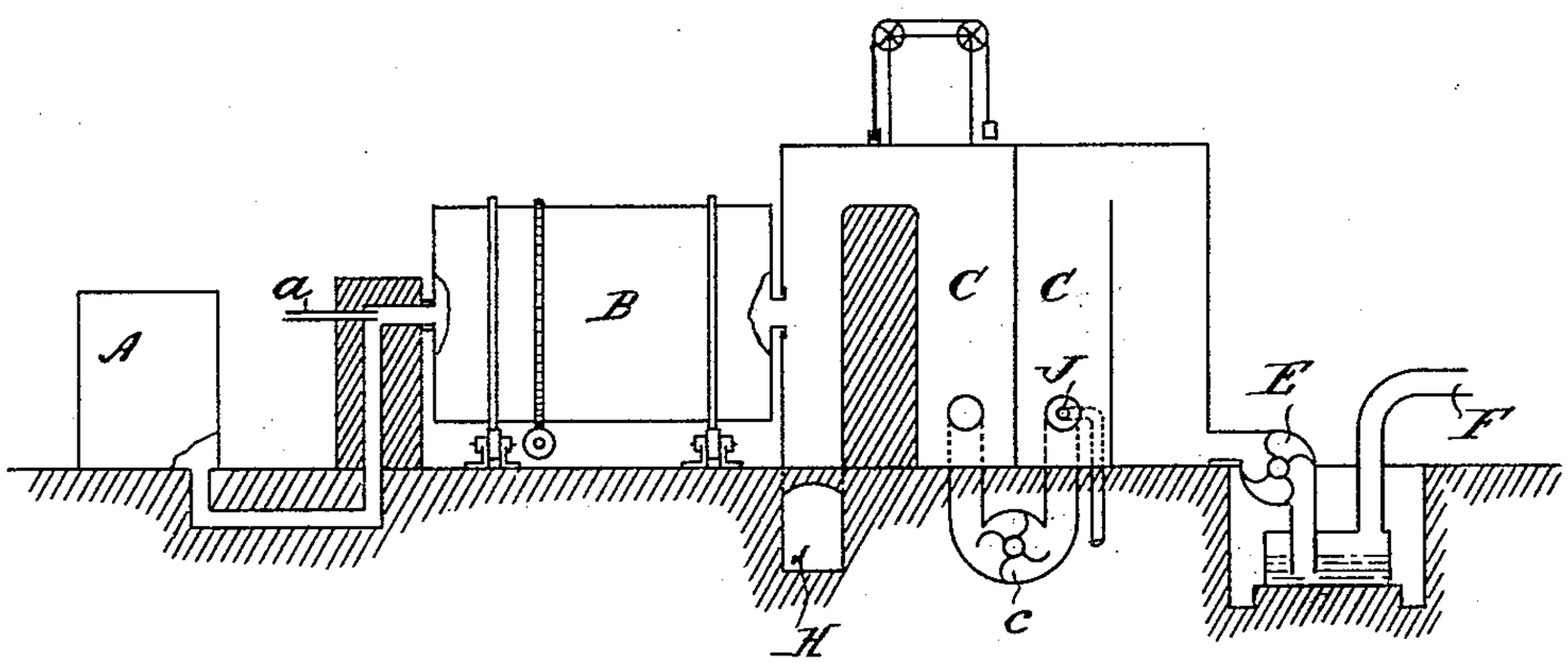
No. 704,367. Patented July 8, 1902.

A. S. PLEWS.

PROCESS OF MAKING WHITE ANTIMONY OXID.

(Application filed Feb. 15, 1902.)

(No Model.)



Witnesses.
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UNITED STATES PATENT OFFICE.

ARTHUR STEPHEN PLEWS, OF LONDON, ENGLAND.

PROCESS OF MAKING WHITE ANTIMONY OXID.

SPECIFICATION forming part of Letters Patent No. 704,367, dated July 8, 1902.

Application filed February 15, 1902. Serial No. 94,296. (No specimens.)

