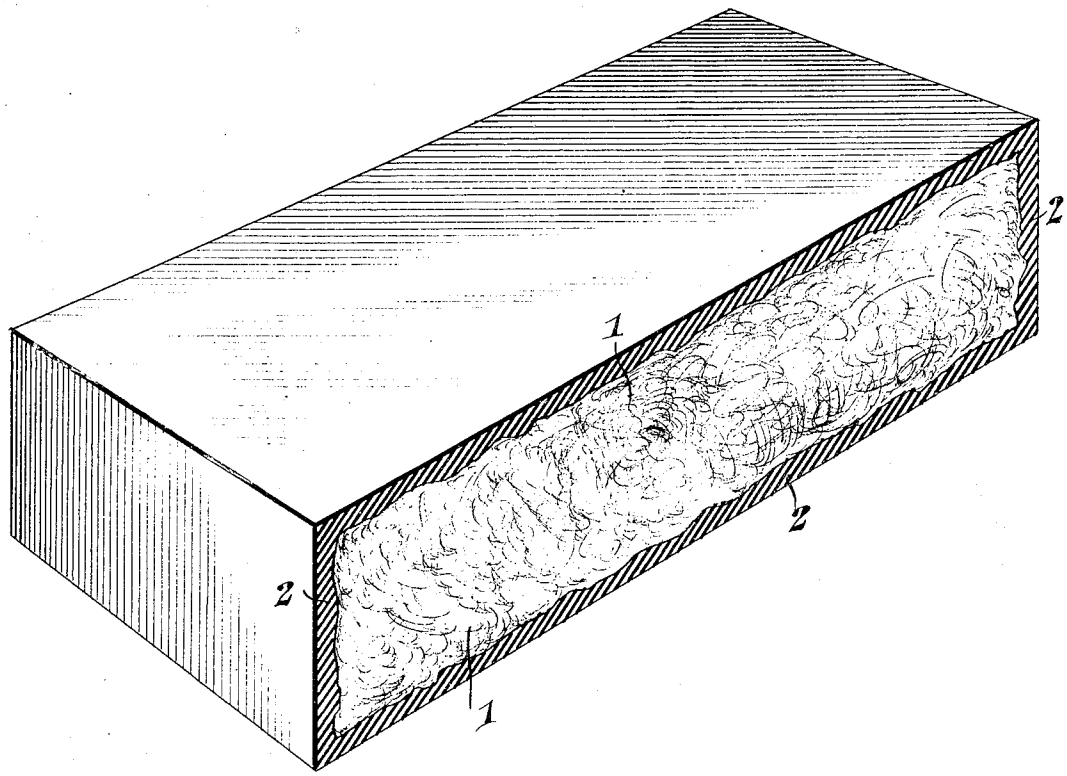
No. 852,688. PATENTED MAY 7, 1907.

H. J. WADE.

METHOD OF MANUFACTURING HEAT INSULATING BODIES.

APPLICATION FILED MAR. 15, 1906.



H. J. Wade, Inventor.

By E. G. Siggers
Attorney

Witnesses
Jas. K. McCathran
B. G. Foster

UNITED STATES PATENT OFFICE.

HENRY JOHN WADE, OF WINONA, MINNESOTA.

METHOD OF MANUFACTURING HEAT-INSULATING BODIES.

No. 852,688. Specification of Letters Patent. Patented May 7, 1907.

Application filed March 15, 1906. Serial No. 306,187.

To all whom it may concern:

Be it known that I, HENRY JOHN WADE, a citizen of the United States, residing at Winona, in the county of Winona and State of Minnesota, have invented a new and useful Method of Manufacturing Heat-Insulating Bodies, of which the following is a specification.

This invention relates more particularly to the method of manufacturing heat insulating bodies, which are composed of fiber or the like, such as mineral wool, asbestos, vegetable and animal fibers, combinations of the same and other similar compositions well known to the art.

