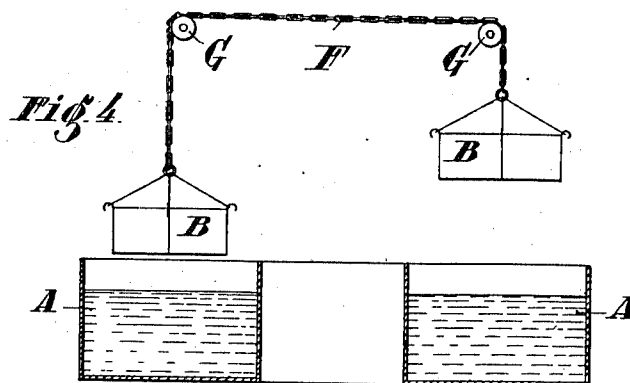
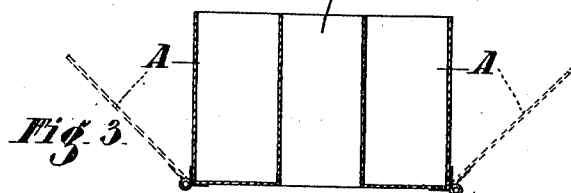
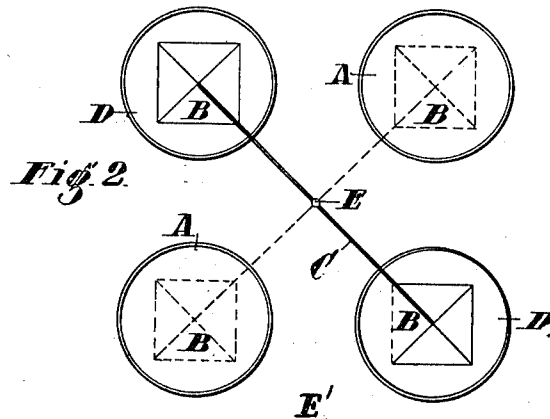
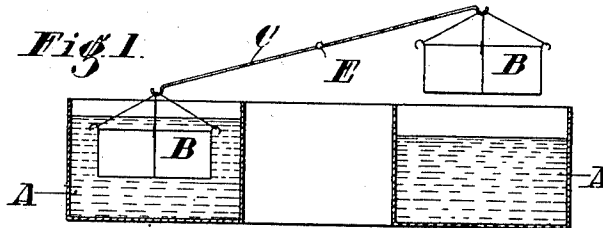


H. BRANDENBURG.
METHOD OF DETINNING.
APPLICATION FILED OCT. 5, 1911.

1,012,511.

Patented Dec. 19, 1911.



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UNITED STATES PATENT OFFICE.

HEINRICH BRANDENBURG, OF KEMPEN-ON-THE-RHINE, GERMANY.

METHOD OF DETINNING.

1,012,511.

Specification of Letters Patent.

Patented Dec. 19, 1911.

Application filed October 5, 1911. Serial No. 653,018.

To all whom it may concern:

Be it known that I, HEINRICH BRANDENBURG, a subject of the German Emperor, and residing at Kempen-on-the-Rhine, Germany, have invented certain new and useful Improvements in Methods of Detinning, of which the following is a specification.

My invention relates to methods for detinning metals covered wholly or in part by tin, and more particularly to methods for detinning scraps or other waste material carrying more or less tin.

More particularly stated, my invention relates to removal of the tin by aid of a suitable solvent capable of acting upon the tin, and especially when the tin is oxidized. For this purpose the solvent may be either an alkali or an acid.

I have made the discovery that when material to be treated is submerged in a solvent for tin, and is then exposed to the air and afterward again submerged in the solvent and again exposed to air, the success of the detinning operation hinges largely upon the time intervals during which the material is submerged and exposed to atmospheric action. If the material, after being submerged in the solvent, is exposed for too long a time to atmospheric action, the solvent upon its surface dries up, and if the submersion of the material be continued too long other difficulties are likely to arise. When the material becomes too dry, and is afterward submerged in the solvent, the action of the liquid is rendered unduly slow.

