

Sept. 14, 1965

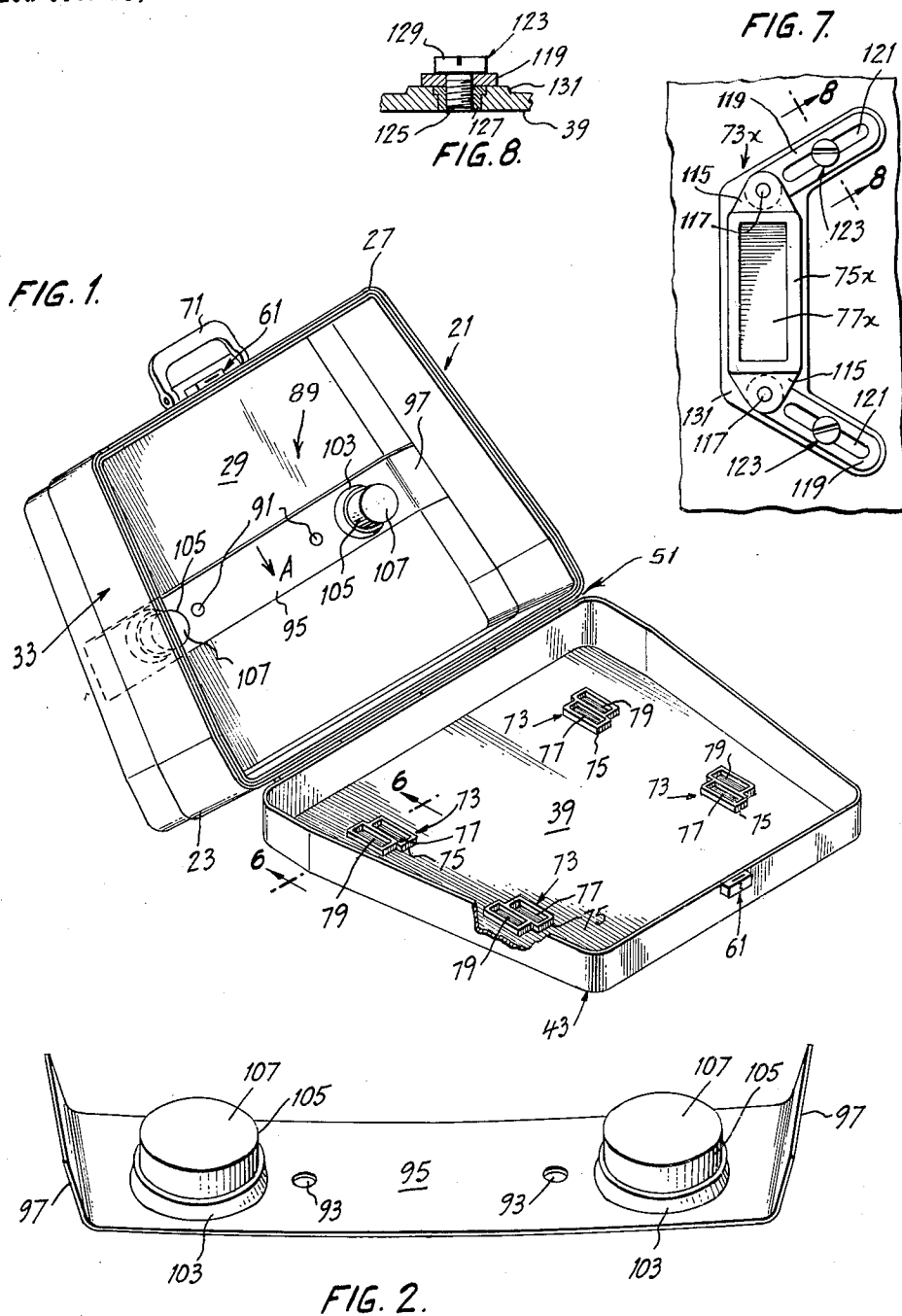
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3,206,265

CONTAINER

Filed Oct. 28, 1963

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

FIG. 3.

