

(No Model.)

W. J. WILDER.
PROCESS OF COATING METAL.

No. 313,700.

Patented Mar. 10, 1885.

Fig 1

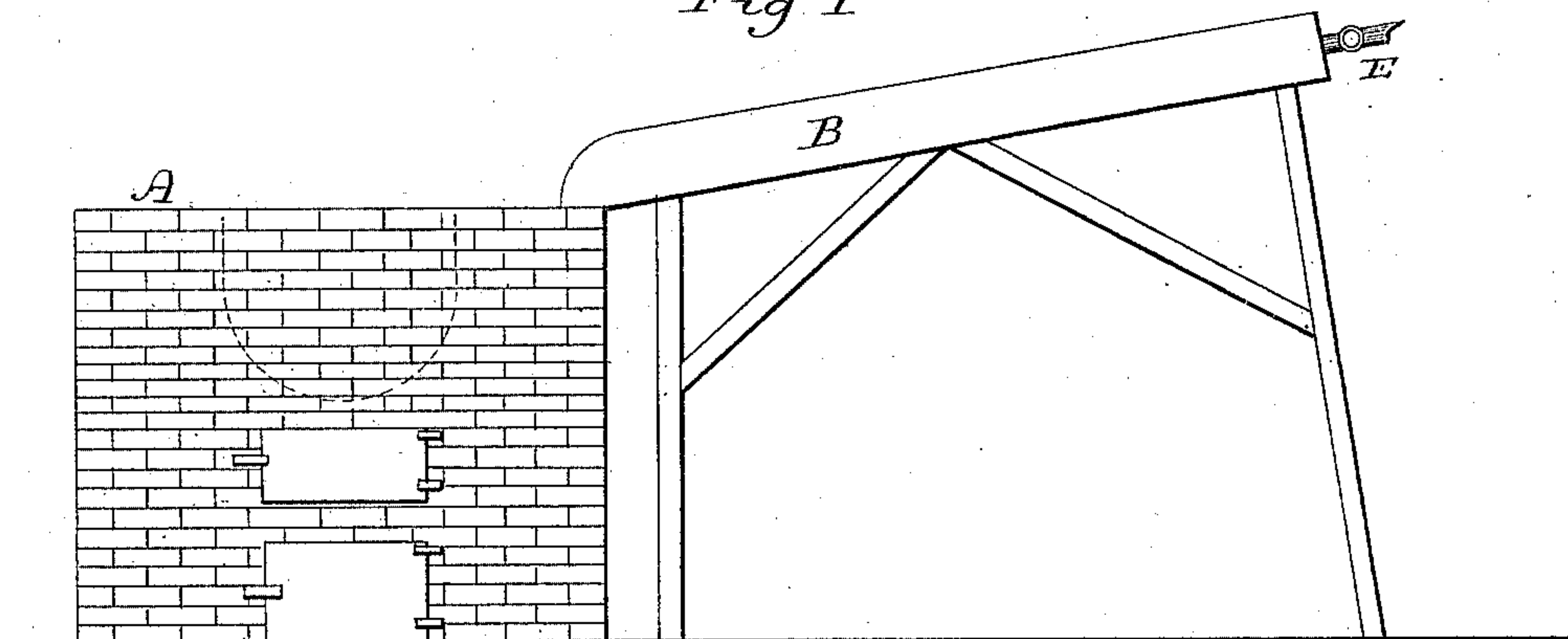


Fig. 2

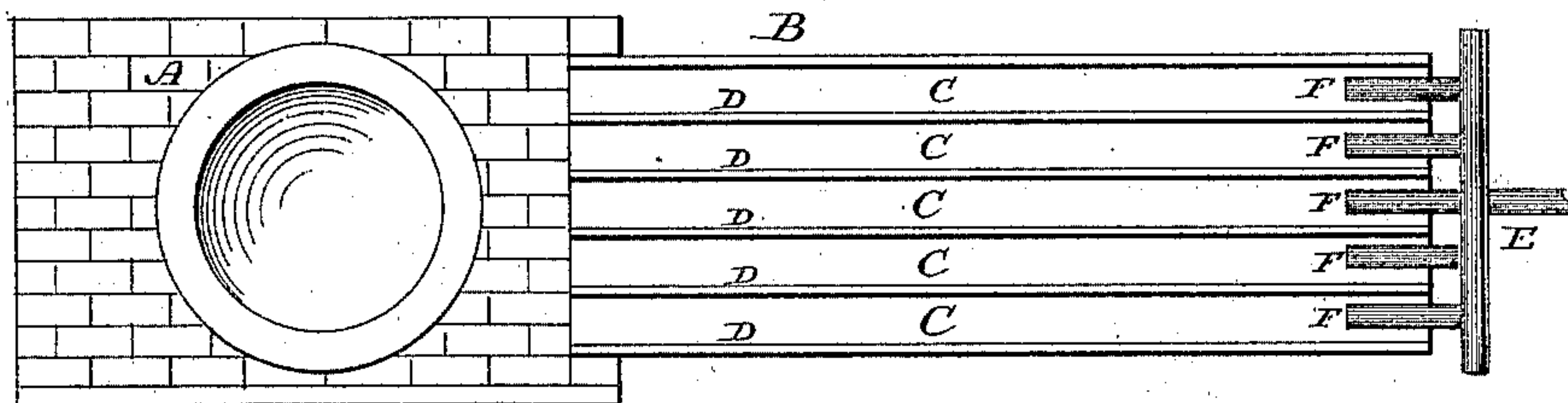
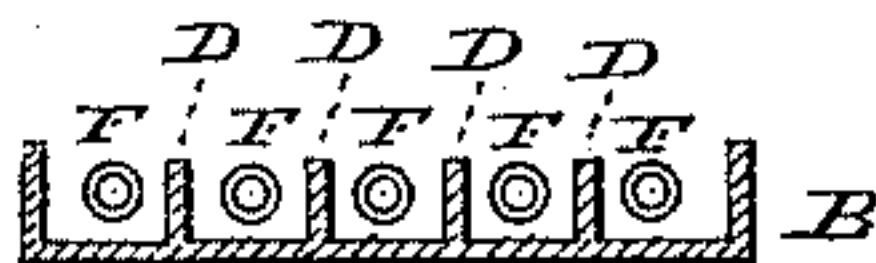


