UNITED STATES PATENT OFFICE.

JOHANNES BOCK, OF RADEBEUL, NEAR DRESDEN, GERMANY.

MANUFACTURE OF LARGE CRYSTALS.

No. 910,490. Specification of Letters Patent. Patented Jan. 26, 1909.

Application filed March 12, 1907. Serial No. 361,966. (Specimens.)

To all whom it may concern:

Be it known that I, JOHANNES BOCK, chemist, a subject of the German Emperor, residing at Radebeul, near Dresden, Saxony, Germany, have invented certain new and useful Improvements in or Relating to Improved Manufacture of Large Crystals; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

In the manufacture of large crystals the proceeding is often such that small crystals or powder of crystals are thrown into the solution to be crystallized and allowed to grow. As a rule the growth of such crystals takes place very slowly, so that weeks and months are necessary, in order to obtain large crystals, as the crystallization of the dissolved substance must take place slowly, in order to prevent the formation of new crystals.

Now I have found that by introducing crystal splinters into the solution to be crystallized large crystals can be produced in a very much shorter time than by introducing complete crystals or powder of crystals into the solution. Splinters of crystals show a tendency to regenerate the original shape of the crystal from which they have been produced, and thus regain very quickly their full original size. A crystal splinter of 1 c. m. length of edge grows for instance to a complete crystal of such size that its lateral surface is one c. m. long and its other dimensions are of corresponding size. The energy of growth of such crystal splinters in a sufficiently concentrated solution is at least twice or three times that of complete crystal individuals.

According to the present process large crystal splinters are introduced into the solution to be crystallized in order to obtain large crytals.

To perform my invention in practice, I proceed as follows: I break up complete crystals and I separate the obtained large splinters from the small splinters and the powder by sieving or in another manner, in order to obtain splinters of the desired size. The larger splinters may be selected if a determined size of crystals is to be produced. If this is not desired, the broken crystals may be employed at once without sieving. Now the obtained crystal splinters are introduced into a hot saturated solution of the substance to be crystallized and the solution is crystallized in the usual manner by cooling or by concentrating the solution. The crystallizing substance deposits upon the crystal splinters and especially on those parts from which the edges and surfaces of the original crystal have been removed. As the crystal splinters can attract a much larger quantity of substance, than complete crystals the cooling or the evaporation can take place much more quickly than in the usual process, in which complete crystals are employed. For this reason the crystallization of hot saturated solutions also takes place more quickly by the introduction of crystal splinters into the solution than by the employment of complete crystals. The crystallization with crystal splinters therefore represents a considerable advantage in certain cases.

As the substance crystallizing from the original solution generally is not sufficient to form large and complete crystals from the introduced crystal splinters, the crystallized solution is replaced by a fresh solution, or new mother solution is added to the solution as usually in the crystallization by evaporation of the solvent. This latter process is carried on until the employed crystal splinters have been transformed into full and complete crystals.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

Process of producing large crystals from hot concentrated solutions, which consists in breaking up large crystals separating the small splinters produced from the large splinters and putting the large splinters in concentrated solutions of the matter to be crystallized, and causing the crystallization of said solution.

In witness whereof I have hereunto set my hand in presence of two witnesses.

JOHANNES BOCK.

Witnesses:

WOLDEMAR HAUPT,

HENRY HASPER.