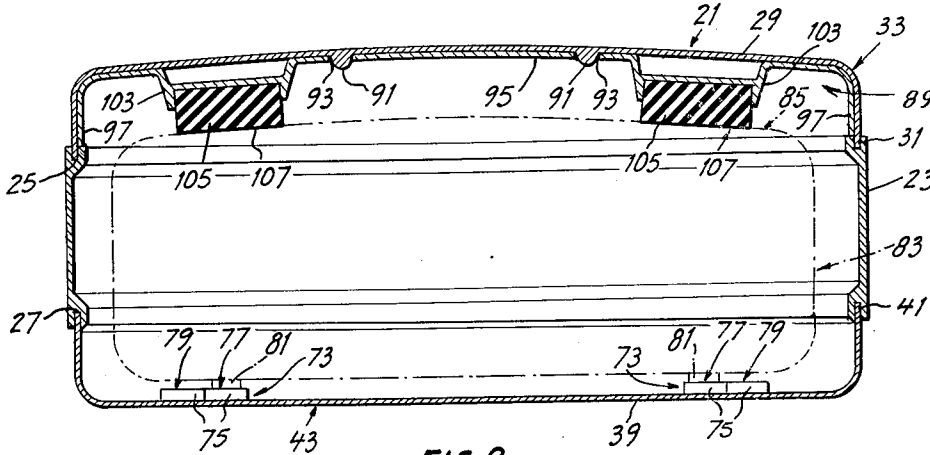


FIG. 9.

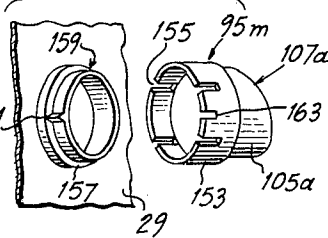


FIG. 5.

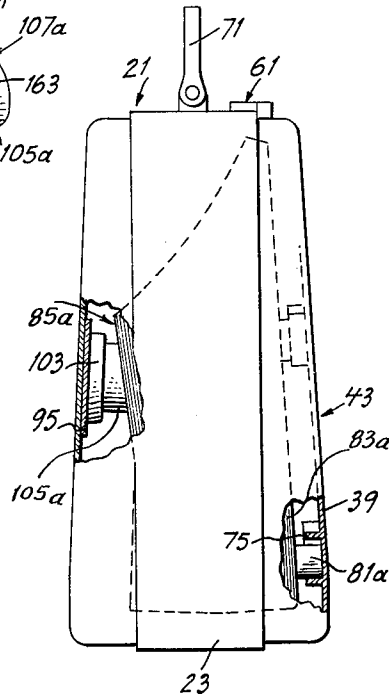


FIG. 10.

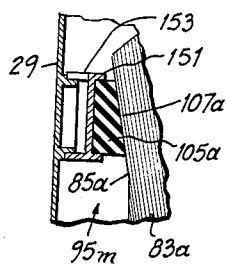
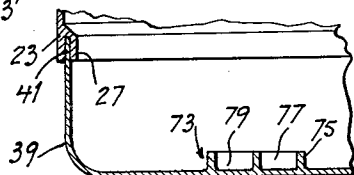


FIG. 6.



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1

3,206,265
CONTAINER

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10 Claims. (Cl. 312-208)

The present invention relates to containers and more particularly to the structure disposed within the containers to facilitate the positioning and securing of an article therewithin.

The present invention finds ready application to containers utilized for the transportation and/or protection of articles, such as testing or measuring instruments, business machines, or the like, wherein the container is formed of plural sections adapted to be placed in juxtaposition, one with respect to the other, to thereby form a closed, box-like, enclosure for removably receiving the article therewithin. When so disposed within the container the article must be securely positioned, to prevent movement thereof with respect to the walls of the container and to minimize the transmission thereto of shocks inflicted upon the container, otherwise the article or some of the mechanisms incorporated therein may be damaged.

