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INFLATABLE PACKING INSERT

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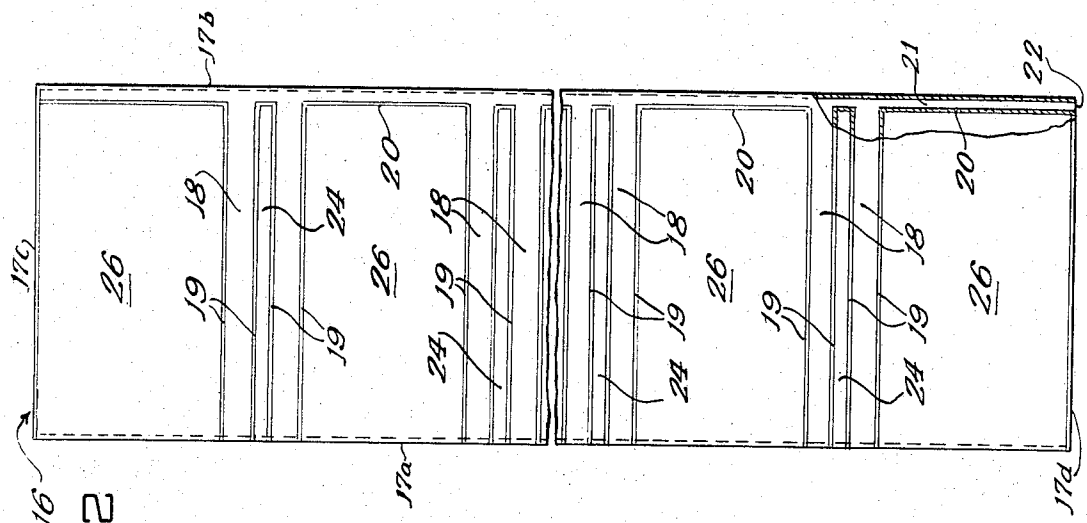


