Jan. 30, 1968 R. G. HESSELBARTH 3,366,265

MULTIPLE UNIT PACKAGE

Filed May 9, 1966

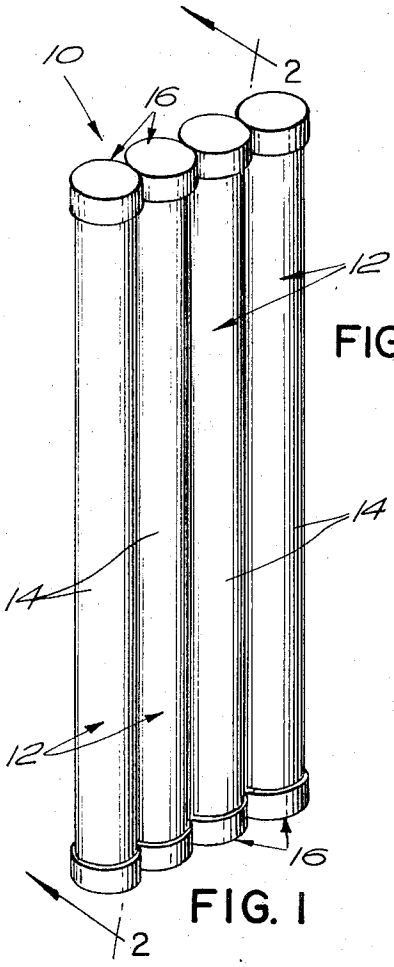


FIG. 1

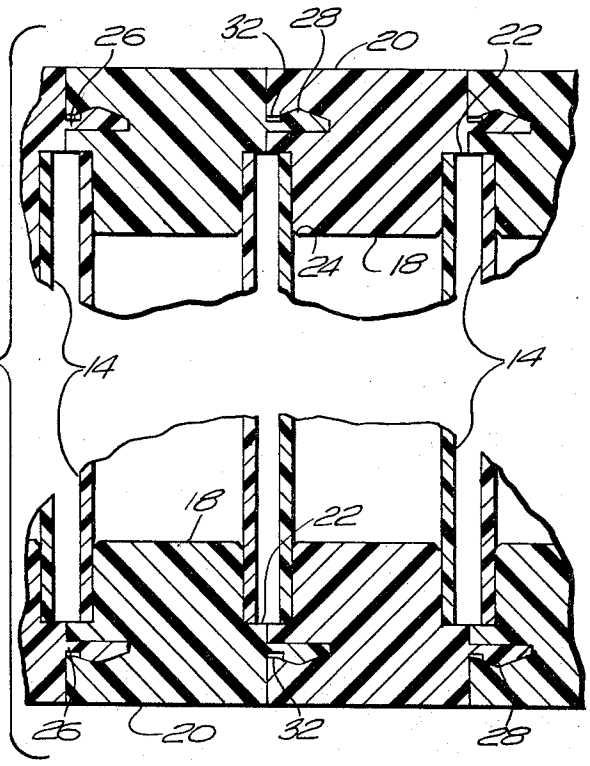


FIG. 2

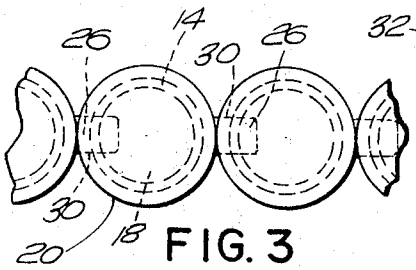


FIG. 3

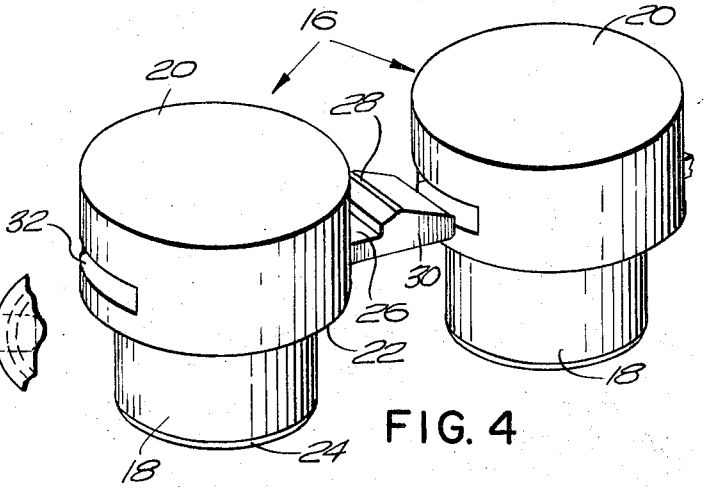


FIG. 4

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MULTIPLE UNIT PACKAGE

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ABSTRACT OF THE DISCLOSURE

A package comprising a plurality of separate open-ended tubes, each tube having a removable closure at its opposite ends, each closure having a male projection at one side thereof and a female socket at the opposite side thereof, whereby adjacent closures may be snap-connected to each other to detachably interconnect the tubes at their tops and bottoms.

