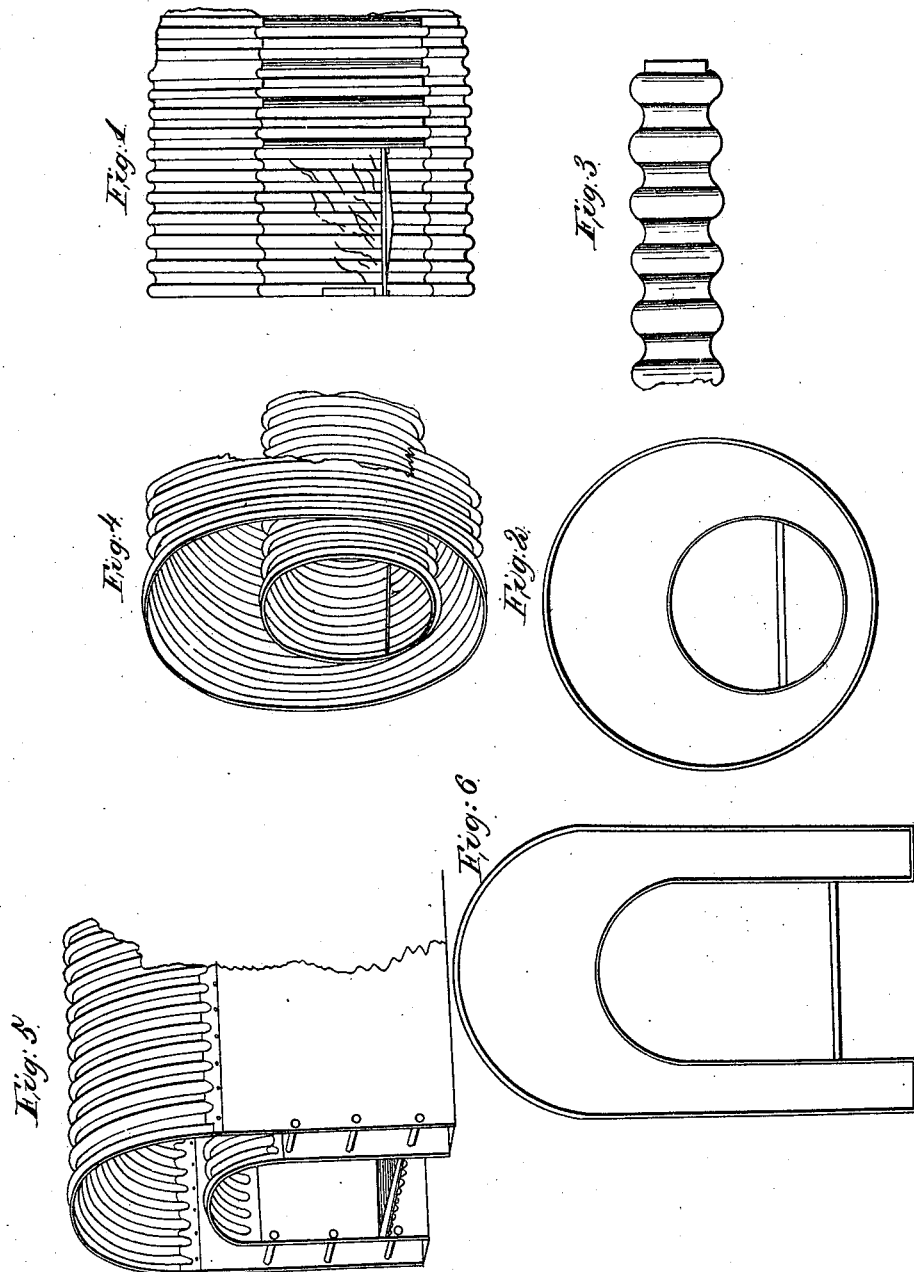


No. 7,742.

PATENTED OCT. 29, 1850.

R. MONTGOMERY.  
CORRUGATED BOILER.



# UNITED STATES PATENT OFFICE.

RICHARD MONTGOMERY, OF NEW YORK, N. Y.

## CORRUGATED BOILER.

Specification of Letters Patent No. 7,742, dated October 29, 1850.

*To all whom it may concern:*

Be it known that I, RICHARD MONTGOMERY, of New York, in the county of New York and State of New York, have invented  
5 certain new and useful Improvements in Steam-Boilers, and that the following is a full, clear, and exact description of the principle or character which distinguishes them from all other things before known and of  
10 the usual manner of making, modifying, and using the same, reference being had to the accompanying drawing, in which—

Figure 1, is a section of an upright tubular boiler. Fig. 2, is an end elevation of  
15 the same showing its outline. Fig. 3, is a tube. Fig. 4, is a perspective view of the same, with the end removed. Fig. 5, is a perspective view of an arched boiler with the end removed. Fig. 6, an end view of  
20 the same.

This invention consists in forming cylindrical flues, the curved fire arches, and if deemed advisable, the curved shells of boilers, of corrugated metal.

25 I am well aware that corrugated metal has been used in water tables in the form of straight corrugated sides in steam boilers, the projections resting against others, as in Hancock's boiler, and some others; but these  
30 do not effect the object proposed by me, which is to give strength and security to the arches and make them self-sustaining, without the aid of the innumerable stays with which most boilers especially high pressure ones, are obliged to be furnished, that  
35 add immensely to their weight, and greatly increase their liability to burn out and scale; the expense of their construction, and the difficulty of repair, for instance, the fire  
40 arch of a locomotive boiler is required to be stayed with a great number of angle iron ribs, or other equivalents and the iron itself

must be very thick, of which the arch is composed. Other boilers for marine purposes have to be stayed throughout, and  
45 their flues braced in the manner so well known as to need no particular description. To obviate the difficulties above named I employ corrugated arches, and cylindrical corrugated flues which are sustained on similar principles. An incidental advantage  
50 gained by this form, is, that there is a great extension of fire surface, and an equal degree of strength with thinner iron than can now be employed in fire arches. 55

The difference between the devices employed by me and my predecessors is so obvious that mere inspection of them will clearly show it. I contemplate using this corrugated surface in the flues and arches of  
60 boilers, as shown in the drawings; and when great strength and lightness are required the shell of the boiler should be made also of the corrugated plates. I do not deem it essential to dwell on the arch form of corrugated plates for sustaining high pressures,  
65 as any competent engineer will at once see and admit it, when the idea is pointed out and the peculiar adaptation of these to arches of fire chambers in steam boilers. 70

Having pointed out the novelties I desire to cover, what I claim therein as new and which I desire to secure by Letters Patent is—

The employment of corrugated plates of 75 metal for forming the curved arches of fire chambers and shells of steam boilers, the corrugations running in the direction of the curves, substantially as described.

RICHARD MONTGOMERY.

Witnesses:

W. M. WALKER,  
WM. GREENOUGH.