FIG. 2

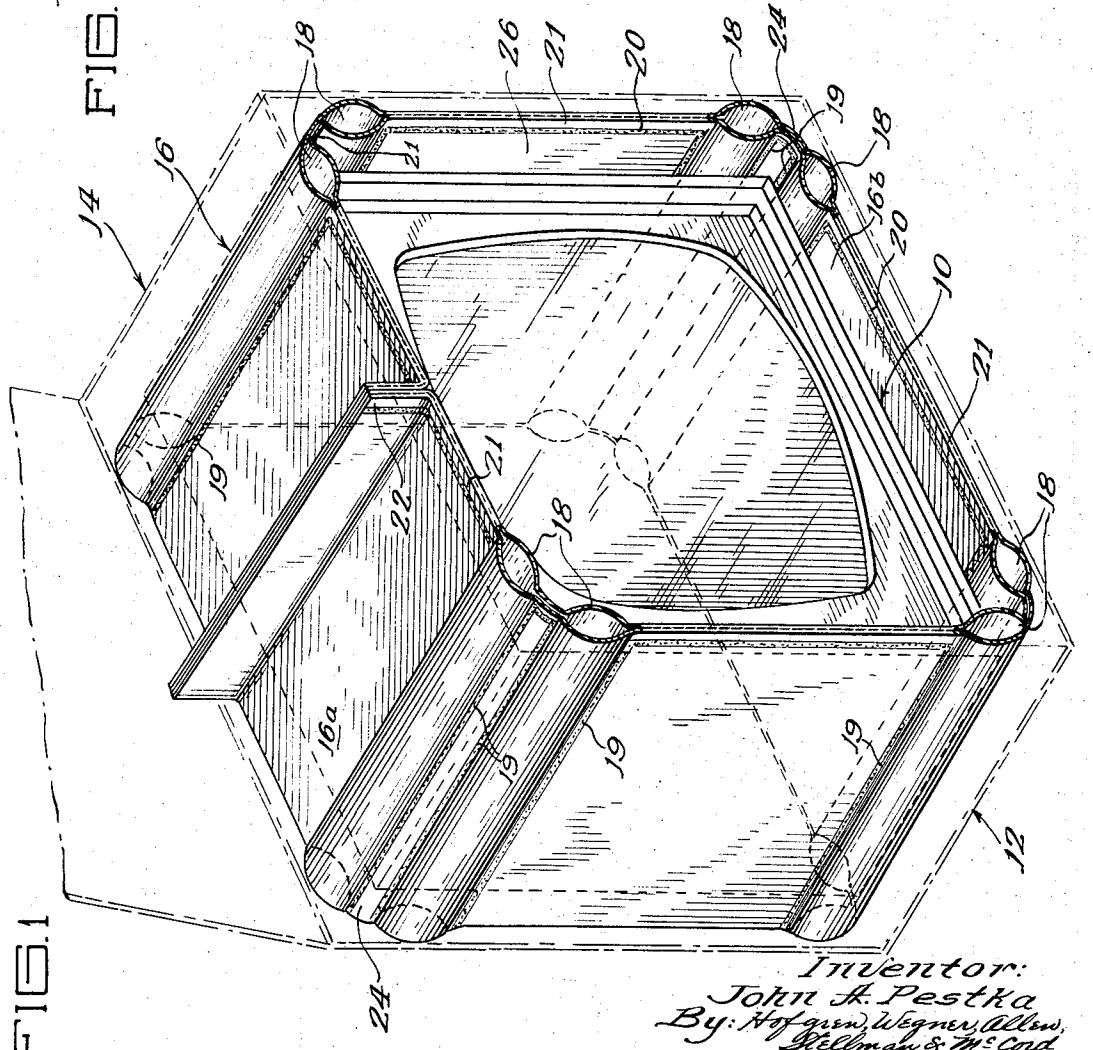


FIG. 1

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INFLATABLE PACKING INSERT

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ABSTRACT OF THE DISCLOSURE

An inflatable packing insert for protecting a heavy article in a shipping container against shock comprising a sleeve-like member with spaced inflatable cells disposed to lie adjacent the corners of the article so as to protect the article without being pinched thereby. Also, the fluid inflation passage is disposed along one edge of the sleeve-like member so as to normally lie outside of the article being protected.

This invention relates to packing inserts and more particularly to a new and improved form of an inflatable carton packing insert.

It has long been recognized that to safely ship and store certain articles, particularly appliances, it is necessary to package the articles in such a manner as to virtually eliminate any movement of the article relative to its container as well as to substantially eliminate any shock which may occur due to abusive and hard, abrupt handling of the carton. One of the currently popular forms of packaging utilizes expanded foam plastic inserts having interior portions which mate with portions of the periphery of the package article and exterior portions which mate with portions of the carton which serves as the enclosure. Relatively little work has been done in the field of inflatable packaging inserts although it has been known to provide cushioned or inflatable wall members in vehicular bodies such as trucks, railroad cars and the like.

Whereas the expanded foam inserts fairly securely hold the packaged appliance against movement relative to the carton, shock resultant from abrupt movement of the carton is readily transmitted to the article itself. Inflatable or partially inflatable packaging means have the advantage of absorbing some of this shock. Moreover, the expanded foam inserts require proper registration and then assembly on the appropriate exposed portions of the article to be packed and often prior insertion into the carton itself.

This invention is directed to the provision of an elongate member having spaced inflatable air cells constructed and arranged so that the member may be wrapped around an article, inserted in the interior of a packing carton and then air under pressure may be applied to inflate the spaced air cells so as to securely hold the appliance or article in the carton and provide a means for absorbing shock due to abrupt movement of the carton.

It is therefore a primary object of this invention to provide a new and improved packaging means.

It is a general object of this invention to provide a new and improved inflatable packing insert for holding and protecting an article in the interior of a shipping carton against relative movement and abrupt motion and shock.

It is a further object of this invention to provide such an inflatable packing insert which is economical to produce, light in weight, may be easily handled, and occupies a minimum of storage space.

Other objects, features and advantages of the present invention will be apparent from the following description of the preferred embodiments illustrated in the accompanying drawings, in which:

FIGURE 1 is an isometric view, partially in section, showing the inflatable packing sleeve of this invention wrapped about an article in the interior of a packing carton; and

FIGURE 2 is a broken top plan view, partially in section, of the inflatable packing sleeve of this invention spread out flat in a storage condition prior to use.

As shown in FIGURE 1, an article to be shipped or packed, such as the appliance or television receiver **10**, is positioned within a packing assembly **12** including a conventional box-like carton **14** of suitable material, such as heavy cardboard or the like. Inflatable member or packing insert **16** of this invention is wrapped about the appliance **10** in a sleeve-like manner to hold the article suspended from the side walls of the carton, thereby protecting the article against shock and abuse normally incident to shipping and storage of such packages.

Member **16** is preferably made of a suitable plastic or other synthetic material and may be formed by superimposing two plies **16***a* and **16***b* of sheet material and heat sealing or otherwise securing the plies along the borders **17***a*–**17***d* thereof. Fluid or air cells **18** are formed by sealing the plies along transverse lines **19** and along a generally longitudinal line **20** (interrupted at transverse lines **19**) which provides a fluid passage **21** communicating with the several cells having an open intake end **22**. Air cells **18** are arranged so as to be positioned adjacent the corners of the article **10** when the member **16** is wrapped about article **10**, in a sleeve-like fashion, as shown in FIGURE 1. Member **16** might also be formed from a continuous sleeve of material, requiring sealing only at the ends **17***c* and **17***d* and along lines **19** and **20**.

FIGURE 1 is partially broken away in section in the areas of the ends of cells **18** to show the tubular nature of the cells and passage **21** which communicates therewith. The fluid cells are preferably formed in pairs with the two cells forming each pair separated by a small space **24** so that the cells **18** may be positioned on each side of a corner of an article enclosed within the member **16**. The pairs of cells, in turn, are separated by relatively large spaces **26** which generally dimensionally correspond to the sides and top and bottom of the appliance being enclosed.

