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PATENTED DEC. 19, 1905.

S. E. LINSLEY.
CIRCULATING DEVICE FOR WATER FIRE BOXES.
APPLICATION FILED FEB. 4, 1905.

Fig. 2.

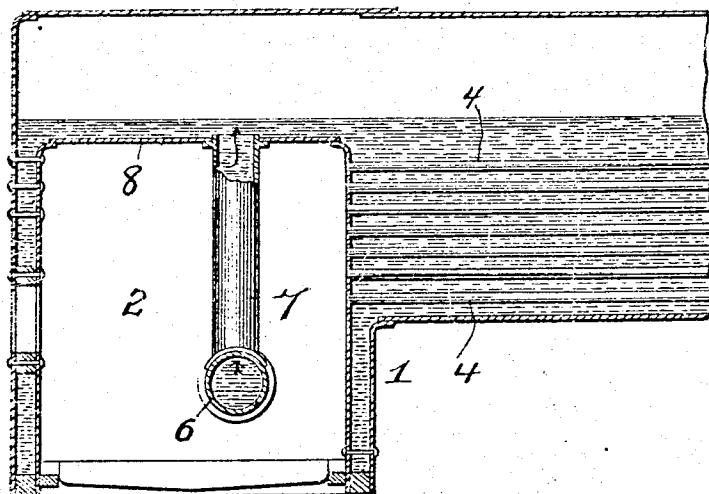


Fig. 1.

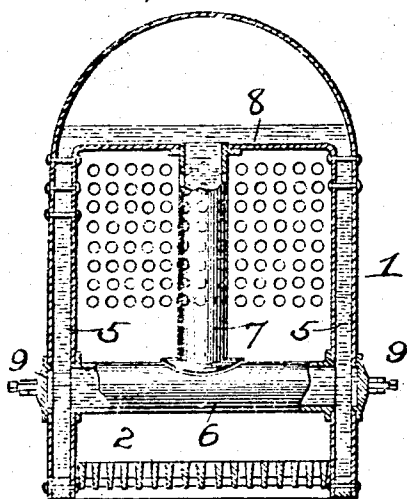
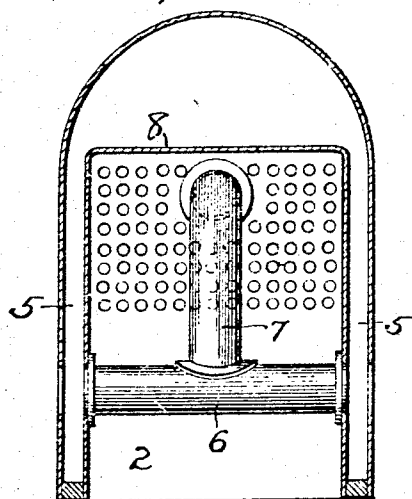


Fig. 3.



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CIRCULATING DEVICE FOR WATER FIRE-BOXES.

No. 807,752.

Specification of Letters Patent.

Patented Dec. 19, 1905.

Application filed February 4, 1905. Serial No. 244,110.

To all whom it may concern:

Be it known that I, SAMUEL ELLSWORTH LINSLEY, a resident of Winthrop, in the county of Sibley and State of Minnesota, have invented certain new and useful Improvements in Circulating Devices for Water Fire-Boxes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in steam-boilers, and more particularly to an improved circulating device for water fire-boxes, the object of the invention being to provide an improved circulation of the water which brings it into the hottest portion of the fire-box and which construction is of extremely simple form and arrangement, yet vastly increases the heating powers of the furnace, and consequently produces the maximum of steam in the shortest possible time with a minimum of fuel.

With this object in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in cross-section, illustrating my improvements. Fig. 2 is a view in longitudinal section, and Fig. 3 is a view of a modification.

1 represents a boiler of ordinary form, having fire-box 2 at one end and smoke-box 3 at the other end, connected by tubular flues 4.

The fire-box 2 has water-chambers or lining 5 at both sides in communication with the main boiler, and these chambers 5 are connected by a horizontal pipe 6, located across the fire-box and in the hottest portion thereof, and into which tube or pipe the water flows from both ends to the center, where a vertical pipe 7 communicates and directs the water through an opening in the crown-sheet 8, as shown in Figs. 1 and 2, or bends at its upper end and directs the water into the main portion of the boiler, as shown in Fig. 3. Suitable hand-holes, with covers 9, are provided in the outer fire-box wall opposite the ends of pipe 6 to permit the latter to be read-

ily cleaned as occasion may require. By providing this T-shaped-pipe construction, located in the hottest portion of the fire-box, the water therein is subjected to intense heat and is rapidly heated, causing colder water to continually flow therein from both ends as the hotter water passes out the top and a rapid circulation is induced through the intense heat of the fire-box, quickly making steam and utilizing to the maximum degree the heat units of the fuel.

Slight changes might be made in the general form and arrangement of the parts described without departing from my invention, and hence I do not restrict myself to the precise details set forth, but consider myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a boiler, a fire-box inclosed by the water-space in the boiler and boiler-tubes in said water-space and communicating with the fire-box, of a horizontal pipe extending across the fire-box in proximity to the grate and communicating at both ends with the water-space of the boiler, and an upright pipe within the fire-box communicating with the water-space of the boiler in a plane higher than the communication of the horizontal pipe therewith, said upright pipe communicating at its lower end with the horizontal pipe within the fire-box.

2. The combination with a boiler, a fire-box therein, and boiler-tubes communicating with the fire-box, of a horizontal pipe extending across the fire-box between the boiler-tubes and the grate and communicating at its ends with the boiler and a vertical pipe communicating at its lower end with the horizontal pipe and at its upper end with the boiler over the crown-sheet.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

SAMUEL ELLSWORTH LINSLEY.

Witnesses:

G. ELMER STROUT,
JOHN C. HANSON.