

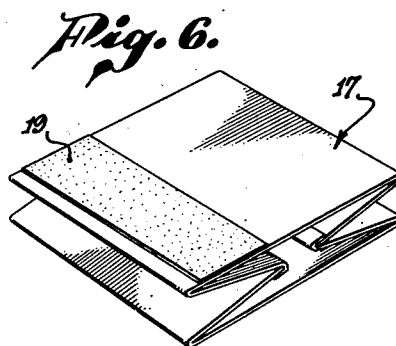
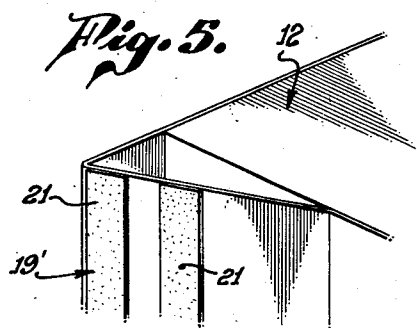
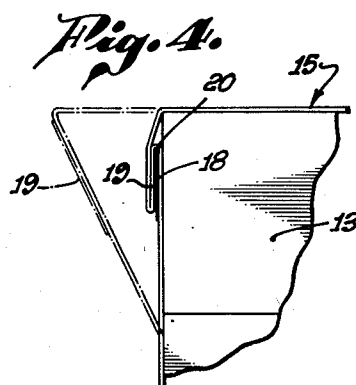
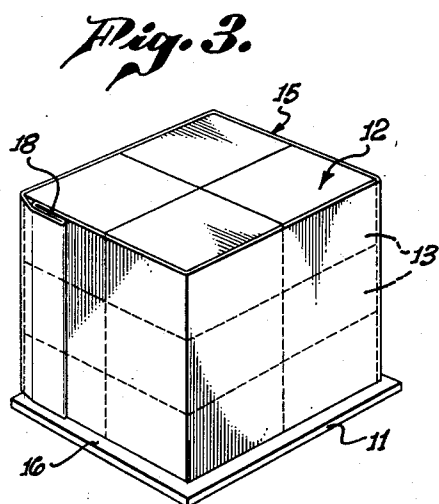
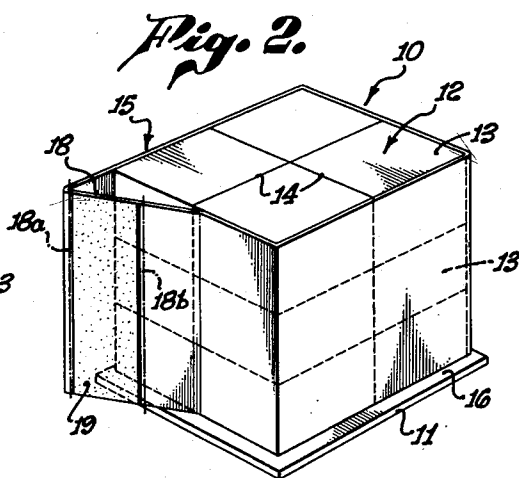
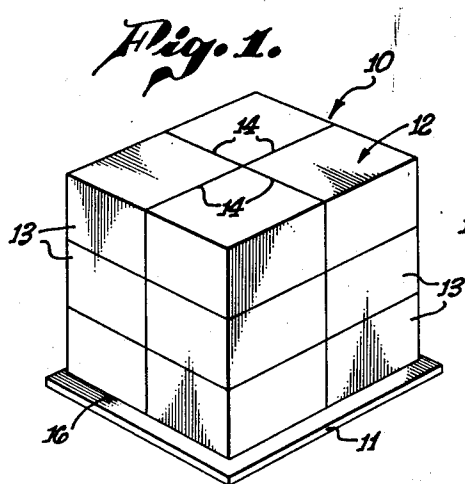
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2,707,553

SHIPPING UNIT TENSIONING MEANS THEREFOR

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SHIPPING UNIT AND TENSIONING MEANS THEREFOR

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5 Claims. (Cl. 206—65)

This invention relates to a means for forming a shipping unit including an assembly composed of a plurality of normally discrete shipping elements or containers. More particularly, the invention relates to a tubular paper tensioning means for rendering the assembly capable of being handled as a substantially integral unit.

