

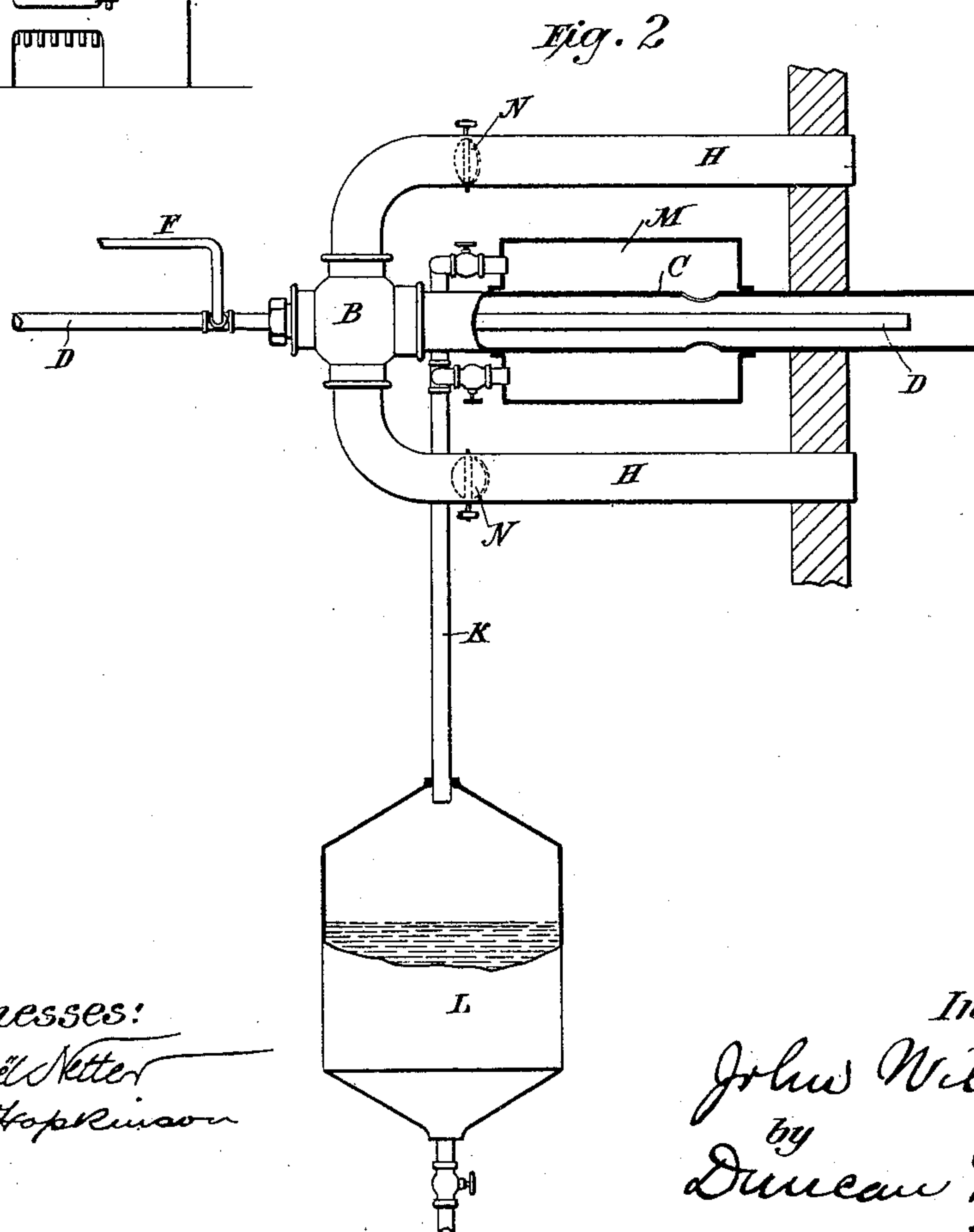
