

E. STEINBUCH.
 APPARATUS FOR ELECTROLYSIS OF FUSED ALKALI CHLORIDS.
 APPLICATION FILED AUG. 22, 1910.

1,012,470.

Patented Dec. 19, 1911.

Fig. 1.

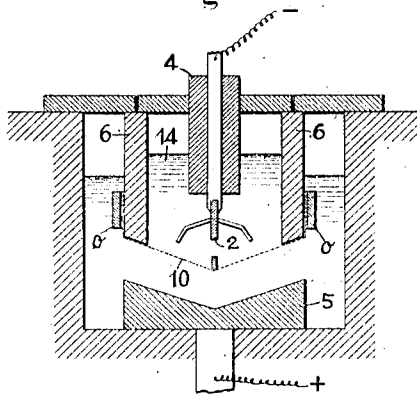


Fig. 3.

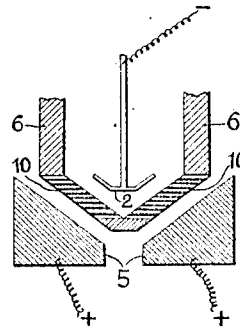


Fig. 2.

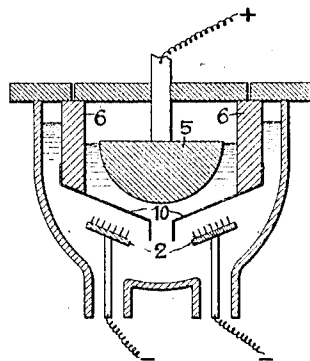
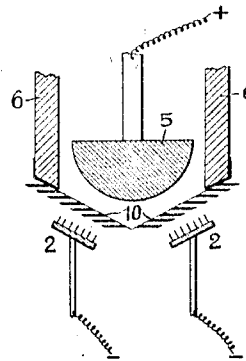


Fig. 4.



Witnesses
 to E. Steinbuch.
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UNITED STATES PATENT OFFICE.

EWALD STEINBUCH, OF MONTHHEY, SWITZERLAND, ASSIGNOR TO SOCIETY OF CHEMICAL INDUSTRY IN BASLE, OF BASEL, SWITZERLAND, A FIRM.

APPARATUS FOR ELECTROLYSIS OF FUSED ALKALI CHLORIDS.

1,012,470.

Specification of Letters Patent.

Patented Dec. 19, 1911.

Application filed August 22, 1910. Serial No. 578,475.

To all whom it may concern:

Be it known that I, EWALD STEINBUCH, a citizen of the Swiss Republic, and resident of Monthey, Canton of Valais, Switzerland, have invented certain new and useful Improvements in Apparatus for Electrolysis of Fused Alkali Chlorids, of which the following is a full, clear, and exact specification.

The principal difficulty in the electrolysis of fused alkali chlorids for producing alkali metal and chlorine consists in maintaining the anode chamber conveniently separated from the cathode chamber. Now I have found that a very effective separation of the products of the electrolysis can be obtained by placing the electrodes one above the other and by arranging between them a diaphragm which compels the product of electrolysis liberated at the lower electrode, to escape laterally, while the product generated at the upper electrode is collected in a chamber surrounding this latter electrode.

In the accompanying drawings are shown several constructions according to the invention, the several figures being diagrammatic and vertical sections through the electrolytic bath.

In Figure 1 the cathode 2 is arranged within a chamber formed by the diaphragm 6 in which chamber the alkali metal 14 collects on the surface of the electrolyte. The conductor for the cathode is insulated from the separated metal by a sleeve 4, as shown in the drawing. 5 is the anode. The chlorine rising from the anode is prevented from having access to the cathode chamber and is laterally deflected by a sheet 10 of material, such as asbestos-texture, which is not attacked by chlorine but is permeable to liquid, or by any other corresponding device. If necessary the sheet 10 is supported by a ring 9. The alkali metal is withdrawn from the cathode chamber in any suitable manner, such as by an overflow pipe, and the chlorine is conducted away from the anode chamber to the place where it is to be consumed.

In Fig. 2 the arrangement of the electrodes is reversed. 2 is the cathode, 5 the anode and 6 the diaphragm limiting the anode chamber. The diaphragm 10 in this arrangement may advantageously be made of fine meshed wire netting against which the alkali metal liberated at the cathode strikes and slides upward in order to collect as a layer on the surface of the electrolyte. Instead of a single diaphragm several can be used horizontally arranged and superimposed like louver-boards.

The diaphragms may be arranged in several ways. For example in Fig. 3, which generally resembles Fig. 1, perforated sheets are substituted for the asbestos-texture and are arranged as shown.

Fig. 4 shows the arrangement of the diaphragm 10 of Fig. 2 after the fashion of louver boards. In all cases, however, it will be seen that one product is collected in a chamber through which passes one electrode, while said chamber is separated from the other electrode by a laterally extending passage bounded by a diaphragm.

What I claim is:

An apparatus for electrolyzing fused alkali chlorids comprising a pair of superposed electrodes, a chamber through which one of said electrodes passes, a permeable diaphragm constituting the lower wall of said chamber and the upper wall of a laterally extending and inclined passage for the products of electrolysis at the other electrode; and a casing surrounding said chamber, diaphragm and passage, providing a second chamber in which the products passing through said passage may be collected, substantially as described.

In witness whereof I have hereunto signed my name this sixth day of August 1910, in the presence of two subscribing witnesses.

EWALD STEINBUCH.

Witnesses:

J. E. MEYER,
J. C. STETTLER.