Fig. 3



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UNITED STATES PATENT OFFICE.

WILLIAM J. WILDER, OF ANSONIA, CONNECTICUT.

PROCESS OF COATING METAL.

SPECIFICATION forming part of Letters Patent No. 313,700, dated March 10, 1885.

Application filed February 2, 1884. (No specimens.)

To all whom it may concern:

Be it known that I, WILLIAM J. WILDER, of Ansonia, in the county of New Haven and State of Connecticut, have invented new Improvements in Process of Coating Metal; and I do hereby declare the following, when taken in connection with 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, a side view; Fig. 2, a top view; Fig. 3, a transverse section of the table looking toward the upper end.

This invention relates to an improvement in the manufacture of metals coated with tin—such as used for the lining of bath-tubs, refrigerators, roofing, measures, &c., and as a substitute for tin-coated sheet-copper.

Copper as a basis of sheet metal to be coated for various uses to which it is applied is so expensive as to necessitate some resort for a cheaper material. Various alloys have been made and coated with tin as a substitute for tinned copper—such, for instance, as yellow-metal. Zinc has not heretofore been successfully used as such a substitute, for the reason that in applying the hot tin to the surface to be coated the great heat causes the zinc and tin to amalgamate to such an extent as to deface the surface, and, further, such amalgamation destroys the life of the metal to such an extent as to make the metal practically useless for any of the purposes for which tinned sheet-copper is now employed, whereas were it not for this imperfect surface zinc would be an acceptable substitute.

The object of my invention is to avoid this defacing of the surface, which is always apparent in tinned sheet-zinc, as well as to avoid deterioration of the metal; and my invention consists in coating a sheet of zinc with tin while the other surface is subjected to a cold blast, as more fully hereinafter described.

I will first describe the apparatus by which my process may be practically employed.

A represents the usual furnace for retaining the tin in a molten condition. Near the furnace, and inclining toward it in the usual manner, is the table B. The upper surface of this table is constructed with numerous chan-

nels, C, having ribs D between them. These ribs should present a narrow surface, upon which the sheet may be placed. At one end of the table, preferably the upper end, a cold-air pipe, E, leads to several injectors, F, one into each of the channels C. The cold-air blast is forced through these ejectors by the common blast-fan, or any suitable device for giving a forced supply of air, and so that the blast will be injected longitudinally through the channels. It will be apparent that the channels may be in other than a longitudinal direction, it only being essential that there shall be channels open upward against the surface of the sheet which may be laid thereon, and so that the blast introduced will pass into the said channels.

The sheet of zinc—say common merchantable zinc—having its one surface cleaned, is laid upon the table, and so as to cover the channels, the cleaned side uppermost. The cold-air blast being in operation, the molten tin is flowed over the surface and quickly wiped off. The cold-air blast prevents the heating of the zinc by the molten tin to such an extent that no amalgamation occurs between the tin and zinc, and the surface thus tinned is as free from blemish or combination with the metal of the sheet as is the tinned surface of the best copper.

In some cases it is desirable that the sheet shall present the appearance of copper or other metal on the reverse or untinned side. In such case I coat that surface with copper, nickel, or whatever metal may be desired, by electro-deposit in the usual manner of coating such metals. The cold-air blast prevents the heat of the sheet, and thereby avoids oxidation or discoloration of the reverse or coated side, unavoidable in the usual tinning apparatus where the sheet lies flat upon the table, and without the cold blast which I have described, so that the tinned sheet coming from the table the reverse side presents the same appearance as when laid upon the table, not being affected by the process of tinning.

In some cases it is desirable to coat the surface to be tinned with nickel or copper, as enabling a higher finish to the tinned surface. In this case the blast prevents the amalgamation of the metals with the zinc as before.

The sheet thus tinned may be cold-rolled or finished in any of the usual or desirable methods.

My improved table may be employed to
5 great advantage in tinning pure sheet-copper or other metals, from the fact that the cold blast will prevent oxidation or discoloration of the reverse side.

The tinned sheet-zinc being thus success-
10 fully produced, is the cheapest possible substitute for copper, and for many purposes for which copper is used is equally as good and for which sheet zinc as ordinarily tinned would be useless.

I make no claim herein to the apparatus 15 described.

I claim—

The process herein described for tinning sheet metals, consisting in applying a blast of cold air to the reverse side while the hot tin 20 is being applied to the first side, substantially as described.

WILLIAM J. WILDER.

Witnesses:

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