

686,374

UNITED STATES PATENT OFFICE.

JULIUS WEZEL, OF LEIPSIC, GERMANY.

PROCESS OF PRODUCING SIZE FOR PAPER.

SPECIFICATION forming part of Letters Patent No. 686,374, dated November 12, 1901.

Application filed January 28, 1901. Serial No. 45,171. (No specimens.)

To all whom it may concern:

Be it known that I, JULIUS WEZEL, a subject of the King of Saxony, residing at Leipzig, Saxony, Germany, have invented a certain new and useful Improved Process for Producing Size for Paper, of which the following is a description.

The present invention relates to the production of a substitute for animal size, and especially that class of size used in the manufacture of the finer class of paper generally employed for colored printing. This paper is known in commerce as "chromo-paper," and consists of fine white paper having a very thin coating of size and a slight coating of blanc fixe with size. In producing this paper a mineral layer, consisting of the so-called "blanc fixe" and kaolin (china-clay) is required, such layer having hitherto been fixed by animal size. Latterly instead of animal size a mixture of the same with vegetable size—i. e., a preparation consisting of potato-starch and alkalies—was employed. By means of vegetable size a fixing of the mineral layer can only be attained when comparatively large quantities of the same are employed. In this case disadvantages arise in that, first, too little opaque pigment is precipitated on the paper, thus failing to attain a pure white color, and, secondly, that owing to the decreased porosity the reception of the color on printing is rendered difficult or wholly prevented. The employment of animal size is, however, very expensive, not only on account of the high market price of the same, but also for the reason that this size has to be produced in considerable quantities and during the hot season is therefor liable to get bad and foul. According to the present invention these disadvantages are prevented, owing to the fact that larger quantities of opaque pigment may be fixed on the paper to be provided with the layer with only small quantities of the im-

proved size, and at the same time the porosity is entirely preserved. The improved size alone or mixed with the opaque pigment is not liable to turn bad or foul.

The size is produced in the following manner: A ceratin solution is first produced by dissolving horn-shavings in a suitable lye. It is found that at least three parts, by weight, of horn-shavings will be dissolved by a lye formed by dissolving two parts, by weight, of caustic soda in ten parts, by weight, of water. The process of solution is accelerated by repeated stirring, and the result is diluted by an addition of water to a consistency of 7.5° Baumé. At the same time a solution of water-glass is diluted by water to 7.5° Baumé. Thirty-six kilograms of each of these solutions are added to forty kilograms of potato-starch, which has been mixed with the same quantity of water and stirred up to a paste. The whole mixture is continuously stirred until an even, smooth, and viscous glue is formed, to which finally acetic acid is added until the said glue shows a weak alkaline reaction. Instead of the soda-lye a potassium-lye may be used as means for dissolving the horn-shavings, or a mixture of both lyes may be employed. In the same manner the acetic acid may be replaced by mineral acid in a comparatively diluted state.

I claim as my invention—

A process for producing a substitute for animal size which consists in dissolving potato-starch in an alkaline solution of ceratin and water-glass and then adding acetic acid until the result shows a weak alkaline reaction, substantially as described.

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

JULIUS WEZEL.

Witnesses:

CHAS. J. BURT,
RUDOLPH FRICKE.