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STEAM CONNECTION FOR BOILER FURNACES

Filed April 5, 1926

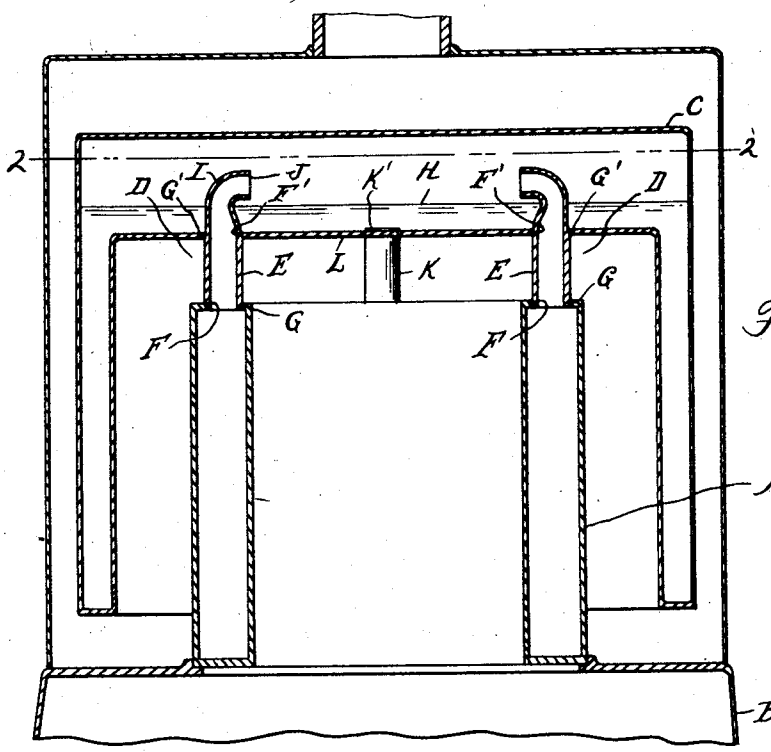


Fig. 1.

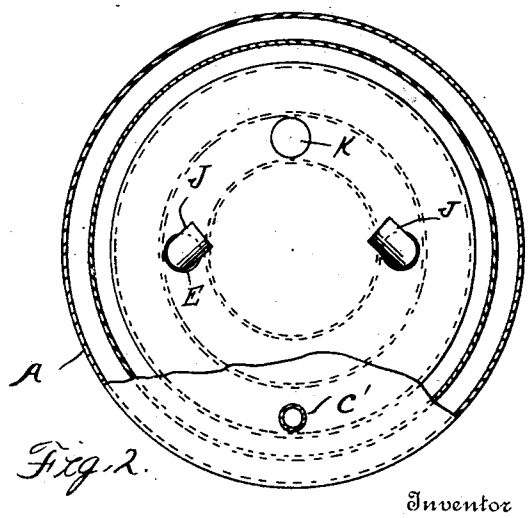


Fig. 2.

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STEAM CONNECTION FOR BOILER FURNACES

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The invention relates to improvements in boiler constructions. In the present state of the art it is common practice to connect the boiler sections with the steam dome by means of nipples, but with the usual constructions the steam forming in the boiler sections is blown through the nipples into the steam dome causing violent agitation of the water in the dome and a continuous fluctuation of the water level. In addition, the water is often entrained by the steam and carried into the steam line sometimes as far as the radiators.

The principal object of my invention is to provide a construction which prevents water from being carried into the steam line, effectively separates the steam from the water and prevents undue fluctutation of the water level in the steam dome. This object is accomplished by modifying the construction of the nipples or other connections communicating with the steam dome in the manner hereinafter set forth.

In the drawings:—

Figure 1 is a longitudinal section through a boiler;

Figure 2 is a horizontal section through the steam dome on the line 2—2 of Figure 1.

Referring now particularly to the embodiment of the invention illustrated in Figures 1 and 2, A is an annular hollow walled boiler section forming a fire pot and combustion chamber, the boiler section being mounted upon a base or ash pit section B. C is a steam dome arranged above the boiler section A and spaced therefrom to form the lateral flue D. C′ is the steam pipe. The boiler section A is connected to the steam dome C by means of a series of conduits or nipples E, these being preferably provided with the tapered end portions F and F′ adapted to seat in the correspondingly tapered apertures G and G′ in the boiler section and steam dome respectively. The normal water level in the steam dome is represented by the line H and the boiler section A is thus filled with water at all times.

My improvement consists in providing the nipples E with upwardly extending portions I rising preferably above the normal water level in the steam dome and being laterally bent as indicated at J. With this construction when the furnace is in operation and steam is formed in the hollow walls of the boiler section A, it is discharged into the steam dome above the water level H and therefore, does not cause agitation of the water in the dome. The discharge from the nipples E always carries a certain amount of water with steam and by directing the discharge laterally above the surface of the water the steam is effectively separated and rises to the top of the dome while the liquid particles settle in the form of a mist or spray.

In order that the boiler section A will be at all times filled with water it is necessary to have a water return conduit in communication with the dome below the level of the water therein and it is preferable therefore, that one of the nipples does not extend completely above the water level. As shown the nipple K has the upper portion K′ thereof extending into the interior of the steam dome above the lower wall L, but terminating below the normal water level. The nipple K, therefore, serves principally as a water return conduit, although in operation, a certain amount of steam may be discharged also through this nipple. In order that the nipples having the extensions I may be connected to the dome it is preferable to have the diameter of the extension I smaller than the diameter of the tapered aperture G and the lateral extension J must also be of such dimension as to permit this portion to be inserted through the aperture D.

What I claim as my invention is:—

1. A nipple for boiler furnaces comprising a tubular member having tapered portions adapted to engage adjacent sections thereof, said tubular member being formed with a continuation of reduced diameter adapted to extend beyond one of the tapered portions into one of said sections and terminating in a laterally bent discharge portion.

2. A nipple for boiler furnaces comprising a tubular member adapted to connect adjacent sections thereof, said tubular member being formed with a tapered portion at the point of its connection with one of said sec-

tions, a continuation of reduced diameter beyond said tapered portion adapted to extend into said section and a laterally bent discharge portion.

3. In a boiler furnace, the combination with a boiler section, of a steam dome above said boiler section and spaced therefrom and a nipple having reversely tapered portions engaging said steam dome and boiler section respectively and forming a connection therebetween, a continuation of reduced diameter beyond one of said tapered portions adapted to extend into said steam dome and a laterally bent discharge portion.

In testimony whereof I affix my signature.

JOHN W. DYAR.