T. & T. L. JAMES.

Method of Making Copper Bottoms for Domestic Boilers, &c.

No. 200,727. Patented Feb. 26, 1878.

fig. 1

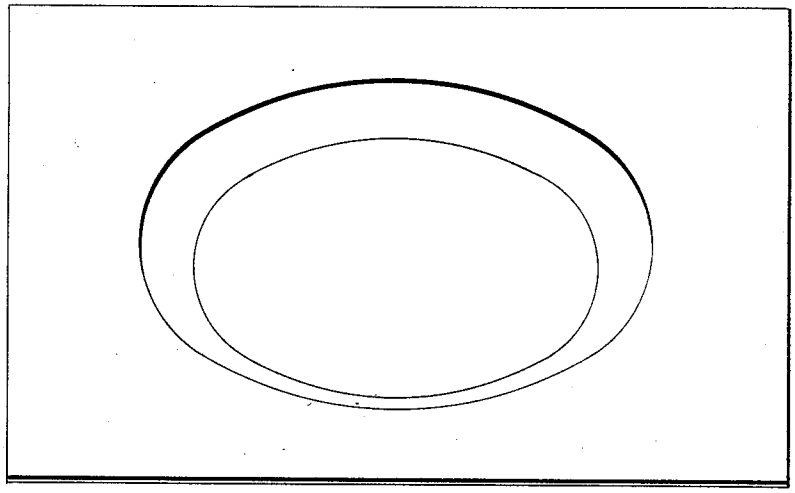


fig. 2

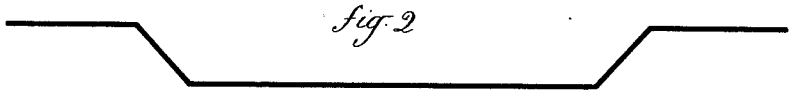


fig. 3



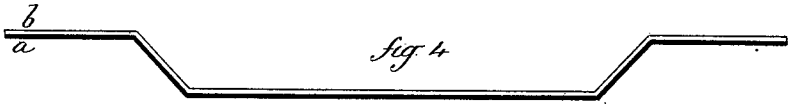


fig. 4

Witnesses:

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UNITED STATES PATENT OFFICE.

THOMAS JAMES AND THOMAS L. JAMES, OF SEYMOUR, CONNECTICUT.

IMPROVEMENT IN METHODS OF MAKING COPPER BOTTOMS FOR DOMESTIC BOILERS, &c.

Specification forming part of Letters Patent No. **200,727**, dated February 26, 1878; application filed December 19, 1877.

To all whom it may concern:

Be it known that we, THOMAS JAMES and THOMAS L. JAMES, of Seymour, in the county of New Haven and State of Connecticut, have invented a new Improvement in Copper Bottoms; and we do hereby declare the following, when taken in connection with the accompanying drawings, and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, perspective view of a single bottom; Fig. 2, longitudinal section of the same; Figs. 3 and 4, longitudinal sections illustrating the process.

This invention relates to an improvement in the manufacture of the article known to the trade as "copper bottoms"—that is, a sheet of copper struck up or shaped for application to boilers and similar cooking utensils. These are usually made from a sheet of soft copper placed between dies and struck to form a dish-shaped cavity on the upper surface and a corresponding projection on the bottom, this projection designed to enter the hole in the top of the stove. This process requires that the copper shall be quite soft, or it will break or tear under the action of the dies; hence, after the copper has been rolled into the sheet, it is necessary that the blank should be annealed before submitting it to the action of the dies.

It will be readily understood that if this annealing could be avoided a bottom would be produced very much harder, and consequently more durable, than the annealed or soft bottom.

The object of this invention is the production of such a hard-copper bottom; and the invention consists in the method of producing such a bottom, as hereinafter described, and more particularly recited in the claims at the close of this specification.

The blanks for the bottoms are cut of the usual form, one blank from a sheet of cold-rolled or hard copper and the other annealed. Two such blanks—that is, one hard or unannealed and the other annealed—are placed together, the annealed or softer upon the outside or under side, as usually worked, *a*, or solid black, Fig. 3, representing the annealed blank, and *b* the cold-rolled or hard blank. These two blanks are then placed between the dies in the usual manner, it being understood, however, that the dies will be shaped to correspond to the combined thickness of the two blanks. These blanks are then struck together, the force coming directly upon the hard blank, and the two are forced together into the shape required. The outer or softer copper serves as a protection or re-enforce for the inner or harder copper, and enables that to resist the tearing influence of the force, and the two are shaped without the slightest injury to either; whereas, were the same hard blank struck singly in the usual manner, it would be invariably destroyed. Hence, by making the two blanks together, one soft and the other hard, a perfect hard bottom is the result; and inasmuch as there is a demand for the softer bottom, as well as the hard, because the harder bottom will command a better price, no loss occurs in making the two qualities in equal proportion.

We are aware that it is not new to stamp several thicknesses or blanks of metal at one time, whereby they are made to approximate the desired form; but we are not aware that two blanks of different degrees of hardness have been struck together, and two articles produced of such different degrees of hardness.

We claim—

The method herein described for the manufacture of copper bottoms, consisting in striking a hard and soft blank together, the soft outside to form a protection for the inner or hard blank, whereby a hard and a soft article are both produced by one and the same operation, substantially as described.

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Witnesses:
JOSEPH INESON,
FRANK NICHOLS.