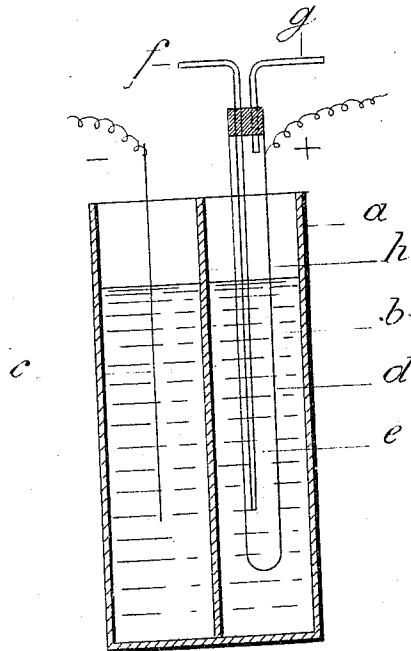


G. TEICHNER.
PROCESS FOR PRODUCTION OF COMPOUNDS OF PERSULFURIC ACID.
APPLICATION FILED FEB. 8, 1910.

Patented Jan. 17, 1911.

981,900.



WITNESSES:
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UNITED STATES PATENT OFFICE.

GUSTAV TEICHNER, OF NUREMBERG, GERMANY, ASSIGNOR TO THE FIRM OF CON-
SORTIUM FÜR ELEKTROCHEMISCHE INDUSTRIE GESELLSCHAFT MIT BESCHRÄNK-
TER HAFTUNG, OF NUREMBERG, GERMANY.

PROCESS FOR PRODUCTION OF COMPOUNDS OF PERSULFURIC ACID.

981,900.

Specification of Letters Patent.

Patented Jan. 17, 1911.

Application filed February 8, 1910. Serial No. 542,764.

To all whom it may concern:

Be it known that I, GUSTAV TEICHNER, doctor of philosophy, chemist, a subject of the Emperor of Austria-Hungary, residing at 54 Gugelstrasse, Nuremberg, Kingdom of Bavaria, German Empire, have invented new and useful Improvements in Processes for Production of Compounds of Persulfuric Acid, of which the following is a specification.

My invention relates to the process of production of persulfuric acid by the electrolysis of sulfuric acid.

Hitherto the production of persulfuric acid by electrolysis of sulfuric acid was carried out in such a manner that the electrolyzed sulfuric acid was cooled down to temperatures below 10° centigrade, because at higher temperatures the formation of persulfuric acid is but small and only low concentrated solutions of persulfuric acid may be obtained. As a temperature below 10° can only be maintained by means of cooling machines, large and costly cooling installations were required. Furthermore it was necessary to add to the electrolyte hydrochloric acid and similar substances in order to increase the yield, because pure sulfuric acid produces but a small proportion of persulfuric acid. I have discovered that these inconveniences may be avoided by cooling the anode itself. If the anode is kept at a temperature of about 15° the electrolyte may without harm reach a temperature of more than 20°, the yield of persulfuric acid being very small at this temperature if the anode is not cooled. The cooling can be easily effected by making the anode hollow and leading water of 12-15° through it. Special cooling machines are therefore unnecessary. Another great advantage is that the addition of hydrochloric acid and the

like can be omitted, the cooled anode giving very good outputs of persulfuric acid even with pure sulfuric acid.

The accompanying drawing shows a vertical section of an apparatus suitable for carrying out the process in accordance with this invention.

a is the receptacle containing the liquid to be electrolyzed, *c* is the cathode, *d* the anode, *h* a porous clay diaphragm. The anode *d* is hollow. In the hollow space *e* water is introduced by a tube *f* and allowed to run out through the pipe *g*. The cooling may also be effected with other cooling means than water, for instance, salt solutions or air.

The process can be carried out as follows: Into the receptacle *a* is introduced sulfuric acid *b* having a specific gravity of 1.35. The anode *d* is preferably of platinum and the cathode *c* of lead. The current intensity is preferably 0.5 amperes per square centimeter anode. The electrolysis is best carried out as rapidly as possible so as to avoid the formation of the Caro's acid which has a depolarizing action. This is effected by making the volume of the electrolyzed liquid as small as possible, for instance 5-10 cubic centimeters electrolyte for 1 ampere.

I claim:

The process of production of persulfuric acid consisting in subjecting solutions of sulfuric acid to electrolysis, cooling the anode and maintaining the solutions of sulfuric acid during the electrolysis to a higher temperature than the anode which is cooled.

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

GUSTAV TEICHNER.

Witnesses:

ERICH NAIFER,
ADAM KISCHER.