Many diverse forms of positioning and securing structures have been used in such containers. Almost invariably said structures are permanently secured to the inner surfaces of the container and are of a complex construction and operation requiring many expensive parts. This is especially true where the container is adapted to be disposed in a first position to receive the article and in a second position to facilitate transportation of the article and where the article must be securely held while transported and yet be easily removable for subsequent use. Quite often the configuration of the article is modified or elements are added to the structure of the article for the sole purpose of cooperating with the positioning and securing structure of the container. In other instances, where the structure of the article is not modified to facilitate disposition within the container, the positioning and securing structure within the container is of a highly complex construction requiring many movable parts to enable cooperation thereof with the article itself.

The disposition of such positioning and securing structure as permanent fixtures within the container prevents the manufacturer from using the container for more than one business machine model and requires the manufacturer or produce a different container for each business machine model made, thus resulting in expensive tooling costs and a large inventory. The disposition of such positioning and securing structures as permanent fixtures within the container furthermore prevent the consumer from using the container for general purposes, such as a carrying case for clothing or the like because the clothing, or other goods, may get snagged on the structure within the container and either damage same or be damaged thereby.

It is an object of this invention to provide novel structure for removably positioning and securing an article within a container.

Another object is to provide novel structure, for removably positioning and securing an article within a container, which structure is simple in construction and operation, and inexpensive in cost.

Another object is to provide novel structure, for removably positioning and securing an article within a container, which structure is devoid of parts which are movable for the purpose of so positioning said article.

Still another object is to provide novel structure, for removably positioning and securing an article within a container, which structure is removable in part to facilitate use of the container for a multiplicity of purposes.

2

A still further object is to provide novel structure, for removably positioning and securing an article within a container, which structure is readily convertible to accept articles of different configuration.

A still further object is to provide novel structure, for removably positioning and securing an article within a container formed of plural sections which are adapted to be placed in juxtaposition, one with respect to the other, to form a closed, box-like, enclosure for the purpose of transporting and/or protecting said article.

The present invention involves a container formed of plural sections adapted to be secured in juxtaposition one with respect to the other to form a closed, box-like, enclosure, and contemplates providing elements on opposing inner walls of said container for the purpose of removably positioning and securing an article within said container when in its closed condition. Disposed on one of said inner walls, in either a fixed or adjustable relationship with respect thereto, is either one or more receptacles adapted to coact with said article to position same with respect to said inner walls of said container and limit movement of said article in the longitudinal direction with respect to said inner walls of said container. Removably disposed on another of said inner walls, in opposing relationship to said receptacle (or receptacles), is either one or more resilient members adapted to engage a surface of said article, when the container is closed, to apply a pressure thereagainst and establish a predetermined normal force thereon to prevent movement of said article away from said receptacle.

Other objects and advantages of the invention in its details of construction and arrangement of parts will be apparent from a consideration of the following specification and accompanying drawing wherein:

FIG. 1 is a perspective view of a container showing same in the open condition and with one form of article positioning and securing structure, which embodies the present invention, disposed on the inner surface of the walls thereof.

FIG. 2 is a perspective view of the pad supporting insert of FIG. 1 removed from the container of FIG. 1 and slightly enlarged to better show the details thereof;

FIG. 3 is a front to rear vertical sectional view of the container of FIG. 1 showing same in the closed condition and with its base section horizontally arranged, and showing furthermore the outline of an article as it would appear when properly disposed therein;

FIG. 4 is a left side elevational view of the container of FIG. 1 showing same in the closed condition and with its base section vertically arranged, and showing furthermore an article properly disposed in the container and the container broken away in part to better show the coacting portions of the container and the article;

FIG. 5 is a view similar to that of FIG. 4 but showing an article and pad having configurations which are different than the article and pad of FIG. 4.

FIG. 6 is a fragmentary sectional view taken on the line 6-6 of FIG. 1; and includes a portion of the case section as it would appear if disposed in case closed condition.

