7877X

I. Jennings,

Steam-Boiler Furnace,

Patented Dec. 19, 1833

Fig. 3

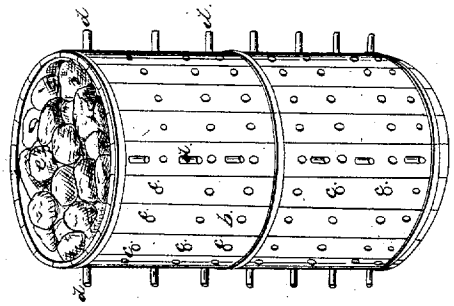


Fig. 2.

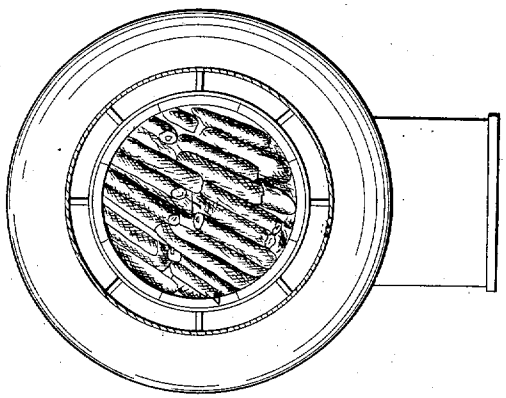
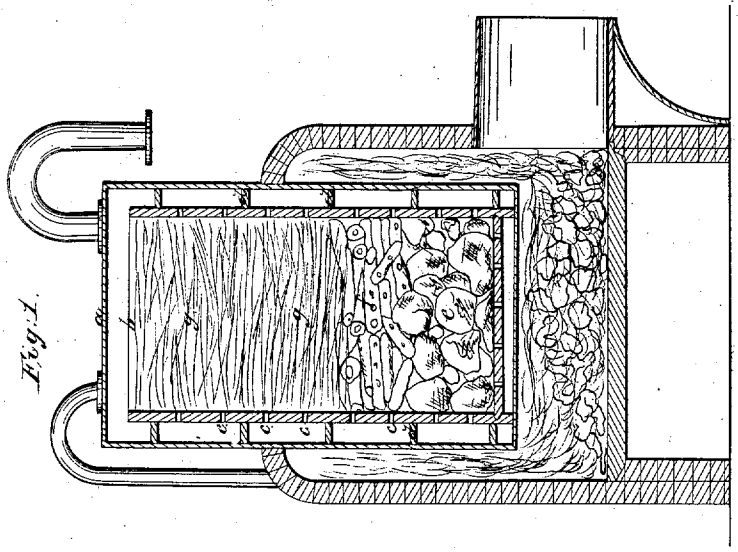


Fig. 1.



N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

12/19/1833 7877X

Dec. 19. 1833

Enoch Hennings.

Letters Patent.

The Schedule referred to in these Letters Patent, and making part of the same, containing a description in the words of the said Enoch Hennings himself of his improvement in the mode of generating steam in steam engines & other boilers.

To all to whom it may concern; Be it known, that I Enoch Hennings of the City of Philadelphia, have made an improvement in the mode of generating steam in steam engines & other boilers: by which improvement economy & safety are obtained. That the following is a full and exact description thereof. I make use of such boilers as are generally employed, my improvement not being in any way dependent on the particular form of the same but upon the manner in which such boilers are filled or charged with water in combination with other substances by me used for the purposes hereinafter mentioned. I employ a portion of pure or solid substances of various kinds so as to fill or nearly to fill the internal cavity with the exception of the spaces between or within such substances. As for example I put as globules or irregular lumps of wood of such diameter as may be found convenient, say from three inches to one foot or more in diameter; or instead of these pieces or round stocks of wood perforated with holes which timber pipes, or the pipes within & along the boiler metal if fitted or so nearly so. Instead of wood I sometimes employ rushes, canes or straw of various kinds; taking care however that the substance be such as will not be readily reduced to pulp by boiling in water. Sometimes prevent the vegetable or other substances placed within the water from becoming medicated and thereby having a quality otherwise to be required by the steam may be done in various ways. Let there be for example a plate of copper perforated in which the pipes are to be fixed, & made

tight

7877 X

instead of wood, not less than like the staves of a barrel, this cylinder might be three or four inches less in diameter than the interior of the boiler, it should be perforated with holes to have spikes or pins driven into it across its axis, extending not so as to bear against the sides of the boiler; this will leave a space as above mentioned of from one inch to half an inch or more or less between the wood and the metal. The wooden cylinder is to be filled with blocks of wood or other materials in the way already described. For steam boilers used on land where an increased weight is not objectionable, I sometimes use more solid materials than wood such for example, as large pebble stones, which although they do not possess all the advantages of porous substances yet from their durability will in many cases be preferred.

The increased surface obtained by thus charging the boiler, especially when the softer and more porous woods are employed occasions a great increase in the production of steam, exceeding it is believed that which any other arrangement where the actual quantity of water within the boiler is so small as in that above described. For filling with water I use such supply pumps, or other means as are already known, & add a steam chamber or such other appendages, as may be found convenient.

What I claim as my invention & for which I ask a Patent is the placing within boilers of the ordinary construction materials such as I have described, or others calculated to produce a similar result which shall occupy the larger portion of the capacity of such boilers, whilst sufficient space is left between the touching positions, & the cavities within such substances to contain the quantity of water which may be requisite for the generation of steam.

Lord Chichester
Hy. Hs. Bonnes
Vermuiden Holtzen

Isaiah Jennings

Lt 84 1018