

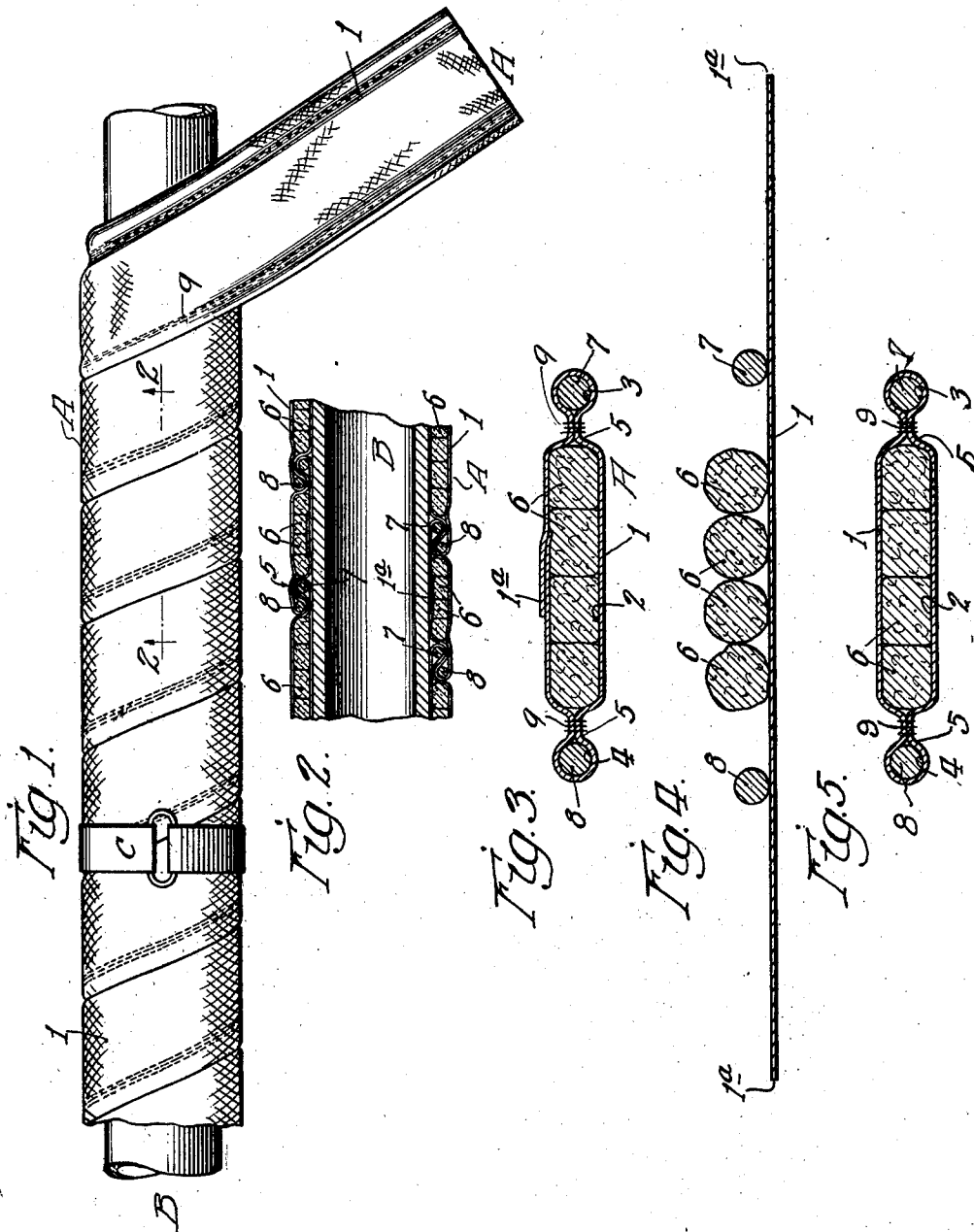
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INSULATING TAPE

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UNITED STATES PATENT OFFICE.

WILLIAM R. GILLIES, OF CHICAGO, ILLINOIS, ASSIGNOR TO UNION ASBESTOS & RUBBER COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

INSULATING TAPE.

Application filed February 1, 1923. Serial No. 616,439.

My invention relates to an insulating tape which is adapted to be applied to fluid conducting pipes of various kinds.

The principal object of my present invention is to provide such a tape which may be tightly and snugly spiralled around a pipe with the lateral portions of successive convolutions overlapping and interlocking with each other; the lateral portions of the tape preferably embodying a material such as hemp or manila rope which after application will not stretch to any substantial extent nor have its cross-section materially distorted under the longitudinal tensile stress, or the lateral compressive stresses to which it is subjected during the process of applying the tape to a pipe.

In the accompanying drawing illustrating my invention:—

Figure 1 illustrates the manner of applying my improved tape to a pipe;

Figure 2 is a fragmentary longitudinal section taken on the line 2—2 of Figure 1;

Figure 3 is a transverse sectional view of the tape;

Figure 4 is a transverse section of the several elements of the tape as they appear prior to the closing of the fabric sheath, and

Figure 5 is a view similar to Figure 3, but illustrating a modified embodiment of my invention.

Similar characters of reference refer to similar parts throughout the several views.

In the drawing, A indicates the tape of my invention, B a pipe to which the tape is applied, and C devices which may be applied to the tape at intervals, if desired.

The tape A consists of a sheath 1, which is preferably formed of a heat insulating and heat resisting material, such, for instance, as a textile fabric having wool and warp cords of asbestos fibre. The sheath 1 is formed, cemented and stitched to provide three parallel compartments or pockets, all of which are co-extensive with the tape, namely, the middle pocket 2 and the lateral pockets 3 and 4. It will be noted that each of the pockets 3 and 4 is spaced from the pocket 2 and connected therewith by a web 5 formed by two thicknesses of the material of sheath 1.

