

(No Model.)

2 Sheets—Sheet 1.

J. O'BRIEN
STEAM BOILER.

No. 262,976.

Patented Aug. 22, 1882.

Fig. 1.

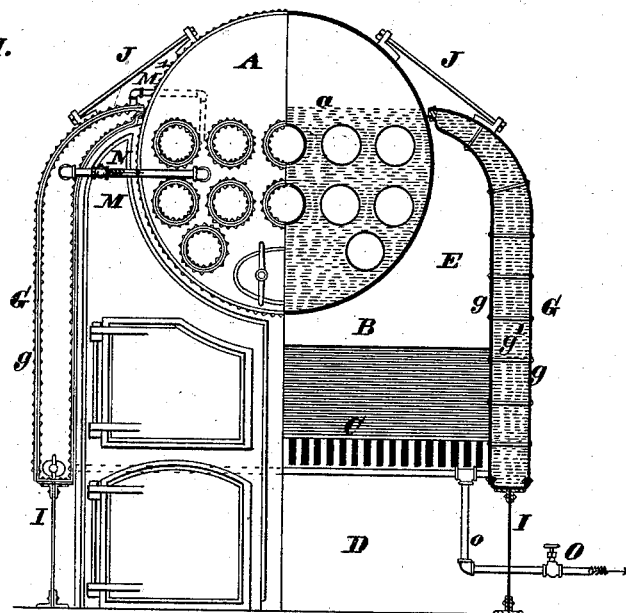
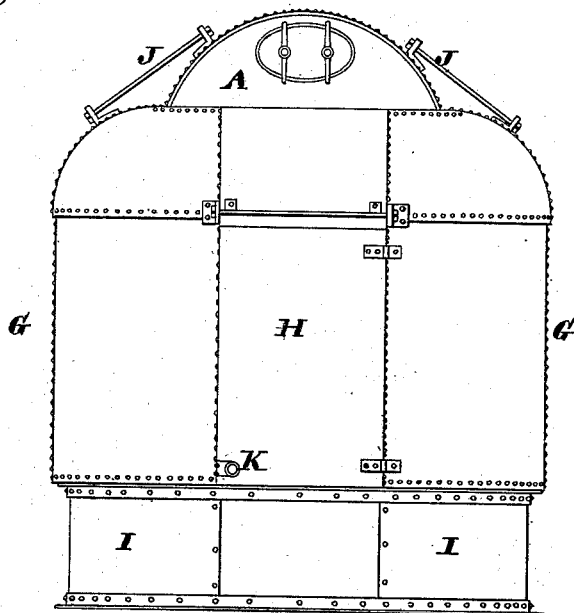


Fig. 2.



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J. M. Sanford

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by C. P. Moody
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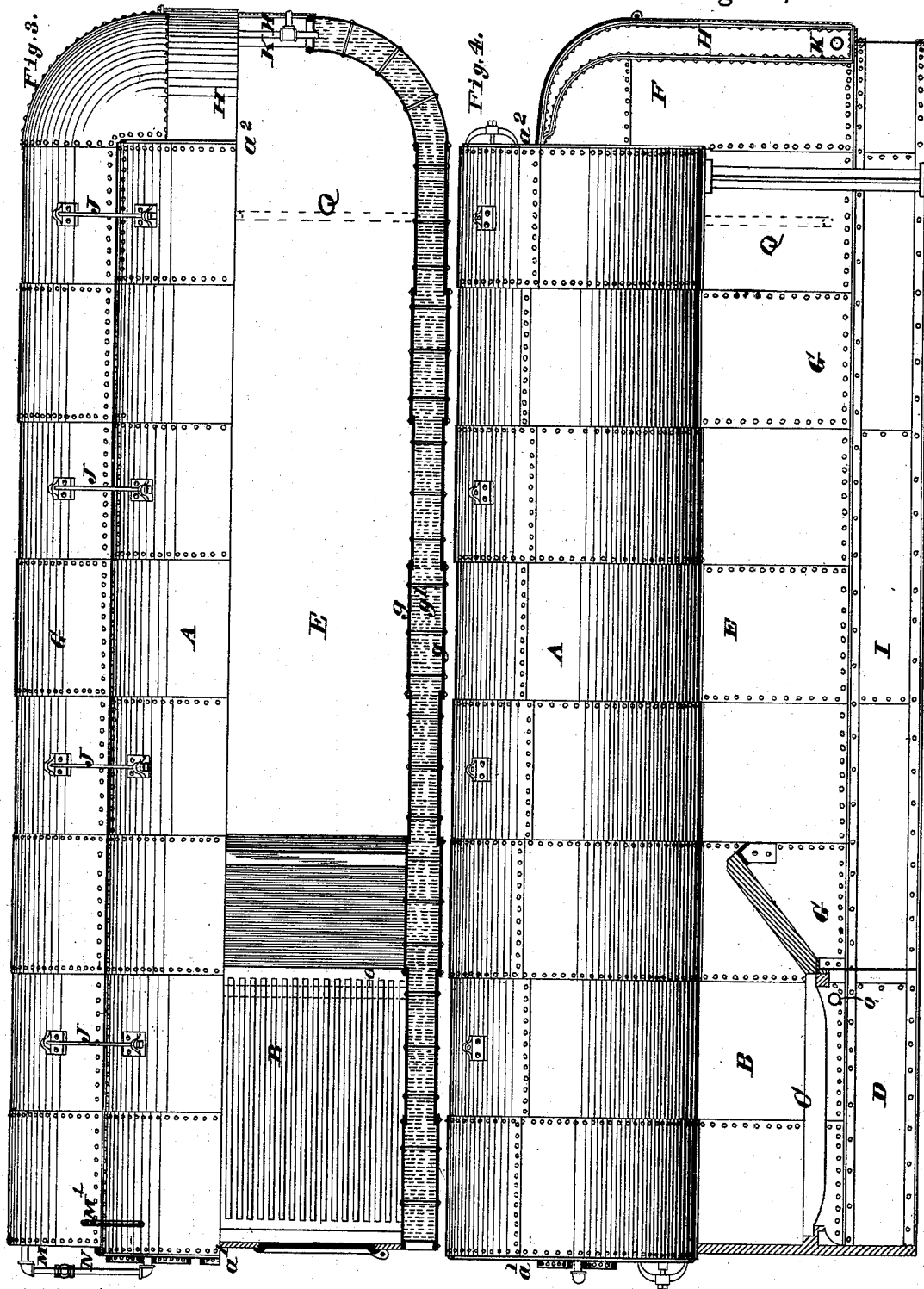
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UNITED STATES PATENT OFFICE.

