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FREEMAN K. SIBLEY, OF WALTHAM, MASSACHUSETTS.

EMERY-CLOTH.

SPECIFICATION forming part of Letters Patent No. 230,202, dated July 20, 1880.

Application filed April 10, 1880. (No model.)

To all whom it may concern:

Be it known that I, FREEMAN K. SIBLEY, of Waltham, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Emery-Cloth, and in the mode of manufacturing the same; and I do hereby declare that the following is a full, clear, and exact description of the same.

The invention relates to a mixture of abrasive materials and cement applied to the emery-cloth to be used for grinding and polishing, and to a method of mixing and applying the abrasive materials and cement to such emery-cloth.

The term "cloth" is herein employed in a broad sense to denote any flexible material—whether leather, paper, cloth, or other substance—which can be made to serve as a polishing-belt or be attached to the surface of a polishing-wheel.

The abrasive materials employed are emery and corundum of suitable fineness for the work to be performed by the finished emery-cloth. The proportions used are generally two-thirds emery and one-third corundum, both proportions being determined by weighing.

The advantage attained by such admixture is that grinding and polishing may be performed in a single operation instead of in successive operations, as heretofore, the corundum performing the work of removing the bulk of the material to be ground off, and the softer and finer cutting emery simultaneously obliterating the scratch-marks otherwise left on the work by the corundum. A very much smoother finish is thus obtained in a single operation and in a given time than can be obtained with a cloth armed with either corundum or emery alone.

The cement I employ is made of a solution of glue and silicate of soda, which has been sold in the general market under the names "Tenexine" and "Giant Adhesive." Silicate of soda made in a more imperfect manner and of inferior quality will more or less imperfectly answer the purpose; but the kind named I have found to be far superior to any other for the manufacture of polishing-belts, as it forms with the glue, when applied as hereinafter described, a remarkably adherent, tough, and durable cement, which impairs the flexibility of the fabric scarcely at all. By the employment of this cement I therefore secure the important advantage of a great increase of flexibility in polishing-belts, which, so far as I am aware, has never before been attained or even approached, although this very much desired quality has continually been sought for by manufacturers of emery-cloth.

The preferred proportions of the glue and silicate of soda of the kind named above are one part, by weight, of the silicate and four parts of glue; but these proportions may be varied somewhat without materially affecting the quality of the emery-cloth; and I do not therefore confine myself strictly to these proportions; neither do I confine myself strictly to the proportions named above for the admixture of the emery and corundum, as these may be somewhat and advantageously varied, according as the polishing effect is required for various purposes to be equal to, greater, or less than the grinding effect.

The mode of applying the materials is as follows: The glue is first reduced to a liquid state by water and heat in the ordinary way. Then the Tenexine or Giant Adhesive is added to the hot glue and the whole is kept heated. While these materials so mixed are kept in the heated state the emery and corundum are added, sufficient water being incorporated in the mixture to bring the whole to the consistency of paint. The mixture is then applied to the cloth by brushes while hot, care being taken to work the mixture very thoroughly into the surface, to which it is applied by rubbing with the brush. The cloth is then placed aside to allow the drying and hardening of the cement, after which emery-cloth is ready for market.

I am aware that cold silicate of soda and hot glue have been separately used heretofore as cements in applying abrasive materials to surfaces. Therefore I do not claim either of these materials separately; but

What I do claim as my invention, and desire to secure by Letters Patent, is as follows:

1. Flexible materials or fabrics for grinding or polishing purposes composed of cloth, leather, paper, or other flexible material and a coat-

ing of emery, corundum, and cement made of glue and silicate of soda, substantially as described.

2. The mode of producing an abrasive coating upon flexible material, which consists in first preparing liquid glue by the aid of water and heat; second, mixing therewith silicate of soda, substantially in the proportions described; third, incorporating with the mixture so formed, and while hot, emery and corundum mixed, in proportions substantially as set forth, till the whole mixture attains the consistency of paint; and, lastly, applying the hot mixture with a brush and working the same into the surface to be coated, all substantially as specified.

FREEMAN K. SIBLEY.

Witnesses:

THOMAS C. HUBBARD,

JAMES T. WELLINGTON.