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C. V. BRADY

2,013,724

FABRIC TUBING

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FIG. 1.

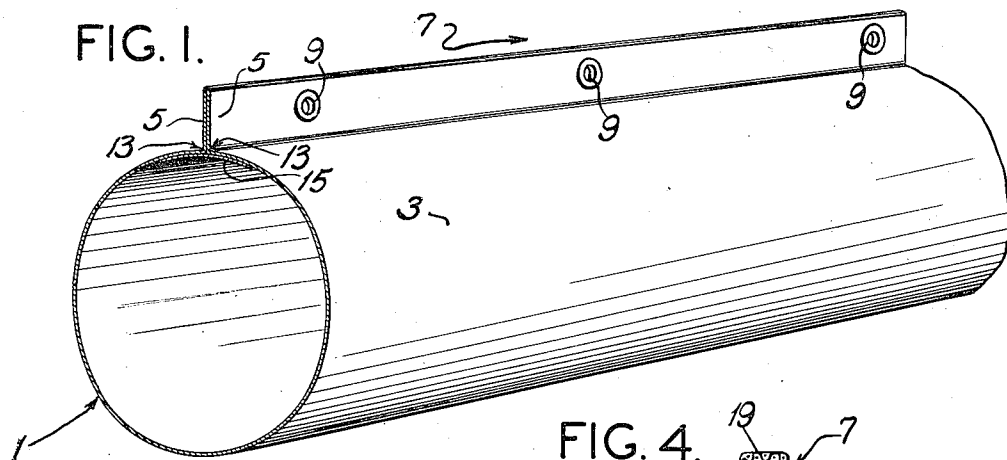


FIG. 2.

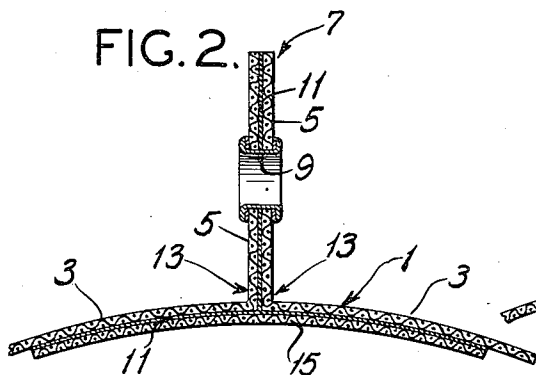


FIG. 4.

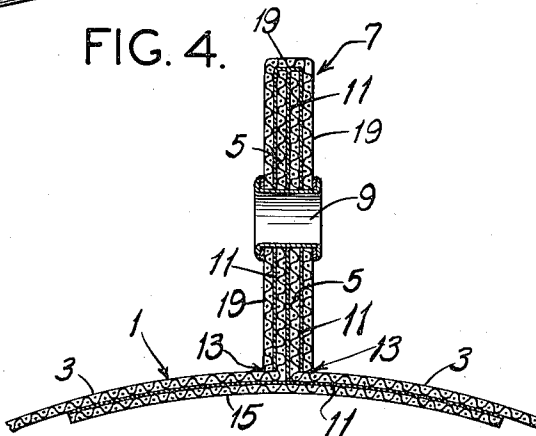


FIG. 3.

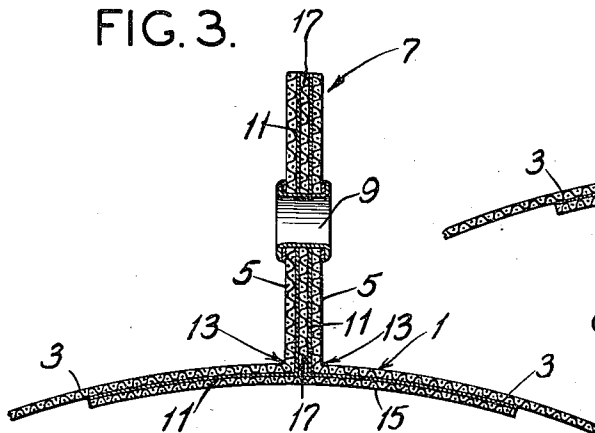
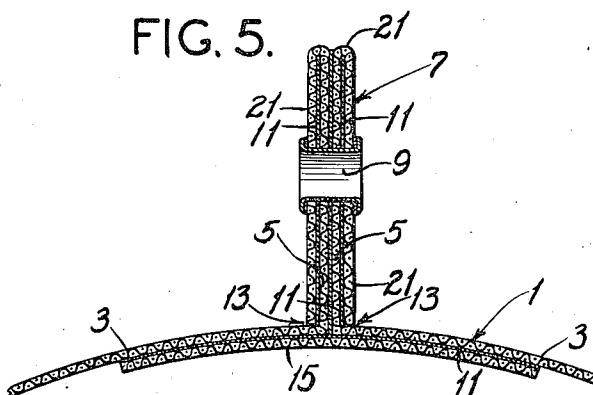


