

UNITED STATES PATENT OFFICE.

EDOUARD MARTIN, OF PARIS, FRANCE.

MANUFACTURE OF SILVER-COATED ALUMINIUM PLATES.

SPECIFICATION forming part of Letters Patent No. 673,126, dated April 30, 1901.

Application filed July 17, 1900. Serial No. 23,870. (No specimens.)

To all whom it may concern:

Be it known that I, EDOUARD MARTIN, a citizen of the Republic of France, and a resident of Paris, France, have invented certain new and useful Improvements in the Manufacture of Aluminium Sheets or Plates Coated with Silver on One or Both Faces, of which the following is a specification.

This invention relates to improvements in the manufacture of aluminium sheets coated with silver on one or both faces, and has for its object to produce a thorough union of the silver and aluminium and to produce a light plate of metal not easily oxidized and of great brightness.

In carrying out my invention I first clean an ingot of aluminium and polish it with pumice-stone. I then by means of a solution of sulfate of copper, prepared in the common and well-known way, and a galvanic battery or other adaptable source of electricity deposit a thin coat of copper upon the surface of the aluminium in the common and well-known way and in proportion to the thickness of the ingot. The ingot thus prepared is then slightly heated and its surface lightly rolled to prepare it for the silver. I then by galvanic action in the common and well-known way deposit a coat of silver upon the ingot to prepare it for being more effectually welded to a silver plate than if a bare surface or copper were used. I also prepare plates of silver in the following way: I first form a body of any adaptable soft material, such as wax or clay. Upon this I lay a surface of powder which is an electrical conductor, such as pulverized metal, plumbago, and the like substances. Upon this conducting-surface I deposit by galvanic action a coat of silver. When this coat of silver has attained sufficient thickness, it can be easily removed from the body of soft material. It is then cut of proper length and width and cleaned with sea-sand for welding, as will be hereinafter described. The aluminium ingots and the silver plates are now both heated, each in a separate furnace, each furnace provided with a separate opening, through which the operator can look and watch the metal while it is being heated, so that they will both attain the proper heat for

further working at the same time, which in both should be a little below red heat. The silver plates are then placed upon the ingots while both are still hot and conveyed to a rolling-machine. If by any chance the metal while being so conveyed should grow cold, it is to be reheated, with the plate lying on the ingot until both are nearly red-hot. The temperature may be ascertained by frequent inspection. The plate and the ingot at this nearly red heat are then rolled together until the pressure has completely and firmly welded them together. This process may be performed by applying the silver plate to only one face of the ingot or both, as may be required, for the galvanic action if properly conducted will prepare both faces of the ingot alike. The plate of metal so produced may be afterward rolled to any desired thickness either by a hot or cold process; but in either case it must first be annealed. Sheets of metal so formed may be beaten, chased, and worked exactly in the same way as sheets formed of only one metal.

It is obvious that divers useful and ornamental articles may be thus manufactured, too many to be all mentioned in this specification.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The improved process hereinbefore described of manufacturing sheets of aluminium, coated with silver, which consists, in cleaning an ingot of aluminium, polishing it with pumice-stone, laying a thin galvanic deposit of copper upon its surface as described, heating and softly rolling the same, laying a galvanic deposit of silver upon the surface so formed, heating the plates so formed, placing upon said plates, sheets of silver, obtained by galvanic deposit, as set forth, and heated as specified, and lastly heating and rolling the whole, until a complete welding of the different plates is effected, all substantially as and for the purpose set forth.

2. An improved process, for preparing sheets of aluminium to be coated with silver, consisting of cleaning ingots of aluminium, polishing the same with pumice-stone, laying a galvanic deposit of copper on the surface

thereof as specified, slightly heating the same,
softly rolling the surface thereof, and by gal-
vanic action, depositing a coat of silver upon
the surface so formed, as described, all sub-
5 stantially as and for the purpose set forth.

In testimony that I claim the foregoing as
my invention I have signed my name, in pres-

ence of two witnesses, this 22d day of June,
1900.

EDOUARD MARTIN.

Witnesses:

ERNEST MENUSIER,
ANTOINE LAVOIX.