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FOLDED FABRIC GASKET AND METHOD OF MANUFACTURE

Filed March 19, 1945

Fig. 1.

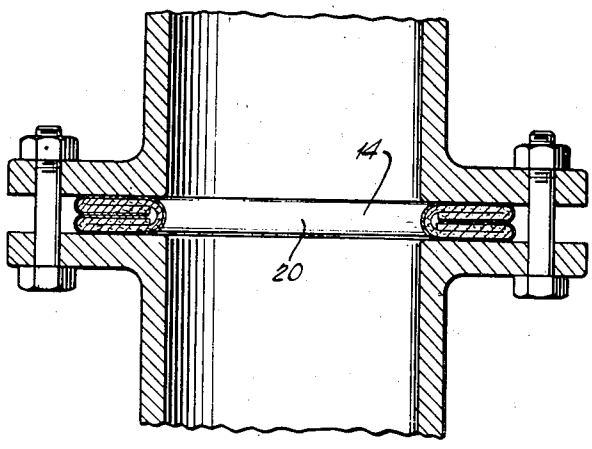
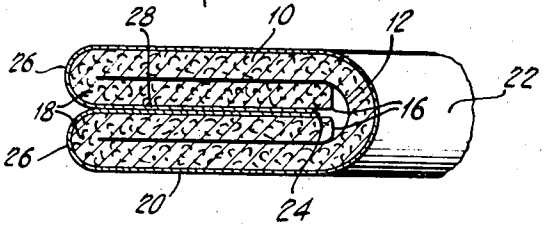


Fig. 2.



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FOLDED FABRIC GASKET AND METHOD OF MANUFACTURE

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2 Claims. (Cl. 288—33)

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This invention relates to a jacketed gasket, and particularly to a method of providing a folded fabric gasket with a thin, flexible casing or jacket of solvent and heat resistant material.

A primary object of the invention is to provide a folded fabric gasket with a thin, flexible jacket of insoluble heat-resistant material which cannot be applied by conventional coating methods.

The invention is particularly concerned with the problem of providing gaskets having the properties of heat resistance and softness or resilience which are inherent to the asbestos fabric type of construction, and which shall also be adapted to withstand the disintegrating action of strong chemicals. Certain synthetic plastics or elastomers are available in thin, flexible tape form which resist the action of all known solvents and chemicals, and which have softening or melting points above 500° F. Since such plastics are solvent resistant and substantially infusible, they cannot be applied practically by conventional coating, spraying or dipping methods.

A further object is therefore to provide a method whereby a thin, flexible ribbon or tape of chemical and solvent-proof plastic of high melting point may be applied as a protective jacket for the exposed surfaces of a felted fabric gasket.

A particular object is to provide a felted fabric gasket with a thin, flexible tape jacket which will protect the gasket against strong chemicals such as hot concentrated nitric acid, and which will not impair the resilient qualities of the gasket while providing the exterior exposed surfaces thereof with a non-adherent, non-tacky covering.

With the aforementioned objects and features in view, the invention consists in the improved jacketed gasket and method of manufacture which are hereinafter described and more particularly defined by the accompanying claims.

In the following description of a preferred form of the invention, reference will be made to the attached drawings, in which:

Fig. 1 is a transverse cross-section through a flange coupling which has been sealed by a jacketed folded fabric gasket embodying the invention; and

Fig. 2 is an enlarged cross section, with a part in elevation, of a small portion of a folded fabric ring gasket having a heat and solvent resistant, flexible tape jacket.

As shown in the drawings, the jacketed fabric gasket of the present invention may comprise a strip 10 of fibrous fabric having its ends joined to form a collar and folded along its center line 12 and rolled to form a ring 14. The edges 16 of

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the strip may be folded inwardly as at 18. The folded fabric ring is protected against contact with corrosive or hot liquids or vapors by a thin jacket 20 comprising a flexible tape of heat and solvent resistant material having its ends joined. The jacket tape is also folded along its center line 22, and its edges 24 are folded inwardly at 26 in lapped joint relation between the lapped inside surfaces of ring 14.