Disposed side by side within the pocket 2 and extending continuously and longitudinally therethrough is a plurality of inde-

pendent strands or ropes 6—6, each of which is preferably formed of felted asbestos fibre. Each of the elements 6—6 may consist of felted or twisted asbestos fibre, or may consist of a number of asbestos cords twisted together to form a rope. However, while I prefer to fill the pocket 2 with a plurality of asbestos ropes, as hereinbefore explained, a single strip or body of asbestos felt or its equivalent substantially filling pocket 2 is contemplated by my invention.

Disposed in each of the pockets 3 and 4 and extending continuously and longitudinally therethrough are the elements 7 and 8, each of which is preferably formed of a material such as hemp or manila rope, which in contradistinction to the felt ropes 6—6 has considerable tensile strength, and is not subject to any considerable cross-sectional distortion under the stresses to which it is subjected during the process of applying the tape to a pipe.

In the manufacture of the tape of my invention, the sheath 1 is conveniently initially in the form of a long, flat strip of asbestos fabric, as best illustrated in Figure 4. The asbestos ropes or felt strips 6—6 and the relatively stronger and harder ropes 7 and 8 are placed longitudinally of the sheathed strip as shown in Figure 4. The edges 1^a—1^a of the strip are then brought together and overlapped, as illustrated in Figure 3, and are permanently secured together in any suitable manner, the several pockets 2, 3 and 4 being then defined and the webs 5—5 being formed by longitudinal stitching indicated at 9—9. As a convenient means for securing together the overlapped edges of the sheathed strip, I prefer to employ a heat resisting cement, such as silicate of soda.

It is not absolutely essential that the sheath 1 be formed by cementing or otherwise securing together the lateral edges of an asbestos fabric strip, as hereinbefore explained. As illustrated in Figure 5, the sheath may be in the form of a single piece of circular loom, conformed and stitched to provide the several pockets 2, 3 and 4. In manufacturing this type of tape, the stitches 9—9 are preferably made after the materials 6, 7 and 8 have been drawn into the textile fabric.

In applying the tape to a pipe, that end of the tape which is first applied is preferably

beveled a distance equal approximately to three times the diameter of the pipe. One turn of the tape is then made around the pipe with the beveled end of the tape lying in a transverse plane of the pipe. The spiralling of the tape is then continued, as illustrated in Figures 1 and 2. It will be noted that the lateral margins of successive turns of the tape overlap, that portion of the sheathed rope 3 forming part of each turn being drawn down firmly between the portions of strand 4, and asbestos felt 6 forming part of the preceding turn. Thus, each turn of the tape is securely interlocked with those turns of the tape which it overlies and by which it is overlaid. The ropes 7 and 8 possess considerable tensile strength, and may be drawn very tightly into the interlocking relation just described. Moreover, the ropes 7 and 8 being relatively hard hold their cross-sectional shapes without appreciable distortion, and are thus capable of maintaining their aforesaid interlocking relation after such relation has been established. A plurality of bands or hose clamps of the type illustrated at C, may be applied at intervals if desired.

From the foregoing description, it will be seen that the sheathed ropes or cords 7 and 8 in effect constitute beads which are co-extensive with but spaced from and connected to the sheathed heat insulating material 6 by relatively thin fabric webs. The members 7 and 8 when formed of hemp or manila rope have considerable value as heat insulation, but it will be understood that such ropes may, if desired, be formed from a material having insulating qualities as good or substantially as good as the insulating qualities of the material 6.

Having thus illustrated and described a preferred embodiment of my invention, what I claim as new and desire to secure by Letters Patent of the United States is:—

1. An insulating tape comprising a central portion of heat insulating material, and lateral beads connected with said central portion by relatively thin webs.

2. In an insulating tape, a relatively wide central portion of heat insulating material provided at its lateral margins with depressions and beads, the latter comprising strands of material having relatively great tensile strength.

3. In an insulating tape, a relatively wide central portion of heat insulating material

provided at its lateral margins with flexible webs connecting said central portions with beads of relatively great tensile strength.

4. An insulating tape comprising a body portion provided at each of its lateral margins with two longitudinal depressions and a longitudinal bead.

5. An insulating tape comprising a central portion comprising insulating felt, relatively strong strands co-extensive with said felt and spaced laterally therefrom, and a single textile fabric sheath enclosing said felt and said strands.

6. An insulating tape comprising a central portion of insulating felt, relatively strong strands co-extensive with said central portion, and spaced laterally therefrom, and a single sheath of heat resisting fabric enclosing said felt and said strands.

7. An insulating tape comprising a central portion of insulating felt, a pair of relatively strong strands co-extensive with and spaced laterally from said central portion, and a single fabric sheath enclosing said felt and strands, said sheath being longitudinally stitched to separate the strands from the felt.

8. An insulating tape comprising a fabric sheath constructed to provide a relatively large central pocket, and relatively small lateral pockets co-extensive therewith, and insulating felt filling said central pocket and strands of considerable tensile strength filling said lateral pockets.

9. An insulating tape comprising a central portion of insulating felt, lateral fins, embodying relatively hard material, co-extensive with said central portion, and a single fabric sheath enclosing said felt and the relatively hard material of the fins aforesaid.

10. An insulating tape comprising a tube of heat insulating fabric longitudinally stitched upon itself to afford an elongated central pocket of considerable area in transverse cross-section and lateral pockets of lesser transverse cross-sectional area which are co-extensive with said central pocket, said central pocket containing a filler in the form of a good heat insulating material, each of said lateral pockets containing a relatively hard filler.

In witness whereof, I hereunto subscribe my name this 23rd day of January, 1923.

WILLIAM R. GILLIES.