

254,461

UNITED STATES PATENT OFFICE.

JOHN D. CHEEVER, OF NEW YORK, N. Y

WATER-PROOF COMPOSITION.

SPECIFICATION forming part of Letters Patent No. 254,461, dated March 7, 1882.

Application filed January 24, 1882. (Specimens.)

To all whom it may concern:

Be it known that I, JOHN D. CHEEVER, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful improvements in water-proof compositions or compounds capable of being pressed and calendered into sheets and shaped by molds into various useful and ornamental forms; 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.

I first take of jute reduced to short fibers of about an eighth to three-eighths of an inch in length in any suitable mill, as those employed for grinding woolen rags in the manufacture of shoddy, for instance, thirty pounds; waste or spent tan-bark dried and ground to a fine powder, fifty pounds; pagodite or agalmatolite, ground also to a fine powder, thirty pounds; red chalk or red oxide of iron and clay reduced to a fine powder, twenty pounds; flour sulphur, one and a quarter pound, and mix the whole together in a suitable mill or mixer. The next step consists of the addition of ten pounds of the oily, pasty product of petroleum known as "vaseline" (so named and described in the specification of the patent dated June 4, 1872, No. 127,568, granted by the United States to Robert A. Chesebrough) and twenty pounds of caoutchouc to the above-described dry mixture. To accomplish this with facility the caoutchouc is made miscible by coal-tar or petroleum naphtha, and the vaseline thoroughly mixed with it and then added to the powders on the mullers or masticators employed in the manufacture of india-rubber compounds, or by first pounding and stirring the whole together in a large iron mortar and then completing the incorporation of all the ingredients by the masticator above named. Artificial temperature is not required for the purpose.

The compound thus formed is spread into sheets of any desired thickness by means of strong iron rollers or calenders heated by steam to a temperature of 150° to 200° Fahrenheit. An application of the compound is for floor-coverings. For this purpose the sheets should

be spread on cloth or burlaps made from jute and prepared to receive the sheeted compound as follows: In thirty gallons of hot water I dissolve twenty pounds of glue, five pounds of yellow soap, and five pounds of alum. When these are all dissolved the surface of the solution is skimmed, and when desired coloring-matter is added. The burlaps is immersed in the hot solution a few minutes, then passed or drawn through rollers to press out the superfluous liquid, and calendered by hot iron rolls at a uniform tension. The burlaps thus treated becomes firm and suitably prepared to receive the compound sheet, while the sizing is insoluble and of the required flexibility and pliability. The sheets formed as now described are cured, vulcanized, or toughened by treatment with a solution of protochloride of sulphur in disulphide of carbon in the proportions of about two parts of the former and one hundred parts of the latter, by weight. The solution is applied by a brush, and as quickly as possible the part treated is rolled so as to confine the volatile solution within the folds, and thereby economize the quantity required to effect the change. The roll thus treated is allowed to remain a few hours and then unrolled and the surfaces exposed to the atmosphere; which in a short time removes any unpleasant odor occurring from the use of the disulphide of carbon. When completed these sheets resemble leather in appearance and flexibility, and they may be varnished, painted, or printed in any desirable patterns and colors.

Different shades of color may be produced by substituting for the ordinary spent tan-bark other lighter or darker powdered bark—as cork, for example; and in the place of the red chalk other earthy pigments may be used, provided they are neutral to the action of the chlorine of the chloride of sulphur. Ultramarine, for example, may be used for blue, chrome-yellow for yellow, and a mixture of these two pigments for green.

The composition is adapted to many other uses than for floor-coverings, as for roofs of buildings, trunks for travelers, books, and glass flasks; and the sheets, when passed through embossing-rollers, may be painted, gilded, and varnished for covering the walls of dwellings. In the foregoing I have designated proper-

tions of ingredients which I have found best for most purposes; but they may be considerably varied. Less caoutchouc may be used for some purposes, and a larger proportion to advantage when a very tough substitute for leather is designed.

I have chosen spent tan-bark not only because it answers the purpose well, but because it is almost a waste product and of comparatively little cost. This is true also of the jute, as in the practical manufacture of the composition the short fibers are obtained from waste cloths, bags, &c., which are remains of articles which have served their purposes. Other fibers of like physical properties may be employed—as, for example, hemp and tow. I do not therefore desire to confine myself to the precise proportions named, nor to the fiber of jute, nor powdered bark which has been employed in the tanning of leather.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. The herein-described compound for waterproofing, consisting of a strong vegetable fiber, finely-powdered minerals—such as pagodite—

finely-powdered bark, earthy minerals—such as chalk, oxide of iron, or the like—and caoutchouc treated with vaseline or other product of petroleum, with or without coal-tar or bitumen, all-substantially as set forth.

2. Powdered bark in combination with short fibers cemented together by caoutchouc, substantially as described.

3. The mixture of jute fiber, prepared as described, with powdered bark in compounds of which caoutchouc is the cementing ingredient.

4. The use of vaseline in compounds of caoutchouc.

5. The process of preparing burlaps to receive a compound coating, consisting in applying to the same by hot calendering a composition of glue, yellow soap, and alum, all substantially as described.

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

JOHN D. CHEEVER.

Witnesses:

VICTOR E. BURKE,
ALFRED R. PAGE.