H. BRANDENBURG.

APPARATUS FOR EXTRACTING TIN FROM TIN PLATE WASTE.

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948,679.

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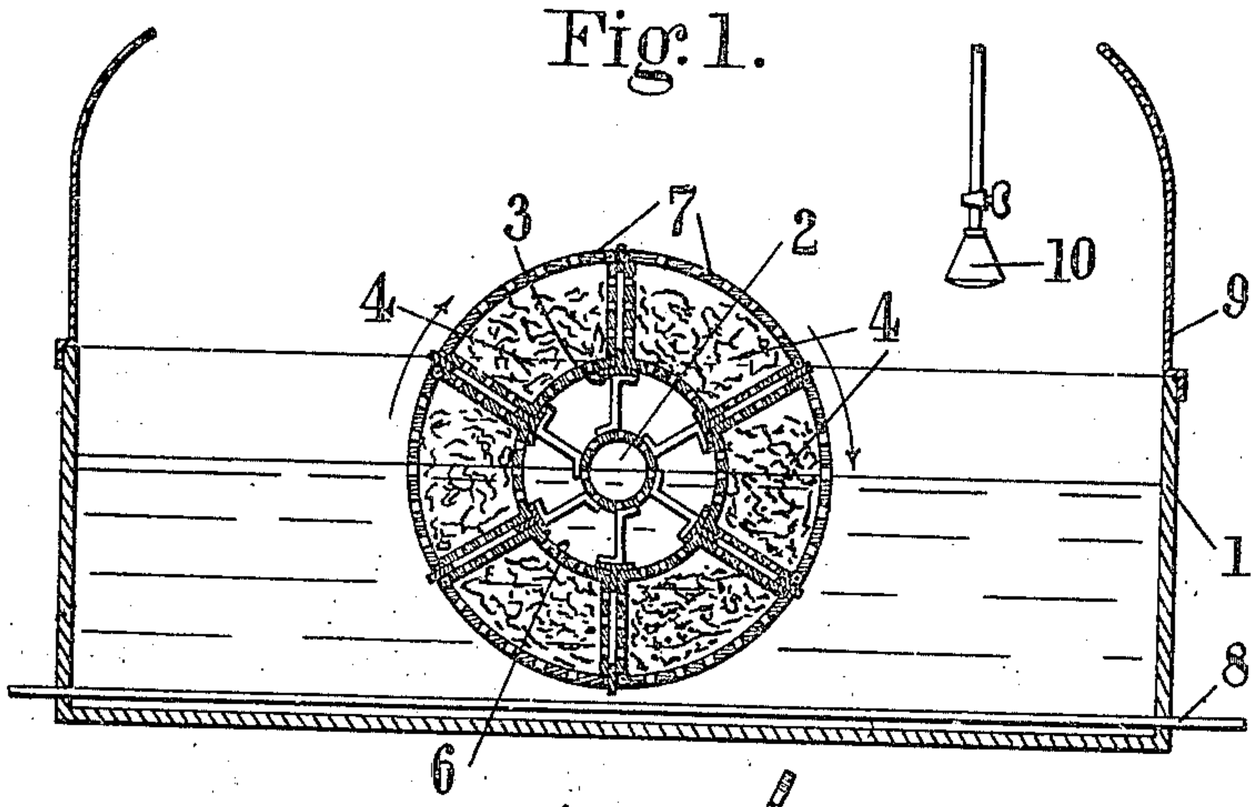
Fig. 1.



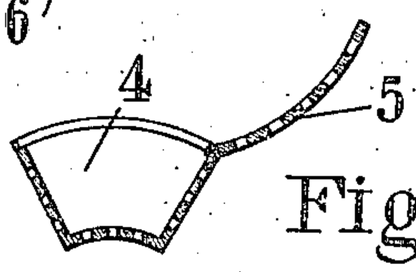


Fig. 2.

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR EXTRACTING TIN FROM TIN-PLATE WASTE.

948,679. Specification of Letters Patent. Patented Feb. 8, 1910.

Application filed March 3, 1908. Serial No. 418,933.

