Sept. 13, 1927. 1,642,204

C. L. HILL

HEAT INSULATING TAPE

Filed Sept. 11. 1926

Fig. 1.

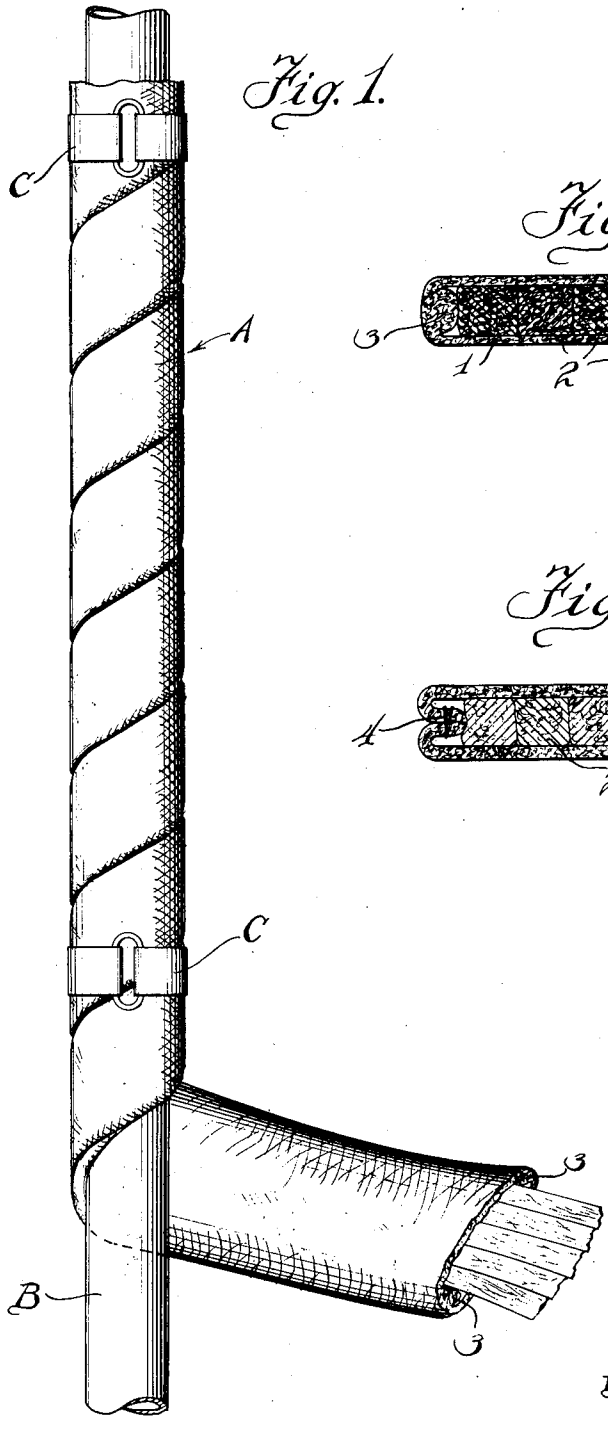


Fig. 2.

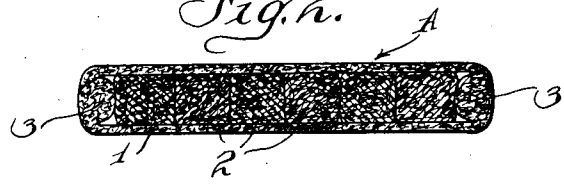
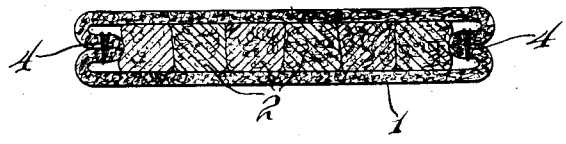


Fig. 3.



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UNITED STATES PATENT OFFICE.

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HEAT-INSULATING TAPE.

Application filed September 11, 1926. Serial No. 134,772.

My invention relates to tape which is formed of heat insulating material and which is adapted to be applied to fluid conducting pipes of various kinds.