FIG. 7 is a fragmentary plan view of the inner surface of the base section of the container of FIG. 1 showing a modified form of receptacle disposed thereon;

FIG. 8 is a fragmentary sectional view taken on line 8-8 of FIG. 7;

FIG. 9 is a perspective view of a modified form of removable pad structure showing a fragmentary portion of the inner surface of the wall of the container as constructed to receive same; and

FIG. 10 is a fragmentary elevational view in partial section showing the pad of FIG. 9 coacting with an article having a configuration similar to the article of FIG. 5.

3

Referring now to the drawings for a more detailed description of the present invention, an embodiment thereof is shown utilized in a container or carrying case, generally designated by the numeral 21 (FIG. 1), in which a business machine or the like, such as a portable typewriter may be placed, the carrying case serving as a means to transport the business machine or to provide a protective cover therefor. It should be understood however, that the hereinafter described application of the invention to a carrying case for business machines, or the like, is for purposes of illustration only inasmuch as subject invention finds ready application to any container adapted to receive therewithin an article for the purpose of transporting and/or protecting same.

A band member 23 (FIGS. 1 and 3) which completely encircles and constitutes the mid portion of carrying case 21 is formed with a pair of oppositely disposed channels 25 and 27 (FIG. 3) respectively. A body member 29, terminating in an edge 31 which is fixedly secured in channel 25, forms with band member 23 a cover section 33 for carrying case 21. A body member 39, terminating in an edge 41 which is adapted to be removably received in channel 27, constitutes a base section 43 for carrying case 21.

A hinge mechanism 51 (FIG. 1), of any appropriate conventional construction, interconnects cover section 33 and base section 43 and permits pivotal movement of one section with respect to the other establish an open condition (FIG. 1) for carrying case 21 and a closed condition (FIGS. 3 and 4) for carrying case 21. A latch mechanism 61 (FIGS. 1 and 4), of appropriate conventional construction, is provided for securing cover section 33 to base section 43 when carrying case 21 is in its closed condition (FIGS. 3 and 4). A handle 71 (FIGS. 1 and 4) also of appropriate conventional construction, is secured to band member 23 to facilitate hand carrying of carrying case 21.

A plurality of receptacles or sockets 73 (FIGS. 1, 3, and 6), each including walls 75 defining a first support receiving area 77 and a second support receiving area 79, are disposed on the inner surface of body member 39 in spaced relationship one with respect to the other. Walls 75 which define areas 77 are of a spacing and configuration adapting same to removably receive depending supports or feet 81 (FIGS. 3 and 4) of a business machine 83 having an upper surface 85 (FIG. 4). Walls 75 which define areas 79 are of a spacing and configuration adapting same to removably receive depending supports or feet 81a (FIG. 5) of a business machine 83a having an upper surface 85a. As such receptacles 73 lend versatility to container 21 whereby either one or the other of a variety of business machines may be disposed therein as long as the supports, 81 or 81a, of the respective business machines are spaced at positions corresponding to the spacing of either areas 77 or areas 79. Receptacles 73 may either be formed integral with body member 39 or separate therefrom and attached thereto by appropriate means. They may be formed either as recesses in the surface of body member 39 if the thickness thereof is sufficient to warrant same, or as elements projecting above the surface thereof as shown in the drawings. Although receptacles 73 have been shown with a substantially rectangular configuration and with areas 77 and 79 of substantially equal dimensions it is understood that any convenient configuration may be used and that areas 77 and 79 need not be similar in either configuration or dimension. It should be also understood that either support receiving area 77 or support receiving area 79 may be provided without the other or if desired additional support receiving areas may be provided. It should be further understood that although walls 75 of receptacles 73 have been shown continuous in form they may also be formed in a discontinuous manner.

Supports 81 and 81a are of a conventional construction and include resilient material for absorbing shock and

4

vibration to minimize transmission thereof to and from business machine 83 and 83a.