JOHN O'BRIEN, OF ST. LOUIS, MISSOURI.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 262,976, dated August 22, 1882.

Application filed February 14, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN O'BRIEN, of St. Louis, Missouri, have made a new and useful Improvement in Steam-Boilers, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a front elevation, half in section, of a boiler having the improvement; Fig. 2, a rear elevation; Fig. 3, a plan, half in horizontal section; and Fig. 4, a side sectional elevation.

The same letters denote the same parts.

The present invention is adapted more especially to boilers of the horizontal cylindrical type, and it relates especially to the boiler-walls.

A represents a steam-boiler of the description under consideration. B represents the furnace; C, the grate; D, the ash-pit; E, the flue leading from the furnace, and F the uptake at the rear end of the boiler.

G G represent the boiler-walls. They mainly occupy the usual position of such a boiler-wall. In place, however, of the walls being solid, and serving merely as a means for inclosing the furnace and flue, they are hollow and of suitable material and construction for holding water, and for the purpose of heating the water passing into the boiler A. To this end each wall G is composed of a shell, *g*, inclosing a water-space, *g'*, the shell being extended preferably, as shown, from about the level of the grate C upward to about the level of the water-line *a* of the boiler A, at which level the wall is curved or turned inward to or toward the boiler A, and in a longitudinal direction the walls extend from the front end, *a'*, of the boiler rearward to the end *a''*, and thence around in rear of the boiler, but preferably not so as to meet in rear of the boiler, but leaving the space that may be utilized as a doorway, H, to provide access to the uptake F. The walls rest upon supports I I, and at the top are held to the boiler by means of ties J J.

The water is supplied to the spaces *g'* through a suitable supply-pipe, K, the pipe leading from a pump or device suitable for supplying water to boilers. The pump or device is not shown,

its construction being well understood. From the spaces *g'* the water passes into the boiler A through pipes, such as at M, and which are preferably arranged at or near the top of the space *g'*. The pipe M is furnished with a check-valve, N, to prevent the return of the water from the boiler A.

O represents a blow-off valve in a pipe, *o*, leading from the spaces *a'*.

The walls G G, therefore, in addition to confining and directing the heat currents beneath the boiler A, serve as heaters, wherein the water is heated in passing to the boiler, for the walls in practice absorb sufficient heat from the passing heat-currents to heat the water flowing to the boiler through the spaces *g'*, and even when the walls are well heated to generate steam within the walls, and when the valves N are opened or omitted the walls G G and boiler A constitute in effect a continuous steam-generator.

The heat of the furnace B is thus utilized to better advantage than heretofore in connection with boilers such as shown. The spaces hitherto needed for feed-water heaters are not now required, and without requiring more room than is now taken up with the ordinary furnace-walls a greatly-extended heating-surface is obtained, and the generator in effect is in sections, (the walls G G and boiler A being detachable from each other,) enabling it to be readily transported. The pipe M' is used to conduct into the boiler A any steam that may generate in the extreme upper part of the wall G.

A pipe, Q, (indicated in dotted lines in Figs. 3 and 4,) connects the boiler A with the lower part of the water-spaces *g'*, providing for a circulation between the spaces *g'* and the boiler at that point.

I claim—

The combination of the boiler A, hollow walls G G, pipes K, M, M', and Q, and blow-off O, substantially in the manner and for the purposes set forth.

JOHN O'BRIEN.

Witnesses:

C. D. MOODY,
SAML. S. BOYD.