My invention comprehends the alternate treatment of the material, first by submerging it in a solvent and then lifting it out of the solvent, so as to expose it to the action of the air, in order to promote oxidation, the submersion and the exposure to atmospheric air being properly timed, or in other words being continued for precise periods of time.

My invention also comprehends that the material to be operated upon is moved vertically upward and downward, and that two quantities of the material are balanced against each other, so that when one quantity of material is being submerged the other quantity is raised and thereby exposed to atmospheric action.

For the purpose of handling the material appropriate holders may be employed, but this is not in all instances necessary, as the material may be placed in the form of packets or bales, if desired. It is desirable that

large holders be used, however, in instances where the material to be detinned is made up of large masses of tinned iron and when the question of cost of handling becomes an important factor. When the masses of material to be treated are raised out of the solvent they are free to cool rapidly, and the atmospheric air present can readily circulate through the masses.

No special form of apparatus is essential to the practice of my invention, but for the sake of clearness and simplicity I show, by way of example, two forms of apparatus which may be used in carrying out my method.

Reference is made to the accompanying drawing forming a part of this specification, and in which like letters indicate like parts.

Figure 1 is a section showing one apparatus. Fig. 2 is a plan view of the same. Fig. 3 is a detail showing an elevation of one of the holders. Fig. 4 is a section somewhat similar to Fig. 1, but showing a slightly different form of the apparatus.

Referring to the structure shown in Figs. 1 and 2 there are two tanks A A for holding the solvent. The material to be detinned is mounted in holders B, which are suspended from a beam C, the latter being fulcrumed at the point E. At D D are two tanks which hold a liquid for washing the materials after their treatment in the tank D, and in the atmosphere. By tipping the beam C, the material can first be submerged in the solvent, and then raised into the air and thus exposed to the oxidizing influence of the latter, after which it may be again submerged. The submersion and exposure of the different quantities of the materials to be treated are accurately timed. After the material has been thus thoroughly treated the beam C is turned horizontally and the masses of material are washed by dipping each of the masses one or more times in the washing liquid contained within the tanks D D, this being done most readily by merely tipping the beam C as before. In treating the masses of material by alternately submerging them in the solvent and lifting them into the air, a minimum of work is required because of the fact that the two masses balance each other upon the beam C. Moreover this arrangement of the various parts enables the time of submersion to coincide with the time of exposure to the atmosphere provided, of course, that care be ex-

exercised in tipping the beam C at the right moment. Each time a mass of material is raised from the solvent and thus exposed to atmospheric action there is more or less oxidizing accomplished by the air, and when this is done, if the material be again lowered and thus immersed in the solvent, the tin is removed with great facility.

In the form shown in Fig. 4 I use a chain F engaging the pulleys G, and upon the ends of the chain I mount holders B for the materials. The tanks A A contain the solvent. Each holder is provided with an inner chamber E', as will be understood from Fig. 3, in order to facilitate the access of the air to the charge of material.

I claim:

1. The process of detinning tin scraps which consists in maintaining two masses of tin scraps in counterbalanced relation and alternately subjecting one of said masses to the action of a solvent for tin, and to the action of air, and simultaneously subjecting

the other of said masses alternately to the action of air and to the action of a solvent for tin.

2. The method herein described of detinning waste tinned iron, which consists in balancing against each other two masses of the material to be detinned, next simultaneously raising one mass into the air and lowering the other mass into a solvent for tin, then simultaneously lowering into a solvent for tin the mass first raised and raising into the air the mass first lowered, so as to expose to the oxidation of the atmosphere the tin carried by said mass first lowered, and repeating the foregoing steps until substantially all of the tin carried by both masses is removed.

In testimony whereof, I affix my signature in the presence of two witnesses.

HEINRICH BRANDENBURG.

Witnesses:

RUDOLPH FRICKE,
FRIEDRIC OTTO WITTMAR.