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PATENT SPECIFICATION

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(54) INTERNAL LOAD SUPPORTING MEANS FOR CONTAINERS

(71) I, FRANCIS EDWARD TATTAM, a British subject of Neild House, Beamond End, Near Amersham, Buckinghamshire, do hereby declare the invention for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention concerns internal load supporting means for boxes, cases and other containers for carrying loads.

It is frequently necessary to carry in cases large and heavy objects over long distances by means of the usual methods of transportation, e.g. road transport or rail transport. In such conditions the case is exposed to vibration and tilting movements. Hence the case must be strong enough to withstand the sudden impact against its internal walls of the heavy object or objects being transported or, alternatively, the object(s) must be rendered immobile in a reliable manner. Furthermore, heavy objects such as castings not infrequently have sharp edges or projections so that, if not held immobile, the sharp parts could easily damage the inside of the case and render it unsuitable for further use.

Various expedients have been employed in the past for overcoming the above-mentioned problems but they have been either expensive and/or complicated and/or have not fully succeeded in protecting the case for subsequent re-use.

The present invention seeks to overcome the above problems by simple means which, moreover, is economic in use and reliably protects the box or case against damage.

According to the invention, there is provided internal load supporting means for a container, comprising a plurality of internal support members, to be disposed within and supported by the container, each said member being in the form of a generally U-shaped strip, the base of the U being dimensioned so as to extend in a plane parallel with that of the base of the

container, each limb of the U being formed with an outwardly turned generally hook-shaped flange dimensioned for closely fitting around the top internal and external surfaces of the top edge of the side wall of the container and for bearing against the outer surface of the said side wall each said limb being shorter than the height of the side walls of the container so that the base of the U is spaced above the base of the container when said flanges engage the top edges of the side walls, the said members being in use spaced apart so as to form a suspended lattice of such members.

In this way, by fitting the hook-shaped flanges on the side walls of the container and by dimensioning the length of the limbs of the generally U-shaped strips to be shorter than the internal walls of the container against which they bear in use, there results, in effect, a suspended lattice which can either be used by itself simply to provide limits for movements of any article positioned between two of said members, or it may be used to support a planar false bottom sheet which can receive the object(s) to be transported, or which can be apertured centrally to receive the said object(s) to provide a movement-limiting means.

Preferably, in the case of a parallelepipedal container, there are at least four such strips, laid in pairs at right angles to each other to form a lattice-like structure. Of course the actual numbers may be chosen to suit the application, so that there may e.g. be a 3x3 array or a 2x3 array of generally U-shaped strips.

The strips are preferably made of metallic material in which case the natural resilience of the material aids in the tight fitting of the hoods at the top edges of the container and will also assist in the secure positioning and holding of the article to be transported.

A preferred embodiment of the invention will now be described with reference to the

accompanying diagrammatic drawings, wherein:

Figure 1 is a schematic elevation of one strip member.

Figure 2 is a cross-section through a laminated box or case having a plurality of strip members according to Figure 1 as well as a false bottom, and Figure 3 is a plan view of a box utilising a lattice of strips, each as shown in Figure 1.

Referring to the drawings, Figure 1 shows a generally U-shaped metallic strip 10 having an elongated base 11 and two limbs or side members 12. The free end of each limb 12 carries an outwardly turned hook 13 bent into an inverted generally U-shape.

The generally U-shaped strip 10 of Figure 1 is adapted for use with a laminated case 15 shown in Figures 2 and 3. The base 11 is accordingly dimensioned to be of substantially the same length as the internal width of the case 15. The limbs 12 are, on the other hand so dimensioned as to fit against walls 16 of the case but are shorter than the latter so that in use the base of the strip is spaced from the base of the case. The gap between the resilient limbs of the inverted generally U-shaped hook 13 is such as to receive as a good fit the free upper edges of the side walls of the case 15. As can be seen in Figures 2 and 3 the generally U-shaped strips 10 are used to form a lattice structure which can then support, in a somewhat resilient manner, a false bottom 20. This false bottom may itself support an article to be carried or alternatively and preferably it may be provided with suitable apertures into which such articles may be fitted and thereby immobilized.

It will be appreciated that the structure shown in Figure 3 provides a simple yet economical and highly efficient means for absorbing impacts from any direction. Once a lid has been fitted to the box, the lattice structure is substantially immobilized and thus so also in any load carried by it. Any downward forces will be transmitted to the basis of the hooks and thus to the walls of the case and even if the lidded box or case is turned upside down the forces will be absorbed by the box or case structure. Sharp projections or edges on the article or articles being carried cannot do any damage to the box which

would therefore be suitable for multiple use.

Although the invention is in no way so limited, it is of particular use with the cases disclosed in my Patent Specification No. 1,437,719 and my copending application No. 17100/75 (Serial No. 1,517,312).

It should also be appreciated that it would be possible to provide a false ceiling, as it were, for the box in addition to the false bottom by providing strip members hooked on the bottom edges of the case before the bottom is put on, in which case the apertured false ceiling would be carried by the article and protection would be afforded even if the cases were turned upside down.

WHAT I CLAIM IS:—

1. Internal load supporting means for a container comprising a plurality of internal support members, to be disposed within and supported by the container, each said member being in the form of a generally U-shaped strip, the base of the U being dimensioned so as to extend in a plane parallel with that of the base of the container and between the side walls of the container, each limb of the U being formed with an outwardly turned generally hook-shaped flange dimensioned for closely fitting around the internal and external surfaces of the top edge of the side wall of the container and for bearing against the outer surface of the said side wall each said limb being shorter than the height of the side walls of the container so that the base of the U is spaced above the base of the container when said flanges engage the top edges of the side walls, the said members being in use spaced apart so as to form a suspended lattice of such members.

2. Internal load supporting means according to claim 1 wherein said strips carry a false bottom.

3. Internal load supporting means according to claim 1 or claim 2 wherein, for use with a parallelepipedal container, there are at least four such strips, laid in pairs at right angles to each other to form a lattice like structure.

4. Internal load supporting means according to any preceding claim wherein the strips are made of metallic material.



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25 It will be appreciated that the structure shown in Figure 3 provides a simple yet economical and highly efficient means for absorbing impacts from any direction. Once a lid has been fitted to the box, the lattice structure is substantially immobilized and thus so also in any load carried by it. Any downward forces will be transmitted to the basis of the hooks and thus to the walls of the case and even if the lidded box or case is turned upside down the forces will be absorbed by the box or case structure. Sharp projections or edges on the article or articles being carried cannot do any damage to the box which

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2. Internal load supporting means according to claim 1 wherein said strips carry a false bottom.

3. Internal load supporting means according to claim 1 or claim 2 wherein, for use with a parallelepipedal container, there are at least four such strips, laid in pairs at right angles to each other to form a lattice like structure.

4. Internal load supporting means according to any preceding claim wherein the strips are made of metallic material.

5. Internal load supporting means according to any preceding claim in combination with, and fitted into, a container.
- 5 6. Internal load supporting means substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

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