Nov. 8, 1966 E. ENGLISH, JR 3,283,891

PROTECTIVE PACKING APPARATUS FOR EASILY DAMAGED OBJECTS

Filed March 18, 1965 2 Sheets-Sheet 1

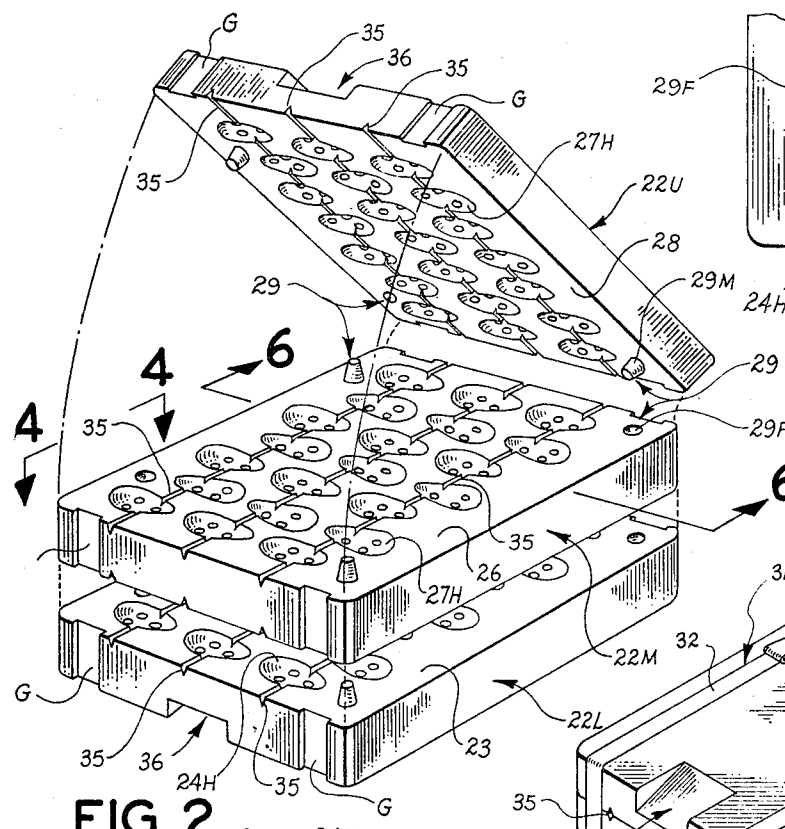


FIG. 2

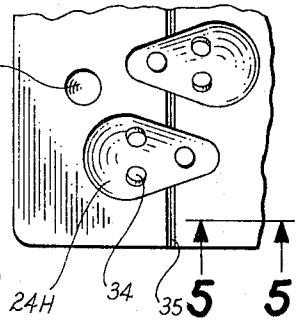


FIG. 4

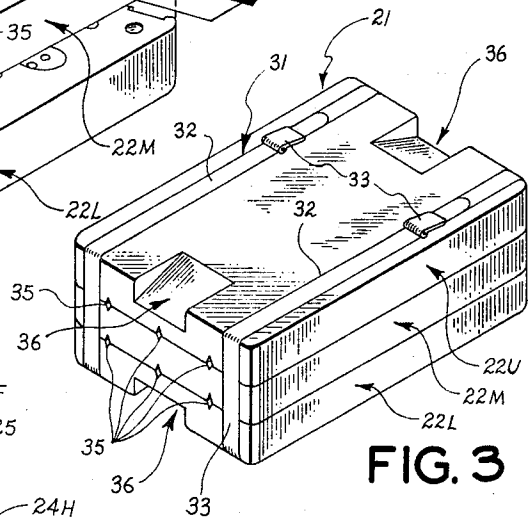


FIG. 3

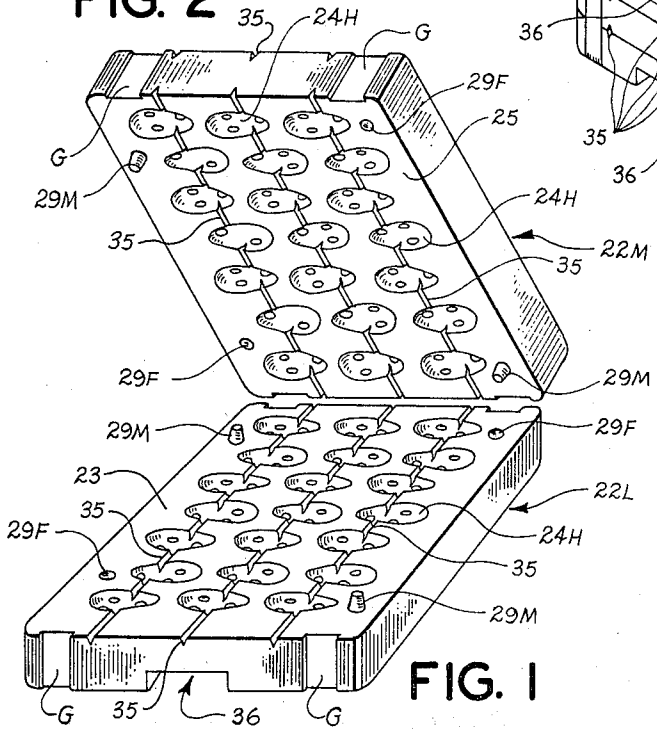


FIG. 1

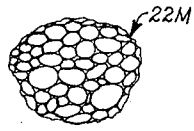


FIG. 5

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PROTECTIVE PACKING APPARATUS FOR EASILY DAMAGED OBJECTS

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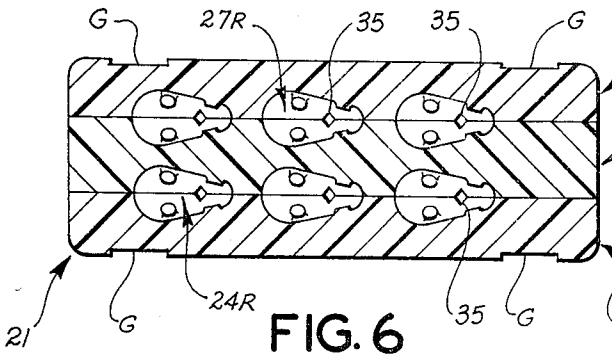