The inner surface of walls 75 of receptacles 73 coact with the outer surface of supports 81 or 81a to limit movement of business machine 83 or 83a respectively in directions parallel or substantially parallel to the inner surface of body member 39 of cover section 33 and thus position business machine 83 or 83a with the sides thereof spaced from the inner surfaces of the sides of container 21. A securing structure 89 (FIGS. 1 and 3), removably disposed in cover section 33 of container 21, in the closed condition (FIGS. 3, 4, and 5) of container 21 coacts with upper surface 85 or 85a of business machine 83 or 83a respectively to apply a pressure thereon which is of sufficient magnitude to maintain supports 81 or 81a properly disposed within their respective receptacles 73.

A pair of locating members 91 (FIGS. 1 and 3), disposed on the inner surface of body member 29 of cover section 33, coact with a corresponding number of locating apertures 93 (FIGS. 2 and 3) provided in an insert or carrier 95 which forms part of securing structure 89 to locate securing structure 89 within cover section 33. Insert 95 is formed from a flexible material which may be either plastic or metal and to a configuration closely approximating that of the inside surface of body member 29. Sides 97 are provided on insert 95 and are sized to provide a tight but removable fit when insert 95 is properly located in cover section 33 between body member 29 and band member 23 (FIG. 3). A pair of cups 103 (FIGS. 2 and 3), either formed on or otherwise fixedly secured to insert 95, are each adapted to receive, either removably or fixedly, either a bumper 105 (FIGS. 3 and 4) or a bumper 105a (FIG. 5) which bumpers, 105 and 105a, are formed of a firm but resilient material such as rubber. An article contacting surface 107 (FIGS. 3 and 4) having a contour approximating that of upper surface 85 of business machine 83 is formed on each bumper 105 while an article contacting surface 107a (FIG. 5) having a contour approximating that of upper surface 85a of business machine 83a is formed on each bumper 105a. It should be understood that bumpers 105 and 105a may be formed with an article contacting surface 107, 107a respectively of any convenient contour. Bumpers 105 and 105a are furthermore formed to a thickness which requires a slight compression thereof when carrying case 21 is in its closed condition (FIGS. 3, 4, or 5) and has either business machine 83 or business machine 83a, respectively, disposed therein. The amount of compression is dependent upon the weight of business machine 83 or 83a, the depth of receptacle 75, and the conditions under which carrying case 21 will be transported, amongst other things, and should be sufficient to develop compressive forces within bumpers 105, 105a which will result in the application of normal forces against surfaces 85, 85a respectively of business machines 83, 83a of sufficient magnitude to prevent movement of supports 81, 81a respectively out of receptacles 73.

With carrying case 21 in its open condition (FIG. 1) and with insert 95 positioned within cover section 33 supports 81 of business machine 83 are set into support receiving areas 77 of receptacles 73 and cover section 33 is pivoted on hinge mechanism 51 towards base section 43. Such movement of cover section 33 towards base section 43 continues until edge 41 of base section 43 is completely seated within channel 27 of band member 23 at which time latch mechanism 61 may be operated to secure carrying case 21 in its closed condition (FIGS. 3 and 4). Surfaces 107 of bumpers 105 are in contact with surface 85 of business machine 83 and because bumpers 105 are in a slightly compressed condition the compressive forces developed therein result in the application of predetermined normal forces against surface 85 of business machine 83 sufficient in magnitude to maintain supports 81 of business machine 83 within receptacles 73 whether carrying case 21 be disposed with its base sec-

tion in either a horizontal position (FIG. 3) or a vertical position (FIG. 4). Some movement of business machine 83 in the longitudinal direction with respect to the inner surface of base section 33 of carrying case 21 will probably occur when carrying case 21 is disposed with base section 33 thereof in the vertical position (FIG. 4). Such movement will be limited by engagement of appropriate supports 81 of business machine 83 with the corresponding walls 75 of receptacles 73.

