

E. A. W. JEFFERIES.
CONDUIT FOR GAS FUEL.
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1,037,920.

Patented Sept. 10, 1912.

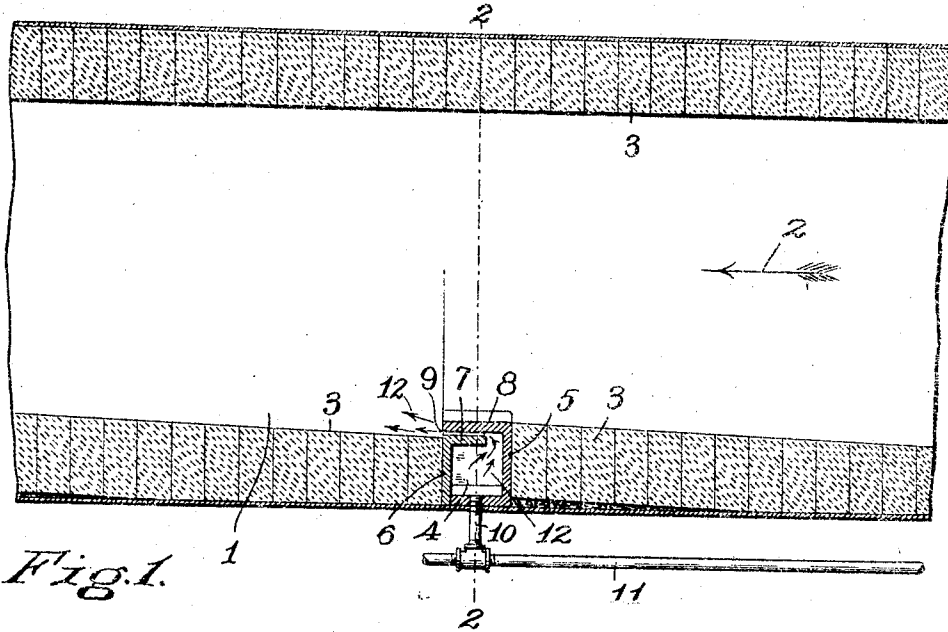


Fig. 1.

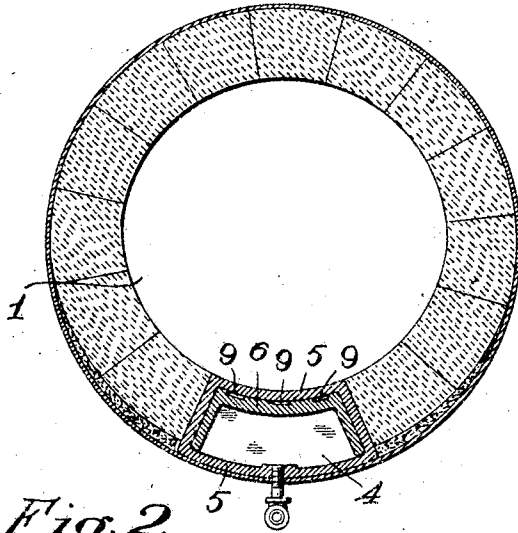


Fig. 2.

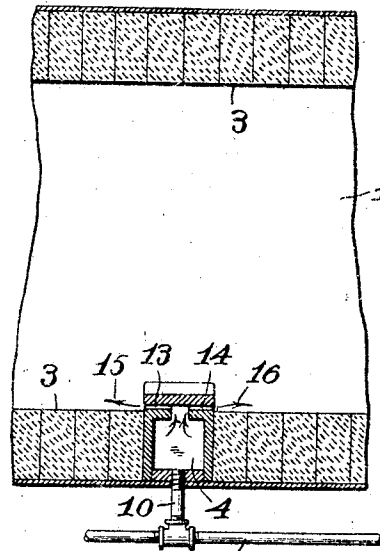


Fig. 3.

Fig. 4.

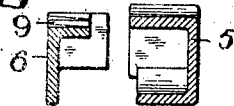
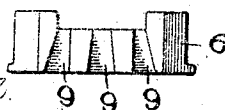


Fig. 5.



Witnesses.

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CONDUIT FOR GAS FUEL.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EBENEZER A. W. JEFFERIES, a citizen of the United States, residing at Worcester, in the county of Worcester and Commonwealth of Massachusetts, have invented a new and useful Improvement in Conduits for Gas Fuel, of which the following is a specification, accompanied by drawings forming a part of the same, in which—

Figure 1 represents a central longitudinal section of a portion of a conduit for gas fuel embodying my invention. Fig. 2 is a transverse sectional view on line 2—2, Fig.