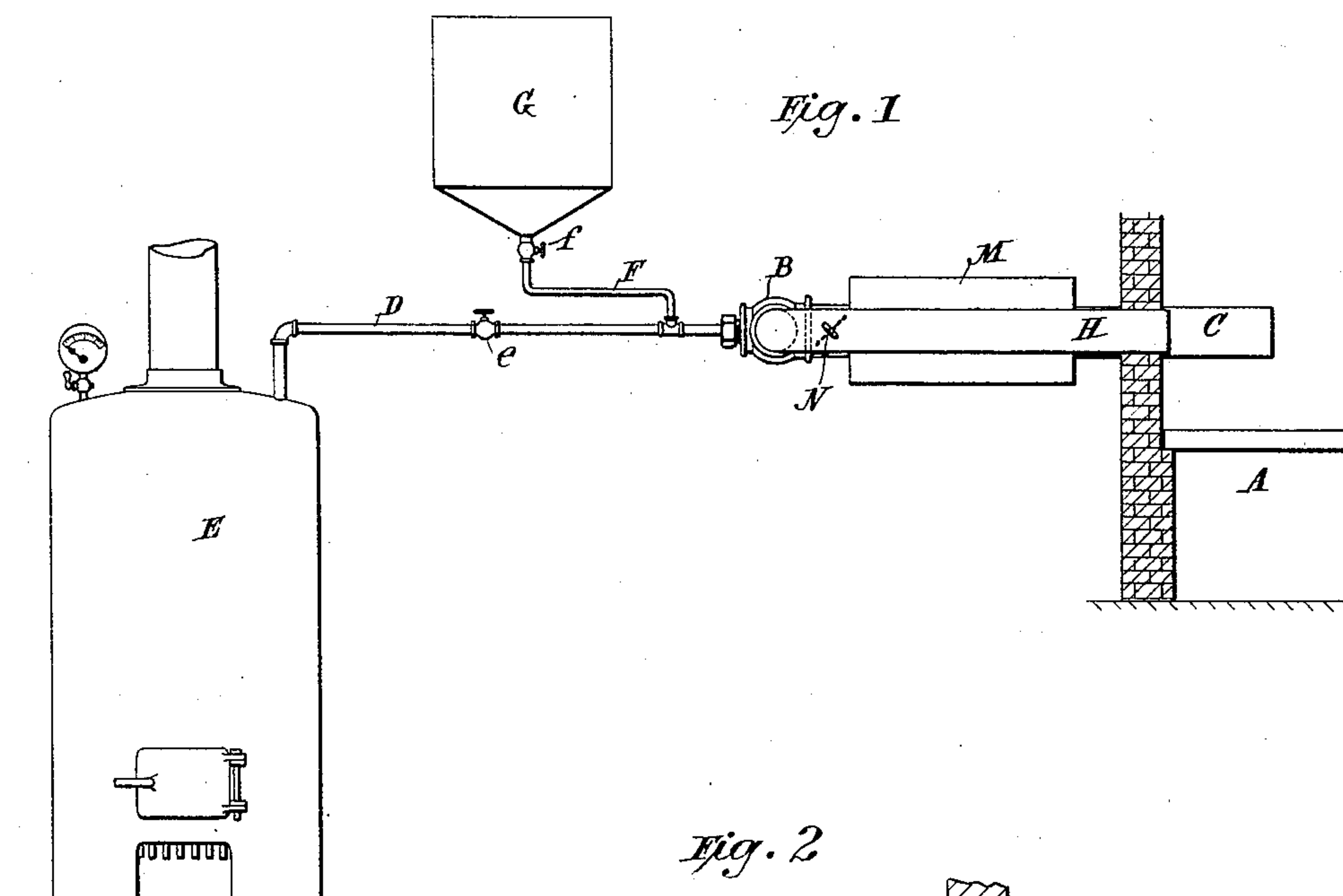
(No Model.)

