

(No Model.)

H. W. JOHNS.

FILLING, LINING, AND COVERING MATERIAL.

No. 385,120.

Patented June 26, 1888.

Fig. 1.

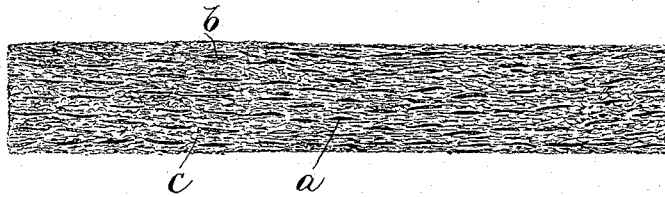
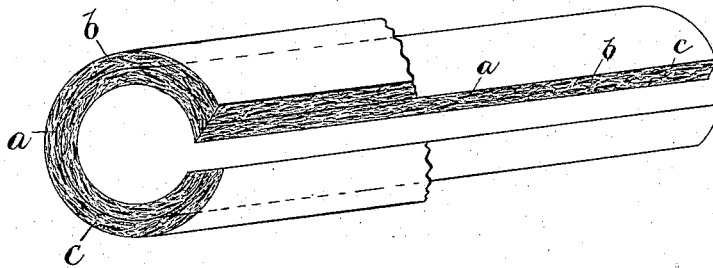


Fig. 2.



Attest.

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UNITED STATES PATENT OFFICE.

HENRY W. JOHNS, OF NEW YORK, N. Y.

FILLING, LINING, AND COVERING MATERIAL.

SPECIFICATION forming part of Letters Patent No. 385,120, dated June 26, 1888.

Application filed November 29, 1887. Serial No. 256,466. (No specimens.)

To all whom it may concern:

Be it known that I, HENRY W. JOHNS, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new useful Improvements in Filling, Lining, and Covering Material, of which the following is a specification.

My invention relates to a new and useful compound sheet, batting, or mass peculiarly adapted for use as a boiler and pipe covering for preventing radiation of heat therefrom, being also adapted to other uses—as, for instance, carpet-linings, filling for safes, refrigerators, &c., also for a sound-deadening lining for partitions and for other uses to which similar products are put; and it consists in a sheet, block, or mass, depending on the special form in which it is to be used, composed of fibrous asbestos and small pieces or shreds of sponge, which give porosity, elasticity, lightness, and bulk to the product.

It is well known that air spaces or chambers are desirable in covering or filling materials of the classes above stated, because they materially aid in preventing the radiation of heat and also reduce the weight of the article, and it may be made of the requisite thickness by the employment of air-spaces with less stock than would otherwise be necessary.

In the manufacture of my improved products I avail myself of a discovery made, so far as I am aware, by myself, of the peculiar “adhesive attraction” which exists between the tentacle-like barbs or lashes of common sponge and the fine silk-like fibers of asbestos, whereby when the sponge is brought in contact with the separated fibers of asbestos it lays hold thereon with great tenacity, and if pressed together to even a slight degree their subsequent separation is very difficult, and if formed into a layer or mass it will possess so much tenacity and adhesion as to form a felt, batting, or wadding of very considerable strength and firmness.

In the drawings, Figure 1 illustrates a sectional view of a sheet of my improved pipe or boiler covering. Fig. 2 illustrates the same rolled up into cylindrical form, constituting a sectional cylindrical pipe-covering. I illustrate these two forms of my invention only since they are good examples of the same.

To make my covering, I take fibrous asbestos and disintegrated sponge. The sponge may be either picked apart, cut, or shredded, thus producing it in fibrous form or in small pieces. I then unite these two fibrous bodies, preferably in about equal proportions, although the proportion of sponge will depend upon the degree of porosity desired in the product, and I then form the combined mass of fibers into a sheet, roll, block, or other shaped mass of such thickness or size as may be desired by a felting, wadding, carding, or batting process, as may be preferred, or in uncompacted form, as a filling material, or I first produce a layer of the asbestos or of the sponge, as the case may be, and then superpose thereon a layer of the other material, and in this way I build up a sheet or batting of such thickness as desired, and it may be formed of successively alternating layers of the asbestos and sponge, or of two or more layers only, and the sponge may be outermost or the asbestos may be outermost, as preferred. For a covering for boilers and hot pipes I prefer that the asbestos should be outermost. For refrigerators and partition-fillings of course these materials may be mixed in mass without regard to special layers. The asbestos will render the product practically fire-proof and the sponge fiber, together with the asbestos, will render it porous or full of air-spaces. The sponge may itself be treated with silicate of soda or other equivalent material, which will render it additionally fire-proof. The sponge, however, in combination with the asbestos, is practically fire-proof without special treatment. The sponge may also be treated with disinfecting or antiseptic substances, whereby the product will be rendered vermin-proof, thus rendering it peculiarly valuable as a filling for partitions, refrigerators, &c.; and it may be waterproofed by a treatment with oil or its equivalent, thus repelling moisture and avoiding dampness. The sponge may be shredded or cut or otherwise reduced to small pieces, as before stated; but I prefer shredded or fibered sponge, which gives a smoother and stronger product. The formation of the wadding or mass may be facilitated by dampening the materials, if desired, whereby they may be more readily matted together, and in practice I employ a suitably-arranged machine

