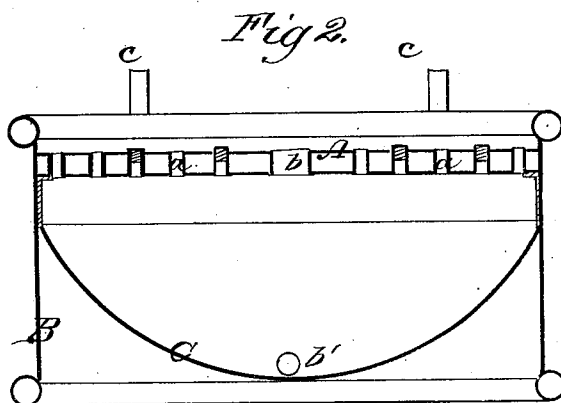
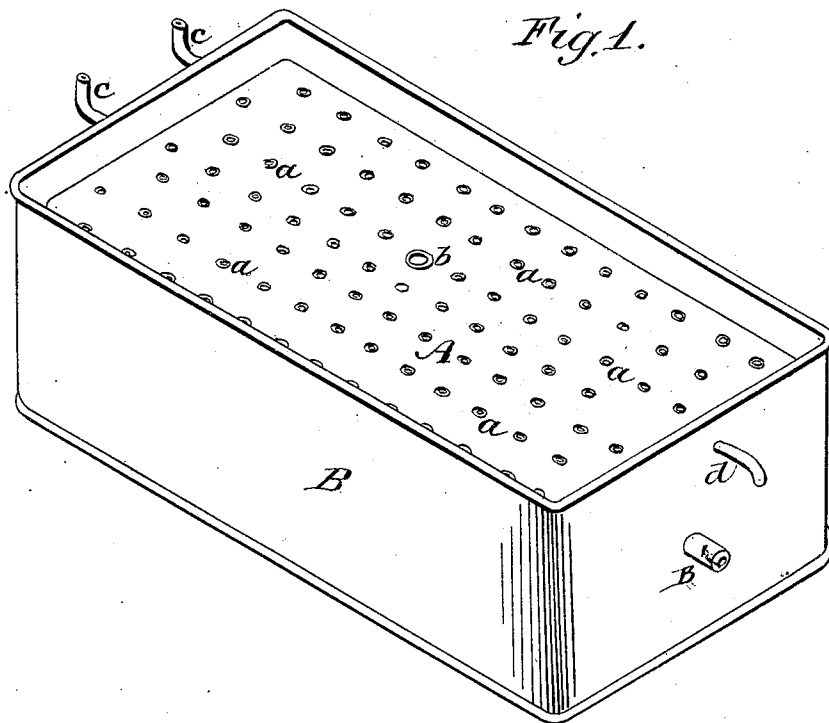


J. Nixon.

Furnace for Flanging Steam Boilers.

N^o 49,382.

Patented Jun. 30, 1868.



Witnesses.

*J. V. White,
J. Alfred Ellis.*

Inventor.

J. Nixon

*per J. H. Alexander
Att'y.*

United States Patent Office.

JOSEPH NIXON, OF ALTOONA, PENNSYLVANIA.

Letters Patent No. 79,382, dated June 30, 1863.

IMPROVEMENT IN FLANGING-FORGES AND FURNACE FOR BOILER-HEADS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOSEPH NIXON, of Altoona, in the county of Blair, and State of Pennsylvania, have invented certain new and useful Improvements in Combined Flanging-Forge and Furnace for Flanging Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification, in which—

Figure 1 represents a view in perspective of my improved flanging-forge and furnace, and

Figure 2 a vertical transverse section of the same.

The object of my invention is to provide a suitable forge for flanging metallic sheets, whereby the heat of the fire can be directed either upon the whole surface of the sheet, or any desired part thereof, and which can be used also for blacksmiths' work; and to this end my improvement consists in the employment of a tubular hearth, filled with water, and having numerous openings for the passage of the blast, which can be closed by suitable plugs or stoppers, so as to distribute the same over the whole or any desired portions of the surface of the sheet to be flanged.

In flanging-forges, as ordinarily constructed, straight flues are used, running through the central portion of the hearth, and perforated with holes for the escape of the blast. These flues or pipes often burn out rapidly, and there can only be a long heat taken on a straight plate.

A round head or sheet is difficult to flange, when it can be heated only upon a portion of its surface at one time, for the plate is apt to shrink where heated and become crooked, and has to be straightened by hammering, which operation frequently causes iron or steel plates to become crystallized or cracked, and unfit for use in steam-boilers. Many sheets are wasted in attempting to straighten them after they have been flanged, as the ordinary forges will not heat a sheet uniformly over its whole surface, and the operation has therefore to be performed cold, which requires skillful manipulation, and entails risk of losing the sheet.

By means of my forge, I can flange a sheet, and afterwards heat it uniformly all over, and straighten it hot without weakening the flange, by laying it upon a former and striking it with a wooden maul.

In the accompanying drawings, which show a convenient arrangement of parts for carrying out the objects of my invention, A represents the hearth, which is composed of metallic plates riveted together, so as to form a water-tight case, and rests upon the flanges or supports in the forge B, which may be made of wrought or cast iron, or other suitable material. A number of air-tubes, *a*, of small diameter, pass through the hearth A, being distributed over its surface at short distances apart. A tube, *b*, of larger diameter than the tubes *a*, is placed in the centre of the hearth, through which the blast passes when the forge is to be used for blacksmiths' work. The air-tubes, which are made of copper or other suitable metal, are screwed into the upper and lower sheets of the hearth, and riveted over on both ends. The hearth is filled with water by means of pipes *c c*, attached to one of its ends. These pipes are to be provided with suitable stop-cocks, and communicate with a tank of water in convenient proximity to the forge. The air-tubes can be closed, when desired, by dropping into them metallic plugs *a'*. A pipe, *d*, provided with a stop-cock, is attached to the hearth, by means of which the water can be drawn off, when necessary. A bent sheet, C, is riveted across the forge, beneath the hearth, forming an air-chamber, into which the blast is forced through the pipe B'.

Any dust or coal which may collect in the chamber may be blown out by removing a plug from the hole B', which is placed at the opposite end from the blast-pipe.

Cement or fire-clay is placed around the edges of the hearth, to prevent the air from escaping from the chamber except through the air-tubes.

When it is desired to heat the entire surface of a sheet, for the purpose of straightening it, the plugs *a'* are removed from all the air-tubes, and a bed of coal being placed upon the hearth, the blast acts upon the fire uniformly throughout. A straight or circular fire, or any other shape desired to suitably heat a plate, can be maintained by a proper distribution of the plugs in the different air-tubes.

When it is desired to use the forge for blacksmiths' work, the small tubes *a* are closed, and the plug withdrawn from the central tube *b*. The adaptability of this forge to the heating of sheets, upon the whole or any portion of their surfaces, renders it of great practical value in the manufacture of steel boilers, which are now coming extensively into use, obviating risk of accident from the giving way of defective flanges, and very much facilitating the work.

What I claim, and desire to secure by Letters Patent, is—

The tubular and chambered hearth A, in combination with air-chamber C, and water and air-orifices, all constructed and arranged substantially in the manner and for the purpose set forth.

In testimony that I claim the foregoing as my own, I affix my signature in presence of two witnesses.

JOSEPH NIXON.

Witnesses:.

RICHARD McHALE,

AUSTIN McHALE.