When business machine 83, or 83a, is disposed in container 21, as described above, the outer surfaces thereof are spaced from the inner surfaces of container 21 save for the areas where business machines 83, or 83a, contact bumpers 105, or 105a, and where supports 81, or 81a, contact their respective support receiving areas 77 or 79. Any shocks inflicted upon container 21 are absorbed in part by container 21 itself, in part by bumpers 105 or 105a, and in part by supports 81 or 81a with at most only a small portion of said shock being transmitted to business machine 83 or 83a itself. As such the delicate mechanisms of business machine 83 or 83a, the external walls thereof, and the walls of container 21, are protected against the damage they would probably sustain if an unduly large amount of said shock were transmitted to business machine 83 or 83a as would occur if the outer surfaces thereof were not spaced from and secured against coming into contact with the inner surfaces of container 21 as described above.

Removal of business machine 83 from carrying case 21 is accomplished by setting same upon a surface with base section 43 thereof horizontally disposed. Latch mechanism 61 is released and cover section 33 pivoted on hinge mechanism 51 away from section 43 and until carrying case 21 is in its open condition (FIG. 1). Business machine 83 is then lifted until supports 81 thereof are removed from receptacles 73.

Conversion of carrying case 21 to a carrying case of general utility is accomplished by grasping insert 95 (FIG. 1) approximately at its midpoint, lifting insert 95 until the sides of apertures 93 are clear of locating members 91, and moving insert 95 in the direction of arrow "A" (FIG. 1) into that portion of cover section 43 wherein the contour of body member 39 is of a greater height than sides 97 of insert 95. Insert 95 is then removed from carrying case 21. Replacement of insert 95 is accomplished by merely placing locating apertures 93 thereof over locating members 91 and applying pressure to the surface of insert 95 near sides 97 thereof and until sides 97 snap in place between body member 29 and band member 23.

Conversion of carrying case 21 to accept a different model business machine is accomplished by removing bumpers 105 and replacing same with either bumpers 105a or other bumpers having a contacting surface with a contour approximating that of the particular model business machine to be placed in carrying case 21. Instead of replacing bumpers 105 for other bumpers the entire insert 95 may be replaced by an insert 95 having fixedly mounted thereon bumpers with a contacting surface having the desired contour.

A positionable receptacle, generally designated by the numeral 73x (FIG. 7) and including walls 75x defining a support receiving area 77x, may be provided on the inner surface of body portion 39 of base section 43 instead of receptacles 73 (FIG. 1). A pair of ears 115 (FIG. 7) projecting from walls 75x of receptacles 73x are interconnected by a pair of pins 117 to a pair of arms 110 (FIGS. 7 and 8) each one of which is formed with a slot 121. A stud 123 having a threaded shank 125 (FIG. 8) adapted to pass through slot 121 and be threaded into an internally threaded sleeve 127 imbedded into body 39 of base section 43 is formed with a head 129 adapted to bear against arm 119 and secure same in place against body 39. A boss 131 (FIGS. 7 and 8) may be provided

on the surface of body 39 if required for the proper attachment of sleeve 125 thereto.

Adjustment of receptacle 73x to position same for receipt of a support, such as support 81 of business machine 83, is accomplished by loosening studs 123, pivoting either receptacle 73x on pins 117, and/or sliding arms 119 along studs 123 until receptacle 73x is properly positioned. Studs 123 are then tightened to secure receptacle 73x in its adjusted position.

Removal of studs 123 and receptacles 73x entirely from within carrying case 21 facilitates the use of same as a carrying case of general utility, or the conversion of same to accept a business machine with supports of a different configuration by the reinsertion of receptacles 73x with walls 75x defining a support receiving area 77x corresponding to said different configuration.

A modified form of insert, generally designated by the reference numeral 95m is shown in FIGS. 9 and 10 for use with either a carrying case similar in construction to carrying case 21 of FIG. 1 or with a carrying case constructed without band 23. A cup shaped portion 151 (FIG. 10) of insert 95m is adapted to receive, either removably or fixedly, a bumper such as bumper 105a (FIGS. 9 and 10) with an article contacting surface 107a adapted to engage upper surface 85a of a business machine 83a. A gripping portion 153 of insert 95m is formed with slots 155 therein adapting same to releasably grip the outer surface 157 of a retainer 159 formed on or otherwise attached to the inner surface of body 29 of cover section 33 of carrying case 21. A locating projection 161 extending radially out from retainer 159 is adapted to coact with a locating slot 163 formed in gripping portion 153 of insert 95m.