provided with appliances for depositing the sponge and asbestos and suitable pressing-rollers for bringing the materials into close contact with each other. The apparatus, however, forms no part of my present invention. The surface of the sheets or mass may be treated with a sizing or binding material—such as glue, silicate of soda, and the like—to toughen and strengthen them.

In the drawings, *a* and *b* represent pieces of the sponge, and *c* represents the asbestos.

It is obvious that practically the same product will be produced if a small percentage of material other than asbestos and sponge be added. I prefer, however, the asbestos and sponge alone.

My products possess certain characteristics not possessed by any like manufactures known to me, in the same degree, at least, if at all, among them the following: unusual lightness in weight—*i. e.*, large bulk for weight of material used; excessive porosity, securing innumerable air-spaces, which form a large part of the mass or area of the products; practical incombustibility; great cheapness; and great elasticity, thus securing permanent contact with the surfaces against which they are pressed.

Another method by which my products may be made is to properly reduce the asbestos and sponge and pulp them as in paper-making, and in an ordinary paper-maker's machine, if desired. The two kinds of fiber may be mixed in the vats or brought in contact with each other as separate layers, as preferred, and the products may be formed into suitable shapes by the aid of paper-makers' appliances of such kind as desired, or otherwise, as preferred.

In disintegrating certain classes of sponge I find it desirable to soften the same to prevent its powdering. I find that a weak alkaline solution is very effective for this purpose; but any moistening process will answer the purpose.

Inasmuch as other materials may be added, as above stated, without departing from my invention, I desire to secure a material or article composed, essentially, of fibrous asbestos and sponge wherever used in such proportions as will not change or detract from the desirable quality of adhesive attraction between these two substances—*i. e.*, a material in which asbestos and sponge are the effective and distinguishing elements.

When my improved product is used as a pipe-covering, it may be arranged as shown in Fig. 2 of the drawings—that is to say, rolled up into cylindrical form of such size as will fit the pipe which it is intended to cover and slit open longitudinally to facilitate its application to the pipes. A sheet of my product can be easily made into this form by wrapping the sheet around a mandrel in any manner preferred; and there may be a single thickness or more than one thickness of the sheet, as shown in Fig. 2.

The sheets, by whichever process they are made, may be corrugated, indented, or otherwise given an uneven surface, and then may be applied to steam boilers or pipes in any manner now practiced, and when so used it should preferably be covered externally with paper, canvas, asbestos-sheathing, or the like to protect it against wear.

I am aware that pieces of sponge, cork, &c., and also asbestos, have been mixed in with paper-pulp and made into sheets. That is not my invention.

Having described my invention, I claim—

1. The herein-described manufacture, composed of fibrous asbestos and fibrous or disintegrated sponge, substantially as set forth.

2. The herein-described manufacture, composed, essentially, of fibrous asbestos, fibrous or disintegrated sponge, and an adhesive substance, substantially as set forth.

3. The herein-described manufacture, composed, essentially, of fibrous asbestos, fibrous or disintegrated sponge, and an antiseptic or disinfecting substance, substantially as set forth.

4. The herein-described manufacture, composed, essentially, of fibrous asbestos and fibrous or disintegrated sponge, the sponge being treated with a fireproofing material, substantially as set forth.

5. The herein-described manufacture, composed, essentially, of fibrous asbestos and fibrous or disintegrated sponge, the sponge being treated with oil or like waterproofing material, substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 17th day of November, A. D. 1887.

HENRY W. JOHNS.

Witnesses:

PHILLIPS ABBOTT,
ALEX. F. BRIGHAM.