No. 776,453. Patented November 29, 1904.

UNITED STATES PATENT OFFICE.

ALFRED WELLS CASE, OF HIGHLAND PARK, CONNECTICUT.

PROCESS OF TREATING MANUFACTURED LEATHER.

SPECIFICATION forming part of Letters Patent No. 776,453, dated November 29, 1904.

Application filed March 18, 1903. Serial No. 148,447. (No specimens.)

To all whom it may concern:

Be it known that I, ALFRED WELLS CASE, a citizen of the United States, and a resident of Highland Park, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Processes of Treating Manufactured Leather, of which the following is a specification.

The invention relates to the manufacture of fiber which is formed into sheets of considerable thickness from pulp produced as by means of a beating-engine or the like; and the object of the invention is to so treat the sheets of such material that they shall remain pliable and impervious to moisture, and therefore form a durable material for the uses to which it shall be put.

In producing manufactured leather it has been a common practice to subject the material to the action of a beating-engine, thus reducing it to a fine pulp, and then to draw off the pulp and subject it to pressure in suitable devices, thereby forming the pulp into sheets or boards of desired thickness. It has been found, however, that manufactured leather thus produced soon loses the desirable qualities necessary for the uses to which it is subsequently to be put, owing to the condition of the atmosphere—that is, if the atmosphere is too dry the leather becomes hard and brittle, and if the atmosphere is moist then the leather absorbs the moisture and swells, becoming soft and losing its density and compactness. It is apparent that manufactured leather-board has these inherent qualities to absorb and give up moisture, thus rendering it practically useless and causing such deterioration as greatly impairs its wearing qualities. This is of course due to the fact that in the treatment of the leather scrap on the beaters and washers preparatory to forming the board the fibers of the material of the pulp must be thoroughly reduced and must when formed into the board be thoroughly united and congealed as far as possible. At the same time a board so formed is completely filled with infinitesimal capillary chambers, which as soon as moisture is brought into contact with the board absorb the moisture and draw it into the interior of the leather-board, thoroughly permeating it with moisture. On the other hand, if subjected to undue heat these small capillary chambers throw off the moisture, and thus there is constantly an internal action by which the leather-board "goes and comes" as the moisture is absorbed and driven off. While leather-board has long been made from scrap-leather by reducing it to a pulp and rolling it into sheets of the required thickness, such leather-board has been rather unsuccessful, for the reason that any fillers introduced during its process of manufacture impair the holding power of the fibers of the material. As hereinafter described, these difficulties are entirely obviated by making a particular use of the inherent capillary action of such a board. Of course the leather-board in its process of manufacture after being formed in the machine is subjected to the action of press-rolls, driers, and calenders, which give it a known and predetermined density and quality. It is to maintain this quality, which is entirely satisfactory when the material leaves the machine, that the present invention is designed. Taking advantage of the inherent capillary qualities of such a manufactured board, it is subjected to a paraffin treatment before it has an opportunity to acquire moisture, and thus a most perfect leather-board is secured.

I have found by extended experiment that after this manufactured leather has been subjected to a treatment of paraffin-wax that it remains in perfect condition and remains moist and pliable for a great length of time, and this greatly enhances its value in the subsequent uses of the material.

In the preferred form of treatment in the practice of the invention the material is subjected to a treatment of hot paraffin-wax. The sheets or pieces of material are passed through a bath of the liquid wax, which is heated to the required temperature to maintain it in proper condition, and the pieces or sheets of material may be passed one or more times through this bath. The material is then placed in a room or chamber heated to a sufficient degree to maintain the wax in a liquid state or is otherwise treated by the application of heat, and this treatment causes the wax to thoroughly permeate the strips or

sheets, leaving little, if any, of the wax on the surface of the material so treated.

I have found in the practice of my invention that a bath of the wax heated to about 130° Fahrenheit gives very satisfactory results, and a treatment to heat of about this same degree will accomplish the desired results. It is also to be understood that I do not limit the process specifically to the precise material herein named, as obviously various forms of moisture-resist might be used for impregnating the board for the purpose described. I do not wish to be understood, however, that this exact temperature is required, as the temperature may vary under different conditions and a considerable departure may be taken dependent on the conditions. It is also obvious that other forms of treatment of the material may be resorted to and yet come within the scope of the invention so long as the material is thoroughly permeated with the wax and little or no part of the wax appearing on the surface.

Incidental to the treatment of the manufactured leather with wax as hereinbefore described it may be mentioned that the treatment also provides a material that is thoroughly waterproof.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. As an improved article of manufacture, a sheet of manufactured leather formed from leather scrap, said material after its formation being subjected to a bath of melted wax, said wax being subsequently prevented from hardening on the surface by a liquefying means.

2. As an article of manufacture, a leatherboard formed from a pulp material of leather scrap and after its formation being subjected to the action of a water-resist applied in a heated and dissolved condition, said leatherboard being subjected to heat conditions whereby the water-resist applied thereto will be maintained in liquid form until the capillary cells of the material are completely filled.

ALFRED WELLS CASE.

Witnesses:
ARTHUR B. JENKINS,
ERMA P. COFFRIN.