FIG. 6

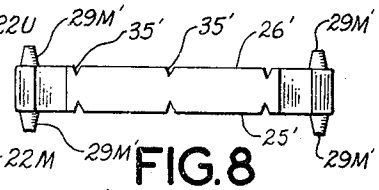


FIG. 8

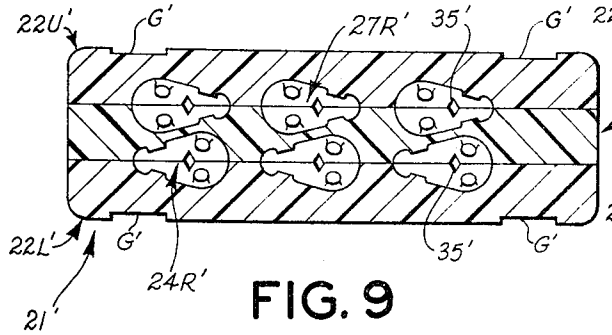


FIG. 9

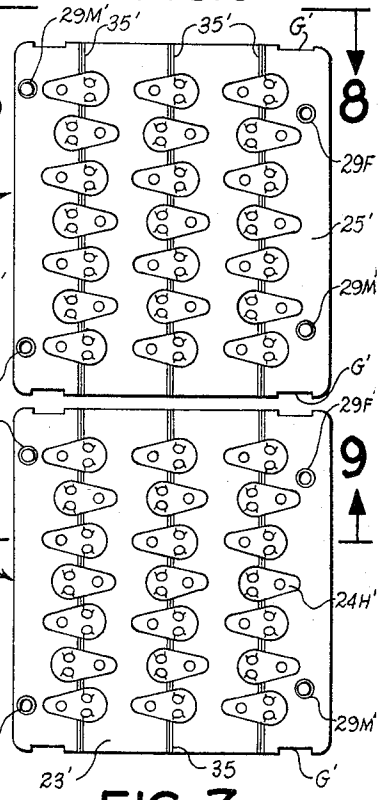


FIG. 7

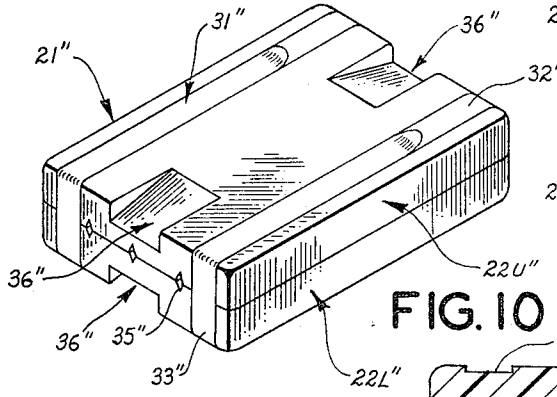


FIG. 10

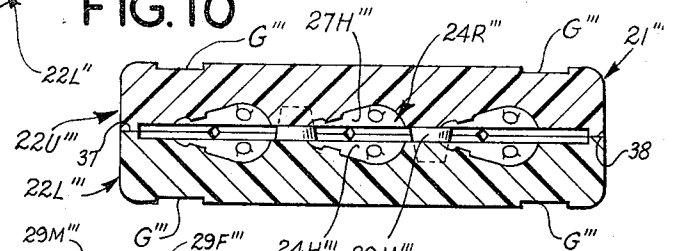


FIG. 12

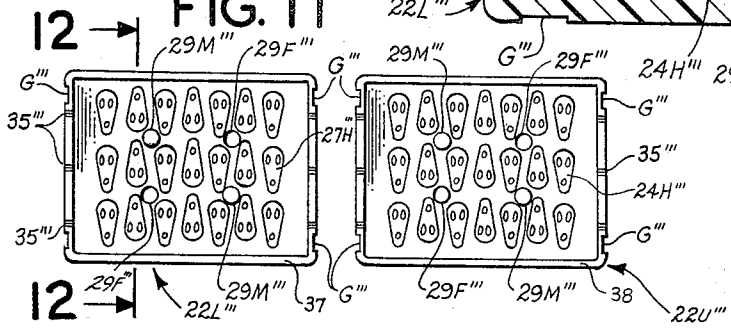


FIG. 11

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PROTECTIVE PACKING APPARATUS FOR EASILY DAMAGED OBJECTS

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12 Claims. (Cl. 206—65)

Generally speaking, the present invention relates to the packing and/or packaging art (the two words being used interchangeably herein) and, more particularly, pertains to an improved protective packing and/or packaging apparatus and means for substantially completely protecting normally easily damaged objects from damage during either subsequent storage or shipment, and this despite relatively rough handling which may be given to the packaging apparatus or means itself. In other words, the novel apparatus of the present invention acts to very effectively isolate easily damaged objects from undesirable exterior environmental conditions so as to maximize the chances of the objects being in good condition when subsequently removed from the protective packaging apparatus and means of the present invention.

