2 Sheets—Sheet 1.

J. E. JERROLD.

Steam-Boiler.

No. 227,536. **Patented May 11, 1880.**

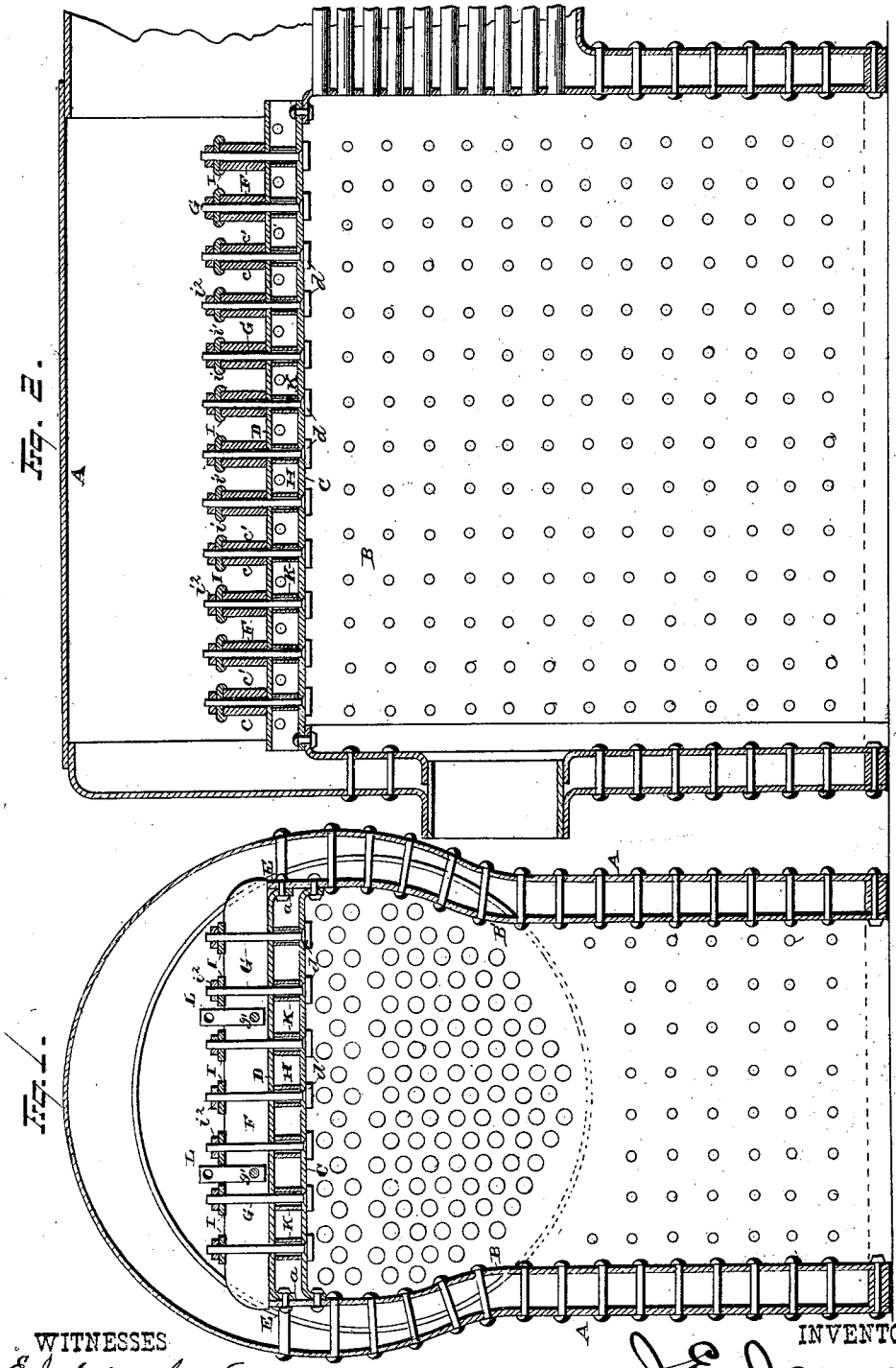


Fig. 2.

Fig. 1.