The present invention relates generally to the packaging art and is more particularly concerned with the provision of a novel and improved multiple package.

It has been found desirable, primarily in the electronics field, but also in other fields, to provide a plurality of packages releasably connected to each other, thus greatly facilitating shipment and storage, but which packages may be separated or detached from each other when it is desired to use or sell one of said packages. Attempts have heretofore been made to solve this problem by providing an undulated sheet of molded plastic or the like wherein the undulations in the sheet define a plurality of separate channels, and then covering said channels by a sheet of plastic film or the like. Although this does provide a multiple packaging arrangement that is convenient for shipping and storage, it will readily be obvious that when it is desired to separate one of the packages from the multiple unit, it is necessary to cut the package away by using scissors or the like.

It is therefore a primary object of the instant invention to provide a multiple unit package so constructed that individual packages may be quickly and easily separated from the multiple unit when desired without the necessity of employing any cutting instruments or the like.

Another important object of my invention is the provision of a multiple unit package wherein the unit is not only designed for ready detachment of separate packages from the unit but is also designed to permit the individual packages to be quickly and easily attached to each other when desired.

A further object of my invention is the provision of a multiple unit package wherein the individual packages are of elongated tubular configuration and wherein the tubes are extruded.

Another object of my invention is the provision of a multiple unit package of the character described wherein any preslected number of individual packages may be releasably attached to each other and wherein the different packages that make up one multiple unit may be of different sizes and shapes.

A further object is the provision of a new closure member for a tubular package, said closure member having means for enabling it to be releasably connected to an adjacent closure member.

Another object of my invention is the provision of a multiple unit package of the character described that is relatively simple to manufacture and assemble and which is sufficiently inexpensive to make so that individual packages may be disposed of after use, if desired, although they are capable of reuse.

Other objects, features and advantages of the invention will become apparent as the description thereof proceeds when considered in connection with the accompanying illustrative drawings.

In the drawings which illustrate the best mode presently contemplated for carrying out the present invention:

FIG. 1 is a perspective view of a multiple unit package constructed in accordance with my invention;

FIG. 2 is an enlarged fragmentary section taken on line 2—2 of FIG. 1;

FIG. 3 is an enlarged fragmentary top plan view of the multiple package shown in FIG. 1; and

FIG. 4 is an enlarged perspective view of the closure members which form a part of my invention.

Referring now to the drawings, and more particularly to FIG. 1 thereof, there is shown generally at **10** a multiple unit package constructed in accordance with my invention. It will be understood that although the multiple unit package **10** is shown as comprising four individual packages, any desired number of packages may be utilized to make up the multiple unit.

The multiple unit **10** consists of a plurality of individual packages **12**, each of which comprises an elongated tubular body portion **14**. Although the tubular body portions **14** are shown as being of cylindrical configuration, it will be understood that they may actually be of any desired shape. For simplicity of manufacture, and in order to maintain the cost of manufacture at a minimum, the body portions **14** are preferably a clear, transparent extruded acetate; and since the body portions **14** are extruded, it will be understood that they are open at opposite ends thereof. It is within the concept of the invention, however, to make the body portions **14** by other manufacturing techniques, wherein only one end of the tube is open, with the other end closed.

Closure members generally indicated at **16** are employed for plugging or closing the opposite ends of the tubular body portions **14**. The closure members **16** are preferably constructed of a molded plastic material, such as polyethylene, since, for reasons hereinafter to become apparent, it is desirable that the closure members **16** embody a certain degree of resilience, of the general nature of polyethylene. The closure **16** comprises an inner portion **18** and an outer portion **20**, the latter being of larger diameter than the former whereby to define a shoulder **22**. The lower peripheral edge of inner portion **18** is chamfered or beveled as at **24**.