Member **16** may be formed in several sizes to accommodate different sized articles. Thus the width of the member **16** may differ as well as the dimension of the panels **26** between the pairs of cells. In addition, the relative dimension of the air cells and the dimension of the narrow panels **24** between each of the air cells could also differ. It is possible that an appliance **10** which is relatively undersize for member **16** which is available could still be packed therein so long as the cells **18** were positioned adjacent the several corners of the appliance. The intermediate panel sections **26** would have folded portions therein, but this would be of no moment except for factors of neatness which would be incidental where the appliance was to be packed within a shipping carton **14**. Moreover, if the member **16** were not large enough for the article **10** with which is was to be used, two such members **16** could be used so long as they were positioned about the periphery of the article **10** in such a fashion that some of the cells **18** embraced the corners of the article.

In use, member **16** may be positioned in the interior of the carton so that one panel **26** extends across the bottom of the carton, or the sleeve may first be wrapped around an article **10** and inserted into the carton about the article. In either event, once the article is within the carton and the member wrapped thereabout, fluid, preferably air under pressure, may then be applied through intake opening **22** and fed to the several cells **18**, inflating the same until such time as the cells **18** resist further intake of air under pressure. At this point, the cells are substantially wedged between the corners of the article **10**

and the interior of the carton **14** to thereby securely hold the article within the carton. Moreover, the cells provide a cushioning effect in that the air is relatively displaceable within each of the cells responsive to the expected shock associated with shipping and storing of such cartons **14**.

Once the member **16** has been wrapped around the article **10** and inserted into the carton, the application of fluid, such as air, inflates the cells as aforedescribed. When inflation is completed, the intake **22** may be closed off by suitable means such as heat sealing, to permanently retain the fluid in the cells and form the protective packaging element as described. If desired, an inflation valve could be provided at intake **22**.

It is to be noted that fluid passage **21** is preferably formed along one edge of the member so as to normally lie outside of an appliance **10** or article about which it may be wrapped. In this manner, pinching of the passage **21** which could occur around the corners of the appliance is eliminated so that inflation of the cells **18** may be accomplished after the appliance has been inserted into the carton without any obstructions in the fluid line. Furthermore, spacing between the appliance and the inside wall of the carton which is the usual manner of packing appliances or the like provides room for the passage **21** to expand upon inflation of cells **18**.

This inflatable packing member lends itself very suitably to storage and use in that it may be stored in a substantially flat condition as illustrated in FIGURE 2 and yet is extremely light in weight, facilitating handling thereof. The amount of effort necessary to wrap the member **16** about an article to be packaged requires less effort than is necessary to locate and secure expanded foam inserts in similar packaging operations. The structure of the packaging insert itself is extremely simple consisting merely of two plies of a suitable plastic material or the like which are heat sealed in discrete areas to form the passage and cells making it economical to produce and easy to use.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, as some modifications may be obvious to those skilled in the art.

I claim:

1. A packing insert for protecting an article having intersecting surfaces defining edges within a packing carton, comprising: a generally flat, elongate member having a width and a longitudinal extent, said member including a plurality of spaced fluid pockets arranged in spaced pairs at spaced intervals along the extent of the member, thereby being constructed and arranged to lie adjacent the corners of an article about which the member is to be wrapped in a sleeve-like fashion; and fluid passage means in said member in communication with said pockets and with the exterior of the member for providing an access means for inflating said pockets so that an article wrapped within said member may be held suspended interiorly thereof in a shock-absorbing manner.

2. The packing insert of claim **1** wherein said pockets extend across the width of the member at longitudinally spaced intervals.

3. The packing insert of claim **1** wherein each pocket of each pair is closely spaced from the other pocket, and each pair of pockets is relatively widely spaced from another pair of pockets.

4. The packing insert of claim **3** wherein the number of pairs of pockets formed corresponds to the number of corners of the article about which the insert is to be wrapped.

5. The packing insert of claim **3** wherein the member comprises two plies of sheet material held together along longitudinal and transverse lines to define the pockets and fluid passages.

6. The packing insert of claim **3** wherein said fluid passage means of said member is disposed adjacent one longitudinal edge of the member so as to normally lie outside of the article being protected by the insert.

7. In combination with a generally rigid packing carton and an appliance-like article packed in the carton for shipping purposes, the article having a plurality of intersecting surfaces defining corner-like edges, a packing insert for protecting the article within the carton, comprising: a generally flat, elongate member having a width and a longitudinal extent, said member including a plurality of fluid pockets arranged in spaced pairs at spaced intervals along the extent of the member, thereby being constructed and arranged to lie adjacent the corners of an article about which the member is to be wrapped in a sleeve-like fashion; and fluid passage means in said member in communication with said pockets and with the exterior of the member for providing an access means for inflating said pockets so that an article wrapped within said member may be held suspended interiorly thereof in a shock-absorbing manner.

8. The packing insert of claim **7** wherein each pocket of each pair is closely spaced from the other pocket, and each pair of pockets is relatively widely spaced from another pair of pockets.

9. The packing insert of claim **7** wherein said fluid passage means of said member is disposed adjacent one longitudinal edge of the member so as to normally lie outside of the article being protected by the insert.

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