In one application of the present invention, it may be intended for protecting easily damaged objects such as perishable food objects or the like, although the invention is not specifically so limited in all forms thereof. In this particular application of the invention it will be found that the packaging of fruits and vegetables for shipment from a packing house or the like to a point of ultimate sale and utilization thereof normally requires that the food objects travel a very substantial distance, which requires a considerable period of time. It is during this period of time that the food objects may be very easily injured or damaged by bruising, crushing, or the like, during the multiple handling thereof which is required in first loading a truck or railroad car with the food objects (usually in various different types of prior art containers) and then in subsequently removing same from the truck or railroad car when a desired destination is reached. Sometimes this multiple handling occurs several times before a final destination is reached and this greatly increases the chances of the easily bruised or crushed food objects being injured to a degree such that when they are finally ready for display and sale to a retail purchaser, severe bruises or the like, or other visibly observable damage may have occurred to the food objects, which will render them virtually unsaleable.

Some degree of deterioration-minimization is now accomplished with respect to such food objects by refrigerating the vehicles transporting same. However, this only slows down rotting, bruising, and crushing damage because of the fact that lowered temperatures slow down the rate of natural decay and decomposition processes.

However, the damage caused by bruising and crushing, which results from lack of physical protection for the easily damaged food objects, can only be provided by the type of packaging employed, and at the present time prior art packaging has serious disadvantages which may be roughly said to fall into two different categories as briefly described hereinbelow.

First, there is the type of prior art packaging for such easily damaged food objects which consist of very sturdy, structurally strong, outer containers often provided with compressible padding or filler material of one kind or another therein around each of a plurality of easily damaged food objects. In some cases, inner structural reinforcing at various locations and/or levels throughout such a structurally strong outer container of fairly substantial size may be provided. Packaging and containers in this category may be said to be reasonably effective for

protecting such perishable food objects, or the like, from crushing and bruising but are quite expensive and, additionally, cannot be reused very many times without substantial breakage and, therefore, substantial replacement of major portions thereof, which further adds to the overall cost of this type package or container.

The second category of the prior art containers and packages for perishable food objects referred to above may be said to be relatively inexpensive but to be also very ineffective from the standpoint of adequately protecting such perishable food objects from bruising and crushing injuries or the like. This category includes containers such as bags, and the like, large volume relatively non-stiff containers of various kinds, bulk shipment, and, in general, arrangements wherein the perishable food objects are not encased in a rigid structurally strong manner by a very highly protective outer container or package which will very substantially isolate the inner perishable food objects from all exterior impact and loading forces which the container may receive.

The novel protective packaging apparatus and means of the present invention substantially completely eliminates and overcomes the disadvantages of both of the above-mentioned prior art types of packaging and container arrangements for such perishable food objects. In other words, the novel packaging apparatus and means of the present invention provides very positive and highly effective protection from crushing, bruising, or the like, for such perishable food objects in a manner even superior to the first above-mentioned prior art type of packages and containers and yet does so in a manner which is extremely inexpensive.

With the above points in mind, it is an object of the present invention to provide novel protective packaging apparatus and/or means for one or more easily damaged objects and adapted to very positively isolate said one or more objects from exterior environmental conditions, with particular reference to exterior impact and loading forces applied to the packaging apparatus and also with respect to vibratory forces applied thereto.

It is a further object of the present invention to provide packing apparatus and means of the character referred to in the preceding object which additionally includes compressible pad means (at least two and, in certain cases, a substantially greater number thereof) which are placed in aligned registration and fastened in said relationship with the easily damaged objects, or perishable food objects, positioned between said compressible pad means in mating half recess portions, thus effectively isolating and separating each easily damaged object of a plurality thereof from each other and, in one preferred exemplary form, being of a nature such as to provide a large amount of hysteretic losses and, therefore, optimum damping for the minimization of any possible vibration-caused damage to said easily damaged objects positioned therein.

It is a further object of the present invention to provide packing apparatus and/or means of the character referred to above, wherein the compressible pad means are formed of expanded-cell foam type material which not only comprises a very effective vibration isolator and shock damage preventer but which may also provide, in those forms of the invention where such is desired, high-efficiency thermal insulating means whereby to provide thermal isolation in addition to mechanical isolation to said easily damaged objects.

It is a further object of the present invention to provide packaging apparatus and means of the character referred to above, intended primarily for packaging and protecting from deleterious environmental conditions

easily damaged objects comprising perishable food objects or the like.

It is a further object of the present invention to provide apparatus of the character referred to in the preceding object, provided with appropriately positioned ventilation aperture means for facilitating heat transfer and/or ventilation for use in packaging those forms of perishable food objects wherein decay will be minimized by an initial quick chilling and/or a measure of ventilation.

It is a further object to provide packaging apparatus and/or means having the advantages referred to herein and including the features referred to herein, generically and/or specifically, and individually or in combination, and which is of extremely simple inexpensive construction adapted for large scale mass manufacture at very low cost whereby to be conducive to widespread use thereof.

Further objects are implicit in the detailed description which follows hereinafter (which is to be considered as exemplary of, but not specifically limiting, the present invention), and said objects will be apparent to persons skilled in the art after a careful study of the detailed description which follows hereinafter.

For the purpose of clarifying the nature of the present invention, several exemplary embodiments of the invention are illustrated in the hereinbelow-described figures of the accompanying single drawing sheet and are described in detail hereinafter.

