H. S. BENNETT.

BURNER.

APPLICATION FILED OCT. 24, 1910.

1,103,253. **Patented July 14, 1914.**

Fig. 1.

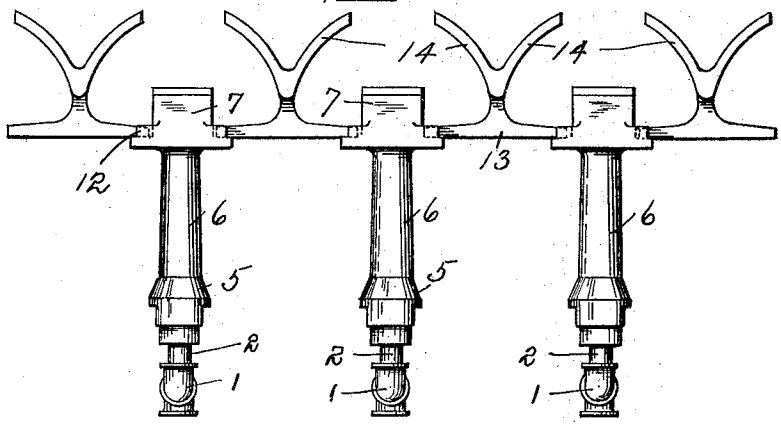


Fig. 2.

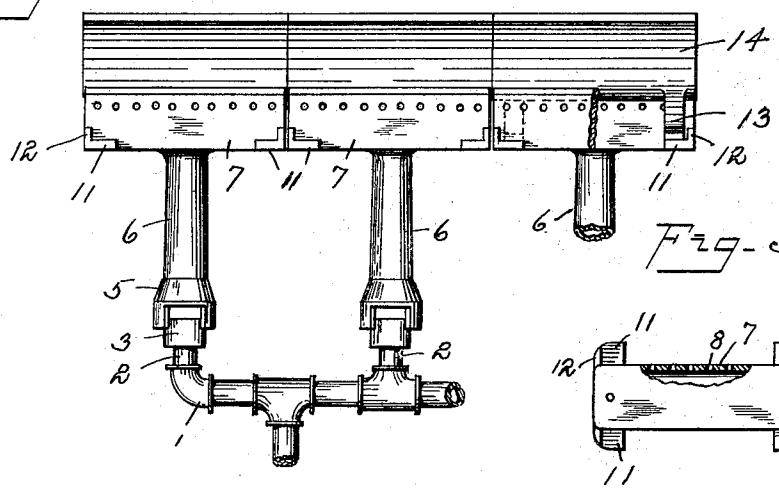
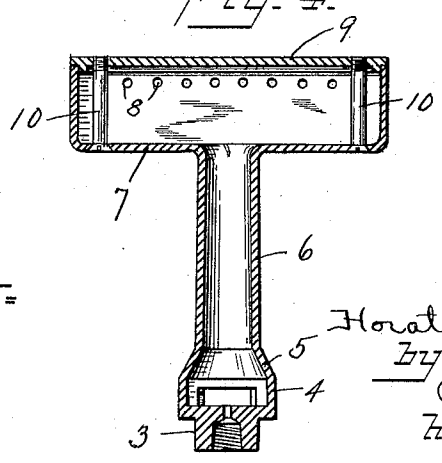


Fig. 3.

Fig. 4.



Witnesses=
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UNITED STATES PATENT OFFICE.

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BURNER.

1,103,253. Specification of Letters Patent. Patented July 14, 1914.

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To all whom it may concern:

Be it known that I, HORATIO S. BENNETT, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Burners, of which the following is a specification.

This invention relates generally to improvements in burners, and particularly to burners for use in connection with steam and hot water heaters.

More specifically the invention comprises a plurality of independent burner sections arranged in rows and each consisting of a suitable mixing device, a mixing tube, a burner head provided with a burner plate having isolated groups of burner openings, together with concentrating devices arranged between the several rows of burner sections and adapted to direct the flames from the burners in a long flat stream and at the same time to restrict the supply of air to support combustion so that it must contact with the flames.

The invention further relates to details of construction hereinafter set forth in the following description, drawings and claims.

Referring to the drawings, Figure 1 is an end elevation of the burner, showing the several burner sections as they appear in end elevation, and also showing the concentrating devices used in conjunction with the burners; Fig. 2 is a sectional view through the burner showing one of the burner heads partially in section, the other burner heads being here shown in elevation; Fig. 3 is a top plan view of one of the burner heads; and Fig. 4 is a vertical section of one of the heads.

In carrying out the invention any suitable form and construction of parts may be employed so long as they possess the necessary features, but a very efficient embodiment is set forth in the drawings, and in such construction, 1 represents a suitable supply for each transverse group of burner sections, and each comprising a connection 2 leading from the supply 1 and provided with a gas jet nipple 3 which is connected by suitable webs 4 with a mixer 5 and mixing tube 6, and a mixing chamber 7 which is preferably rectangular and is provided on its two opposite sides with gas orifices 8. A suitable burner plate 9 is secured to this casing and is held in place by through-screws 10 passing through the head and into the plate. Each of the burner mixing chamber casings is provided with laterally extending supporting lugs 11 each having an upwardly extending flange 12. The lugs of the adjoining groups of burner sections support concentrating baffles each comprising two leg portions 13 adapted to rest upon the supporting lugs 11 of adjacent burner sections and baffling plates 14 which are connected to the legs at the center and curve outward to their free edges. The arrangement is such that the baffles between the several transverse groups or rows form slots on one dimension above each group of burner sections so that as the mixture of gas and air is supplied through the gas orifices of the several burner sections, it receives sufficient air to properly support combustion and passes up with a long flat flame through the slot between the baffles. In this way the flames are concentrated on the pipes of the boiler and the greatest possible amount of heat is obtained from the fuel, by reason of the fact that all air passing into the furnace is thoroughly heated. At the same time that air is supplied to the sides of the flame between the burners, air is also supplied between the two laterally discharged flames of each burner section by reason of the fact that air may pass in at the end of each burner section and between the flames referred to.

Having described my invention, I claim:—

1. In a burner structure, a plurality of burner members arranged in rows and having lateral discharge orifices, and baffle members supported on the burner structure and restricting the discharge of the burning mixture and air for combustion to slots directly above the burner sections, said burner structure being open at the bottom to allow free unrestricted passage for air to the burner orifices.

2. A burner structure comprising a plurality of rows of burner sections having lateral discharge orifices, and suitable baffles supported between the rows and having curved plate portions extending from a point between the burner sections toward the top of the adjacent burner section and adapted to baffle the flames produced by the burner sections and to restrict the passage of burning mixture through the burner, said burner structure being open at the bottom for free access of air.

3. In a burner, a plurality of groups of

burner sections, each section comprising a mixing device, a burner head having lateral mixture discharge orifices, and supporting lugs below the discharge orifices on each side, and suitable baffle members having legs adapted to rest upon the supporting lugs of the adjacent burner sections, and baffle plates each extending upward above the adjacent burner section and toward the center thereof, thereby converging the flames from both sides of the burner section toward the center forming substantially one long flame above each group of burner sections.

In testimony whereof I affix my signature in presence of two witnesses as follows.

HORATIO S. BENNETT.

Witnesses:
ALTON H. BEMIS,
CHRISTINE K. TRESCH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."