WITNESSES

E. J. Nottingham

A. M. Bright

INVENTOR

J. E. Jerrold.

By H. A. Seymour.

ATTORNEY

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

2 Sheets—Sheet 2.

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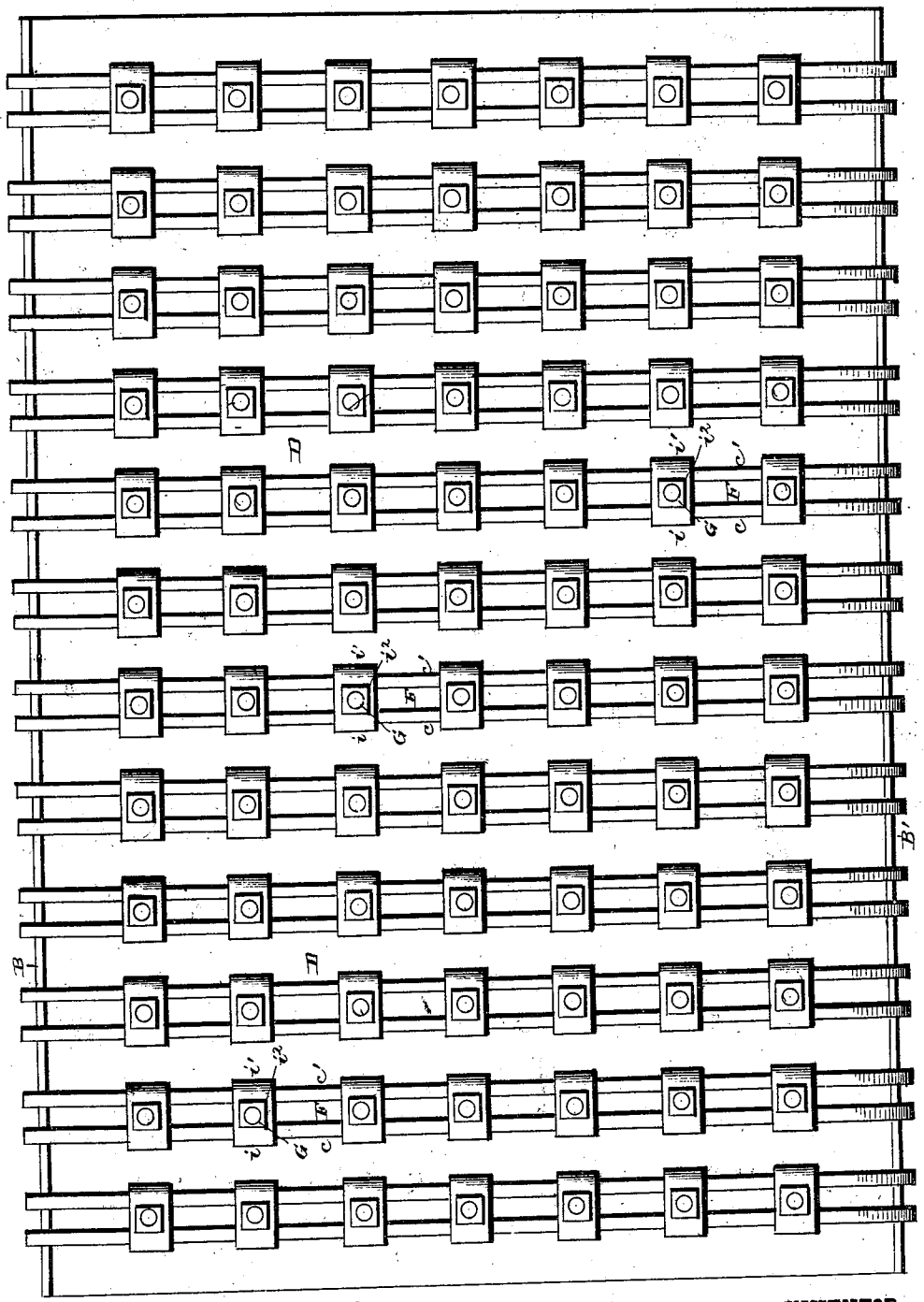


Fig. 1.