FIG. 1 is a reduced-size, three-dimensional view illustrating the lower compressible pad means and the intervening or middle compressible pad means of one exemplary three-pad form of the invention. The purpose of the open relationship of the bottom and intervening or middle compressible pad means in this view is to clearly show the details of the upper surface of the lower compressible pad means and the lower surface of the intervening or middle compressible pad means, and the alignment and registration means, prior to the positioning of perishable food objects, such as avocados, in the mating half recess portions and prior to vertical superimposition of the intervening or middle compressible pad means on the bottom compressible pad means. In other words, this view is a pre-assembly fragmentary view of the complete three-pad form of the invention.

FIG. 2 is a three-dimensional view very similar to FIG. 1, although viewed from a very slightly different vantage point than FIG. 1 and also drawn to a very slightly larger scale than FIG. 1. Additionally, it should be noted that the opened-up intervening or middle compressible pad means of FIG. 1 has now been swung downwardly into a substantially superimposed but very slightly vertically upwardly spaced immediately pre-assembly relationship with respect to the lower compressible pad means and, additionally, the third or upper compressible pad means (not shown in FIG. 1) is shown in FIG. 2 in an opened-up pre-assembly relationship with respect to the top surface of the intervening or middle compressible pad means. This arrangement is for the purpose of clearly disclosing all details of the top surface of the intervening or middle compressible pad means and bottom surface of the upper compressible pad means and the corresponding alignment and registration means prior to being placed in vertically assembled relationship with perishable food objects, such as avocados or the like, in the recess means defined by the mating half recess portions, and in a closed, fastened, and locked relationship such as is shown in FIG. 3.

FIG. 3 is a three-dimensional view, generally similar to FIGS. 1 and 2, but shows the three compressible pad means in fully vertically assembled, fastened, and locked relationship suitable for shipment or storage, usually with the recess means therein carrying corresponding avocados or other perishable food objects, although it is possible that the containers might be shipped or stored empty in the assembled closed relationship shown in FIG. 3.

FIG. 4 is an enlarged, fragmentary top plan view taken generally in the direction of the arrows **4—4** of FIG. 2, and illustrates the interior detail of a representative pair of the mating recess means half portions and of the projecting fingers carried therein which mount the corresponding avocados, or other perishable food objects, in slightly spaced relationship with respect to the walls of the recess means so as to provide an effective air spaced thereabout.

FIG. 5 is a greatly enlarged, fragmentary, cross-sectional view, taken substantially on a representative plane such as is indicated by the arrows **5—5** of FIG. 4, and is merely for the purpose of illustrating the fact that the material of the plurality of compressible pad means preferably comprises a compressible expanded-cell type of foam material, such as polystyrene foam, polyurethane foam, or the like, although not specifically so limited, which is sufficiently rigid to provide positive protection for the interiorly contained easily damaged food objects, such as avocados or the like, and, therefore, may be said to provide effective vibration and shock isolation means and which, in certain forms of the invention (where such is desired) may also effectively comprise high-efficiency thermal insulating means, although not specifically so limited in all forms of the invention.

FIG. 6 is a cross-sectional view of the three vertically assembled compressible pad means of FIG. 2 after vertical superimposition and assembly thereof, but prior to the locking and fastening thereof with tensile member belt means, tape means, or the like as shown in FIG. 3, and is taken substantially on a plane such as that indicated by the arrows **6—6** of FIG. 2. However, it should be clearly noted that, for purposes of drawing simplification and clarity, no perishable food objects, such as avocados or the like, are shown in the recess means illustrated in FIG. 6.

FIG. 7 is an opened-up view showing, in plan view, the top surface of a bottom compressible pad means of a modification of the invention and showing a plan view of the opened-up bottom surface of a modified intervening or middle compressible pad means of this modified form of the invention. In other words, this view shows essentially the same portions of a bottom compressible paid means and intervening or middle compressible pad means as shown in FIG. 1, although it will be noticed that in the showing of FIG. 7 all of the recess means half portions are oppositely directed from those of FIG. 1, which will have the effect of causing all of the lower recess means defined thereby to be oppositely directed from the upper recess means of this form of the invention, which are identical to those clearly illustrated in FIG. 2 of the first form of the invention, thus producing a modified arrangement of the type best exemplified by comparing FIG. 9 of this modified form of the invention with the corresponding view comprising FIG. 6 of the first form of the invention.

FIG. 8 is an end elevational view, taken substantially in the direction of the arrows **8—8** of FIG. 7.

FIG. 9 is a cross-sectional view of the fully assembled modified form of the invention of FIGS. 7 and 8 but prior to fastening and locking same together, and with no perishable food objects, such as avocados, being positioned in the recess means for reasons of drawing clarity and simplification. This view of the assembled three compressible pad layers of the modified form of the invention is taken substantially on a plane such as that indicated by the arrows **9—9** of FIG. 7 and substantially corresponds to the plane of the sectional view comprising FIG. 6 of the first form of the invention and clearly shows the positionally reversed relationship of upper and lower rows of recess means and the reduction in the vertical thickness of the intervening or middle compressible pad means made possible thereby.

FIG. 10 is a reduced-size, three-dimensional view, generally similar to FIG. 3, but illustrates a two-layer ar-

rangement of the first form of the invention illustrated in FIGS. 1–6, which merely has had the middle or intervening compressible pad means removed so that the upper and lower compressible pad means are placed in direct vertical superimposition and contact for similarily defining half as many recess means as previously illustrated in the first form of the invention shown in FIGS. 1–6. Also for purposes of broadening the scope of the invention, this modified arrangement is shown with a slightly modified form of fastening and locking means.

