06. COMPOSITIONS,
COATING OR PLASTIC.

Cross Reference

EXAMINER

84

No. 672,214. Patented Apr. 16, 1901.

G. KELLY.

FIBROUS ARTICLE AND PROCESS OF PRODUCING SAME.

(Application filed Apr. 21, 1900.)

(No Model.)

Fig. 1.

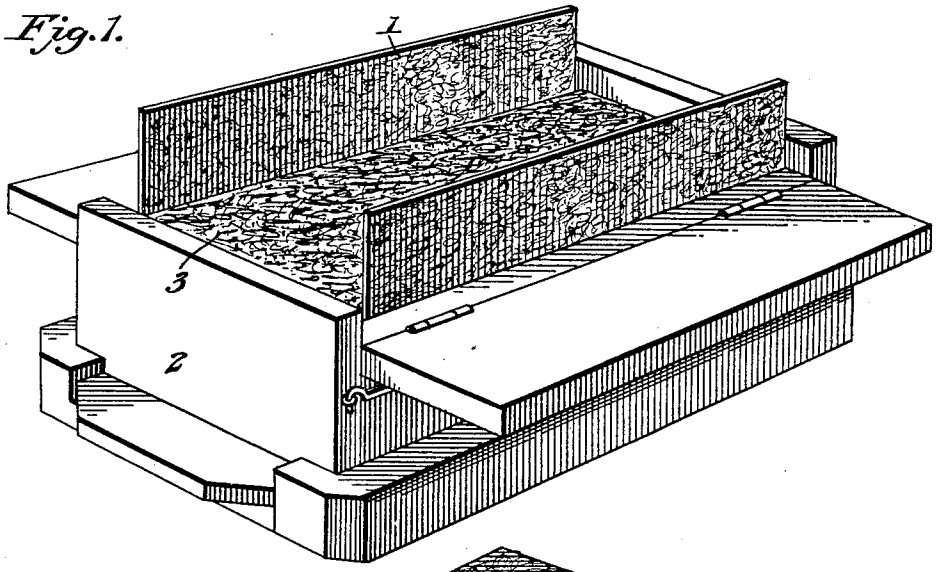


Fig. 2.

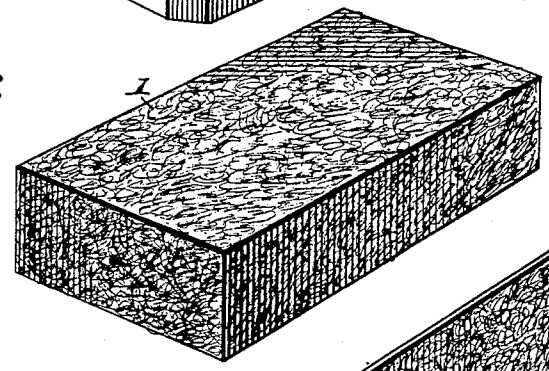


Fig. 4.

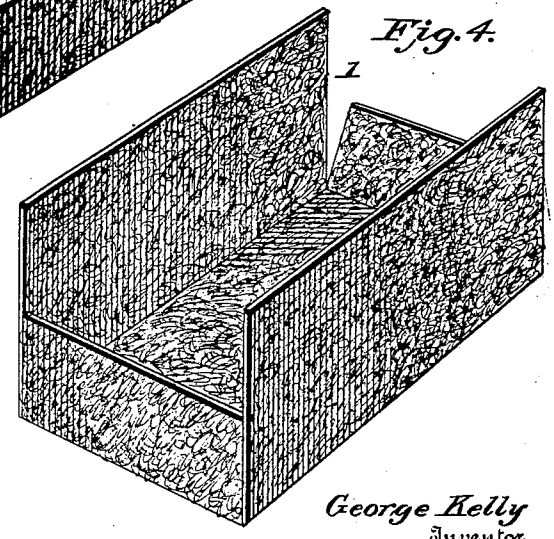
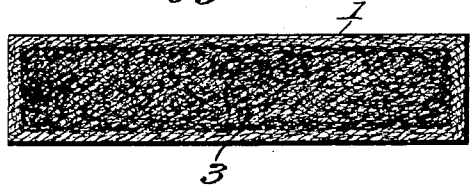


Fig. 3.



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106/84 XR 672,214

UNITED STATES PATENT OFFICE.

GEORGE KELLY, OF MINERALPOINT, WISCONSIN.

FIBROUS ARTICLE AND PROCESS OF PRODUCING SAME.

SPECIFICATION forming part of Letters Patent No. 672,214, dated April 16, 1901.

Application filed April 21, 1900. Serial No. 13,807. (No specimens.)

154-28

To all whom it may concern:

Be it known that I, GEORGE KELLY, a citizen of the United States, residing at Mineralpoint, in the county of Iowa and State of Wisconsin, have invented a new and useful Fibrous Article and Process of Producing the Same, of which the following is a specification.

My invention relates to a novel fibrous article and to the process of producing the same.