Removal of insert 95m, for the purpose of converting carrying case 21 to a carrying case of general utility or to accept a business machine with an upper surface having a configuration which does not correspond to surface of the bumper removed, is accomplished by merely pulling insert 95m away from body 29 and until gripping portion 153 thereof separates from retainer 159. An insert 95m, having a bumper therein with a contacting surface corresponding to the upper surface of the business machine to be placed within carrying case 21, is then installed in carrying case 21 by merely placing gripping portion 153 of insert 95m over retainer 159 with locating slot 163 of insert 95m aligned with locating projection 161 of retainer 159 and then apply a force thereagainst sufficient to seat gripping portion 153 on retainer 159.

From the above description it will thus be seen that novel structure has been provided for positioning and securing an article within a container for the purpose of transporting and/or protecting said article, which structure is devoid of parts movable for the purpose of either positioning or securing said article within said container and which structure is readily removable for the purpose of converting said container to a container of general utility or to accept an article of a different configuration.

It is understood that although I have shown the preferred forms of my invention, that various modifications may be made in the details thereof without departing from its spirit as comprehended by the following claims:

I claim:

1. A container adapted to removably receive an article therewithin; comprising
 - (a) a first member;
 - (b) a second member;
 - (c) interconnecting means coacting with said first member and said second member to releasably secure one to the other with an inner surface of said first member disposed in opposing spaced relationship with an inner surface of said second member so as to receive an article therebetween;
 - (d) receptacle means disposed on said inner surface of said first member, said receptacle means including reaction surfaces adapted to coact with the article

to limit movement of the article in directions substantially parallel to the plane of said inner surface; and

- (e) pressure means, removably disposed on said inner surface of said second member, having a configuration adapting same to exert pressure upon a surface of the article, when the article is disposed between said first member and said second member and when said first member and said second member are releasably secured together, of sufficient magnitude and in a proper direction to prevent the article from moving in a direction away from said first member a distance which will separate the coacting portions of the article and said receptacle means.
- 2. The container of claim 1; wherein said receptacle means are adjustably secured to said inner surface of said first member.
- 3. The container of claim 1, including
 - (a) retainer means disposed on said inner surface of said second member;
 - (b) said pressure means including carrier means adapted to be removably positioned on said retainer means and mounting resilient means adapted to exert said pressure upon the surface of the article; and
 - (c) locating means for locating said carrier means in a predetermined position on said retainer means.
- 4. A portable container for the transportation and/or protection of an article; comprising
 - (a) a base section;
 - (b) a cover section interfitting with said base section to form therewith a box like enclosure;
 - (c) hinge means interconnecting said base section and said cover section for pivotal movement, one with respect to the other, and permitting movement of same between a position wherein the container is in an open condition and a position wherein the container is in a closed condition;
 - (d) latch means for securing the container in said closed condition;
 - (e) receptacle means disposed on an inner surface of said base section and adapted to removably position an article within the container; and
 - (f) pressure securing means removably disposed within said cover section for coaction with an article when said article is properly positioned in said receptacle means and when the container is in said closed condition to prevent movement of the article out of said receptacle means.
- 5. The container of claim 4 wherein said pressure securing means comprises
 - (a) insert means adapted to be removably positioned within said cover section; and
 - (b) resilient means carried by said insert means for coaction with the article.
- 6. The container of claim 5 wherein said insert means comprises
 - (a) a flexible member formed to a contour approximating that of said cover section;
 - (b) receiving means disposed on said flexible member for securely holding said resilient means;
 - (c) locating means carried by said flexible member;
 - (d) said cover section carrying locating means adapted to coact with said locating means carried by said flexible member to locate said flexible member in a predetermined position within said cover section.
- 7. The container of claim 5 wherein said insert means comprises
 - (a) receiving means adapted to securely hold said resilient means;
 - (b) gripping elements carried by said receiving means;
 - (c) first locating means carried by said receiving means;
 - (d) retainer means carried by said cover section adapted for coaction with said gripping elements to de-