Fig. 3 is a central longitudinal view showing a modified form of construction. Fig. 4 is a detached sectional view of the two parts 5 and 6 of the case, shown slightly separated. Fig. 5 is a top view of that part of the case shown at 6, Figs. 2 and 4.

Similar reference characters refer to similar parts in the different figures.

The object of my present invention is to provide a conduit for gas fuel having means for the removal of soot, or other combustible material, which is liable to accumulate in the bottom of the conduit during the passage of gas fuel therethrough, and I accomplish this object by the construction and arrangements of parts as hereinafter described and pointed out in the annexed claims.

Referring to the accompanying drawings, 1 denotes a conduit for gas fuel consisting, in the present instance, of a cylindrical pipe suitably lined with brick, or similar material, through which gas fuel is conducted in the direction of the arrow 2, Fig. 1. Inserted within the brick lining 3 is a box or case, preferably of cast iron, inclosing a compressed air chamber 4. The box or case may be conveniently made, as shown in Figs. 1 and 2, in two parts 5 and 6, said parts being shown opposing each other but slightly separated in Fig. 4, and the inner portion 6 being shown in top view in Fig. 5.

The top side 7 of the part 6 is overlapped by the top side 8 of the part 5, but the upper surface of the overlapped side 7 is provided with recesses 9 extending entirely across the side 7 and communicating with the interior air chamber 4. The outer ends of the recesses are wider than the inner ends in order to allow the currents of air passing from the air chamber 4 through said recesses

to be expanded into thin horizontal currents as they enter the interior of the conduit. A screw threaded opening is provided in the outer side of the box to receive an air pipe 10 communicating with a common supply pipe 11, which is connected with a source of air supply under pressure. The pipe 11 is preferably extended the entire length of the conduit with branching air pipes communicating with compressed air boxes at frequent intervals in the length of the conduit.

A charge of compressed air is forced through the pipes 11 and 10 into the air chamber 4 and finds its escape through the recesses 9, as indicated by the arrows 12, 12, Fig. 1. The forcible currents of air delivered through the shallow recesses 9 in thin sheets just within the inner lining 3 of the conduit partially loosens the accumulated mass of soot and furnishes a supply of oxygen which supports combustion and reduces the particles of soot to a gaseous form.

In Fig. 3 I have shown the conduit 1 having a similar compressed air box 4 with supply pipes 10 and 11, but the box is modified in the matter of its delivery recesses by having similar recesses 13, 14 for the discharge of compressed air from the box 4, the recesses 13 and 14 opening in opposite directions, and causing the currents of air to pass both in the direction of the arrow 15 and also in the opposite direction, as shown by the arrow 16, thereby increasing the area of combustion.

It has heretofore been proposed to force the soot forward with the moving gas in the conduit by means of a mechanical agitation of the soot deposit which sometimes results in a mere change in the location of the deposit. By my improvement I effect the combustion of the soot by a supply of oxygen to the carbon contained in the soot; the loosening of the soot facilitating the admixture of air and promoting the more complete combustion, reducing the solid particles of soot to a gaseous product which is then carried forward by the current of gas flowing through the conduit.

I claim,

1. The combination with a conduit for gas fuel, of a shell held in the wall of the conduit, having one of its sides at an angle with the axis of the conduit exposed and provided with a narrow slit opening into

the conduit in the plane of the inner surface of the wall of the conduit, and means for supplying air under pressure to said shell.

- 5 2. The combination with a conduit for gas fuel, of a shell, for compressed air in the wall of the conduit and having overlapping inner walls with an intervening space in the plane of the inner surface of the conduit and communicating with the interior of the shell, and means for supplying compressed air to said shell.

- 10 3. A conduit for gas fuel, comprising a pipe having a refractory lining, a metallic shell inclosing a chamber for compressed air contained within said lining and having overlapping inner walls provided with recesses between them, forming air passages from said air chamber to the interior of the

conduit parallel with the 'inside of said lining.' 20

4. The combination with a conduit for gas fuel having a refractory wall, of a metallic shell held within said wall and inclosing a compressed air chamber, said shell having overlapping sides next the interior of said conduit, with recesses between them leading from said chamber to the interior of said conduit to allow the escape of the compressed air in said chamber into said conduit in a thin sheet adjacent to its inner surface. 25 30

Dated this third day of March 1910.

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Witnesses:

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