

UNITED STATES PATENT OFFICE.

JOHN MATTHEWS, OF NEW YORK, N. Y.

IMPROVEMENT IN METAL-LINED COPPER AND OTHER VESSELS.

Specification forming part of Letters Patent No. 137,226, dated March 25, 1873.

To all whom it may concern:

Be it known that I, JOHN MATTHEWS, of the city, county, and State of New York, have invented and made a new and useful Improvement in Tin-Lined Copper Vessels, which are required to resist great pressure, as in fountains for mineral water, soda-water, reservoirs for highly-compressed gases, the same being applicable to other copper vessels requiring the joints to be hermetically sealed so as to resist the pressure of gases and liquids, or gases and liquids combined, as in effervescing drinks and the like.

These reservoirs are usually made of plates of copper, soldered or brazed together so as to form two halves of the vessel, and then soldering together these halves. This process leaves two or more longitudinal seams, and also a joint around the vessel. Sometimes the plates are fastened together by rivets. Now, my invention consists of a copper vessel made of seamless halves, which are formed by stamping in dies or by spinning the metal so as to form each half, then sweating these halves together so as to form the reservoir or fountain.

The following description will enable any one to make and use my invention.

I take copper plates of the proper thickness and size to make a half of the vessel to be formed, and, by means of dies and a press, stamp them to the shape of a half of the vessel. The halves thus formed are then tinned by any of the usual processes for tinning copper. Then butt together the halves thus formed, and cover the joint with a belt and sweat them together with tin. This process forms a seamless copper vessel or reservoir very useful for the purposes above mentioned, and is much cheaper than to manufacture similar vessels by any of the old processes.

Instead of stamping to form the halves, they may be spun up by the machinery generally employed for spinning copper, then tinned, and the two halves sweated together, as already described. No rivets are required.

To stamp the seamless halves a hydraulic

press of about eight hundred tons' force is required for ordinary reservoirs, as used for mineral water and soda-water.

To keep the disk of sheet copper from wrinkling it is held down upon the top of the die by a ring-clamp.

The tinning is effected by heating the halves in an oven, or over a fire, then wiping them with an acid and sal ammoniac, and then wiping pure tin upon the surface continually until it is somewhat chilled, so as to give a good coating of tin.

Another process is to bring together a clean sheet of copper and a plate of tin, and rub them together so as to effect a perfect union by heat, and then forming the seamless halves by stamping or spinning up the tinned sheet of copper thus formed. By this process any desired thickness of tin may be secured.

Instead of copper for the body any other strong metal capable of being formed either by stamping or spinning may be employed in carrying out this invention—such as Siemen's metal, steel, iron, or other tough metal or alloy.

Instead of tin any other non-corrodible lining metal or an alloy may be used, which can be applied to the metal forming the body either before the stamping, when it will not render the forming by stamping impracticable, or which can be applied to the seamless parts after stamping or spinning.

I do not claim the process of forming the metal articles by stamping or by spinning; nor the dies, presses, and other tools required in carrying out these operations, as they are already known; but

What I claim, and desire to secure by Letters Patent of the United States, is—

A metal-lined fountain or reservoir of copper or other tough metal, constructed of two seamless halves formed by pressure or other equivalent process, as set forth.

JOHN MATTHEWS.

Witnesses:

WILLIAM H. HERBELL,
WILLIAM THOS. GOLDEN.

W. H. H.
W. T. G.