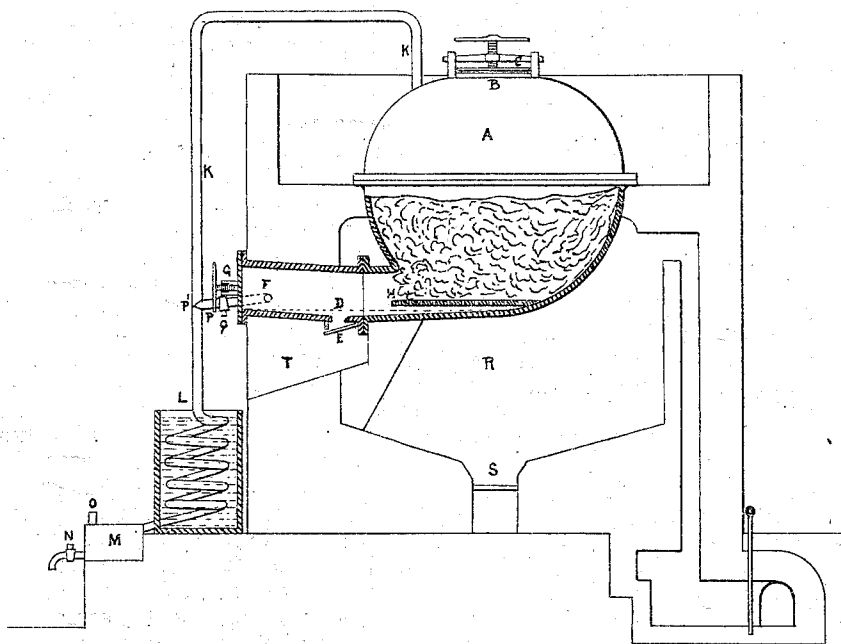


H. W. HAUBERG.
Removing Tin from Tin Scraps.

No. 154,178.

Patented Aug. 18, 1874.



WITNESSES:

Alfred Browne
James Ledger

INVENTOR:

Henry William Hauberg.

UNITED STATES PATENT OFFICE.

HENRY WILLIAM HAUBERG, OF LONDON, ENGLAND.

IMPROVEMENT IN REMOVING TIN FROM TIN SCRAPS.

Specification forming part of Letters Patent No. **154,178**, dated August 18, 1874; application filed December 5, 1873.

To all whom it may concern:

Be it known that I, HENRY WILLIAM HAUBERG, of 5 Southampton Buildings, London, in the county of Middlesex, England, have invented an Improved Process and Apparatus for Separating or Removing the Tin from Scraps and Cuttings of Tinned or Terne Plates, of which the following is a specification:

This invention relates to a new and improved mode of separating tin from scraps and cuttings of tinned or terne plates by means of vapors of mercury, the said vapors being generated either in the same vessel which contains the cuttings or scraps to be operated upon, or they may be injected into the said vessel.

My invention consists of a retort having a false bottom and a neck, within which is located a valve for discharging the melted tin in molds or other suitable receptacles, the scraps, such as cuttings of tin or terne plates, being heated in the retort, in the presence of mercury, by a suitable furnace, to a temperature sufficient to melt the tin and volatilize the mercury, and thus form with the tin and the scraps an amalgam, which descends to the bottom of the retort, where it is decomposed, leaving the tin, at the bottom of the retort, prepared to be discharged into molds. The invention also consists in a safety pipe or tube, which is made to communicate with the retort at different points, for conducting the vapors of mercury into a worm for a further utilization in the retort, as hereinafter specified.

The accompanying sheet of drawing shows a sectional elevation of the apparatus by means of which I propose to accomplish the above object.

A is a large retort, having at B an opening closed by means of a luted lid, C. The neck of the said retort is hollowed out at D, and at the bottom of this hollow is a small aperture closed by means of a luted valve, E. The end of the said neck of the aforesaid retort is also closed by a luted cover, G, and a false bottom, H, is provided inside the said retort. At the top of the aforesaid retort, and near the opening B, is fixed a bent tube, K, the said tube terminating by a condensing-worm, L. This worm is fixed to a reservoir, M, having a tap, N, by means of which its contents can be

emptied. An opening, O, is also provided in the said reservoir, to which may be affixed a safety-valve or plug. A tube, P, provided with a tap, Q, joins the neck of the retort to the tube K at P'. The retort is inclosed in a furnace, R, the grate whereof is at S, and the masonry of the retort is cut out at T, so as to leave a hollow part underneath the valve E.

I will now proceed to describe the manner of separating the tin from the scraps of tinned or terne plates by means of the apparatus above described.

The retort having been brought to a suitable temperature, so as to melt the tin and volatilize the mercury, I introduce into the said retort, through the opening B, the scraps of tinned or terne plates to be operated upon. I now pour into the said retort a certain quantity of mercury, and lute the lid C. The mercury is then transformed into vapors, and the said vapors, coming in contact with the tin on the scraps or plates, forms with it an amalgam. This amalgam falls to the bottom of the retort, and is there decomposed, the tin remaining at the bottom, and the vapors of mercury forming themselves again to act a second time on the tin scraps or plates. This fresh amalgam again falls to the bottom of the retort, acts as before, and so on until all the tin has been removed from the scraps or plates in the retort, after which the tin will be found to have collected in the hollow part D of the neck of the retort, the said retort containing only bare iron scraps and vapors of mercury. The valve Q is now opened, and the vapors of mercury allowed to escape through the pipe P, condense in the worm L, and collect in a liquid state in the reservoir M, from which it may be drawn off for future operations.

When the vapors of mercury have all condensed from the retort the valve E is opened, and the melted tin allowed to run into molds, and cast into ingots. The lid G is then removed, and the scraps of iron raked out of the retort by means of hooks or other suitable instruments. The bent tube K may be considered as a safety-tube, through which the vapors of mercury can escape should there at any time be too great a pressure, but they will soon condense therein, and fall again into the retort. Should, however, some of the mercury

find its way to the bent part of the said tube, it will then fall down into the reservoir M and join the main body of the mercury.

I will here observe that I do not restrict or confine myself to the precise details or construction of apparatus above described and referred to, as the same may be varied; and it may also be found necessary to conduct the said operation in an inoxidizing atmosphere, so as to prevent all formation of oxide of mercury.

I claim as my invention—

1. In an apparatus for separating tin from scraps and cuttings of tinned or terne plates, a retort, A, having a false bottom, H, and a neck, D, with a valve located therein for discharging the melted tin into molds or other receptacles.

2. In combination with the retort A, the safety-tube K, leading from the reservoir M, and communicating with the retort at different points for discharging the vapors of mercury

into the worm L for further utilization, substantially as described.

3. A valve arranged in the neck of the retort for discharging the melted tin into molds, substantially as described.

4. The within-described process of separating or removing the tin from scrap, such as cuttings of tin or terne plates, the same consisting in heating the scraps in a retort, in the presence of mercury, by a furnace heated to a temperature sufficient to melt the tin and volatilize the mercury, the amalgam formed being decomposed, leaving the tin at the bottom of the retort to be discharged therefrom, substantially as set forth.

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Witnesses:

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