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UNITED STATES PATENT OFFICE.

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POTTERY-TISSUE AND PROCESS OF PRODUCING SAME.

SPECIFICATION forming part of Letters Patent No. 745,390, dated December 1, 1903.

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To all whom it may concern:

Be it known that I, ERNST SEIDEL, technologist, a subject of the Prince of Reuss, younger line, residing at Maulburg, near Schopfheim, in the Grand Dukedom of Baden, in the Empire of Germany, have invented new and useful Improvements in a Pottery-Tissue and Process of Producing Same, of which the following is a specification.

As is well known, the painting by hand in the pottery is frequently replaced by printing with the aid of pottery-tissue. In order to be able to transfer the impressions from the tissue even to the smallest surfaces, recesses, and projections of the ware to be printed, it is necessary that the paper serving for receiving and transferring the impressions should not weigh more than thirty to thirty-five grams per square meter. For this reason the simple plate-paper used ordinarily for metachromoplates is not fit for the said purpose. Even simple silk plate-paper having the weight indicated above cannot be used, since such a thin and unsized paper would not be able to withstand the necessary staining and printing with several colors in the lithographic-printing machine.

My invention relates to a pottery-tissue, which consists of a sized and easily-detachable paper serving as a base and a light unsized silk plate-paper firmly adhering to the base during its treatment in the various machines, while afterward the base can be detached in a most simple manner without damaging the impressions of the silk plate-paper, and my invention also relates to a process of producing this pottery-tissue.

The pottery-tissue according to my invention is manufactured in the following manner: The stuff destined for the base-paper is ground to a pulp in the usual manner in the stuff-engine, sized with vegetable matter, and passed through the beating-vat over the sand-collector and the knotter to the paper-pulp screen of the paper-making machine after the agglutinant either of animal or vegetable origin or of both origins has been added to it in the inlet-box. To the agglutinant chosen and dissolved in water beeswax or vegetable wax in alkaline solutions is added in a small quantity to be determined by experiments, so that the liquid agglutinant uniformly distributed over the inlet-box is given the property of forming a layer above the paper-pulp in the paper-pulp screen.

The preparation of the agglutinant is effected in a special vat provided with an agitator, from whence it is conducted to the inlet-box. The composition of this agglutinant renders it necessary that the paper-pulp should have a temperature of no less than 25° centigrade.

Owing to its property indicated above, the agglutinant "floats," so to say, upon the surface of the paper-pulp, so that during the passage over the suction-boxes it drops on the uppermost fibers and forms a cover of a very uniform thickness.

The roll of finished thin silk plate-paper, which has been produced in a well-known manner, is placed on suitable bearings immediately behind the suction-boxes of the paper-making machine named above for making the base-paper. This roll is provided with an ordinary brake device, and the silk plate-paper is unwound from the roll and conducted over adjustable tension-rollers to the couching-press, to be there unified with the yet wet unfinished base-paper. This unification is effected without producing any folds, provided that the braking and tension rollers be adjusted properly. Both papers now pass together through the other presses and the drying part of the paper-making machine, when the base-paper will be a finished paper and so strongly unified with the upper paper—*i. e.*, the silk plate-paper—that the following machines, through which the double paper is afterward passed—viz., the rolling apparatus, the calender, the staining-machine, and the multicolor-printing press—can neither divide the two papers nor damage the thin silk plate-paper.

It is to be noted that the unification of a finished paper with an unfinished and wet paper does not produce any felting between the fibers of the two papers. Móreover, the addition of wax reduces the adhering power of the agglutinant. For these two reasons the thin silk plate-paper can now be easily detached from the base-paper without employing any force and applied in the known manner to the ware to be printed.

Having now described my invention, that which I wish to secure by Letters Patent of the United States is—

1. A pottery-tissue consisting of a sized and easily-detachable base-paper and a light unsized silk plate-paper, the base-paper being made from a paper-pulp with the addition of a waxed agglutinant and unified in its unfinished state with the finished silk plate-paper in the couching-press, whereupon the double paper thus formed is finished, stained and printed.

2. A pottery-tissue consisting of a sized and easily-detachable base-paper and a light unsized silk plate-paper weighing not more than thirty to thirty-five grams per square meter, the base-paper being made from a paper-pulp with the addition of a waxed agglutinant and unified in its unfinished state with the finished silk plate-paper in the couching-press, whereupon the double paper thus formed is finished, stained and printed.

3. The herein-described process of producing a pottery-tissue, which consists in first grinding to a pulp the stuff for the base-paper, then sizing the pulp with a vegetable matter and passing it through a beating-vat, next conducting to it an agglutinant in water solution, to which a small quantity of wax in alkaline solution is added, thereupon passing the pulp and the agglutinant to the paper-pulp screen and over the suction-boxes of a paper-making machine and unifying the unfinished paper with a finished light unsized silk plate-paper in the couching-press, afterward finishing the double paper, and finally passing it through the staining-machine and the multicolor-printing machine.

4. The herein-described process of producing a pottery-tissue, which consists in first grinding to a pulp the stuff for the base-paper, then sizing the pulp with a vegetable matter, next passing it through a beating-vat over the sand-collector and the knotter to the inlet-box, dissolving separately an agglutinant of animal or vegetable or both origins in water, adding to this solution a small quantity of beeswax or vegetable wax in alkaline solution, then conducting this mixture to the inlet-box to form therein a layer above the paper-pulp, thereupon passing the paper-pulp with the layer to the paper-pulp screen and over the suction-boxes of a paper-making machine and unifying the unfinished wet paper with a finished dry light and unsized silk plate-paper in the couching-press, afterward passing the double paper through the finishing part of the paper-making machine, and finally passing it through the calender, the staining-machine and the multicolor-printing machine.

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

ERNST SEIDEL.

Witnesses:
KARL ERBACHU,
BENJAMIN F. LIEFELD.