FIG. 5.



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UNITED STATES PATENT OFFICE

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FABRIC TUBING

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4 Claims. (Cl. 137—90)

This invention relates to fabric tubing, and with regard to certain more specific features, to flexible fabric tubing, particularly for mine ventilating purposes and the like.

5 Among the several objects of the invention may be noted the provision of tubing of the class described having a reenforced, non-stitched seam which permits of manufacturing the tubing in the simplest manner from a strip of initially
10 flat fabric and without sacrifice of ultimate strength and tightness; the provision of a product of the class described in which the stresses incident to supporting the same by means of grommets in a supporting fin are transmitted directly
15 to the integral fabric forming the main tubing; the provision of an improved internal cover strip adapted to resist any action of said stresses tending to tear the seam and resisting the tendency of internal pressure in the tubing to part the por-
20 tions of a fin in which said grommets are located; and the provision of a simple and long lived structure of the class described. Other objects will be in part obvious and in part pointed out hereinafter.

25 The invention accordingly comprises the elements and combinations of elements, features of construction, and arrangements of parts which will be exemplified in the structures hereinafter described, and the scope of the application of which will be indicated in the following claims.

30 In the accompanying drawing, in which are illustrated several of various possible embodiments of the invention,

35 Fig. 1 is a trimetric view of a section of the tubing, showing a preferred form;

Fig. 2 is an enlarged fragmentary cross section of the construction shown in Fig. 1;

Fig. 3 is a view similar to Fig. 2 showing a modified form;

40 Fig. 4 is a view similar to Fig. 2 showing another modified form; and,

Fig. 5 is another view similar to Fig. 2 showing a third modified form.

45 Similar reference characters indicate corresponding parts throughout the several views of the drawing.

Referring now more particularly to Figs. 1 and 2, there is shown at numeral 1 a strip of fabric which has been shaped to a cylindric
50 form 3. Edge areas 5 of the initially flat strip of fabric 1 have been juxtaposed and adhered one to the other by means of a cement 11 such as rubber latex. Latex is a class example of cements which are not subject to rapid deterio-
55 ration under conditions such as prevail in mines

and similar locations. That is to say, this cement resists, among other things, damp, acids, fungus growth and the like. It is to be understood that other cements may be substituted for the latex cement, provided they are resistant to similar
5 attacks.

It is also to be understood that the fabric 1 of which the cylinder 3 is composed, as well as all of the other fabric herein referred to, is of a class which is treated so as to be substantially
10 resistant to the attack of acids, fungus, damp and the like.

The width of the area of adherence between the areas 5 is made sufficient to provide a fin 7
15 which will accommodate the application of metal grommets 9 for receiving the fasteners which are used in suspending the tubing from a suitable support.

From the above it will be seen that the material of the supporting strip or fin 7 and the
20 material 1 of the tubing 3 are integral. This feature permits of readily constructing the tubing from a single long strip of fabric and in the simplest manner.

However, the internal pressure of the air in
25 the cylinder 3 would, without further provision tend to separate the areas 5, one from the other at the regions 13 indicated in Fig. 2. That is, the cement at said areas would be put under tension. Thus, separation might set in which would ad-
30 vance to the eyelets or grommets and finally tear the cloth at said grommets.