One type of flexible material suitable for forming jacket 20 consists of a highly polymerized synthetic resin, tetrafluor ethylene polymer, which resists all known solvents and chemicals and which is available in the form of a flexible tape of 3 inch width and .003 inch thickness. Since this material is insoluble, it cannot be used in the form of a solution or cement for coating the fabric gasket as by painting, spraying or dipping. Moreover, since this plastic material is highly heat resistant, and has a softening temperature above 500° F., it cannot be applied in liquid form or by conventional calendering or friction coating equipment. Certain kinds of flexible metal foil may also be used for forming the jacket.

For forming a ring shaped gasket such as illustrated in the drawings, a strip 10 of woven asbestos fabric may be impregnated or otherwise treated with a rubber or with a synethetic resinous material. The thus-treated fabric strip may be cut on the bias to the length and width found necessary by experience to produce a folded fabric ring gasket of the type illustrated. The bias cut ends of the fabric strip are joined and rolled to form a cylindrical collar and the first outward folds 18 are made to bring the edges 16 into spaced relation with a spacing between them of about twice the fabric thickness. A strip of plastic tape 20 of suitable length is now coated on one side with an adhesive cement, and after a proper drying period the cement coated side of the tape is applied longitudinally to the inner surface of the fabric collar, with the lateral edges 24 of the plastic tape overhanging by approximately equal amounts on each side of the center line 12 of the folded fabric collar. The ends of the plastic tape are joined in a lap joint, and a coating of adhesive is applied to an area of the joined ends which will fold against the body of the gasket. After a suitable drying period, the ends of the tape are cemented to the body of the gasket. The edges 24 of the tape are folded against the folded lapped surfaces of the fabric collar and a coating of adhesive cement may be applied to the outer surfaces 28 of the folded

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portions of the tape to adhere such surfaces in a lapped joint. The thus folded fabric collar, and its adhering folded tape jacket are again folded along the central line of the collar in such a manner that the folded lateral edges of the fabric and the laterial edges of the plastic tape are lapped and cemented together and concealed in the central body portion of the gasket. The jacketed ring gasket thus formed may be finished in a conventional manner, as by rolling and blocking. In this manner a folded four ply gasket of 5½ inch inside diameter and 7 inch outside diameter may be jacketed by a plastic tape which is 3 inches in width and has a length of 22 inches.

The jacketed gaskets of the present invention may be made of any suitable fibrous sheet material, but are preferably constructed of woven asbestos fiber fabric saturated or impregnated with rubber or synthetic rubber. The jacket tape and the fabric gasket may be firmly secured together by the use of rubber cement or by the use of any other appropriate adhesive material. The invention is not limited in application to folded ring gaskets, since the gesket material and the jacket may be made up into gaskets of rectangular as well as curved form.

When the principal central rolled fold 12 of the gasket and its encasing jacket lie on the inside diameter of the ring as shown in Fig. 1, the gasket is fully protected from attack by hot gases or liquid, such for example as hot concentrated nitric acid. The illustrated assembly of the jacketed gasket is such as to seal off any portions thereof which might be vulnerable against contact with gases or liquids flowing through the pipe joint.

Since many variations may be made from the illustrative details given, without departing from the scope of the invention, it is intended that the invention should be limited only by the terms of the claims.

What I claim is:

1. A gasket comprising a fibrous fabric strip having its ends joined and having each lateral edge folded outwardly at one side thereof to form a ring, a thin flexible heat and solvent resistant tape of polytetrafluor ethylene having one surface thereof coated with adhesive and affixed longitudinally to the inner surface of the ring, the lateral edges of said tape being folded in lapped relation with the lapped outer surfaces of the fabric ring, the thus-jacketed ring being again folded along its center line and rolled to form a multiple ply ring gasket.

2. That method of forming a heat and solvent resistant ring gasket which comprises, joining bias cut ends of a fibrous fabric strip to form a cylindrical collar and folding both edges of the collar outwardly at one side thereof to form a ring, affixing one surface of a thin flexible heat and solvent resistant tape to the inner surface of the ring and folding the edges of the tape in lapped relation with the lapped outer surfaces of the fabric ring, and again folding the thus-jacketed fabric ring along its center line and rolling it to form a multi-ply ring gasket.

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