tachably mount said receiving means on said cover section; and

- (e) second locating means carried by said retainer means for coaction with said first locating means carried by said receiving means to locate said receiving means in a predetermined position on to said retainer means.
- 8. The container of claim 4 wherein said receptacle means includes
 - (a) wall members defining an article receiving area;
 - (b) a pair of ears formed on and projecting outwardly from oppositely disposed portions of said wall members;
 - (c) a pair of arms each of which is pivotally connected to one of said ears; and
 - (d) releasable securing means adapted to fixedly positioning said arms to said base section;
 - (e) said arms and said releasable securing means being constructed to provide for relative movement of one with respect to the other when said securing means is released.
- 9. A carrying case for business machines or the like having depending supports disposed thereon in spaced relationship one with respect to the other; comprising
 - (a) a band member having oppositely disposed edges formed therewith and channels formed in said oppositely disposed edges;
 - (b) a first body member having an edge adapted to be fixedly secured within one of said channels formed in said band member, said first body member and said band member constituting a cover section for the carrying case;
 - (c) a second body member having an edge adapted to be removably received in the other of said channels formed in said band member, said second body member constituting a base section for the carrying case;
 - (d) hinge means interconnecting said base section and said cover section for pivotal movement, one with respect to the other, and permitting movement thereof from an open condition to a closed condition, said edge of said second body member seating in said other channel in said closed condition;
 - (e) latch means for releasably securing said base section to said cover section when said sections are in said closed condition;
 - (f) a plurality of receptacles disposed in spaced relationship, one with respect to the other, on an inner surface of said base section, each receptacle including walls having a spacing and configuration adapting same to releasably receive the supports of a business machine;
 - (g) an insert of flexible material having a configuration approximating that of a portion of an inner surface of said first body member and including sides adapted to rest upon said one edge of said band member;
 - (h) locating means formed on said inner surface of said first body member;
 - (i) locating means formed on said insert coacting with said locating means formed on said first body member to properly locate said insert with respect to said first body member;
 - (j) said sides of said insert, when said insert is properly located, being adapted to be snapped in position on the edge of said band member to removably secure said insert within said cover section; and
 - (k) a pair of rubber bumpers, carried by said insert, said bumpers having a configuration adapting same to engage a surface of the business machine and be slightly compressed by coaction therewith when the business machine is disposed within the carrying case with its supports properly located in said receptacles and when the carrying case is in said closed condition, said compression being of a degree sufficient to create reaction forces in said rubber bumpers

9

acting on the business machine to prevent movement of the supports of said business machine out of their respective receptacles.

10. A carrying case for business machines or the like having depending supports disposed thereon in spaced relationship one with respect to the other; comprising 5

- (a) a base section;
- (b) a cover section;
- (c) hinge means interconnecting said base section and said cover section for pivotal movement, one with respect to the other, and permitting movement thereof from an open condition to a closed condition; 10
- (d) latch means for releasably securing said base section to said cover section when said sections are in said closed condition; 15
- (e) a plurality of receptacles disposed in spaced relationship, one with respect to the other, on an inner surface of said base section, each receptacle including walls having a spacing and configuration adapting same to releasably receive the supports of a business machine; 20
- (f) at least one retainer disposed on an inner surface of said cover section;

10

- (g) at least one carrier adapted to be removably secured to said retainer; and
- (h) at least one rubber bumper carried by said carrier and formed to a configuration adapting same to engage a surface of the business machine and be slightly compressed by coaction therewith when the business machine is disposed in the carrying case with its supports properly positioned in said receptacles and with the carrying case in said closed condition, said compression being of a degree sufficient to create reaction forces in said rubber bumper acting on the supports of said business machine to prevent movement of the supports of said business machine out of their respective receptacles.

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