In view of the above, I provide an internal
35 cover strip 15 along the base of the fin 7. This strip is adhered to the fabric of the cylinder 3 by means of an additional portion of said latex cement 11. The cover strip 15 covers the joint between the areas 5 at their base regions 13. The
40 strip 15 assumes the stresses which might otherwise be applied from the cylinder 3 to the areas 5. This transfer of stresses is advantageous, because the width of the strip 15 may be made according to what is desired in the way of strength at the joint. For instance, the joint at region
45 13 may be made greater than one hundred per cent. efficient, that is to say, it may be stronger than the bursting strength of the cylinder 3. This is because the latex between the strip 15 and cylinder 3 holds by a shearing resistance
50 which is increased directly as the area of adhesion is increased, and the strength increases proportionately to this area. The fabric of the strip 15 holds by lateral tension and is at least
55 as strong as the fabric of the cylinder 3. Fur-

thermore, the strength of the adhesive between the areas 5 adds to the strength of the cloth of the cover strip 15.

From the above it will be seen that the supporting fin 7 is made of a double layer material integral with the material of the cylinder 3, which is conducive to simplified construction and at the same time ample strength is maintained by the simple application of the separate internal cover 15. Inasmuch as no stitching is used, all leakage at needle holes and decay of thread is eliminated.

In Fig. 3 is shown a modified form in which like numerals designate like parts. In this modification has been inserted a central strip 17 between the areas 5 for the purpose of providing a greater depth of material wherein the grommets 9 may be fastened and also providing a stiffer construction for the supporting fin 7, taken as a whole. The strip 17 is adhered to both areas 5.

In Fig. 4 the number of layers of cloth in the fin 7 has been increased to four by applying to the form of Fig. 2 a U-shaped cover strip 19. Cement is applied between the internal portion of the U-shaped strip 19 and the outsides of the areas 5. This modification not only provides a further depth of material within which to fasten the grommets 9 and further stiffening of the supporting fin 7, but also a protective covering for the otherwise raw upper edges of the areas 5.

In Fig. 5 is shown a method of obtaining four thicknesses of material for the purposes above described, and elimination of raw edges, without a separate outside cover strip. This is done by turning back the areas 5 to form into U-shapes 21 so that the material which goes to increasing the thickness of the strip 7, and consequently its strength, is also integral with the material of the cylinder 3. The cement 11 is used internally of the U-shape to maintain a rigid construction for the strip 7.

In each of the modifications of Figs. 3, 4, and 5, the internal cover strip 15 is used for purposes analogous to those described and implied in connection with Figures 1 and 2.

It is to be understood that the hanger fin 7 may be suspended by means other than the grommets 9, for instance, by pinching clamps without the grommets, or by other methods. The

same advantages above described hold in respect to such other methods as hold with respect to said grommets 9.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As many changes could be made in carrying out the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

I claim:

1. Tubing comprising a strip of fabric having its longitudinal edge areas cemented together to form an outside longitudinal supporting fin, and an internal cover strip cemented to said fabric at interior regions adjacent to said areas which are adhered, adapted to resist the stresses caused by pressure in said tubing.

2. Tubing comprising a strip of fabric having its longitudinal edge areas cemented together to form a longitudinal supporting fin, an internal cover strip cemented to said fabric over the region at which said areas are adhered and adapted to resist the stresses caused by pressure in said tubing, and a U-shaped cover strip invertedly positioned over said supporting fin and cemented thereto.

3. Tubing comprising a strip of fabric having the opposite longitudinal edges folded upon themselves and adhered within the fold, the folded and adhered edge portions being juxtaposed and also adhered to form a fin, and a cover strip adhered internally of the resulting cylinder covering the region at which the fin is joined, and adapted to resist the stresses caused by pressure in said tubing.

4. Tubing comprising a longitudinal fabric strip, the opposite edges of which are juxtaposed flatwise, another strip centrally positioned between said juxtaposed edges, cement between the central strip and said edges, and an internal cover strip cemented within the cylinder thus formed and covering the inner edge of said central strip, and adapted to resist the stresses caused by pressure in said tubing.

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