The closure members **16** are adapted to be releasably attached to each other, and to this end each closure member **16** is provided with an integral, outwardly extending tongue **26** having a raised detent portion **28** extending upwardly and from side to side at the outer end of tongue **26**. For reasons hereinafter to be made apparent, the tongue **26** is of substantially rectangular configuration having straight, substantially parallel sides **30**. On the opposite side of outer portion or cap member **20** there is provided an opening **32**, which opening is dimensioned and shaped so as to snugly receive the tongue **26** in a snap-fit relation. Thus, in effect, the tongue **26** and its detent **28** cooperate with the opening **32** on the next adjacent closure member to effect a releasable interconnection between said adjacent closure members, this snap-fit relationship being possible due to the resiilent properties of the material of which the closure members **16** are constructed which, as aforestated, is a material having the resilient characteristics of polyethylene.

In operation and use, it will be understood that any desired number of tubular body members **14** may be utilized, and where said tubular body members are open at both ends, the closure members **16** will be provided at both ends. The inner or plug portion **18** of each closure member is adapted to press-fit within the tubular body, it being obvious that here again the resilient characteristics of closure member **16** enable a snug and ef-

fective seal to be achieved when portion **18** is forced into the tube **14**. The bevel or chamfer **24** facilitates entry of portion **18** into tube **14**, in a well-known manner. The shoulder **22** limits inward insertion of closure member **16** into tube **14**, and it will be specifically noted that the diameter of outer cap portion **20** is larger than the outer diameter of tube **14**, whereupon when adjacent closures **16** are interengaged with each other as illustrated in FIG. 2, adjacent tubes **14** will be spaced from each other. This is desirable in that it permits more ready visual definition of the individual packages and their contents.

The configuration of the tongues **26**, and particularly the straight opposite sides **30** thereof, function to maintain lateral play between adjacent individual packages to a minimum, as opposed to the type of male-female interconnection wherein the male part has an enlarged head and a reduced neck portion as is most customary. It will also be understood that where closure members **16** are provided at opposite ends of the tubes **14**, as is obviously necessary where the tube is open at both its ends, the interconnection of adjacent closures at both ends of the tube adds further rigidity to the multiple package. It will be understood that the adjacent individual packages need not all be of the same size or the same shape, the only thing that is important being that the closure members for the packages have matching male and female portions, **26** and **32**, respectively. It will also be seen, as hereinbefore explained, that any desired number of individual packages may be attached to each other to form the multiple package, and, whenever desired, one or more packages may be easily detached from the overall unit.

While there is shown and described herein certain specific structure embodying the invention, it will be manifest to those skilled in the art that various modifications and rearrangements of the parts may be made without departing from the spirit and scope of the underlying inventive concept and that the same is not limited to the particular forms herein shown and described except insofar as indicated by the scope of the appended claims.

What is claimed is:

1. A closure for a tubular member comprising an inner portion adapted to be press-received within the tubular member, an outer cap integrally connected to said inner portion, said cap being larger than said inner portion in cross dimension so as to define a shoulder therebetween, said cap having an integral male member extending outwardly from one side thereof and a female opening on the opposite side thereof, said female opening being dimensioned so as to snap-receive the male member of an adjacent closure whereby a series of said closures may be releasably interconnected.

2. The closure of claim **1** further characterized in that said male member comprises a substantially flat tongue having straight, parallel, opposite sides with an integral detent extending from one of the flat surfaces thereof, said female opening comprising a slot dimensioned and formed so as to snugly receive said tongue, the straight sides of the latter functioning to maintain lateral play between adjacent interconnected closures to a minimum.

3. The closure of claim **1** further characterized in that said closure is constructed of a material having substantially the resilient characteristics of polyethylene.

4. A multiple package comprising a plurality of side-by-side tubes open at both ends, and cover means comprising individual closures for each end of each tube, and means detachably interconnecting each individual closure to the next adjacent closure to maintain said tubes assembled to each other at their tops and bottoms to form a unitary and compact package.

5. The package of claim **4** further characterized in that said interconnecting means comprise an integral male member extending outwardly from one side of each closure, and a female opening on the opposite side thereof, said female opening being dimensioned so as to snap-receive the male member of an adjacent closure.

6. The package of claim **4** further characterized in that said closures are so constructed as to maintain said tubes spaced from each other when said closures are interconnected to form a unitary multiple package.

7. A multiple package comprising a plurality of side-by-side tubes open at least at one end, and cover means for the open ends of said tubes, said cover means comprising individual closures for each of said tubes, and means releasably interconnecting each individual closure to the next adjacent closure to maintain said tubes assembled to each other to form a unitary multiple package, said means comprising cooperating male and female portions adapted to snap-engage with each other, said closures each comprising an outer portion and an inner portion, said inner portion being dimensioned so as to be a press fit into said tube to plug the latter, said outer portion having an outer periphery larger than the outer diameter of said tube, whereby said outer portion limits movement of the closure into the tube and at the same time maintains adjacent tubes in spaced relation.

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