

S. FOX.
Fire-Boxes for Steam-Boilers.

No. 205,625.

Patented July 2, 1878.

Fig. 1.

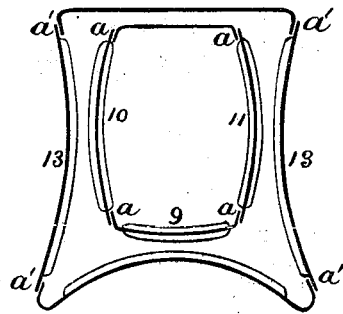
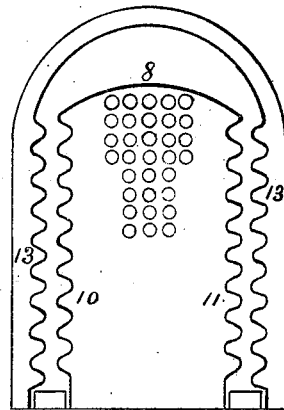


Fig. 2.



Witnesses :

Chas C. Stetson
W. F. Stetson

Inventor :

Samson Fox
by his attorney
Thomas D. Stetson

UNITED STATES PATENT OFFICE.

SAMSON FOX, OF LEEDS, GREAT BRITAIN.

IMPROVEMENT IN FIRE-BOXES FOR STEAM-BOILERS.

Specification forming part of Letters Patent No. **205,625**, dated July 2, 1873; application filed October 10, 1877; patented in England, March 19, 1877.

To all whom it may concern:

Be it known that I, SAMSON FOX, of the Leeds Forge Company, Leeds, in the county of York, Kingdom of Great Britain and Ireland, have invented certain new and useful Improvements in the Construction of Steam-Boilers and the Fire-Boxes thereof, which improvements are fully set forth in the annexed specification.

My said invention has for its object to impart increased strength and enlarged heating-surface to fire-boxes of steam-boilers by means of improvements in the construction or formation of the metal plates with which those parts are made.

The fire-boxes of steam-boilers are subjected to compressive strains, which, with the ordinary plates employed in their construction, can be provided for only with considerable difficulty and expense, while the provision made very often proves ineffective.

My invention consists in imparting the necessary strength to resist compression by constructing the fire-boxes of steam-boilers and the outer shell of said boilers in an improved and peculiar manner, so as to have a corrugated or undulated form, which, at the same time, presents an enlarged heating-surface.

The plates, which may be of malleable iron, or steel, or copper, or other suitable metal, have the desired corrugated form given to them by suitably-shaped rollers, or by embossing or swaging them by means of a steam-hammer or hydraulic press, the corrugations being imparted to the metal plates previously to the said fire-box being welded or riveted together.

And in order that my said invention and the manner of performing the same may be thoroughly understood, I hereunto append a sheet of explanatory drawings, to be hereinafter referred to.

Figures 1 and 2 are horizontal and vertical sections, showing the manner of carrying out the part of my invention relating to boiler fire-boxes, such as those of locomotives.

I make the top plate 8, the front plate 9, and the side plates 10 11 of the fire-box with cor-

rugations, which do not extend completely across each plate, but which leave uncorrugated borders *a*, for the convenient attachment of the plates to each other by riveting or welding; and, in addition to the corrugations, I form the said plates 8 9 10 11 each with a general curvature, which is convex toward the steam-pressure, such general convexity increasing the strength imparted by the corrugations. I also make that part of the outer shell of the boiler which incloses the fire-box with corrugated plates, each having, in addition, a general curvature, which is convex toward the steam pressure, acting between the inside of the shell and the outside of the fire-box plates 8 9 10 11.

I am aware that fire-boxes and steam-boilers have heretofore been constructed with their side plates partly corrugated with plane borders.

I claim as my invention—

1. A fire-box having its top plate 8, front plate 9, and side plates 10 and 11 provided with corrugations extending partly across each plate, with uncorrugated borders *a* for the convenient attachment of the plates, and having each of said plates convex toward the steam-pressure, as herein specified.

2. The boiler 13, having its top, front, and side plates partly corrugated, with uncorrugated borders *a'*, and having each of said plates convex toward the steam-pressure, as herein specified.

3. A fire-box having its top, front, and side plates partly corrugated, with uncorrugated borders *a*, and having each of said plates convex toward the steam-pressure, in combination with a boiler surrounding said fire-box, and having its top, front, and side plates partly corrugated, with uncorrugated borders *a'*, and having each of said plates convex toward the steam-pressure, as herein specified.

SAMSON FOX.

Witnesses:

THOS. E. CRAVEN, *Leeds*.

R. E. P. CRAVEN, *Leeds*.