To all whom it may concern:

Be it known that I, ARTHUR STEPHEN PLEWS, a subject of the King of Great Britain, residing at No. 2 Basinghall avenue, London, England, have invented a new and useful Improvement in Producing White Oxid of Antimony, of which the following is a specification.

My present invention relates to a process for the manufacture of white oxid of antimony and compounds thereof direct from the ore, and has for its object the obtaining of a pure white oxid of antimony direct from the ore capable of being placed immediately upon the market without further treatment or purification.

The ore having been crushed to about half an inch in size is charged into a furnace already heated to a dull-red heat fired by smokeless fuel. An oxidizing-flame is applied and the heat raised to a bright redness and maintained thereat as long as antimony fumes continue to be evolved. In some ores the antimony is not easily volatilized by an oxidizing-flame. In such cases I change periodically the flame of the furnace from an oxidizing to a reducing one, and vice versa, for the purpose of thoroughly breaking up the antimony compounds and oxidizing and volatilizing the antimony. A quick draft is insured by drawing the fumes from the furnace by means of an exhaust-fan. This draft is necessary to prevent redeposition of fumes in the furnace. At a suitable point in their course before or after leaving the fan the said fumes are met by a jet of steam and having mingled therewith pass together to the condensing-chambers of suitable form and extent. In these chambers a considerable portion of the oxid is deposited, and any fume still undeposited is absorbed by passing the exit through a body of water.

The furnace employed may be a gas-furnace, preferably a revolving reverberatory furnace, and be supplied with any suitable form of gaseous fuel. Where the fuel is ordinary coal-gas, the combustion of this gas, which contains a large proportion of hydrogen and hydrocarbons, will generate a certain quantity of steam. Where, however, the fuel is what is known as "producer-gas," consisting principally of carbonic oxid, practically the whole of the steam required must be otherwise supplied. In place of coal-gas or producer-gas any other smokeless source of heat may be employed—as, for instance, oil-gas or carbonic oxid produced from any incandescent-carbon compound.

In the drawing accompanying this specification I have illustrated diagrammatically one arrangement of apparatus suitable for the carrying into effect of my process. The apparatus diagrammatically illustrated are severally well known and require no special description.

A represents the gas-producer or some equivalent source of heat, and *a* the air-inlet from blower; B, the roasting-furnace, represented as of the ordinary "revolver" type.

C C represent the condensing-chambers, and *c* a fan in the flue connecting the same.

D is a water-seal tank; E, a fan or blower driving the gases through D to the exit-flue F. A flue H conducts directly to the chimney for use when heating up or the like.

The various portions of the apparatus are of course in communication one with another, but not necessarily in the order shown. Thus, for instance, the fan E may be placed at any other suitable point in the apparatus and may be arranged to act as an aspirator instead of a blower. The steam-supply is preferably introduced into the condenser at the point marked J; but another inlet or series of inlets may be provided.

What I claim is—

1. The process for producing merchantable white oxid of antimony direct from the ore by exposing the said ore at a bright red heat to make a smokeless current of gases, and periodically changing the said gases from a reducing to an oxidizing atmosphere and back again until the antimony is volatilized, condensing the fumes in the presence of aqueous vapor and collecting the condensed products substantially as set forth.

2. The process for producing merchantable white oxid of antimony direct from the ore, which comprises the following steps: roasting the crushed ore with smokeless fuel in a quick draft at a bright red heat, periodically changing the flame from an oxidizing to a reducing flame and vice versa as long as antimony fumes continue to be evolved, subject-

ing the antimony fumes to the action of steam escaping under pressure, and collecting the mingled combustion products and steam in condensing-chambers having means for absorbing any traces of antimony from the exit-gases.

In witness whereof I have hereunto set my hand, in presence of two witnesses, this 4th day of February, 1902.

ARTHUR STEPHEN PLEWS.

Witnesses:
SYDNEY J. HOOPER,
LEONARD E. HAYNES.