

UNITED STATES PATENT OFFICE.

JOSEF VON SCHMAEDEL, OF MUNICH, GERMANY.

PRINTING-PAPER.

SPECIFICATION forming part of Letters Patent No. 792,932, dated June 20, 1905.

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To all whom it may concern:

Be it known that I, JOSEF VON SCHMAEDEL, manufacturer, a subject of the German Emperor and of the King of Bavaria, and a resident of Munich, in the Kingdom of Bavaria, German Empire, have invented new and useful Improvements in Printing-Paper, of which the following is a specification.

In order to impart to printing-paper the high degree of capacity for the absorption of printing-ink required by the modern processes of reproduction, it has hitherto been usual to add certain suitable substances to the pulp or to provide the surface of the finished paper with a suitable coating, the said surface being rendered smooth and close-grained by means of glazing. The object of the present invention is to remove certain disadvantages of the old methods referred to and to impart to the paper a very high degree of capacity for absorption and also increased flexibility and suitability for being glazed. This is effected by adding to the paper at any stage of its manufacture one of the substances belonging to the glucoside series and soluble in water—as, for instance, esculin or saponin, the latter being preferably used. This substance, (saponin,) dissolved in water in the proportion of one to five grams saponin to one liter water, may be mixed with the pulp in the rag-engine or the vat, or the half-finished or finished paper can be drawn through a solution of the said substance in such a manner that the fibers of the paper become saturated therewith. With all these different methods of performing the process a five-per-cent. solution of the glucoside is usually sufficient for the purpose in view. Solutions of other strengths can, however, of course be used for paper intended for special purposes.

It is not essential to use only one substance of the glucoside series in each case. The substances may be mixed in any desired manner, provided they remain soluble in water. By using these glucosides which are soluble in water—more particularly saponin—for the manufacture of printing-paper the advantage is obtained that the paper fibers are completely saturated with the solution, and thus rendered highly flexible or pliant and capable of being glazed. During the drying of the paper the glucosides are deposited between the fibers in

a state of infinitely-fine distribution and impart to the paper a close structure, which is of great advantage for printing. The fiber thus treated—that is to say, saturated with saponin solution, for instance, and then dried—readily absorbs printing-ink and is particularly well adapted to take ink from the forms.

It may be mentioned that glucoside solutions, more particularly saponin solutions, even when very weak have the capacity of holding pulverized insoluble substances in suspension for a very long time. This is of great importance when saponin is introduced into the rag-engine or vat. A saponin solution can, for instance, be directly mixed with a resin solution, so that an extremely finely divided resin emulsion is obtained in which neither lumps nor deposits are formed. This is also the case if a bath of saponin solution is used to which resin emulsion is added. In case the saponin is added to a solution or emulsion of resin or other equivalent material, as fat, oil, wax, &c., a proportion of one kilogram resin, &c., to fifty to six hundred grams saponin is preferably used. The finely-cut fiber of the pulp also remains in finely-divided suspension in the saponin solution, by which means the homogeneousness of the paper is considerably increased.

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—

1. Printing-paper containing a soluble glucoside such as saponin.
2. Printing-paper containing a soluble glucoside such as saponin in the proportion of one hundred kilograms paper-pulp to one hundred to two hundred grams saponin.
3. Printing-paper containing a soluble glucoside such as saponin introduced in combination with a resin emulsion containing fifty to six hundred grams saponin to one kilogram resin.

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

JOSEF VON SCHMAEDEL.

Witnesses:

ULYSSES J. BYWATER,
MATHILDE HELD.