end thereof, said burner tube having a port in its side wall adjacent the fuel inlet port in said body.

2. A fuel burner comprising a cylindrical body portion open at each end and having a fuel inlet port in its side wall, said body portion having a tapered internal bore, a burner tube of materially smaller diameter than said body portion removably mounted centrally within said body portion and extending appreciably beyond said body so as to enter the burner port of a furnace, said burner tube having a uniform inside and outside diameter, a plug secured in the outer end of said burner tube, rings on said burner tube having tapered side walls and adapted to engage and seal with the internal bore of said body portion and to close each end thereof, said burner tube having a port in its side wall adjacent the fuel inlet port in said body, said burner tube being composed of two lengths of tube welded together so that when the nose portion becomes burned it may be readily removed and replaced, and an eye secured in said plug in the outer end of said burner tube to facilitate the removal of said tube.

In testimony whereof, I have hereunto set my hand.

EDWARD G. CROZIER.