FIG. 11 is a view very similar to FIG. 7, but illustrates a further modification of the invention, which is shown in a 90 degree rotated position from the showing of FIG. 7 for drawing space-saving reasons.

FIG. 12 is a transverse sectional view of the vertically assembled pad means of FIG. 11 on a plane such as **12—12** of FIG. 11 and is a view generally similar to the lower portion of FIG. 6, with recess reversed.

Generally speaking, the exemplary first form of the invention illustrated in FIGS. 1–6 may be said to comprise container means, such as is generally designated at **21**, which is shown as being substantially rectangular as seen in plan view, although the invention is not specifically so limited.

The container means **21** effectively comprises at least two area-coextensive compressible pad means having at least two (and usually a similar plurality of) opposed mating aligned recess means half portions formed therein for aligned juxtaposition whereby to effectively define therebetween full recess means (usually a plurality thereof) adapated to receive, support, and protect therein one or more corresponding easily damaged objects, such as perishable food objects or the like, although not specifically so limited in all forms of the invention.

In the exemplary first form of the invention illustrated in FIGS. 1–6, the container means **21** effectively comprises three such area-coextensive insulating pad means which are adapted to be placed in vertically adjacent superimposed juxtaposition with respect to each other whereby to align the corresponding plurality of recess means half portions in a manner such as to define two vertically spaced horizontal layers, each comprising a plurality (twenty-one in the example illustrated) of full recess means adapted to receive perishable food objects, such as avocados, pears, or the like, therein in a highly protective manner when the three compressible pad means are assembled therearound in a fully assembled, fastened, and locked relationship effectively comprising the complete container means **21**, as best shown in FIG. 3.

In the exemplary first form of the invention illustrated, the three area-coextensive compressible pad means are designated by the reference characters **22L**, **22M**, and **22U**, and comprise, respectively, a lower or lowermost compressible pad, a middle or intervening compressible pad, and an upper or top compressible pad.

It will be noted that the upper surface **23** of the lower pad **22L** is provided with a plurality of lower recess means half portions **24H** formed therein, while the corresponding bottom or lower surface **25** of the middle or intervening compressible pad means **22M** is provided with a correspondingly positioned plurality of downwardly facing recess means half portions **24H** identical to the upwardly facing recess means half portions **24H** carried by the lower compressible pad means **22L** and adapted to be placed in aligned registration or opposition thereto when assembled, in the manner best shown in FIGS. 3 and 6, whereby to define the lower layer plurality (twenty-one in the example illustrated) of full or complete recess means, each of which is generally designated by the reference character **24R** in FIG. 6.

Similarly, it should be noted that the upper surface **26** of the middle or intervening compressible pad means **22M** is provided with a plurality (twenty-one in the example illustrated) of upwardly facing recess means half portions **27H** substantially completely identical to the corresponding plurality of upwardly facing recess means half portions **24H** carried by the upper surface **23** of the lower compressible pad means **22L** and similarly positioned. Also, it should be noted that the bottom or lowermost surface **28** of the upper or top compressible pad means **22U** is provided with a similar plurality (twenty-one in the example illustrated) of downwardly facing recess means half portions **27H** identical to (but positioned in opposition to) the previously mentioned plurality of upwardly facing recess means half portions **27H** carried by the upper surface **26** of the middle or intervening compressible pad means **22M** and adapted to be placed in aligned registration and superimposed thereover, as is best shown in FIG. 6, whereby to define a corresponding upper layer plurality (twenty-one in the example illustrated) of whole or full recess means, as generally designated by the reference character **27R** in FIG. 6.

All three of the compressible pad means **22L**, **22M**, and **22U** are adapted to be properly vertically aligned in effective vertical registration relative to each other, such as is perhaps best shown in FIGS. 3 and 6, by controllably disengageable alignment and registration means adapted to normally matingly engage each other for maintaining said three compressible pad means in the proper vertical aligned superimposed relationship such as to properly align all of the opposed recess means half portions defining both the upper layer of the full recess means **27R** and the lower layer of full recess means **24R**, best shown in FIG. 6.

In the exemplary first form of the invention illustrated, said alignment and registration means are generally designated at **29** and may be said to comprise male projection elements, such as shown at **29M**, and corresponding cooperable female reception elements, such as designated at **29F**, carried by opposed adjacent parts of the adjacent surfaces of the compressible pad portions **22L**, **22M**, and **22U** when in aligned vertical registration with respect to each other, such as is clearly shown in FIGS. 3 and 5. In other words, each interface junction plane, such as the lower interface junction plane defined by the surfaces **23** and **25** and the upper interface junction plane defined by the surfaces **26** and **28**, is provided at a plurality of locations with corresponding mating vertically aligned ones of said male projection elements and female reception elements **29M** and **29F** for engagement when all three of said compressible pad means **22L**, **22M**, and **22U** are vertically superimposed in vertical alignment and registration with each other, such as is clearly shown in FIGS. 3 and 6, and will prevent said compressible pad means from inadvertently getting out of such alignment.

After perishable food objects such as avocados, pears, or the like, although not specifically so limited, are packed in the opposite recess means half portions **24H** and **27H**, and the three compressible pad means **22L**, **22M**, and **22U** are placed in vertical superimposition with the alignment and registration means **29** engaged, suitable fastening and locking means may be employed for firmly fastening and locking the vertically stacked assembly of said three compressible pad means **22L**, **22M**, and **22U** together into an effectively unitary structure, comprising the container means generally designated at **21**, which is then suitable for shipment or storage and which will provide very effective protection for such perishable food objects or the like until they are later removed from within the container means **21**.