To all whom it may concern:

Be it known that I, HEINRICH BRANDENBURG, chemist, subject of the King of Prussia, residing at 29 Moorenring, Kempen-on-the-Rhine, Germany, have invented new and useful Improvements in Apparatus for Extracting Tin from Tin-Plate Waste, of which the following is a specification.

This invention relates to apparatus for extracting tin from tin plate waste, and has particular reference to that class of apparatus in which the waste or the like to be deprived of tin, is alternately brought into contact with hot caustic alkali lye and air.

According to this invention, an energetic contact of the alkaline lye and air with the waste from which tin is to be extracted, is insured by a drum apparatus being constituted by two drums provided with perforated walls and preferably arranged concentrically about a spindle, only the annular space inclosed between the said drums, being filled with tin containing products, so that only a comparatively thin layer of the said products has to be moistened and aired, while in the usual ordinary drums completely filled with the waste products, neither the alkali lye nor the air can be brought into a thorough contact with the said waste. An efficient moistening with the lye and an efficient airing cannot be attained owing to the layer of the waste from which tin is to be extracted and which is moved in the drum, being much too thick to enable the air and the lye to come into thorough contact with each particle during the rotation of the drum.

An installation specially adopted for carrying out the process according to this invention is illustrated by way of example in the accompanying drawings in vertical section, a drum being used in this construction, which as will be seen from the following description, can be very easily filled and emptied.

In the said drawings, Figure 1 is a vertical section through the apparatus, taken at right angles to the axis of the drum. Fig. 2 is a vertical transverse section through one of the perforated tanks carried by said drum.

The installation comprises a tank 1 filled with a caustic alkali lye, for instance with a solution of caustic soda, in which is arranged a cylindrical casing 3 preferably made of T- or angle irons or the like, about a preferably hollow and perforated spindle 2. Between each two adjoining series of the said irons are arranged perforated tanks 4 (Fig. 2) provided with perforated covers or lids 5, in such manner that the bottoms of the said tanks are situated on the surface of an inner cylinder 6, while the covers constitute the surface of an outer cylinder 7. These tanks or boxes are filled with the waste or other tin containing product from which tin is to be extracted, and the whole drum is rotated and air blown through the hollow spindle. By means of the pipe 8 through which any desired heating medium, for instance hot air, hot gases, hot water or the like, are passed, the caustic alkali bath is heated. The heating could however be also affected in any other desired manner. Owing to the movement of the drum, the waste of tin plate etc. are alternately carried through the hot bath and the air chamber, and in that way are brought into energetic contact with both, while at the same time an energetic airing is insured by the air being blown in through the hollow spindle. The tin becomes then quickly and thoroughly dissolved. As the tin plate waste is frequently varnished or is for instance covered with fat, which substances get saponified in the hot alkaline bath, there will frequently be formed on the surface of the bath, owing to the movement of the drum, a thick scum, and the dam 9 is intended to prevent the overflow of the bath. Moreover, water is constantly supplied through the rose 10 for the purpose, on the one hand, to settle down the scum, and on the other hand for the purpose of replacing water evaporated. After the charge of the single baskets has been completely deprived of its tin, the said baskets are removed from the frame, emptied and filled with fresh waste, while the caustic alkali bath is maintained in an efficient state by continually or at certain intervals adding to the same fresh alkali lye and discharging the lye already containing stannates.

What I claim is:—

1. Apparatus for extracting tin from tin plate waste and other tin containing products, comprising a vessel adapted to contain alkaline lye, two drums with perforated walls, arranged concentrically about a spindle and rotatable in said vessel, the annular

space inclosed between the two drums being intended to receive the waste or the like from which tin is to be extracted.

2. Apparatus for extracting tin from tin plate waste and other tin containing products, comprising removable boxes provided with perforated walls and covers arranged in a drum frame, in such manner that the bottoms of the said boxes, form the cylindrical surface of the inner drum, and the covers that of the outer drum.

3. Apparatus for extracting tin from tin plate waste and other tin containing products, comprising a tank to be filled with a caustic alkaline lye, two drums with perforated walls arranged in said tank concentrically about a perforated spindle, and a rose, the latter being provided to supply water to settle any scums.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

H. BRANDENBURG.

Witnesses:

AUG. WEYLEMY,

HEINRICH ZIMMERMANN.