UNITED STATES PATENT OFFICE.

CHARLES CARROLL GILMAN, OF ELDORA, IOWA.

EARTHENWARE.

SPECIFICATION forming part of Letters Patent No. 405,028, dated June 11, 1889.

Application filed October 22, 1887. Serial No. 253,133. (No model.)

To all whom it may concern:

Be it known that I, CHARLES CARROLL GILMAN, a citizen of the United States, and a resident of Eldora, in the county of Hardin and State of Iowa, have invented certain new and useful Improvements in Earthenware, of which the following is a specification.

My invention relates to porous earthenware products; and it has for its object to supply artificially to such structures a fiber indestructible by the fire used in converting clays into bricken products.

As heretofore made terra-cotta lumber and kindred products resemble wood timber only in that they may be readily operated upon with edge-tools, for the vegetable matters which are incorporated into the plastic composition are driven out by the firing process to which the compressed plastic mass is subjected subsequent to pressing into form, leaving behind a burned residuum possessing merely the quality of affording a tensile strength measured by the tenacity with which the particles comprising said residuum adhere to one another. Certain of the formulas by which the wares in question are made provide that cut straw or its equivalent may be added to the green mixture for the purpose of affording a fiber serving as a temporary means of tying the green wares together, in order that they may dry without cracking and be more safely handled when dried; but as the straw is combustible it perishes in the subsequent process of firing, leaving the wares, when burned, destitute of the fibrous strength which characterized them when green.

I propose by my invention to supply a fiber to the clay or clayey compositions which will remain as an element of the porous brick product after it has been subjected to the firing process, whereby a high degree of tensile strength is permanently imparted to the structure. To accomplish the result in question, I interpose sparsely but intimately with the plastic compositions the prepared asbestus of commerce known as "asbestine wool."

In carrying out my invention the asbestine wool, in quantities determined by strength required of burned product, may be sprinkled from time to time upon the exposed surface of the clayey compositions containing the vegetable matters as they are turned by the workman with shovels or otherwise upon the floor preparatory to going to press. I use in this manner from twenty (20) pounds upward of the asbestine wool to about one ton of the burned compositions.

In making any of the various porous earthenwares, the manufacture of which, being now familiar to all American clay-workers, needs no special explanation in this description, the vegetable matter employed therein must not be diminished in quantity because of the addition of the asbestus, for the latter supplies nothing to the porosity of the burned product, inasmuch, as is well known, it will not be destroyed by the firing process.

Asbestus when milled and prepared for market usually presents the appearance of wool, and is designated commercially as of long and short fiber. For the purposes of the present invention I make use, by preference, of the long fiber, and this comes in the largest quantities from the mines of North Carolina. After the mineral fiber is properly and in sufficient quantities incorporated into the plastic composition by turning on the floor, as explained, the mixture is then run through the press of the type described as "expressive." The composition is forced through the dies of the press onto the cutting-table in hard compressed slabs or forms of the required sizes, &c. These compressed forms are subsequently dried and then subjected to the firing process in the kilns, where they are burned in the same manner as common building-brick, the vegetable matters being burned out in the firing process. The wares thus finished, if broken and subjected to close examination, will reveal the asbestine fibers but little diminished in strength by reason of having been under the influence of the fire, tightly drawn for the most part like short strings parallel with the grain of the pressed composition, this arrangement of the fibers and the grain of the ware being caused by the friction which the plastic composition encounters in its enforced passage through the dies of the press.

I have demonstrated by experiments that wares such as herein mentioned are possessed of a tensile strength due to the incorporated mineral fibers, which can be obtained in no other way. This increased tensile strength is very desirable, if not indispensable, in many cases where the porous brick product in question is now commonly used, and the presence of the mineral fibers in such of the wares as are used in the erection of fire-proof structures is not a source of danger, as the added fibers which confer the extraordinary tensile strength are incombustible, and hence in no degree detract from the effectiveness of the earthenware product as fire-proof building material.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A burned porous earthenware product having incorporated therein fibers of asbestine wool, substantially as described.

Signed at Chicago, in the county of Cook and State of Illinois, this 30th day of June, A. D. 1887.

CHARLES CARROLL GILMAN.

Witnesses:
D. W. C. ROWLEY,
F. A. DOOLITTLE.