

UNITED STATES PATENT OFFICE.

HARRISON B. MEECH, OF FORT EDWARD, NEW YORK.

IMPROVEMENT IN THE MANUFACTURE OF ARTIFICIAL LEATHER.

Specification forming part of Letters Patent No. 75,690, dated March 17, 1868.

To all whom it may concern:

Be it known that I, HARRISON B. MEECH, of Fort Edward, in the county of Washington, and in the State of New York, have invented a new and Improved Process for the Manufacture of Leather from Fibrous Substances; and I do hereby declare that the following is a full, clear, and exact description thereof.

My process consists in forming the fibers of pulp into a sheet, the same as on a Fourdrinier or cylinder machine in common use for the manufacture of paper. The sheet is then passed between two endless cloths or aprons, one of which is constructed of felt and the other of wire-cloth. These endless cloths are passed between press-rollers covered with wire-cloth. This operation is for the purpose of forming spirals in the fibers of which the sheets are composed, which causes the fibers of the different sheets to become more completely knit and interwoven than they otherwise would. The sheet is then taken up from between the felt and wire-cloths and passed through a machine containing a solution of glue, gutta-percha, or the gums valata or balata. This machine is so constructed as to hold the solution in a vat, with revolving brushes and rollers so arranged that they take up the solution and apply it to the sheet. After the solution has been applied to the sheet it (the sheet) is carried back and doubled onto itself, thus forming an endless sheet, and again passes between the felt and wire-cloths and the heavy calenders or rollers, and through the machine containing and applying the adhesive solution, and thus it continues to be carried around, receiving layer after layer, until the required thickness is obtained, when it is taken from the machine in the form of an endless belt or sheet and placed on another machine composed of several sets of calenders or rolls and a set of longitudinally-corrugated rolls, in combination with a vat containing oil, with revolving brushes and rollers for taking up the oil and applying it to the sheet. In this machine are also heated hollow cylinders for the purpose of drying the oil into the leather. The corrugated rollers mesh together like the cogs of gear-wheels, and are for the purpose of working the belt of leather, so that the oils may be more thoroughly and readily worked into it to make it more soft and flexible. The endless sheet or belt is al-

lowed to go around and around between the calenders or press-rollers and the revolving brushes and rollers by which the oils are applied to it, and over the heated cylinders without touching their surface, by which the oils are dried into the leather. The belt or sheet of leather may be allowed to run between the several sets of calenders, brushes, and cylinders until it is thoroughly finished.

I may sometimes use cloth for an inner lining or foundation on which to apply the sheets of pulp saturated with the adhesive solutions, the sheets being applied on one or both sides of the cloth.

I may make leather for belting, &c., without running it through the second machinery, although it is preferable to do so in order to more quickly and thoroughly dry it. The pulp used for making this leather may be made from old scraps of animal-leather, rope, cotton, or linen, or any vegetable fibers, according to the quality of the leather it is desired to make.

The adhesive solution which I use for uniting the sheets of pulp is composed of gutta-percha in solution, valata or balata in solution, in combination with gelatine or animal-glue, in proportion suitable for the kind and quality of the leather I desire to make. In combination with this solution I may also use glycerine or saccharine matter, or I may use it separate from the solution; and I may use the different ingredients composing the adhesive solution separately or combined, or in combination with other adhesive substances. Tanners' oil, lubricating and animal oils may be used in the finishing process of manufacturing this leather.

In making emery-leather I sift dry sand or pulverized emery on each sheet of pulp as it is doubled or folded together. The sand, uniting with the fibers, makes the leather compact and firm. Thus prepared, it may be used for emery-wheels and many other purposes.

The value of my invention consists in uniting the sheets of pulp together with the solution, and in the manner described, which renders it tough, flexible, and water-proof; and in the pressing and drying process it is vulcanized and rendered firm and elastic. Its value also consists in passing the sheets between the felt and wire-cloth, which forms the fibers into spirals, which causes the several

sheets composing the leather to be very intricately knit and intermingled together, like leather made from the skins of animals.

Having described my process for manufacture of leather from fibrous substances, what I claim as my invention, and desire to secure by Letters Patent, is—

1. As a new article of manufacture, leather made from fibrous substances, as described.

2. The application of gutta-percha, valata or balata, and other adhesive gums and saccharine matter with pulp for the manufacture of artificial leather, substantially as described.

3. The method of applying the solutions of glue and other adhesive substances and saccharine matter to the sheets of pulp, as and for the purposes specified.

4. The method of working, pressing, drying, and vulcanizing the leather, substantially as described.

5. The use of oils, applied substantially as and for the purposes specified.

6. The method of drying the leather, in combination with the oiling process, substantially as described.

7. The use of sand or pulverized emery, in combination with the sheets of pulp, substantially as and for the purposes specified.

8. The use of corrugated or grooved rolls, for the purpose of working the leather and rendering it soft and flexible, substantially as described.

9. Forming the fibers of the pulp in the sheets into spirals by the use of wire-cloth, substantially as and for the purpose specified.

HARRISON B. MEECH.

Witnesses:

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CHARLES HERRON.