

(No Model.)

R. KÜCH.

SULPHURIC ACID PAN AND PROCESS OF MAKING THE SAME.

No. 474,527.

Patented May 10, 1892.

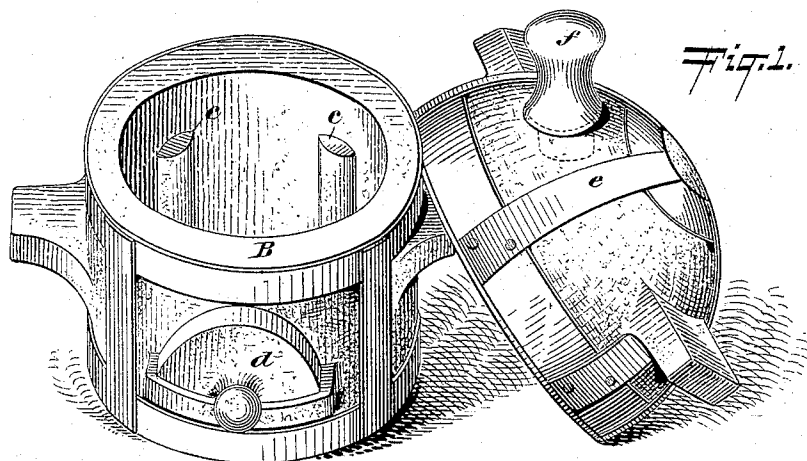
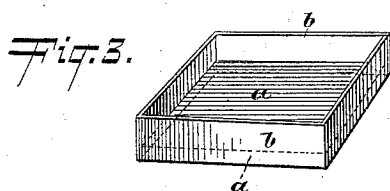


Fig. 5.

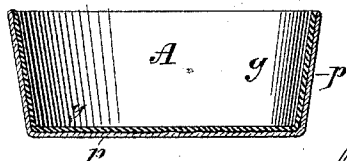


Fig. 2.

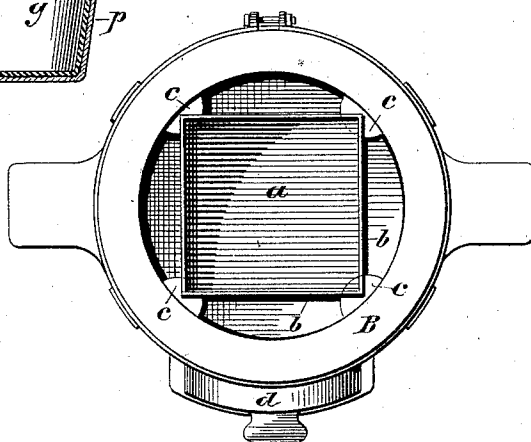


Fig. 4.



WITNESSES:
Gustave Dietrich
Henry E. Eorring

INVENTOR
Richard Küch
BY
Brienen & Thwaitte
his ATTORNEYS.

UNITED STATES PATENT OFFICE.

RICHARD KÜCH, OF HANAU-ON-THE-MAIN, GERMANY, ASSIGNOR TO WILHELM CARL HERAEUS, WILHELM HERAEUS, AND HEINRICH HERAEUS, OF SAME PLACE.

SULPHURIC-ACID PAN AND PROCESS OF MAKING THE SAME.

SPECIFICATION forming part of Letters Patent No. 474,527, dated May 10, 1892.

Application filed April 10, 1891. Serial No. 389,230. (No model.)

To all whom it may concern:

Be it known that I, RICHARD KÜCH, of Hanau-on-the-Main, Germany, have invented an Improvement in Sulphuric-Acid Pans and Process of Making the Same, of which the following is a specification, reference being had to the accompanying drawings, forming part of the same, in which—

Figure 1 is a perspective view of a furnace whereby my invention may be accomplished; Fig. 2, a plan view of the same; Fig. 3, a perspective view of the platinum box ready to receive the gold; and Fig. 4 a cross-section thereof. Fig. 5 is a cross-section of the pan.

A represents my improved sulphuric-acid pan, consisting of an outer thickness *p* of platinum and an inner thickness *g* of gold.