In the manufacture of blocks from fibrous material—as, for instance, asbestos—in various shapes and sizes for use as non-conductive fireproof tiling, pipe-covering, boiler-lagging, floor-deadeners, building-bricks, &c., great difficulty is encountered in properly binding the fibrous structure. In order to mold asbestos, mineral wool, and like mineral fibrous substances into proper form for use in either of the connections specified, it is customary to saturate the fibrous structure until it is of a plastic consistency. The desired article is then molded, and after being removed from the mold it is dried by the application of hydraulic or other pressure and is finally dehydrated by being subjected for from forty to fifty hours to a temperature of from 300° to 500° Fahrenheit. This process of manufacture is extended, laborious, and expensive, because considerable time is absolutely necessary to the proper expression of the moisture and for the subsequent dehydration in a kiln, and because of the necessity for an expensive plant, the consumption of fuel, and because of the labor involved in properly attending to the kiln and repressing machinery.

My object therefore is to produce a light, durable, absolutely fireproof, and non-conductive block or like article possessed of all of the desirable characteristics of the product of the foregoing process, but without necessity for the expensive manipulation therein outlined.

To this end I have originated this process of manufacture of articles from mineral fiber and have procured the novel article to be hereinafter described.

In the accompanying drawings, Figure 1 is a general view of a mold into which has been pressed by a former a sheet of fibrous sheathing, which in the completed article constitutes an envelop, occluding a dry fibrous filling or core, which latter is also shown in the mold and about to be covered by the extended portions of the sheet preparatory to being subjected to more or less pressure in the mold. Fig. 2 is a perspective view of a block as it comes from the mold. Fig. 3 is a longitudinal sectional view through the block, and Fig. 4 is a detail view of a sheet of the sheathing or facing material.

In the practice of my invention I first reduce a mineral fiber—as, for instance, asbestos or mineral wool—to a plastic state by mixing it with a filler of any desired character, preferably an alkaline silicate, such as silicate of soda or silicate of potash, in a pug-mill or like apparatus for reducing material of various natures to a pulp. The plastic compound thus produced is then rolled into a sheet (indicated by the numeral 1) and while still wet is cut into the desired shape in accordance with the article to be produced and is pressed into the mold 2 by means of a former. When the former is withdrawn, the plastic sheet remains in the mold and constitutes a lining conforming to the interior contour thereof, and its edges are preferably extended sufficiently above the mold to permit of their being turned down to form a complete envelop. Within the mold thus lined is deposited a core or filling of molded mineral wool 3 in a perfectly dry or dehydrated condition. This dry core or filler is pressed solidly into the plastic lining, and the extended edges of the sheet are turned down over the filler or dry core to constitute said sheet a complete envelop, which is now pressed closely into contact with the filler with sufficient pressure to cause the edges of the plastic sheet to unite to entirely close the latter around the filler to form a continuous occluding sheet or facing. The article thus formed is removed from the mold, the thin sheathing or facing quickly dries, and the process of manufacture is complete.

An examination of the structure of the article—as, for instance, by sawing therethrough and critically examining the cross-sectional surface—will reveal the fact that the article is composed of a comparatively hard mineral fibrous envelop, sheathing, or facing confining a dense fibrous interior or core, more or less homogeneous with the facing by reason of the

capillary absorption by the outer surfaces of the filler of the moisture originally contained in the plastic sheet. It is not necessary to recite specifically the various uses to which the article thus produced may be applied, as it is obvious that wherever a non-conductive fireproof conduit, filler, wall, or block is required the desired structure may be effected by the practice of my process; but attention may be called to the fact that the article thus produced is inexpensive, is capable of having imparted to it any form desired, of being re-formed into desired lengths by sawing, and may be structurally modified as to the relative resistance of the core and facing and as to the relative thickness of the latter. I therefore wish it distinctly understood that my invention relates only to the process of production and to the article as comprehending a comparatively hard fibrous facing or envelop and an interior fibrous filler or core without reference to relative dimensions or to variations of form or ornamental design.

What I claim is—

1. That process for the production of fibrous articles which consists in molding a plastic envelop, and in placing within said envelop while wet, a core of dry, fibrous material.

2. That process for the production of fibrous articles which consists in forming an envelop of plastic material, next placing within said envelop while wet a core of fibrous material in a dry state, then subjecting the resulting body to pressure to obtain a cohesive union between the envelop and core, and finally drying the plastic envelop to produce a comparatively hard sheathing.

3. That process for the production of fibrous articles which consists in first mixing a mineral fiber with a suitable filler and reducing the resultant composition to a plastic state, next forming the plastic composition into a sheet, then pressing the sheet while wet into the form of a receptacle or envelop, next placing within the envelop while wet, a block of compressed dry mineral fiber, next effecting the complete occlusion of said fiber within the wet envelop, then subjecting the resulting body to compression to effect the cohesive union of the dry porous core with the wet fibrous covering, and finally drying said body.

4. An article having a filler of mineral fiber, and a facing or envelop of mineral fiber of greater density and cohesively and homogeneously united thereto.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GEORGE KELLY.

Witnesses:

PHIL ALLEN, Jr.,

FRANK E. HANSCOM.