W. STANDING.

Steam Superheaters.

No. 204,173. Patented May 28, 1878.

Fig. 1

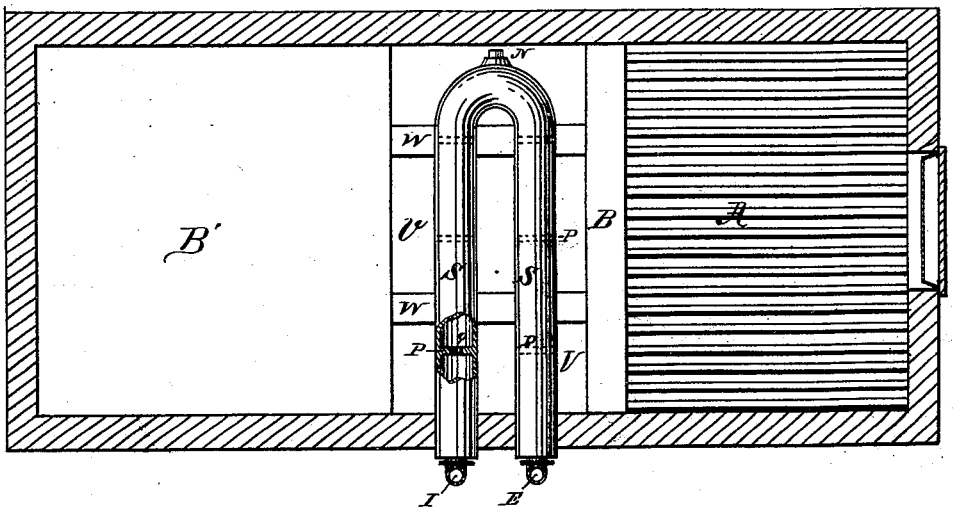
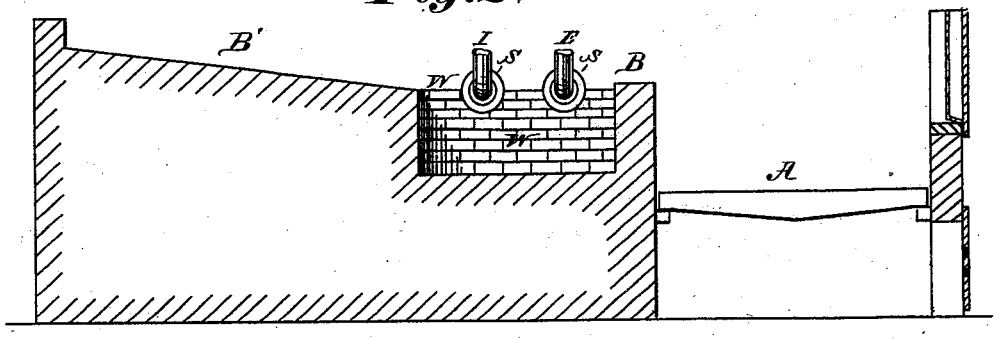


Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

WILLIAM STANDING, OF DE SOTO, ILLINOIS.

IMPROVEMENT IN STEAM-SUPERHEATERS.

Specification forming part of Letters Patent No. **204,173**, dated May 28, 1878; application filed March 30, 1878.

To all whom it may concern:

Be it known that I, WILLIAM STANDING, of De Soto, in the county of Jackson, and in the State of Illinois, have invented certain new and useful Improvements in Steam Rarefiers or Superheaters, of which the following is a full, clear, and exact description, reference being made to the accompanying drawings, which form a part of this specification.

My invention consists in an enlarged section of the pipe leading from a steam-boiler to the engine, the same being in the form of a return-bend or of a horseshoe-magnet, divided interiorly into several connected chambers, and located relative to the flame-passage of a steam-boiler furnace, substantially as more fully hereinafter set forth and claimed.

Figure 1 of the drawing is a horizontal section of a steam-boiler furnace through the flame-passage beneath the boiler; and Fig 2 is a vertical longitudinal section of the same.

A is the fire-grate thereof. B is the bridge-wall, and B′ the rear portion of the flame-bed. At the rear of the bridge B is the vault or recess V, formed in the masonry, across which run the dividing-walls W W longitudinally with the flame-course. Resting upon *w w* is the magnet-shaped superheater or steam-rarefier S, forming an enlarged section of the steam-pipe I E, leading from the boiler.

This superheater is made of cast-iron in a single piece, and is interiorly divided by the diaphragms P P into several chambers, connecting through the central opening *o*, with which each diaphragm is provided.

The purpose of these perforated partitions or diaphragms, in connection with the enlarged diameter of the intervening chambers, is to break up the body of retarded steam, and to bring all its parts into contact with the walls of the heater, and thus more thoroughly effect its rarefaction.

The heater S may be set so that it can be readily raised and lowered; but it will generally have its upper lines on a level with the bridge B, or nearly so.

The vault V is of such size as to allow free passage of the flames beneath the heater and behind it, as shown, and the supports W are in line with the flame-course, so as not to impede its passage. Though S be set as described and shown, the flame will break over the bridge and envelop the heater, with the effect of completely heating the same without impeding the draft of the furnace. The cylindrical form of the chambers, in connection with the thin partitions dividing and the short central aperture connecting them, is favorable to the breaking up of the body of steam passing through them, and the consequent exposure of all portions of the body to contact with the heating-surface.

In casting the heater in one piece only a hole may be cast at the bend, to facilitate the removal of the core, which should afterward be tapped and plugged, as shown at N. The heater is, of course, adequately tested as to strength before it is put into place.

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

The combination of magnet-shaped superheater S, vault V, supports W W, bridge B, and steam-pipe connections I E, constructed and arranged, in connection with a steam boiler and furnace, substantially as described and shown, and for the purposes set forth.

WILLIAM STANDING.

Witnesses:
GEORGE ALBON,
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AMOS STANDING.