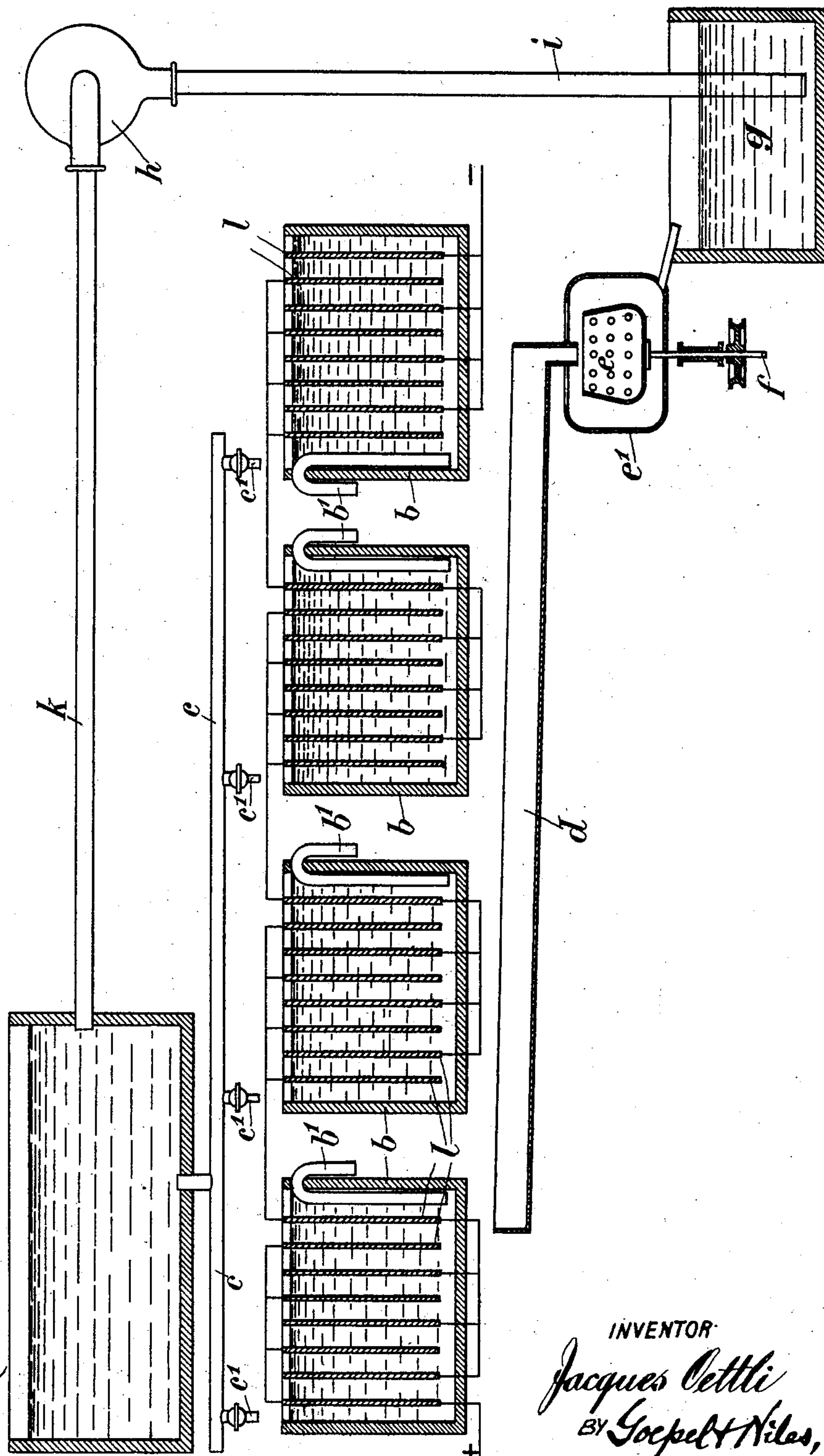


No. 771,025.

PATENTED SEPT. 27, 1904.

J. OETTLI.
MANUFACTURE OF ZINC WHITE.
APPLICATION FILED JULY 6, 1903.

NO MODEL.



WITNESSES:
H. Euker
J. Haesser

INVENTOR
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ATTORNEYS.

UNITED STATES PATENT OFFICE.

JACQUES OETTLI, OF LAUSANNE, SWITZERLAND, ASSIGNOR TO THE FIRM OF SYNDICAT POUR L'EXPLOITATION DES INVENTIONS DU PROFESSEUR OETTLI, OF BERNE, SWITZERLAND.

MANUFACTURE OF ZINC-WHITE.

SPECIFICATION forming part of Letters Patent No. 771,025, dated September 27, 1904.