While various types of fastening and locking means may be employed within the broad scope of the present invention, the exemplary first form of the invention illustrates one typical type of such fastening and locking means as generally comprising tensile member means, such as indicated at **31**, adapted to be controllably removably placed in tight encompassing relationship around

the container means **21** and then adapted to be retained in said tight encompassing relationship during storage and/or shipment thereof until such time as it is later removed for disassembly of the container means **21** and removal of the perishable food objects packed therein.

In the exemplary first form of the invention illustrated, said tensile member type fastening and locking means **31** takes the form of a pair of strap or webbing type belt members **32** adapted to be placed around the assembled container means **21** in two corresponding fastening groove means G and then to be drawn into very tight encompassing relationship and locked and fastened in such relationship by the buckle type fastener means **33**, although not specifically so limited. However, it should be clearly noted that tape means or various other fastening means, either in the form of two fastening strips as shown in FIG. 3, or in other arrangements ranging from one such strip up to any desired number thereof and which may be directed similarly to the showing of FIG. 3 or in any other manner with respect to the container means **21**, may be employed in lieu of the specific exemplary showing of FIG. 3, and also various other types of fastening means may be employed in lieu thereof.

It should be noted that, in the exemplary first form of the invention illustrated, each of the recess means half portions **24H** and **27H** is provided with a plurality of inwardly projecting compressible mounting and spacing finger means **34**, such as are best shown in FIGS. 4 and 6, which are adapted to contact and support corresponding portions of an easily damaged object, or perishable food object such as an avocado or the like, out of contact with the remaining walls of the corresponding recess means whereby to provide a very substantial effective air space therearound for ventilation purposes. Such ventilation is further enhanced by the provision of ventilation aperture means interconnecting the recess means **24H** and **27H** with the exterior of the complete container means **21**, thus providing a complete system of ventilation around the perishable food objects stored within the recess means **24R** and **27R**, where this is desirable. In the exemplary first form of the invention illustrated, said ventilation aperture means is designated at **35** and comprises a plurality (twelve in the exemplary first form illustrated) of longitudinal grooves in each of the mating or junction surfaces of the three compressible pad means, such as the surfaces **23**, **25**, **26** and **28**, and which together define the complete plurality (six in the exemplary form illustrated) of ventilation apertures communicating with ambient atmosphere at opposite ends of the assembled container means **21**, as is perhaps best shown with respect to one representative end thereof in FIG. 3.

It should be noted that where easily damaged objects are to be packed and protected by the apparatus of the present invention and are of a type other than perishable food objects (which, obviously, therefore, require no ventilation) or of a type of perishable food object which is better preserved and protected by not having ventilation, either the plurality of mounting and spacing finger means **34** or the plurality of ventilation aperture means **35**, or both, may be eliminated.

FIG. 5 illustrates the fact that, in the preferred exemplary first form of the invention illustrated, the three compressible pad means **22L**, **22M**, and **22U** are preferably made of an expanded-cell foam-type material, such as polystyrene foam, polyurethane foam, or the like, although not specifically so limited, which has sufficient rigidity to provide proper exterior protection for easily damaged objects placed within the recess means **24R** and **27R** and which may be said to comprise a very effective shock and vibration isolator and, in certain cases, may also effectively comprise an effective thermal insulator and isolator also, where such is desirable for the purpose of the present invention. However, it should be clearly noted that the invention is not specifically limited to employing material comprising a thermal insulator or isolator since this is not necessary in all forms of the invention—particularly where the easily damaged objects to be protected by the invention are not of a type which is damaged or injured in any manner by temperature changes.

Preferably, the cellular type material shown in representative cross-sectional form in FIG. 5 may be of a non-connected cell type which has certain decided advantages from the standpoint of rigidity, shock and vibration isolation and even thermal insulation and isolation. However, it should be noted that, in some forms of the invention, communicating cell type of materials may be employed. In any case, it should be noted that, if desired, the material may be of a type having very pronounced hysteretic loss characteristics which, thus, provide very effective damping of vibration and enhances the degree of protection provided to easily damaged objects carried within the recess means **24R** and **27R**. This type of hysteretic loss characteristics may be provided by reason of the nature of the material itself, by reason of the physical structure which allows interior physical frictional losses to occur as a result of compression and expansion, and/or may further be enhanced by the use of additives having such hysteretic loss characteristics, to the foam-like cellular material such as is shown in one representative exemplary form in FIG. 5.

It should be noted that the exemplary first form of the invention illustrated in FIGS. 1–6 is also effectively provided with recessed engagement means (usually hand engagement means) such as generally designated at **36**. It will be noted that, in the exemplary first form of the invention illustrated, said hand engagement means **36** comprises four inclined recess means at opposite top and bottom ends of the complete assembled container means **21** so arranged as to effectively provide an end access opening for a person's hand, or for any other appropriate lifting tool, even when the bottom of the complete container means **21** is resting upon a flat horizontal underlying supporting surface. This facilitates lifting one or more such stacked containers **21** from a horizontal underlying surface, or lifting one or more upper container means **21** from underlying container means **21** when they are initially in the form of a vertical stack of a plurality of such container means **21**.

While the hand engagement means **36** provides a convenient and effective form of hand engagement means, it should be noted that the present invention also contemplates various modifications thereof and various other forms thereof and, in certain forms of the invention, they may be dispensed with entirely.