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UNITED STATES PATENT OFFICE.

JOHN E. JERROLD, OF KANSAS CITY, MISSOURI, ASSIGNOR TO HIMSELF, CHARLES HUBBARD, AND WM. F. SMITH, OF SAME PLACE.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 227,536, dated May 11, 1880.

Application filed January 30, 1880.

To all whom it may concern:

Be it known that I, JOHN E. JERROLD, of Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Steam-Boilers; 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 pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in steam-boilers, the object being to prevent the deposition and accumulation of sediment and scales on the crown-sheet of the boiler, and, further, prevent the water in the boiler from priming and foaming when impure water is used; and to these ends my invention consists in the peculiar construction and combination of parts in a steam-boiler, as will hereinafter be described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a transverse section through the fire-box of a steam-boiler provided with my improvement. Fig. 2 is a longitudinal section taken through the fire-box, and Fig. 3 is a plan view of the shield over the crown-sheet properly secured in place.

A represents the outer shell, and B B′ the inner sheets, of the fire-box of a locomotive or other steam-boiler.

C is the crown-sheet, the sides of which are bent downwardly and riveted to the side sheets, B B′.

Above the crown-sheet C is located a shield-plate, D, the sides of which are riveted to the side sheets, B B′, which latter, as will be observed in the drawings, extend above the crown-sheet, the upper edges of the side sheets being flush with the upper surface of the shield-plate D. That portion of the side sheets projecting above the crown-sheet is thoroughly braced or stayed by means of the stay-bolts E, which extend through the downwardly-projecting flange *a* on the shield-plate, through the upper ends of the side sheets, B B′, and through the outer shell, A. Crown-bars F, each consisting of two bars or plates, *c c′*, are placed on the upper surface of the shield-plate and transversely to its length, the outer ends of said bars resting upon the upper edges of the side sheets, B B′.

Crown-sheet stay-bolts G are inserted upwardly through the crown-sheet, the heads *d* of the bolts resting against the under side of the crown-sheet, while the bolts proper extend upwardly through the water-space H between the crown-sheet and shield-plate, and through the latter and up between the plates *c c′*, constituting the crown-bars F. Upon the upper ends of the bolts are placed washers I, having lips or flanges *i i′*, which overlap the sides of the crown-bar plates *c c′* and prevent their spreading, the upper ends of the bolts having nuts i^2 applied thereto; or the ends may be upset and riveted to the washer.

K are thimbles surrounding the bolts G between the crown-sheet and shield-plate, the same serving to stay the crown-sheet, and also serving to protect the openings formed therein for the introduction of the stay-bolts G. The sections *c c′* of the crown-bars F are secured against lateral spreading or displacement at their lower edges by means of the rivets *g′*, which latter also serve as pivotal bearings for the short links L, to which stay-links are attached, the upper ends being secured to the outer shell of the boiler.

The shield-plate secured and arranged in the manner set forth serves to form a complete shield over the crown-sheet and prevent sediment or scales from accumulating on the crown-sheet, and also prevent the priming or foaming of the water. The contained water in the boiler flows over the crown-sheet through the openings at opposite ends of the shield-plate, and a constant current is maintained over the crown-sheet, thus keeping the latter in a perfectly clean and safe condition.

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

1. In a steam-boiler, the combination, with the crown-sheet and side sheets extending above the same to constitute the sides of a circulating-chamber over the crown-sheet, of a shield-plate located over the crown-sheet and secured to the upwardly-projecting ends of the side sheets, and crown-bars placed on

the shield-plate with their opposite ends resting upon the upper edges of the side sheets of the boiler, substantially as set forth.

2. The combination, with the crown-sheet of a boiler and a shield-plate located above the crown-sheet and secured at its sides to the side sheets of the fire-box, which extend above the crown-sheet, of crown-bars placed on the top of the shield-plate, stay-bolts secured at opposite ends to the crown-bars and crown-sheet, and thimbles surrounding the stay-bolts between the crown-sheet and shield-plate, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 29th day of December, 1879.

JOHN EDWARD JERROLD.

Witnesses:

JAS. O. CASTELLO,

JAMES SMITH.