

# UNITED STATES PATENT OFFICE.

ADOLPHE NICOLAS MATHIEU, OF PARIS, FRANCE, ASSIGNOR TO M. J. A. GUIET, OF NEW YORK, N. Y.

## IMPROVEMENT IN MANUFACTURE OF LEATHER PASTEBOARD AND PAPER.

Specification forming part of Letters Patent No. 20,020, dated April 20, 1858.

*To all whom it may concern:*

Be it known that I, ADOLPHE NICOLAS MATHIEU, of Paris, France, have invented a new and useful Manufacture of Artificial Leather Paper and Pasteboard, which I do by the following description fully set forth and ascertain as follows, to wit:

The object of this invention is to make use of leather shavings, until now useless, and consequently of no value. These shavings are obtained in the paring of leathers. This incumbering substance is but with difficulty got rid of by the curriers. By making use of this substance in the manner hereinafter described I can produce excellent packing-paper, pasteboard, compact and supple and of great resistance—in fine, a substance resembling leather, and which can be used as a substitute. These articles depending one upon the other in their fabrication, they of course should all be manufactured at the same time. A single choice only is required to separate from the leather shavings the parts which are destined to each fabrication. However, the leather shavings can be employed all together for the manufacture of paper and pasteboard; but I find that there is greater advantage in retaining the part which can be used for the manufacture of artificial leather.

*Leather-paper.*—The series of operations required to obtain it consists of picking, pulping, and forming, &c.

*The picking.*—The picking for the manufacture of paper should be made with great care. Its object is to separate from the shavings the tan, the small stones, &c. There are two means of effecting it. The first consists in passing the shavings through a bolter surrounded by a wire-cloth with large meshes. The tan, the stones, and pieces of iron, &c., pass through this cloth or sieve and fall under the bolter. The shavings, now cleaned, come out of the machine. Then I pick out with the hand the pieces of wood, stones, &c., which may have remained, and separate at the same time the pieces of leather to be used in making the imitation or artificial leather. When the above method is insufficient to separate completely the tan from the shavings I have recourse to a washing, which is performed in an open-worked basket, which is half filled with the

shavings, placed in water, and the contents stirred with the hands.

*Pulping.*—When the shavings are sufficiently cleaned they are put in an engine, which is an ordinary paper-engine. I add to the shavings old ropes, cut up, and all textile and vegetable substances, such as matting, rags, &c. I work the engine until I obtain a fine and homogeneous paste, after which I proceed with the manufacture of the sheets of paper.

*The forming, &c.*—This paste is immediately converted into paper either by a mold or by the machine. The shavings or scraps of greasy, black, or dyed leather cannot be used in this fabrication.

*Leather-pasteboard.*—The whole of this operation is composed, first, of a picking of the shavings; second, of cutting in an engine; third, the draining of the paste; fourth, the placing in a mold; fifth, the pressing; sixth, the drying, and, seventh, the flattening.

*The picking.*—I need not be so particular in the picking for the "carton" or pasteboard as for the paper. The shavings are never washed. I only throw them in a sieve and stir them with my hands, and the tan passes through, and also with my hands remove the pieces of wood, stones, &c., as for the paper. The parts for the manufacture of artificial leather are separated at the same time, and they should be the largest pieces, the thinnest, and with a homogeneous surface.

*Pulping.*—The pieces that are picked out are put in a basket and brought to the engine. To give strength to the paste and to make a good pasteboard, I add to the mass a small quantity of damaged cotton. I then work the cutting-engine until it forms a homogeneous paste.

*Straining.*—After using the engine the paste is brought and deposited in a vessel for sediment, at the angles of which are placed a wire cloth and plugs, so as to remove the liquid.

*Forming.*—The paste, now being of a suitable consistence, is taken in buckets and brought to the pasteboard-maker's basin, who takes it up with a mold made of a wooden frame with a wire-cloth drawn across, and drains the paste by stirring it slowly to spread it, after which the leaves are put in press.

*Pressing.*—The leaves are put in a press which is worked by a screw. They are laid

one over the other. I also introduce between each sheet a felt or woolen tissue.

*Drying.*—They being now pressed, I dry them in the open air, if the weather will permit, or in a warm room.

*Calendering.*—The sheets, now dry, are passed between two cast-iron cylinders, which operation renders the sheets compact and makes them also smooth.

*Paring.*—To terminate, I pare the sheets with shears.

I do not claim the employment of leather in making pasteboard, &c., when the same is made to pass through a process of maceration with lime or like substances, or when leather scraps are mixed with resinous or glutinous compounds to cause it to adhere, for all such modes are too expensive for practical use; but

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

Manufacturing pasteboard or paper of leather shavings by simply washing and grinding and mixing the same with vegetable fibers without the addition of other manipulation or material, by which I make a cheap and merchantable article, when heretofore the process was too expensive for its profitable use.

In witness whereof I hereunto set my hand and affix my seal this 2d day of January, A. D. 1857.

ADOLPHE NICOLAS MATHIEU. [L. S.]

Witnesses:

LÉON KRAFFT,

ALEX. TOURNAULT.