

UNITED STATES PATENT OFFICE.

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MAKING AUXILIARY MORDANTS CONTAINING TITANIUM AND GLYCOLIC ACID.

1,059,740.

Specification of Letters Patent.

Patented Apr. 22, 1913.

No Drawing.

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To all whom it may concern:

Be it known that we, OTTO LIEBKNECHT and FERDINAND BLUMENTHAL, citizens of the German Empire, and residents, respectively, of Frankfort-on-the-Main and Wiesbaden, Germany, have invented certain new and useful Improvements in Making Auxiliary Mordants Containing Titanium and Glycolic Acid, and of which the following is a specification.

This invention relates to the production of salts of titanium and glycolic acid, to be used as auxiliary mordants.

We succeeded in producing compounds which may be used as excellent auxiliary mordants and for similar purposes by combining titanic acid with glycolic acid. Such compounds have not been known heretofore. They are obtained in the following manner:

To an aqueous solution of glycolic acid, titanic acid is added in the presence of alkalies or alkaline earth-metals, or to a solution of freshly precipitated acid glycolates the titanic acid is added, which is readily dissolved when heated. Similar compounds are produced by treating the titanates, for instance, acid sodium titanate, which are obtained by decomposing heated mineral titanic acid with alkalies, or alkaline carbonates, directly with glycolic acid. Finally also titanic acid salts, such as titanium sulfate, titanium chlorid, titanium oxalate, the double salt of potassium titanium oxalate, etc., may be treated with glycolates, whereby, according to the purpose in question glycolates are applied, the bases of which form soluble or insoluble products with the sub-

stances combined with the titanic acid. In this case lyes are obtained which, on being filtered, contain principally only titanic acid, glycolic acid and an alkali or an alkaline earth-metal; in every case, however, a mixture of salts is produced which contains besides the glycolate of titanic acid also other salts. As for dissolving the titanic acid an excess of glycolic acid is required, it is necessary to fix the quantity of the base bound to the glycolic acid accordingly, for instance, when alkaline solutions of glycolic acid are employed the acid has to be neutralized later on by adding bases. The technical production of these salts is obvious from the foregoing without further explanation, as thereby alkaline salts or salts of the alkaline earth-metals, or mixtures of both, may be produced according to the purpose desired.

We claim:

1. The herein described process of converting a glycolic acid compound into a mordant by treating said compound with a compound of titanium.

2. The herein described process of converting a glycolic acid compound into a mordant by treating said compound with titanic acid.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

OTTO LIEBKNECHT.

FERDINAND BLUMENTHAL.

Witnesses:

JEAN GRUND,

CARL GRUND.