(No Model.)

H. W. JOHNS.

PIPE COVERING.

No. 385,119. Patented June 26, 1888.

Fig. 1.

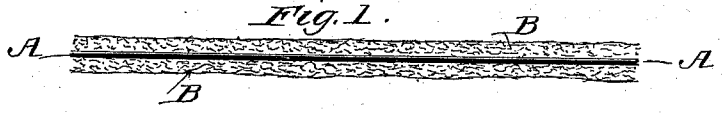


Fig. 2.



Fig. 3



Fig. 4.

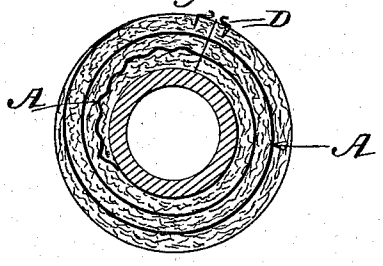
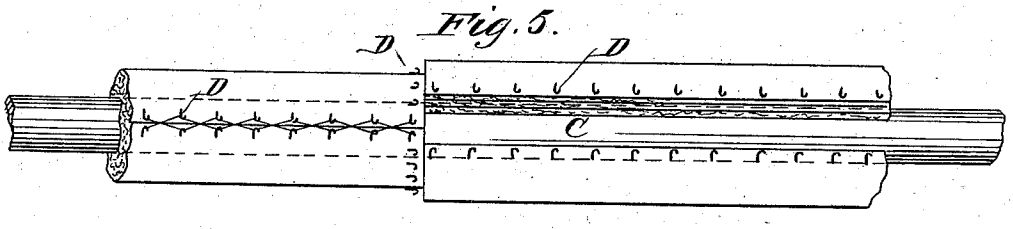


Fig. 5.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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

PIPE-COVERING.

SPECIFICATION forming part of Letters Patent No. 385,119, dated June 26, 1888.

Application filed August 17, 1887. Serial No. 247,138. (No model.)

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 and useful Improvements in Pipe-Coverings, of which the following is a specification.

My invention relates to improvements in non-conducting coverings and linings; and it consists, first, in the construction of a composite sheet from which the covering is made; second, in the covering as made, and, third, in means whereby the several sections of covering may be held together and to each other when in use.

Figure 1 illustrates the edge of one of my improved composite sheets from which the covering or lining is made. Fig. 2 illustrates the same corrugated. Fig. 3 illustrates the same indented. Fig. 4 illustrates a cross-section of a piece of pipe covered with my covering. Fig. 5 illustrates the method of attaching the ends of the several sections and the edges of the longitudinally-split pipe covering together.

My invention consists in adhering to the surface of a strengthening and air-confining or insulating sheet a deposit or layer of asbestus and sponge in a loose, fibrous, and flocky state, whereby the strengthening and insulating sheet will give strength to the compound sheet, and will also obstruct the radiation of heat from the surface to which the covering is applied, and the asbestus and sponge will act as practically fire-proof materials for confining the heat, and, being attached to the sheet of strengthening material, the compound sheet may be readily rolled up into sectional cylindrical coverings and the fibrous material will not slide or settle down when placed on vertical pipes. The product is also very compressible and elastic. Thus perpetual contact with the surface against which it is pressed is secured, and, by reason of the great porosity possessed by sponge, it has innumerable air-spaces, which form a large part of the bulk of the covering or lining, and is in this respect an improvement on the similar product patented to me August 10, 1880, No. 230,945, composed wholly of asbestus.

A is a sheet of paper, cloth, wool or hair felt, asbestus sheathing, wire-cloth, or equivalent substance. It not only acts to prevent radiation of heat, but also as a strengthening-piece to hold the fire-proof or non-conducting fibrous asbestus and sponge in place. To one or both surfaces of the strengthening-piece A is attached, preferably by a cement composed of silicate of soda, although other suitable adhering material may be used, a layer, B, of loose asbestus fiber mixed with disintegrated or finely-divided sponge—the poor varieties or the scrap sponge may be well used for this purpose. Instead of mixing the asbestus and sponge, the sponge may be first adhered to the surface of the sheet and then the loose asbestus fiber be distributed upon the sponge and patted or pressed thereon. This will adhere the asbestus to the sponge. This adhesion of the fibers of asbestus to sponge is due to the peculiar "adhesive attraction" which exists between these two substances, which I believe is a discovery originating with me, and it exists to such an extent that when they have been brought in contact with each other their attachment is remarkably firm and permanent.

In Figs. 1 and 2 I show the material, B, applied to both sides of the strengthening-piece A, and in Fig. 3 to one side only. The composite sheet thus produced may be flat, as shown in Fig. 1, or corrugated, as shown in Fig. 2, or indented, as shown in Fig. 3. When made, the composite sheet may be wound on a mandrel, thus interposing between each layer of the strengthening material one or two thicknesses of the asbestus and sponge, depending on whether it is applied to one or both sides of the strengthening-layer. After the desired thickness has been wound upon the mandrel, it is cut open lengthwise, as at C, by any suitable implement, so that the edges can be sprung apart, whereby its application to the pipes is facilitated; and, preferably before removing it from the mandrel, and also preferably before cutting or otherwise splitting it lengthwise, I drive into the outer surface thereof the tang of metallic hooks or buttons D D. They may, however, be otherwise attached, if preferred. The hooks or buttons are arranged on two parallel lines each side of the proposed line on which the covering is to be cut open, as stated, and near the edges formed by the cut, and I also sometimes supply a single row of these hooks around each end of each section of the cover-

ing, as shown in Fig. 5. By means of these hooks or buttons and a lacing of wire, asbestus or other cord, or equivalent material, whether fire-proof or not, the edges of the longitudinal opening are drawn firmly together and held in place, and also the abutting ends of contiguous sections are bound to each other, thus making a continuous and practically unbroken covering for the pipe. After the wire, asbestus-cord, or other lacing has been engaged with the hooks or buttons and drawn tight, the exterior of the covering may be made more smooth by bending the ends of the hooks or the tops of the buttons down, or driving them in, thus embedding them in the surface of the covering, by a blow from a mallet or otherwise, which will also tend to prevent the lacing from slipping. A cement or layer of fiber may be interposed between the edges of the slits, which, when they are drawn firmly together, will effectually close the joint.

It is not essential to my invention that the hooks or buttons should be employed. The edges and ends of the several sections may be brought together by wrapping with cord, or sewed with wire or cord, or united in any other desired manner. If desired, the sponge may be treated with silicate of soda or its equivalent to render it additionally fire-proof.

Having described my invention, I claim—

1. The herein-described compound sheet, composed of loose fibrous asbestus and disintegrated sponge attached to the surface of an insulating-sheet, substantially as set forth.

2. As a new manufacture, the described boiler and pipe covering, composed of fibrous asbestus and disintegrated sponge attached to the surface of an insulating-sheet and made into cylindrical sections, substantially as set forth.

3. The described improvement in sectional pipe and boiler covering, consisting of hooks or buttons attached at or near the edges of the covering, adapted to engage with a cord, wire, or equivalent article, whereby the edges of the covering may be drawn together and the seam closed, substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 11th day of August, A. D. 1887.

HENRY W. JOHNS.

Witnesses:

PHILLIPS ABBOTT,

C. H. PATRICK.