UNITED STATES PATENT OFFICE.

ROBERT HAERING, OF NEW YORK, N. Y.

IMPROVED COMPOSITION SUBSTITUTE FOR HORN, HARD RUBBER, &c.

Specification forming part of Letters Patent No. **36,406**, dated September 9, 1862.

To all whom it may concern:

Be it known that I, ROBERT HAERING, of the city, county, and State of New York, have invented a new and improved composition applicable as a substitute for horn and ebony, and adapted for the manufacture of combs, knife and brush handles, billiard-balls, boxes, pipes, pencil-cases, portfolio-covers, miniature cases, buttons, and other articles; and I do hereby declare that the following is a full, clear, and exact description of the component parts of and manner of preparing, compounding, and treating the same.

I will first remark that all productions hitherto employed having any resemblance in character to my invention may be divided into two classes. The first of these classes includes those composed of gum-shellac, resins, gelatine, dextrine, legumine, and size, combined with such pigments as alumina, chalk, and metallic salts in various proportions, incorporated together by heat and pressure, all of which compounds are easily fractured, possess very little flexibility, and have been applied to very few uses. The second class is the product obtained by heat from india-rubber, gutta-percha, and sulphur. This product constitutes a more valuable substitute for horn, but lacks several qualities which are essential or desirable to make it answer well for many purposes to which attempts have been made to apply it. For example, in very cold weather it becomes brittle and breaks nearly as easily as glass. It is also so susceptible to electrical excitements that when employed for combs it so greatly disorders the hair that many refuse to use them; but the greatest of all objections to it is its expense, in consequence of the high price of india-rubber and gutta-percha.

The object of my invention is to obtain a substance which is free from the above objections, is strong, hard, flexible, and susceptible of a high polish, and which at the same time is so cheap a substitute for horn and ebony that this department of manufacture may be greatly extended.

To make my improved composition I first obtain the peculiar product resulting from the action of protochloride of sulphur upon linseed-oil. To do this I put ten (10) pounds of linseed-oil in a wide-mouthed open bowl. Next mix thoroughly one (1) pound of protochloride of sulphur with three (3) pounds of bisulphide of carbon, and pour the mixture into the linseed-oil, stirring the oil briskly during the time of the pouring in and for a few minutes afterward with a porcelain spatula. When the oil has become coagulated, which will be in about one hour, it is taken from the bowl, placed in the sun, and allowed to dry and become deodorized, which will be done in about two hours. Of the product thus obtained, which I will call "changed linseed-oil," I take ten (10) pounds and add to it four (4) pounds of the asphalt-like residuum of palm-oil tar (a product well-known to manufacturers of stearine candles from palm-oil) or of asphaltum in a pulverized state, and then add two (2) pounds of flowers of sulphur and four (4) pounds of crude gutta-percha. I then knead or masticate these substances into one homogeneous and uniform mass between the ordinary iron rollers used for such purposes. The compound is next rolled into a sheet, pressed into molds of any desired form or laid on a polished marble, iron, or other suitable slab or sheet, and put into an oven or heater and subjected to dry or steam heat, (preferably the latter,) at a temperature of from 300° to 350° Fahrenheit, for from five to seven hours, according to the thickness of the mass or form to be hardened, and the pieces or articles are then cut, turned, or otherwise finished and polished by the means commonly known and in general use for finishing and polishing other substances of similar character.

The proportions of the several substances used in the composition may be varied to a considerable extent from what I have described without materially changing the character of the composition. I have only specified those proportions for the reason that I at present believe that, all things considered, they give the best result.

I do not claim to have invented the process herein described of treating linseed-oil with protochloride of sulphur and bisulphide of carbon; but

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

The composition made by the mixing of the changed linseed-oil with asphalt, sulphur, and gutta-percha, in the manner and in about the proportions herein specified.

ROBERT HAERING.

Witnesses:

JAMES LAIRD,

RICHARDSON GAWLEY.