J. WILSON.

HYDROCARBON OIL BURNER FOR FURNACES.

No. 475,478.

Patented May 24, 1892.



Witnesses:  
*Raphael Netter*  
*Emus Hopkinson*

Inventor  
*John Wilson*  
by  
*Duncan & Page*  
Attorneys

# UNITED STATES PATENT OFFICE.

JOHN WILSON, OF NEW YORK, N. Y., ASSIGNOR TO ROMAN DEBES, OF  
SAME PLACE.

## HYDROCARBON-OIL BURNER FOR FURNACES.

SPECIFICATION forming part of Letters Patent No. 475,478, dated May 24, 1892.

Application filed November 16, 1891. Serial No. 412,096. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN WILSON, a citizen of the United States, residing at New York, in the county and State of New York, have  
5 invented certain new and useful Improvements in Hydrocarbon-Oil Burners for Furnaces, of which the following is a specification, reference being had to the drawings accompanying and forming a part of the same.

10 This invention is a new and improved oil-burner. I have devised the particular form of burner which forms the subject of my application for use in sewage and garbage disposal works and in connection with furnaces  
15 for incinerating the garbage; but its application to other furnaces and purposes will be apparent from the nature of the invention and the objects which are accomplished by its use.

My object is to secure a cheap and effective  
20 device. I have utilized a well-known principle; but I have devised a special construction of the apparatus by which this principle is carried out, and I have introduced a new and a very effective feature in the means, whereby  
25 I supply to the ignited oil heated instead of cold air.

The improvements are illustrated in the accompanying drawings and specifically pointed out in the subjoined claims.

30 Figure 1 is a view in elevation of the apparatus complete. Fig. 2 is a plan view of a portion of the same.

A is a furnace for burning garbage or for any other suitable purpose and of any desired  
35 form of construction. It is presumed in the present case, however, that the combustion of the oil and other materials takes place therein mainly in the rear or in one portion more than in another, so that in one part of  
40 the furnace there will be a considerable volume of air or gas highly heated, but which has not been to any considerable degree deprived of its oxygen, so as to be incapable of supporting combustion. This would be the  
45 case in almost any furnace at the point where the air introduced by natural or forced draft had become heated by the combustion of the fuel taking place, but had not yielded all of its oxygen to maintain such combustion.

50 B is an ordinary fixture or coupling having

a central chamber and four branch ports or outlets. To one of these latter is connected a pipe or tube C, that leads into the furnace A. A steam-pipe D from a boiler E or from any other source from whence a constant supply of steam may be obtained is introduced  
55 through a plug in the port opposite to pipe C and extended through the said pipe to a point near its opening or end. A pipe F from an elevated reservoir G, of any suitable hydro-  
60 carbon liquid or which is connected with any other suitable supply of oil under pressure, connects with the steam-pipe D either within or without the fixture B or the pipe C. This pipe F is provided with a cock *f*, by means of  
65 which the supply of oil can be regulated. Similar provision for regulating the admission of steam is also made by a cock *e* in the steam-pipe.

To the two remaining ports of the fixture or  
70 coupling B are connected bent pipes H H, that lead into the furnace and open therein at the points where, as above described, the air and gases are highly heated, but not deprived of their combustion-supporting elements.  
75

To operate this device, steam is admitted through the pipe D in regulated quantity. This steam takes up the oil delivered from the reservoir G and blows it out into the furnace in a finely-divided condition. The steam  
80 carrying the oil and issuing from the pipe D in the larger pipe C acts as an injector, creating a strong draft, which draws the heated air out of the furnace through the pipes H H, and forces it back, together with the steam and  
85 oil, into the furnace through the pipe C. The mixture of hot air, steam, and oil which is thus forced into the ignited gases within the furnace produces a very effective fire and an intense heat, which rapidly incinerates any  
90 solid combustible matter that may be introduced into it.

A number of these appliances, all connected with the same steam-boiler in the manner described, may be used with one furnace. This  
95 will depend upon the capacity of the furnace or the quantity of solid matter which it is desired to dispose of. I propose, also, to utilize, in connection with one or more of pipes C, the draft created by the injector action to  
100



draw off and consume the objectionable gases that may arise from sewage standing in the settling-tanks, and for this purpose I lead a pipe K from one or more closed tanks L, where-  
5 in the sewage stands, to a chamber or jacket M, surrounding the pipe C and communicating with the interior of the same in any suitable manner. In the pipe K or its branches are suitable dampers or valves to regulate the  
10 proportion of air or gas which is thus drawn in. Dampers N are also placed in the hot-air pipes H to regulate the proportion of hot air that may pass through them.

What I understand to be new and patent-  
15 able in my invention, and for which I desire to secure Letters Patent, is as follows:

1. The combination, with a furnace, of a four-way fixture or coupling B, a pipe C from one port or branch of the same and opening  
20 into the furnace, a steam-pipe entering the opposite port and extending into the pipe C, an oil-pipe from an elevated oil-reservoir connecting with the steam-pipe, and hot-air pipes leading from the interior of the furnace to

the remaining ports or branches of the coupling, as herein set forth.

2. The combination, with a furnace, of the pipe C, entering the same, a steam-pipe of smaller diameter extending into the pipe C, an oil-supply pipe connected with the steam-  
30 pipe, hot-air pipes leading from the furnace and communicating with the pipe C in the rear of the orifice of the steam-pipe therein, a jacket or casing surrounding the pipe C and communicating with the interior of the same  
35 in the rear of the orifice of the steam-pipe, said casing being connected or adapted for connection with a chamber containing noxious or disagreeable gases, and dampers in the hot-air pipes and those connecting the  
40 casing with the gas-chamber, whereby the relative amounts of air or gas entering the furnace may be regulated, as set forth.

JOHN WILSON.

Witnesses:

ROBT. F. GAYLORD,  
MARCELLA G. TRACY.