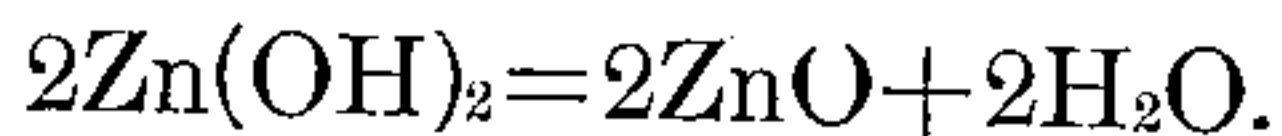
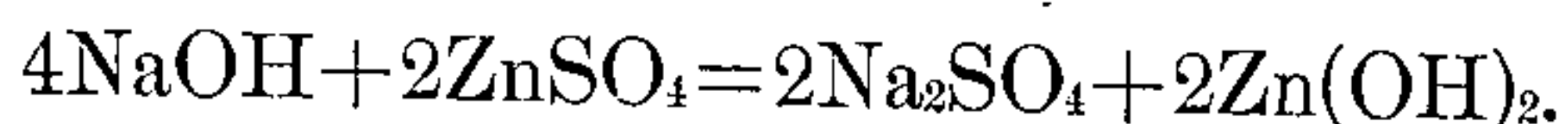
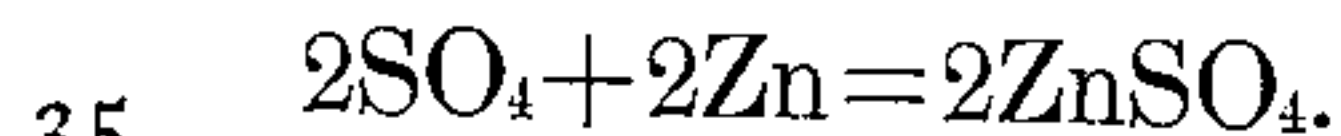
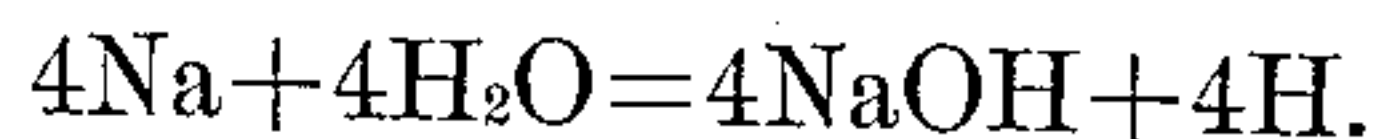
Application filed July 6, 1903. Serial No. 164,266. (No specimens.)

To all whom it may concern:

Be it known that I, JACQUES OETTLI, professor, of Lausanne, Switzerland, have invented certain new and useful Improvements in and
5 Relating to the Manufacture of Zinc-White or Oxid of Zinc, of which the following is a specification.

This invention has reference to an improved method for the electrolytic manufacture of
10 zinc-white or oxid of zinc, (ZnO), which consists in subjecting zinc plates to the action of electrolysis in a heated alkaline bath, as will be more fully described hereinafter, and finally pointed out in the claim.

15 In order to obtain oxid of zinc by means of electrolysis, according to this invention a warm solution of sulfate of soda (Na_2SO_4) (or of any other alkali metal salt of an acid of which the zinc salt is soluble) is electrolyzed by means
20 of electrodes formed of sheets of zinc. This forms at the anode sulfate of zinc (or other soluble zinc salt) and at the cathode soda, (or other soluble alkali.) The soda or alkali throws down hydroxid of zinc, $Zn(OH)_2$, from the hot
25 solution of the zinc salt, and this hydroxid of zinc being insoluble in water is then separated from the solution by filtration, drying, or otherwise and is afterward calcined, thus forming anhydrous oxid of zinc (ZnO) or zinc-
30 white. The chemical reactions are as follows:



40 The electrolyte is therefore indefinitely reconstituted.

It is preferable to employ a normal tension of 2.5 volts and an electric density of 10 amp. dm^2 . With said electric density an increase of temperature of the electrolyte is obtained
45 which is favorable for the precipitation of the hydroxid of zinc. The temperature of the bath in which the oxid of zinc is obtained with an electric current of ten amperes per

square decimeter grows quickly to $60^\circ C.$, and this temperature is maintained by means of
50 causing the electrolyte to circulate in the tanks.

Produce: one amp. hour, 3.0 gr. $ZnSO_4$, three gr. $ZnSO_4$, 1.5 gr. ZnO , from which it is calculated that to obtain a ton of zinc-white in twenty-four hours there should be 74 KW.,
55 equal to 96 electrical H. P.

The accompanying drawing shows by way of example a diagrammatic view of the installation for carrying the method into practice, and although said drawing shows only four
60 electrolytic tanks in practice the said tanks are preferably grouped in three series of ten tanks each. In both cases two of the said series work together and one of them is out of operation.

65 *a* is the distributing-tank of electrolyte, containing a solution of alkaline salt—for instance, sulfate of soda—and *b* represents the electrolytic tanks.

c is a distributing-pipe, having taps *c'* arranged above each tank *b*. 70

Each tank *b* is provided with a siphon *b'*, adapted to exhaust from the bottom of the tank the liquid loaded with zinc-white and conduct it into a channel *d*, from which it
75 flows into a hydro-extractor *e*. The shaft *f* of the latter is rotated by any suitable means, and the liquid flowing into the tank *e'* of the hydro-extractor then runs into a tank *g*, from which a pump *h*, also actuated by a suitable
80 motor, exhausts the liquid through a pipe *i* and pumps it back through the pipe *k* into the distributing-tank *a*.

The zinc electrodes *l* are preferably in the form of superposed blades of a thickness of
85 one cm. and having a surface of $1 m^2$. They are connected together and with the electric circuit, as shown in the drawing, said electrical circuit being provided in case of a distribution with continuous current with a reversing-com-
90 mutator of suitable kind.

The removal of the water from the hydrated oxid of zinc is effected in any appropriate muffle or the like.

I claim—

The process herein described of making zinc-

white, which consists in subjecting zinc plates
to the action of electrolysis in a solution of
one per cent. sodium sulfate of a temperature
of approximately 60° C. obtained by means of
5 a current of ten amp. per square decimeter,
substantially as described.

In testimony that I claim the foregoing as

my invention I have signed my name in pres-
ence of two subscribing witnesses.

JACQUES OETTLI.

Witnesses:

G. IMER,

L. H. MUNIER.