The most satisfactory tape of this kind comprises a flattened tube or sheath, formed of a textile fabric of asbestos, containing a suitable heat insulating filler of asbestos fibers. However, devices of this kind, as heretofore constructed and used, have been subjected to the objection that, when spiralled around a pipe, the lateral edges thereof, and particularly the edge which is subjected to the greater tensile stress in the spiralling operation, have become objectionably thin or "knife edged." This tendency of the tape edges to become thin or "knife edged" when tightly spiralled around a pipe, detracts from the appearance of the pipe covering and also diminishes the heat insulating quality of the covering at contiguous portions of the tape convolutions.

It is the purpose of the present invention to provide a heat insulating tape, comprising a sheath of heat insulating textile fabric and a suitable insulating filler, which will not be drawn thin at its edges when the tape is tightly spiralled around a pipe or the like,—this result being accomplished without incorporating anything but good heat insulating materials in the tape.

In the accompanying drawing illustrating my invention:

Fig. 1 illustrates the manner of applying my improved tape to a pipe,

Fig. 2 is a transverse sectional view of the tape, and

Fig. 3 is a view similar to Fig. 2, but illustrating a modified construction contemplated by the present invention.

In the drawing reference letter A generally indicates the insulating tape of my invention, B indicates a pipe to which the tape is applied, and C indicates devices for securing the tape upon the pipe.

The tape A consists of a flattened tube or sheath 1 which is formed of a heat insulating and heat resisting textile fabric, the woof and warp of which are preferably cords or strands of asbestos fibers. This sheath is preferably woven, in tubular form, but I contemplate that the tube or sheath may be formed by overlapping and cementing, or otherwise securing, the lateral edges of a strip of heat insulating textile fabric.

Enclosed by the flattened tube or sheath and substantially filling the same is a soft, pliable filler of good heat insulating qualities, this filler preferably consisting wholly or in part of fibers of asbestos. I prefer to have the filler consist of a plurality of asbestos fiber ropes 2—2 disposed side by side and extending continuously and longitudinally through the sheath, this being a type of filler (shown and described in Gillies Patent No. 1,470,723, dated October 16, 1923) which in recent years has met with almost universal approval. I do not, however, limit myself to the use of this particular type of filler.

I shall now describe those features of the tape with which my present invention is more particularly concerned:

Carried with the flattened tube or sheath 1 and co-extensive therewith are internal longitudinal fins 3—3 which are formed of the same material as the sheath and are in fact integral parts thereof. These fins are so located with respect to the sheath and to each other that in the completed tube they lie directly opposite to each other, occupying the lateral portions of the sheath and effectually preventing the tube from becoming thinned out at its edges regardless of how tightly it may be spiralled around a pipe.

The inwardly projecting longitudinal fins may be woven upon and in one piece with the sheath, at the same time that the sheath itself is woven, or the said fins may be formed upon and interconnected with the sheath after the latter has been woven. However, I find it most economical and most practical to weave the fins simultaneously with the weaving of the sheath.

In Fig. 3 I have illustrated a modification which, while not so desirable as the construction shown in Fig. 2, nevertheless falls within the purview of the present invention. In this modification the tape sheath, which is preferably, but not necessarily, formed on a circular loom, is flattened and is provided with longitudinal stitching 4—4, each line of stitching passing through both plies of

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the sheath and being spaced somewhat from one of the lateral margins of the sheath. The sheath is then turned inside out and the filler inserted, the stitched-together portions of the sheath constituting the internal longitudinal fins contemplated by the present invention.

In applying the tape to a pipe, that end of the tape which is first applied is preferably cut on the bias a distance equal to approximately three times the diameter of the pipe. One wrap is then made around the pipe with the oblique end thereof lying in a transverse plane of the pipe. The said end of the tape is then secured by any suitable means, such as a hose clamp or band of the kind shown at C. The tape is then tightly and closely spiralled around the pipe the distance required, additional clamps being utilized at intervals as shown.

While I prefer to provide the tape sheath with an inwardly projecting longitudinal fin at each of its lateral margins, I contemplate that but one such fin may be utilized if desired,—i. e., at the edge of the tape which is subjected to the greater tensile stress during the spiralling operation.

