March 18, 1958 L. W. H. PEARCE 2,827,319

PACKING

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Fig. 1.

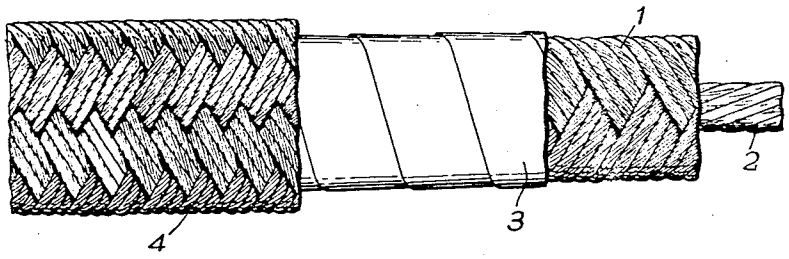
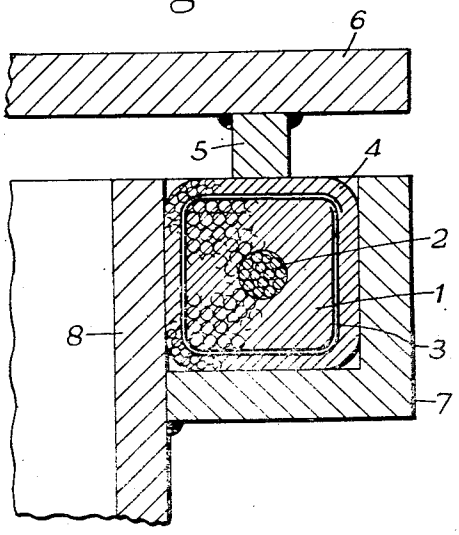


Fig. 2.



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PACKING

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1 Claim. (Cl. 288—20)

This invention relates to packings of the kind which are adapted to be compressed between opposing surfaces and which comprise a core of any suitable material, and an outer covering which is capable of providing a leak-proof seal between said opposing surfaces.

A well known form of packing of the above kind is used as a tank lid packing for sea-going tankers and comprises a central core manufactured from plaited jute yarn impregnated with tallow. This is enclosed by a braided covering of the same material which is impregnated with a grease that is resistant to hydrocarbons and, to a lesser degree, also to sea-water.

In practice it is found that after a relatively short period of use the packing as above becomes non-resistant to both petroleum spirit and sea-water, and allows the petroleum spirit to seep outwards through the body of the packing and sea-water to pass inwards in the same manner.

The object of the present invention is to provide a means in a packing of the above kind which will render the core impervious to any liquid thereby rendering it unnecessary to impregnate the core with tallow and possibly to employ a cheaper material for the core.

Broadly the present invention consists of a packing having interposed in its thickness a resiling barrier composed of one or more layers of thin metal or other suitable material that is impervious to hydrocarbons, sea-water and other liquids said barrier being adapted to prevent said liquid from seeping through the thickness of the packing.

In a packing according to the present invention the impervious barrier is resiling and may be of white metal, suitable alloys, suitable plastics, synthetic or natural rubber or any other suitable material according to the nature of the liquid to which it is required to be resistant.

The core may also be composed of any kind of fibre for example, jute, hemp, asbestos, nylon or other plastic or natural or synthetic rubber, in solid or sponge form and either vulcanised or unvulcanised.

The material composing the outer cover is chosen according to the nature of the opposing surfaces between which it is required to provide a leak-proof seal. For example, if the surfaces are rough and irregular it is advisable to use a textile such as cloth or braided or plaited jute, hemp or asbestos. In other circumstances the cover may be made from a less yielding material such as relatively soft metal or one of the plastics.

Similarly if the core and/or the cover is or are required to be impregnated this may be effected with any suitable form of grease or oil or by the use of solutions or emulsions of rubber or one of the plastics.

According to one practical embodiment the impervious barrier is formed by winding spirally around a preformed core a white metal tape .003" thick, in such manner as to produce one or more layers with, approximately, a 50% overlap of the windings of successive layers, the application being preferably effected by winding on one layer in one direction and the next layer in the opposite direction. The thickness of the barrier thus formed by the application of two windings is approximately .012". This metal barrier is then enclosed by a cover consisting of one or more layers of a material which is capable of providing a leak-proof seal between the opposing surfaces by means of which the packing is compressed and also of protecting the impervious barrier against damage by said opposing surfaces.

Instead of forming the barrier by spirally winding onto the core one or more lengths of material in the form of a tape such barrier forming material may be applied for each layer in the form of a sheet with the long edges of each sheet in, preferably, overlapping engagement with or without a joint or in the form of a continuous sheet by an extrusion process.

In the preferred construction the outer cover enclosing the barrier has a thickness which is substantially less than the thickness of the core. For example in a packing in which the core is 1¼" thick, the outer cover may be ⅛" thick or even less.

In order that the invention may be clearly understood and carried into effect a packing according to the above embodiment of the present invention and constructed for use principally as a seal for the tank lids of sea-going tankers will now be described, by way of example, by aid of the accompanying drawings in which:

Fig. 1 is a view in elevation of a section from a complete length of packing showing portions of the inner and outer wrapping removed to expose the thin metal or other barrier sheath of the present invention.

Fig. 2 is a cross section through a typical tank flange and lid of a sea-going tanker with the improved packing in position to effect a seal.

The packing illustrated in the drawings is composed of a central core 1 consisting of plaited jute yarn surrounding an inner rope-like core 2, said plaited jute yarn being built up to form a body of rectangular or other required section.

The central core 1 thus formed is enclosed by winding spirally around it a thin white metal tape in such a manner as to provide an impervious resiling barrier 3 in which each spiral turn overlaps the other by approximately 50% throughout the length of the packing.

If required a further layer of thin white metal tape may be applied to the first layer by winding the same spirally around it in the opposite direction so that one layer is applied by winding in one direction and the other layer is applied by winding in the opposite direction.

The impervious barrier 3 thus provided is then enclosed by a wrapping 4 composed of one or more layers of a material, for example plaited jute or asbestos, capable of providing a seal against free leakage between the opposing surfaces by means of which the packing is compressed. In the example illustrated in Fig. 2 these surfaces consist of a narrow annular flange 5 depending from the underside of the tank lid and the inside walls of an annular channel formed by a projecting section 7 around the upper edge of the walls of the tank.

As will be seen from an examination of Fig. 2 in the drawings free leakage of liquid from the tank to the outside of the lid around the outer peripheral surface of the packing is prevented by the aforesaid sealing contacts whilst seepage through the thickness of the packing in both directions is prevented by the impervious barrier 3.

I claim:

A packing for use in forming a liquid hydrocarbon and sea water impervious gasket between a container and its closure, comprising an elongated relatively small

cross section rope-like inner core, a relatively thick preformed central core enclosing said inner core and comprising compressible plaited fibrous material; at least two superposed layers of relatively thin flexible sheet metal wrapped around said central core with a substantially 50% overlap, and in two reversely wound spirals, and an outer wrapping enclosing said metal layers and comprising at least one layer of plaited compressible fibrous material.

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