

Specification of Ezra Milner : combustion of smoke in steam boiler furnaces.

Contributors

Milner, Ezra.

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A.D. 1872, 22nd OCTOBER. N° 3117.

SPECIFICATION

OF

EZRA MILNER.

COMBUSTION OF SMOKE IN STEAM
BOILER FURNACES.

LONDON:

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A.D. 1872, 22nd OCTOBER. N° 3117.

Combustion of Smoke in Steam Boiler Furnaces.

LETTERS PATENT to Ezra Milner, of Clayton, near Bradford, in the County of York, for the Invention of "**IMPROVEMENTS IN MEANS FOR FACILITATING THE COMBUSTION OF SMOKE PRODUCED IN THE FURNACES OF STEAM BOILERS.**"

Sealed the 18th April 1873, and dated the 22nd October 1872.

PROVISIONAL SPECIFICATION left by the said Ezra Milner at the Office of the Commissioners of Patents, with his Petition, on the 22nd October 1872.

I, **EZRA MILNER**, of Clayton, near Bradford, in the County of York,
5 do hereby declare the nature of the said Invention for "**IMPROVEMENTS IN MEANS FOR FACILITATING THE COMBUSTION OF SMOKE PRODUCED IN THE FURNACES OF STEAM BOILERS,**" to be as follows:—

The object of my Invention is by facilitating the combustion of smoke produced in the furnaces of steam boilers to increase the heating power
10 obtained from the fuel consumed. For this purpose I form a retort or enclosed chamber or small furnace in the passage or a part of the flue space formed in the boiler for the smoke and products of combustion

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from the main fire-place, and I generally form this chamber of fire-brick or fire-clay, the object being to employ for the purpose material adapted to receive and impart a high degree of heat. This heat by acting upon the smoke and products of combustion in the flue passage will not only facilitate the combustion of that smoke, but will also 5 increase the heat in such passages in the further progress of the products of combustion therein until they reach the outlet to the chimney and economise fuel.

The boiler is formed as for two internal fire-boxes and flues, and I use one of them as such in the ordinary way, but the other fire-box with 10 its flue is divided, and the small retort or such like chamber is fitted air-tight at the front end thereof, and this retort or such like chamber I heat to say a welding heat by a fire in a fire-place inside it.

The smoke and products of combustion from the ordinary fire-place pass through, under, and over this retort from one to the other part of 15 the divided flue, and thence to the regular flues and to the chimney.

When two boilers or a double boiler is employed, one or one part being over the other, the two parts are connected by a tube or flue passage. The fire-box and flue of the upper boiler or upper portion are used as an ordinary fire-place and flue, and I place the small retort or 20 heating chamber in the end of the lower boiler or part of boiler. The smoke and heated products from the upper boiler or part boiler pass along the flue thereof down to the lower one past and so as to be thoroughly heated by the retort or small chamber, and thence by the internal flue of that boiler or part boiler to other flues, and then to the 25 chimney in the ordinary way.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Ezra Milner in the Great Seal Patent Office on the 22nd April 1873.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, EZRA 30 MILNER, of Clayton, near Bradford, in the County of York, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Twenty-second day of October, in the year of

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our Lord One thousand eight hundred and seventy-two, in the thirty-sixth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said Ezra Milner, Her special license that I, the said Ezra Milner, my executors, administrators, and assigns, 5 or such others as I, the said Ezra Milner, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel 10 Islands, and Isle of Man, an Invention for "IMPROVEMENTS IN MEANS FOR FACILITATING THE COMBUSTION OF SMOKE PRODUCED IN THE FURNACES OF STEAM BOILERS," upon the condition (amongst others) that I, the said Ezra Milner, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly 15 describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said Ezra Milner, do hereby declare 20 the nature of the said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof, that is to say :--

The object of my Invention is by facilitating the combustion of smoke produced in the furnaces of steam boilers to increase the heating power 25 obtained from the fuel consumed. For this purpose I form a retort or enclosed chamber or small furnace in the passage or a part of the flue space formed in the boiler for the smoke and products of combustion from the main fire-place, and I generally form this chamber of fire-brick or fire-clay, the object being to employ for the purpose material adapted 30 to receive and impart a high degree of heat. This heat by acting upon the smoke and products of combustion in the flue passage will not only facilitate the combustion of that smoke, but will also increase the heat in such passages in the further progress of the products of combustion therein until they reach the outlet to the chimney and economise 35 fuel.

The boiler is formed as for two internal fire-boxes and flues, and I use one of them as such in the ordinary way, but the other fire-box with its flue is divided and the small retort or such like chamber is fitted

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air-tight at the front end thereof, and this retort or such like chamber I heat to say a welding heat by a fire in a fire-place inside it.

The smoke and products of combustion from the ordinary fire-place pass through, under, and over this retort from one to the other part of the divided flue and thence to the regular flues and to the chimney. 5

When two boilers or a double boiler is employed one or one part being over the other, the two parts are connected by a tube or flue passage. The fire-box and flue of the upper boiler or upper portion are used as an ordinary fire-place and flue, and I place the small retort or heating chamber in the end of the lower boiler or part of boiler. The 10 smoke and heated products from the upper boiler or part boiler pass along the flue thereof down to the lower one, past and so as to be thoroughly heated by the retort or small chamber, and thence by the internal flue of that boiler or part boiler to other flues, and then to the chimney in the ordinary way. 15

Having thus described my Invention, and means which I adopt in carrying the same into effect, I would have it understood that I do not confine myself to the precise details referred to, but what I claim is, the arranging steam boiler furnaces that the smoke and products of combustion passing from the fire-place may be capable of being acted upon 20 by the heat of a retort or heated chamber within such flue, substantially as described.

In witness whereof, I, the said Ezra Milner, have hereunto set my hand and seal, this Twenty-first day of April, in the year of our Lord One thousand eight hundred and seventy-three. 25

EZRA MILNER. (L.S.)

LONDON:

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1873.