

UNITED STATES PATENT OFFICE.

FRANZ NONNENMACHER, OF SPABRÜCKEN, GERMANY.

SIZING.

SPECIFICATION forming part of Letters Patent No. 599,726, dated March 1, 1898.

Application filed June 6, 1896. Serial No. 594,518. (Specimens.) Patented in Germany June 10, 1896, No. 86,688.

To all whom it may concern:

Be it known that I, FRANZ NONNENMACHER, a resident of Spabrücken, Germany, have invented a certain new and useful Sizing for
5 Use in the Manufacture of Stretchable Paper, (for which I have obtained Letters Patent in Germany, No. 86,688, dated June 10, 1896;) and I declare that the following is such a full,
10 clear, and exact description of the mode or manner of making or compounding and using the said sizing as will enable those skilled in the art to make and use the same.

The object of my invention is to produce a sizing for treating a paper-like fabric to render it stretchable.

In preparing the sizing I preferably proceed as follows: I take ingredients as follows in substantially the following proportions, to wit: fifty parts of wax, eighteen parts of turpentine or resinous matter, twelve parts of
20 animal fat, such as tallow, lard, &c.; ten parts of resinous soap, sixty-three parts of caustic soda, one hundred parts of oil, preferably vegetable oil, such as linseed-oil or poppy-oil, and one thousand parts of water.

In preparing the compound just described I preferably proceed as follows: The wax is dissolved in the caustic soda and water and the other constituents of the sizing are gradually added, the whole mixture being diluted
30 by the water, which should be warm. In the course of this proceeding the resin is acted upon by the caustic soda, and resin-soap is produced. The sizing which is thus obtained
35 may be applied to pulp in various ways. It may be incorporated in the pulp while the pulp is in the vat or while the pulp is in the cylindrical paper-mill, and the pulp may be subsequently manipulated to form it into paper, or the sizing may be applied to the pulp

while it is in the form of a sheet or bat, or ordinary paper may be treated by passing it through a bath of the sizing. The fabric produced by the treatment of the pulp or paper with the sizing may be calendered or otherwise manipulated, and may likewise, if desired, be stiffened by suitable stiffening substance—such, for instance, as starch or kaolin—mixed with a suitable metallic salt, which
45 in the preparation of white or light-colored papers will be sulfate of zinc and for colored papers sulfate of copper or of iron, or, instead of these salts, chlorid of sodium or muriate of baryta. The stiffening substance may be added to the sizing, if desired, and
50 the materials of the sizing, together with the metallic salts used, will bring the starch to a tough and elastic glue-like consistency.

The fabric produced can be used as ordinary paper, and can be marked on if properly surfaced, and can be stretched in all directions without resuming its former shape. Because it possesses the quality of being easily stretched, this parchment-like paper is especially adapted for use in all situations
65 where paper is employed and is of particular use in bookbinding, the manufacture of fancy goods, wall-papers, &c., and for all work in which the use of ordinary non-stretchable paper is impossible or at least very limited.

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

A sizing for the treatment of a pulp sheet to render the same stretchable comprising wax, animal fat, caustic soda, oil, resin-soap
75 and water.

FRANZ NONNENMACHER.

Witnesses:

JEAN GRUND,
CHRISTIAN GEISS.