UNITED STATES PATENT OFFICE.

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MANUFACTURE OF ALUMINUM-FOIL.

No. 917,285. Specification of Letters Patent. Patented April 6, 1909.

Application filed February 27, 1906. Serial No. 303,287.

To all whom it may concern:

Be it known that I, ALFRED GAUTSCHI, manufacturer, a citizen of Switzerland, residing at Gontenschwil, Canton of Argotie, Switzerland, have invented new and useful Improvements in or Relating to the Manufacture of Aluminum-Foil, of which the following is a specification.

Flexible aluminum foil, serving the same purposes as the tin foil generally employed for packing chocolate and other eatables, could not hitherto be obtained owing to the great difficulties presented in the rolling. It is true that it has been found possible to roll aluminum in sheets of a thickness exceeding 1/10 of a millimeter, but not below this; the object in view was not thereby attained because the tin foil usually employed is far thinner than 1/10 of a millimeter.

By my process of manufacture, which is hereinafter described, I have succeeded in obtaining in good condition sheets of pure aluminum of great flexibility and having the same thickness as the thinnest of tin foil.

The object of my invention is therefore a process of producing an aluminum foil having a thickness of less than 1/10 of a millimeter.

The process is carried out in the following manner:—Starting with a sheet of pure aluminum of a certain area, approximately 1 mm. in thickness and perfectly annealed, a first rolling of thin sheet is effected by means of a rolling mill of any appropriate kind, until the sheet reaches a thickness of about 3/10ths. of a millimeter. The sheet is then folded in two upon itself and rolled until its length is doubled by means of a rolling mill the cylinders of which are perforated along their axes and are heated by a circulation of hot water to a temperature of about 45° C., to facilitate the rolling of the sheets. The sheet is then unfolded and its surface coated on one side with a solution of mineral oil (soluble in water) and water, this solution being of suitable viscosity, for example two parts of oil to one part of water. The sheet is then again folded so that its coated faces are in contact and it is passed through the rolling mill with heated cylinders as described above until the length of the sheet has again been doubled. One side of this sheet is then coated with the oil solution indicated above and it is folded on itself and again rolled and so on in succession, in accordance with what is termed the "packet" system of rolling, care being taken that there is always present between the sheets in contact a slight layer of the oil solution. The oil used may be glycerin, or any mineral or vegetable oil may be used which is soluble in water. This solubility is obtained by means of a secret process which is not shown by me. The oil must be mixed with a great deal of water, because the sheets which it is sought to obtain being extremely thin, it is necessary that the oily substances between each sheet be very slight in quantity and yet thoroughly spread everywhere, conditions which cannot be had with pure oil. This mixture of oil and water has for its purpose to prevent the sheets from sticking together when they are rolled out. When the proper thickness has been attained, the rolling is suspended and the block of sheets is placed in a furnace where it is annealed. On leaving the furnace, after being slowly cooled, the block of aluminum sheets is cut with a shears and the sheets are detached one from the other ready for use.

It will be noticed that no annealing of the sheets of aluminum takes place from the time at which they are coated with the oily solution until the rolling operation is completed.

The aluminum foil thus obtained is exceedingly flexible and presents the properties of being inoxidizable, unchangeable and exceedingly light, which is not the case with tin foil. In addition, this aluminum foil does not impart to alimentary products the peculiar taste that is always imparted to them after a certain time, by the tin foil.

Having now described my invention I claim as new and wish to secure by Letters Patent:—

A process for the manufacture of flexible aluminum foil consisting in rolling as a packet, sheets of pure aluminum folded a number of times upon themselves the surfaces of the sheets in contact one with the other being always coated with a solution of oil and water, the rolling being effected between heated cylinders.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALF. GAUTSCHI.

Witnesses:
JOSEPH SIMON,
A. LIEBERKNECHT.