It has long been desired to make blocks, bricks, tiles, slabs, boards and other self-sustaining articles of the above character, fire and moisture proof as well as capable of withstanding greater breaking strains, but difficulty has been experienced in securing the desired results. It has been attempted to coat the bodies with pitch, tar, asphaltum, silicate of sodium and like materials, by painting the same thereon and by dipping the bodies in the material while the latter is heated. It is found, however, that the coating is almost invariably porous, and that moisture and air readily circulate through the same. After a careful experiment and study, I find that the above defect is due to the application of the heated coating to the cold bodies, for the heat from the coating penetrating the body, expands the air therein and necessarily expels portions of it. This air therefore has to pass through the applied coat, which still being in a fluid state, thus has openings or pores formed in it by the escaping air. Moreover these coats while adding somewhat to the strength of the article, do not increase such strength any great degree.

The principal object in the present invention is to provide a method of manufacturing or coating the blocks, so that the coat will not be porous, and in order that said coat will better combine with the body, of material and increase the strength thereof very materially.

The drawing is a sectional perspective view of an article constructed by the present novel method.

In carrying out the said method, a body 1, formed in any well known manner of insulating material, such as above described and of substantially any shape, is first heated to about 220 degrees Fah., though this particular temperature is not important. While so heated, a coating 2 in fluid form is applied to the body so as to completely inclose the same. This application may be made, either by painting the surfaces of the body, or by dipping said body in the coating material, said material being preferably pitch, tar, asphaltum or the like, that is made fluid by being heated. After the coat 2 has been applied, the article is set aside, so that the body cools and the coat hardens. The above materials are of course particularly intended for water proofing. If it is desired to fire proof the article, the same is coated or dipped in silicate of sodium, which may be either hot or cold.

The above described method is important, for the following reasons. Inasmuch as the body of the article is first heated, the air contained in the pores and cells thereof will be expanded, and consequently a considerable amount will be expelled from said body. Therefore when the coat is applied to the heated bodies, the air within said body will still be expanded. When removed from the influence of heat, however, the article begins to cool, the air contained therein will contract, and consequently the coat, which is still fluid, will be drawn into the outer pores of the body, and become thoroughly commingled with tne fiber thereof. Moreover, this arrangement is found to eliminate the porosity of the coating and to greatly increase the strength of the article, furthermore permitting the same to be fastened to walls, and the like without the danger of breakage.

The experiments and tests, which I have made in connection with this invention, have demonstrated its great utility. For such purposes, I have used the product known as "lith", made by the Union Fibre Co., of Winona, Minn.

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

1. That improvement in the art of manufacturing insulating blocks, bricks, slabs, and the like, which consists in heating the dry porous and fibrous insulating body to expand the air contained in the pores thereof and drive a portion of such air out of the body, applying an air and moisture-proof surface coating to all sides of said body, while the

same is heated and the air expanded, and allowing the body to cool and the coat to harden.

2. That improvement in the art of manufacturing insulating blocks, bricks, slabs, and the like, which consists in forming an artificial dry and porous body of matted fiber, heating the said body to expand the air contained in the pores thereof and drive a portion of such air out of the body, applying an air and moisture-proof surface coating in a liquid state to all sides of said body while the same is hot, and allowing the body to cool and the coat to harden, said coat intermingling with the fibers and constituting, when cold, a hard reinforcement to the body.

3. That improvement in the art of manufacturing insulating blocks, bricks, tiles, boards, slabs, and the like, which consists in first forming an artificial dry and porous body of heat insulating fiber; second, heating the said body to expand the air contained therein and cause a portion of the air to be driven out of the body, third, applying an air and moisture-proof surface coating in a liquid state to all portions of the body while the latter is hot; fourth allowing the body to cool and the coat to harden, whereby the coat, intermingling with the fibrous body, constitutes, when cold, a reinforcement for the body; and finally applying silicate of sodium to the coating so as to make the body both fire and water-proof.

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

HENRY JOHN WADE.

Witnesses:

EARL SIMPSON,

S. S. STRAUSE.