

GEORGE W. BOLLMAN.
Improvement in Manufacture of Boilers, Steam Cylinders, and Fittings.
No. 120,235. Patented Oct. 24, 1871.

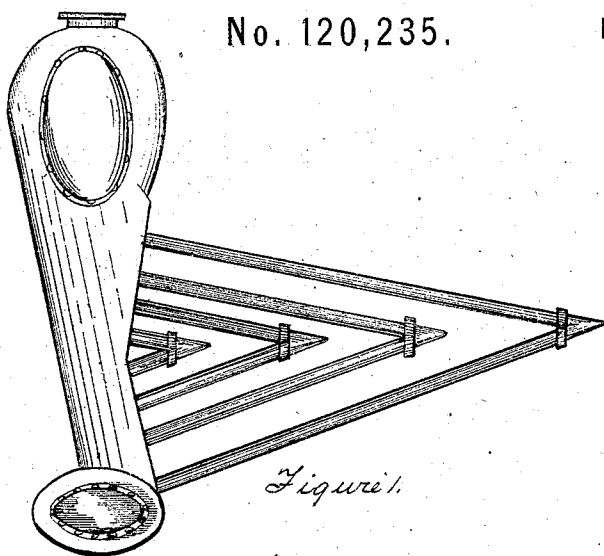


Figure 1.

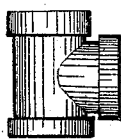


Figure 3.

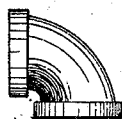


Figure 4.

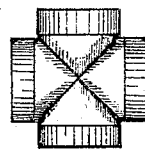


Figure 5.

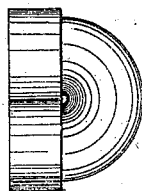


Figure 6.

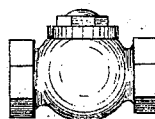
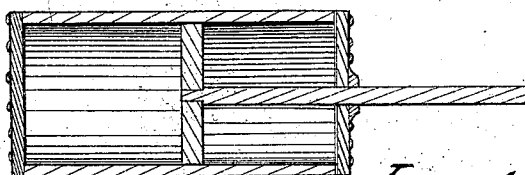


Figure 7.

Figure 2.



Witnesses
R. Wrenshall
James I. Harg.

Inventor
George W. Bollman
by his Attorneys
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UNITED STATES PATENT OFFICE.

GEORGE W. BOLLMAN, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN THE MANUFACTURE OF BOILERS, STEAM-CYLINDERS, FITTINGS, &c.

Specification forming part of Letters Patent No. 120,235, dated October 24, 1871.

To all whom it may concern:

Be it known that I, GEORGE W. BOLLMAN, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Manufacture of Boilers and Fittings; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 is a view of a portion of a steam-boiler patented in Letters Patent No. 107,181. Fig. 2 is a view of a steam-cylinder; and Figs. 3, 4, 5, 6, and 7 are views of gas and water-pipe fittings.

In the manufacture of gas and water-fittings, tubular boilers, and steam-cylinders heretofore a soft iron has been used, because the harder varieties are very expensive to bore out and finish, the grain being too coarse and hard. The soft iron, although easy to cut, is not susceptible of a high finish, and is otherwise not suitable for the purpose, being somewhat porous in its texture.

By experiment I have discovered that iron and steel combined in a certain proportion give a metal of a superior toughness and of a closer grain than cast-iron, and which is susceptible of

a fine finish, and affords a better surface for cutting screw-threads. The amount of steel I combine with a given quantity of iron is from ten to fifteen per cent. of the whole quantity. The iron and steel are melted together in a furnace of the ordinary construction, and the casting done in the usual way. For this purpose I generally use a low grade of steel—scrap-steel or carbonized iron—although any kind may be used. The proportions given may be varied somewhat, depending on the quantity of iron and steel used. If a greater hardness is required the quantity of steel is increased.

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

The manufacture of steam-boilers, cylinders, and fittings from a mixture of cast-iron and steel or carbonized iron, substantially as hereinbefore described.

In testimony whereof I, the said GEORGE W. BOLLMAN, have hereunto set my hand.

GEORGE W. BOLLMAN.

Witnesses:

JOHN A. FLOYD,
JAMES I. KAY.

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