UNITED STATES PATENT OFFICE.

EDGAR F. PRICE AND WILLIAM SMITH HORRY, OF NIAGARA FALLS, NEW YORK, ASSIGNORS, BY MESNE ASSIGNMENTS, TO CENTRAL TRUST COMPANY OF NEW YORK, TRUSTEE, A CORPORATION OF NEW YORK.

ELECTROLYTIC PROCESS OF PRODUCING METALS.

No. 886,857. Specification of Letters Patent. Patented May 5, 1908.

Application filed December 29, 1906. Serial No. 350,081.

To all whom it may concern:

Be it known that we, EDGAR F. PRICE, citizen of the United States, and WILLIAM SMITH HORRY, a subject of King of Great Britain, residing at Niagara Falls, in the county of Niagara and State of New York, have invented certain new and useful Improvements in Electrolytic Processes of Producing Metals, of which the following is a specification.

This process relates to the electrolytic recovery of any of the alkali or alkaline-earth metals specifically calcium, from their molten compounds or salts.

The novel feature of the process is the use of a soluble anode consisting essentially of a metallic carbid, particularly a carbid of the metal to be recovered. The preferred anode is the composite of a metallic carbid and a binder claimed in U. S. Patent 779,733, granted January 10, 1905, to Edgar F. Price.

As a specific illustration of the process we will describe the production of calcium from a haloid salt.

A molten bath of calcium chlorid or fluorid, preferably with additions of the corresponding salts of strontium and ammonium to lower the melting point, is electrolyzed with a composite anode of calcium carbid and a binder, any suitable cathode, for example one of iron, being employed to receive the electro-deposited calcium. The anode gradually dissolves, the contained calcium recombining with the halogen ion to replenish the bath, while the carbon may float to the surface and be burned by the atmospheric oxygen. It is preferred, however, to dissolve calcium oxid in the electrolyte, in which case the oxygen ion is liberated at and combines with the carbon of the anode, correspondingly decreasing the consumption of electric energy, while the calcium ion of the oxid is deposited at the cathode simultaneously with that from the haloid salt.

We claim:

1. The process of producing alkali or alkaline-earth metals, which consists in electrolyzing a molten salt of the desired metal with an anode essentially comprising a carbid of that metal.

2. The process of producing calcium, which consists in electrolyzing a molten compound of calcium with an anode essentially comprising calcium carbid.

3. The process of producing calcium, which consists in electrolyzing a molten haloid salt of calcium with an anode essentially comprising calcium carbid.

4. The process of producing alkali or alkaline-earth metals, which consists in electrolyzing a molten bath with an anode consisting essentially of a metallic carbid, said bath comprising a salt and an oxid of the desired metal.

5. The process of producing calcium, which consists in electrolyzing a molten bath comprising a salt and oxid of calcium with an anode consisting essentially of calcium carbid.

In testimony whereof, we affix our signatures in presence of two witnesses.

EDGAR F. PRICE.
WILLIAM SMITH HORRY.

Witnesses:
FREDK. H. BECKET,
EDW. J. SCHNEIDER.