B represents a furnace having pillars or supports *c*, upon which the platinum bar or sheet *a*, having rim *b*, rests (see Fig. 2) in the process of heating. This furnace is furnished with a door or opening *d* in the lower portion, and a cap or cover *e*, having suitable opening *f* to regulate the intensity of the heat.

This invention relates to an improvement in pans for concentrating sulphuric acid. Heretofore the better class of pans for concentrating sulphuric acid have been made of platinum, which is a substance superior to glass or porcelain pans, for the reason that it permits the contents to be exposed to a higher degree of heat; but, nevertheless, pans made of platinum are liable to be consumed by the sulphuric acid—that is to say, although sulphuric acid up to 93° Baumé does not affect platinum to any noticeable extent it does, when concentrated to a higher degree—say 97°—eat into the metal to quite a considerable extent.

Now the object of my invention is to so construct these platinum pans that they will resist the corrosive action of the highly-concentrated sulphuric acid, and will therefore be more durable than those made of platinum alone. I have found that gold is a substance which will not be noticeably affected by highly-concentrated sulphuric acid; but the expense of gold is so great that it alone cannot properly be used for the purpose; but an in-

ner lining of gold, if properly connected with the main body of platinum, will produce the desired result. In my experiments I have found that it would be impracticable to produce an inner lining of gold on platinum by any of the plating processes now in use, for the reason that the least defect in the thin covering of the gold rendered the entire pan practically one of platinum alone, exposing sufficient of the platinum to enable the sulphuric acid to reach the whole.

My invention consists, mainly, in applying a lining *g* of cast gold to the platinum body *p* of a sulphuric-acid pan by first heating a platinum bar or sheet *a* in the furnace B illustrated in the drawings, or in any suitable furnace, to a degree higher than the melting-point of the gold, and then casting melted gold upon the top of this heated platinum bar or plate. By this means I obtain a complete and perfect connection of the two metals upon chilling, as the cast-gold unites with the platinum and forms an intermediate layer of alloy of gold and platinum. This absolute connection of the two metals is not merely a superposition of the one upon the other, such as would be obtained by ordinary plating or pressure, and I am enabled to render the gold lining as thick as desired and to likewise make it a complete lining, for should in the process specified a portion of the platinum not be covered with the gold I will have no difficulty upon re-heating the platinum to cover the naked spot with the necessary quantity of gold. The platinum plate *a* has a rim *b*, which prevents the liquid from escaping. The platinum plate or bar *a* thus covered with gold is then disconnected from the rim *b* and thereupon rolled out to reduce its thickness, leaving the gold covering in the proportionate thickness always in position. Hence I can produce my pan A from a chunk or ingot *a* of platinum to which the gold covering has been applied in manner specified, said chunk or ingot being then rolled out into plates of desired thickness, producing them with the requisite gold covering. The pan A itself of this construction is practically indestructible and, because of its resistance to the sulphuric

acid, much more economical in use, though higher in the first cost than a pan made entirely of platinum, as heretofore.

I am aware of patent to Kearsing, No. 5 111,551, dated February 7, 1871, in which is described a foil for filling teeth, consisting of gold and platinum fused and rolled together into a compound sheet, and I hereby disclaim what is disclosed in said patent, the present 10 invention consisting of a sulphuric-acid pan composed of layers of platinum and gold joined by a substantial intermediate layer of alloy of platinum and gold and a novel process of manufacturing the same.

15 What I claim, and desire to secure by Letters Patent, is—

1. The herein-described process of uniting

gold to platinum sheets, which consists in first heating the platinum to a degree higher than the melting-point of gold and in then pouring molten gold upon said heated platinum, whereby a union of the metals is effected by the alloy formed upon cooling said metals, substantially as described. 20

2. As a new article of manufacture, a sulphuric-acid pan consisting of an exterior layer of platinum and an interior layer of gold joined by an intermediate substantial layer of alloy of platinum and gold. 25

RICHARD KÜCH.

Witnesses:

ALVESTO S. HOGUE,
JEAN GRUND.