Incidentally, it should be noted that the foam material of the compressible pad means **22L**, **22M**, and **22U** may effectively have any one or all of the surfaces thereof sealed, if desired, in any of a number of different ways. For example, such a sealed surface may be provided by effective heat sealing and/or compressing the exterior of such foam material, by applying and sealingly joining thereto a thin sheet panel of sealing material, or otherwise.

FIGS. 7–9 illustrate an arrangement very similar to the first form of the invention, with the exception of the fact that the lower layer of recess means **24R'** are positionally reversed from those designated at **24R** of the first form of the invention. Because of the similarities, similar parts are designated by similar reference characters, singly primed, however. In this modification, the upper compressible pad means **22U'** and the upper surface **26'** of the intervening of middle compressible pad means **22M'** are identical to those of the first form of the invention designated at **22U**, **26**, and **22M**, respectively, and all similar portions of this modified form of the invention are exactly the same and, of course, identical to the corresponding parts of the first form of the invention and, therefore, will not again be described at this point.

The change or modification of this form of the invention begins to occur at the lower surface **25'** of the middle

or intervening compressible pad means 22M' and all portions therebelow when the apparatus is in fully vertically assembled relationship such as is shown in FIG. 9. It will be noted that said bottom surface 25' of the intervening or middle compressible pad means 22M' is positionally reversed 180 degrees around its center point from the corresponding bottom surface 25 of the middle pad 22M of the first form of the invention illustrated in FIGS. 1–6 and described in great detail hereinbefore. This, of course, positionally reverses the direction of each recess means half portion 24H' and also of each of the registration means portions 29' from the arrangement of the first form of the invention.

The lower compressible pad means 22L of this modification of the invention is precisely the same as the lower compressible pad means 22L of the previously described first form of the invention, but it is also positionally reversed around its center 180 degrees so as to be suitable for mating engagement of each of the lower recess means half portions 24H' thereof with respect to the corresponding recess means half portions 24H' of the positionally reversed bottom surface 25' of the modified middle or intervening compressible pad means 22M'. This is also true with respect to the registration means portions 29'.

Thus, it will readily be understood that the three compressible pad means in this modification of the invention are assembled in vertically superimposed relationship substantially the same as that described hereinbefore in detail in connection with the first form of the invention illustrated in FIGS. 1–6, and the only difference is the fact that the lower layer of full or complete recess means 24R' (best illustrated in FIG. 9) are positionally reversed from the corresponding lower layer of full or complete recess means 24R of the first form of the invention, as is perhaps best shown in FIG. 6. This provides an optimum utilization of vertical space and allows the modified middle or intervening compressible pad means 22M' to be somewhat thinner in this modification of the invention (as shown in FIG. 9) than the pad 22M of the first form of the invention (as shown in FIG. 6). Otherwise, this modification is similar to the first form, and no further description is thought necessary.

FIG. 10 is a reduced-size, three-dimensional view quite similar to FIG. 3 of the first form of the invention and, in fact, merely comprises the upper and lower compressible pad means 22U and 22L of FIG. 3 directly joined together in face-to-face opposition without having the intermediate or middle compressible pad means 22M of the first form of the invention therebetween, as is clearly shown in FIG. 3. In other words, FIG. 10 illustrates a modified container means generally designated by the reference numeral 21'' which has only an upper compressible pad means 22'' and a lower compressible pad means 22L'' and, thus, effectively defines only a single layer of recess means corresponding to either the upper layer of such recess means 27R or the lower layer of recess means 24R of the first form of the invention, as is perhaps best shown in FIG. 6.

Despite the fact that the upper compressible pad means 22U'' and the lower compressible pad means 22L'' of FIG. 10 are exactly the same as the corresponding upper and lower compressible pad means 22U and 22L of the first form of the invention, nevertheless, they are designated by the same reference numerals, doubly primed, however, in the case of FIG. 10, since together they comprise the slightly modified two-pad container means 21'' of this modified form of the invention shown in FIG. 10. Also, for purposes of variety, the tensile member fastening means 31'' of this form of the invention is slightly modified from the first form of the invention (although, if desired, it may employ the same type of tensile member fastening and locking means as that shown at 31 in the first form of the invention) and comprises wraparound tape type fastening strip means 32'' which does not have fastening buckles or the like, such as shown at 33 in the first form of the invention. Otherwise, this modified form of the invention is similar to the first form of the invention illustrated in FIGS. 1–6 and described in detail hereinbefore.

FIGS. 11 and 12 are views generally similar in appearance to FIG. 7 and the bottom half of FIG. 6, respectively, but illustrate a two-pad version of the invention similar in many ways to the form shown in FIG. 10, but which is interiorly provided with a further modification with respect to the opposed surfaces 23''' and 28''' which are effectively slightly recessed inside of corresponding surrounding upwardly directed and downwardly directed abuttable edge portions 37 and 38 which will, of course, provide a much larger area interior ventilation means coextensive with substantial areas of the opposed surfaces 23''' and 28''' and comprising inner enlargements of the opposite end ventilation apertures 35''' adapted to enhance and facilitate the circulation of air around perishable fruit or the like, within the recess means 24R''' defined by the mating lower and upper recess means half portions 24H''' and 27H''' when the upper and lower compressible pad means 22U''' and 22L''' are placed in vertically superimposed aligned registration and are fastened in such relationship in a manner similar to the showing of FIG. 10.

