No. 794,623. Patented July 11, 1905.

UNITED STATES PATENT OFFICE.

JULIUS HERBABNY, OF VIENNA, AUSTRIA-HUNGARY.

PROCESS OF TREATING BLOOD AND THE PRODUCT THEREOF.

SPECIFICATION forming part of Letters Patent No. 794,623, dated July 11, 1905.

Application filed January 16, 1905. Serial No. 241,383.

To all whom it may concern:

Be it known that I, JULIUS HERBABNY, Dr. Phil., chemist, a subject of the Emperor of Austria-Hungary, residing at VII Liebensterngasse 2, Vienna, Austria-Hungary, have invented certain new and useful Improvements in Processes of Treating Blood and the Product Thereof; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improved process for treating blood and working the same into a plastic mass, which mass can then be used for many purposes after drying and hardening, such as handles for doors, canes, and umbrellas, insulating-plates, and the like. Furthermore, the product possesses great resisting powers against the action of acid and alkalies, so that it is useful for chemical purposes—as, for example, the making of storage-battery cases or other receptacles for containing acids or alkalies.

My invention consists in coagulating or precipitating blood in any well-known way, separating therefrom the serum, and treating the coagulated mass while still wet with a solution of formaldehyde. The resulting product is then dried and molded into various shapes.

The coagulated blood before it is treated with formaldehyde may be bleached, if desired, or any suitable pigment or coloring-matter may be added thereto to vary its color. Furthermore, filling materials of various sorts may be added to the mass after it has been treated by formaldehyde—such as fats, resins, glycerin, oils of various kinds, sawdust, pulverized cork, powdered minerals, &c.—whereby the hardness of the product may be varied to suit special requirements.

In carrying my invention into effect I precipitate the blood either undiluted or diluted with water in any suitable way. For example, it may be precipitated or coagulated by heat or by the action of various acids or alkalies, such as acetic acid, tannic acid, picric acid, chlorid of lime in solution, bichromate of potash, and similar materials. The resulting product is then filtered to remove the serum and other liquids, if any, which are present and then filtered and compressed. At this stage of the process the resulting mass may be bleached, if desired, by means of sulfurous acid, peroxid of hydrogen, or similar agents. The resulting mass while still wet is then put into a solution containing twenty per cent. of formaldehyde and allowed to remain there for twenty-four hours. It is then removed from the solution, molded, and dried at a slightly-raised temperature. The result is a gray-brown mass, shading to black, (if the bleaching step has been omitted,) exceedingly hard, odorless and tasteless, and possessing great acid and alkali resisting properties. In case the bleaching step has been carried out the result is substantially the same, except that its color is different, the mass being a grayish or yellowish white and of a horny nature.

The coloring or filling materials, or both, may be added directly before or directly after the treatment of the mass with formaldehyde, but before the molding and compressing.

Instead of first precipitating the blood and subjecting the precipitate to the action of a formaldehyde solution the latter may, if desired, be added before precipitation.

As a further modification instead of treating the compressed precipitate with liquid formaldehyde it may be dried in a chamber saturated with formaldehyde-vapor, the result being the same.

I claim—

1. The process of treating blood, which consists in coagulating or precipitating it, separating the coagulum or precipitate from the liquid, adding thereto suitable coloring and filling ingredients, subjecting the resulting mass to the action of formaldehyde and finally molding and drying the product, substantially as described.

2. The process of treating blood, which consists in coagulating or precipitating it, separating the coagulum or precipitate from the liquid, and bleaching it, adding thereto suit-

able coloring and filling ingredients, subjecting the resulting mass to the action of formaldehyde and finally molding and drying the product, substantially as described.

3. The product of the process above described, consisting of coagulated blood, coloring and filling materials mixed therewith, the whole being subjected to the action of formaldehyde, and then molded and dried, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JULIUS HERBABNY.

Witnesses:

HARRY BELMONT,

ALVESTO S. HOGUE.