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

1. A heat insulating tape adapted to be tightly spiralled around a pipe comprising a flexible sheath consisting of a flattened tube of heat insulating textile fabric having flat exterior edges, a pliable heat insulating filler within said sheath, said sheath having an inwardly projecting portion located at the edge of said flattened tube to provide a wall substantially thicker at said edge.

2. A heat insulating tape adapted to be tightly spiralled around a pipe comprising a flexible sheath consisting of a flattened tube of heat insulating textile fabric having flat exterior edges, a pliable heat insulating filler within said sheath, said sheath having an inwardly projecting portion located at the edge of said flattened tube of substantially the same thickness as said filler when spiralled upon said pipe.

3. A heat insulating tape adapted to be tightly spiralled around a pipe comprising a flexible sheath consisting of a flattened tube of heat insulating textile fabric, a pliable heat insulating filler within said sheath, said sheath being of substantially rectangular cross section with rounded corners and having its edge walls substantially thicker than its side walls.

4. In a heat insulating tape of the class described, the combination of a sheath consisting of a flattened tube of heat insulating textile fabric having flat exterior edges, a heat insulating filler within said sheath, and inwardly projecting portions interwoven at each edge of said flattened tube with the material of the sheath, said portions being of substantially the same thickness as said filler when spiralled upon said pipe.

5. In a heat insulating tape, a sheath comprising a seamless flattened tube of heat insulating textile fabric, a filler within said sheath comprising a plurality of ropes of heat insulating material, the exterior edges of said tube being adapted to fit closely together and being reinforced by an inwardly projecting longitudinal fin of heat insulating fabric interwoven with said sheath.

6. A heat insulating tape adapted to be tightly spiralled around a pipe without overlapping the edges of said tape, comprising a pliable heat insulating filler, and a flexible sheath for said filler, consisting of a layer of heat insulating fabric extending about said filler to form a tape, said fabric having inward folds at each edge of said tape, to take the place of said filler at said edges.

7. A heat insulating tape adapted to be tightly spiralled around a pipe without overlapping the edges of said tape, comprising a pliable heat insulating filler, and a flexible sheath for said filler, consisting of a layer of heat insulating fabric extending about said filler to form a tape, said fabric having inward folds at each edge of said tape, to take the place of said filler at said edges and said folds being secured together by stitching.

8. A heat insulating tape adapted to be tightly spiralled around a pipe without overlapping the edges of said tape, comprising a continuous sheath of heat insulating fabric, said sheath having an inwardly projecting portion interwoven with the same at one edge thereof, and a filler of heat insulating material in said sheath.

9. A heat insulating tape adapted to be tightly spiralled around a pipe without overlapping the edges of said tape, comprising a continuous sheath of heat insulating fabric, said sheath having an inwardly projecting portion interwoven with the same at one edge thereof, and a filler of heat insulating material in said sheath, said filler comprising a plurality of loose ropes of asbestos fiber.

10. A heat insulating tape comprising a seamless fabric sheath of interwoven heat insulating and heat resistive fibers and a heat insulating and heat resistive filler for said sheath comprising a plurality of loose ropes of heat insulating and heat resistive fibre, said sheath having a reinforcing fold projecting inward at one edge.

11. The method of constructing a heat insulating tape, comprising forming a sheath of heat insulating and heat resistive fabric forming an outwardly projecting fin on the edge of said sheath, turning said sheath inside out and filling the same with a filler of heat insulating and heat resistive fibers.

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12. The method of constructing a heat insulating tape comprising weaving a seamless sheath of asbestos strands, with an integral rib along one edge, turning said sheath inside out and filling the same with loose ropes of asbestos fiber.

13. An article of manufacture comprising a heat insulating tape consisting of a filler of loose asbestos fibers, and a sheath of woven asbestos fabric, said sheath having inward folds at each edge of the same and a line of stitching along each edge, said inward folds taking the place of some of said filler along said edges and reinforcing said edges against thinning.

In witness whereof, I hereunto subscribe my name this 7th day of September, 1926.

CHESTER L. HILL.

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