Another difference of the modified form of the invention illustrated in FIGS. 11 and 12 is the fact that the alignment and registration means generally designated at 29''' is slightly different from that shown at 29 of the first form of the invention and is so arranged as to not only act for the alignment and registration purposes previously described in connection with the structure shown at 21 in the first form of the invention, but also effectively comprises vertical contact and support means for maintaining the proper vertical spacing of the upper and lower compressible pad means 22U''' and 22L''' across the central area parts thereof positioned inwardly of the two abutting edge flanges 37 and 38. The remainder of this modified form of the invention is similar to the first form of the invention previously described and illustrated except that it is of the two-pad type exteriorly illustrated in FIG. 10 and previously described. However, it should be noted that it may also be of the three (or more) pad type similar to the showing of the first form of the invention illustrated in FIGS. 1–6 or the slight modification thereof illustrated in FIGS. 7–9.

Incidentally, it should be noted that, while the recess means, such as the exemplary ones of the first form of the invention shown at 24R and 27R, are illustrated as being shaped in a manner suitable for the reception of avocados, pears, or the like, the shapes thereof may be modified for appropriate reception of various other kinds of fruits or perishable food objects or various other kinds of easily damaged non-food objects, and this may be readily accomplished by changing the appropriate mold portion.

Incidentally, it should be noted that in the preferred arrangements illustrated, the top and bottom compressible pad means are adapted to be made by the same mold means and that all of the intermediate or intervening pad means, such as the exemplary one shown at 22M in the first form of the invention, are identical, with the exception of the slight modification thereof shown at 22M' in FIGS. 7 and 9, and, thus, container means comprising any desired number of such compressible pad means may be formed from similar compressible pad means made from the few mold means just referred to, which has the effect of greatly reducing the cost of such composite container means.

It should be understood that the figures and the specific description thereof set forth in this application are for the purpose of illustrating the present invention and are not to be construed as limiting the present invention to the precise and detailed specific structure shown in the figures and specifically described hereinbefore. Rather,

the real invention is intended to include substantially equivalent constructions embodying the basic teachings and inventive concept of the present invention.

I claim:

1. Protective packing apparatus for easily damaged objects, comprising: container means taking the form of at least two closely adjacent area-coextensive protective compressible pad means having a plurality of opposed mating aligned recess means portions formed therein, each of said opposed mating recess means portions cooperating with the similar adjacent aligned recess means portions to define a corresponding plurality of complete recess means, with each recess means being adapted to receive and physically protectively support therein a substantially similarly shaped and sized, easily damaged object with said mating recess means portions being in surface contact with at least portions of the surface areas of said easily damaged object in a manner such as to firmly and protectively support same within said recess means in nested relationship with respect to the exterior of said container means, a first one of said compressible pad means comprising a corresponding wall portion of said container means, a second one of said compressible pad means comprising a corresponding oppositely positioned wall portion of said container means, said compressible pad means being provided with controllably disengageable alignment and registration means normally matingly engaging each other and maintaining all of said compressible pad means in aligned registration relationship with respect to each other with all of said mating recess means portions in said opposed recess means-defining relationship; and controllably engageable and disengageable fastening and locking means cooperable with said plurality of compressible pad means for firmly locking them together in said aligned registration.

2. A device as defined in claim 1, wherein each of said compressible pad means is formed of a compressible expanded-cell type of foam material comprising a high-efficiency vibration and chock isolation means.

3. A device as defined in claim 1, wherein each of said compressible pad means is formed of a compressible expanded-cell type of foam material comprising a high-efficiency combination thermal insulation means and vibration and shock isolation means.

4. A device as defined in claim 1, wherein said compressible pad means are provided with ventilation aperture means effectively interconnecting said recess means and ambient atmosphere.

5. A device as defined in claim 1, wherein said alignment and registration means comprises male projection elements and cooperable female reception elements carried by opposed adjacent compressible pad portions when in said aligned registration with respect to each other.

6. A device as defined in claim 1, wherein said fastening and locking means comprises substantially flat, longitudinal tensile member means surrounding and encompassing said plurality of compressible pad means.

7. A device as defined in claim 1, wherein said tensile member fastening and locking means comprises a plurality of belt and buckle members surrounding and encompassing said plurality of compressible pad means at a plurality of laterally spaced locations.

8. A device as defined in claim 1, wherein said tensile member fastening and locking means comprises a plurality of encircling tape members surrounding and encompassing said plurality of compressible pad means at a plurality of laterally spaced locations.

9. A device as defined in claim 1, wherein said fastening and locking means comprises substantially flat, longitudinal tensile member means surrounding and encompassing said plurality of compressible pad means; the exterior of said container means comprising said plurality of aligned compressible pad means having recessed fastening groove means receiving said fastening and locking tensile member means therein in a manner substantially exteriorly flush with adjacent exterior surface portions of said container means.

10. A device as defined in claim 1, wherein each of said recess means is provided with inwardly projecting compressible mounting and spacing finger means adapted to contact and support the corresponding portions of a corresponding one of said easily damaged objects for providing a substantial effective air space therearound for ventilation purposes.

11. A device as defined in claim 1, including at least one intervening compressible pad means similar to said first and second compressible pad means and adapted to be positioned therebetween whereby to define a plurality of interface junction planes between said plurality of compressible pad means and one less than the number of said compressible pad means, with each of said interface junction planes being effectively defined by an adjacent opposed pair of corresponding surfaces of said protective compressible pad means and having a plurality of said opposed mating aligned recess means portions formed therein.

12. A device as defined in claim 1, wherein said container means is provided with recessed engagement means at end edges thereof providing corresponding end access openings extending under end portions of said container means when said container means is resting upon a flat supporting surface and adapted for use in facilitating the lifting and handling of said container means.

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