Proposed means for facilitating handling of material and for forming suitable shipping assemblies of a plurality of discrete shipping elements have included the stacking of such discrete shipping elements upon a rectangular flat surfaced pallet. Such proposed pallets were normally provided with legs to space the supporting surface from the floor for facilitating insertion of the tines of a fork lift truck thereunder for lifting the load stacked upon the pallet. The shipping elements were thus readily supported for vertical movement and the stacked elements could be raised, lowered, moved, and stored while carried on the pallet. The shipping elements themselves, however, still maintained their discrete relation and were capable of being accidentally knocked out of the assembly, since each element did not cooperate with adjacent lateral elements for maintaining the assembly as a unit. Thus, the proposed manner of handling material by providing palletized loads to be handled as shipping units answered certain material handling requirements but at the same time were subject to several disadvantages. The discrete elements of the assembled pallet loads were laterally unstable and the amount of lateral instability depended upon the care and accuracy exercised by the stacker in placing the load upon the pallet.

Prior proposed means to prevent separation of a discrete container from an assembly of a plurality of containers included application of a small amount of adhesive material, such as paste or glue, to vertical adjacent paper surfaces of the containers. While this method of holding discrete shipping containers or cartons in contiguous relation substantially held said containers together in a loose assembly, upon separation of the containers, the glued surfaces were damaged and defaced by tearing of the paper material of the carton. Such defacement of the carton surface often destroyed company and product markings printed or stamped thereon. Obviously, such defacement is commercially undesirable.

Prior proposed pallets were normally made of wood, metal, or reinforced corrugated paper. These pallets were not only initially very expensive and costly but the cost of maintenance and repair was great. The wood pallets were easily broken and the metal pallets were damaged so as to force them out of shape and thus make vertical alignment of pallets very difficult and some times impossible. Repair and maintenance of wood and metal pallets is a continuous expensive undertaking.

The shipping unit of this invention contemplates a novel manner of supporting and assembling a plurality of discrete shipping elements so that an entire assembly may not only be handled as a unit for transportation and storage purposes but also possesses the characteristics of a virtually integral unit in that lateral stability is pro-

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vided. The shipping unit of this invention comprises a flat base plate of paper stock without legs or other vertical supporting members to space the supporting surface from the floor. Upon this flat base plate is assembled a plurality of discrete shipping elements with adjacent vertical stacks in contiguous relation. A tensioning tube of suitable paper stock material is then sleeved over the assembly of stacked elements so that the tube encircles the assembly. The tensioning tube may be conveniently precut to a length corresponding to the height of the assembly and is provided with a normal periphery greater than the periphery of the assembly in order to form an excess peripheral tensioning zone or fold. On the tensioning zone is carried a vertically extending band of self-sealing material so located that when the tensioning zone is grasped and the tube pulled snugly about the assembly the self-sealing band may be foldably brought into interengaging relationship so as to snugly hold the tensioning tube about the assembly. A fork lift truck having suitable tines or a metal plate thereon may then be inserted beneath the base plate of the shipping unit and the unit transported as desired.

An important object of this invention, therefore, is to design and provide a shipping unit comprising a plurality of normally discrete shipping elements which is capable of being handled as a virtually integral unit.

Another object of this invention is to design and provide a shipping unit suitable for material handling of a plurality of discrete shipping elements wherein an inexpensive, easily manufactured, and easily installed flexible tensioning tube is provided to encircle said shipping elements.

A further object of this invention is to design and provide for a shipping unit a tensioning tube capable of encircling an assembly of discrete shipping elements and capable of being secured in snug relation around said assembly for giving said assembly lateral stability.

A further object of this invention is to design and provide a disposable tensioning tube for a shipping unit which may be readily and quickly manually installed and tightened, and simply maintained in snug relation around an assembly of a plurality of shipping containers.

A still further object of this invention is to design and provide for a shipping unit as above described a tensioning tube of paper stock material having a normal periphery greater than the periphery of an assembly for which the tube is intended so as to provide an excess peripheral tensioning zone which carries means for securing said tensioning tube with a reduced periphery about said assembly.

Other objects and advantages of this invention will be readily apparent from the following description of the drawings.

In the drawings:

Fig. 1 is a perspective view of an assembly of discrete shipping containers stacked upon a base plate.

Fig. 2 is a perspective view of the assembly shown in Fig. 1, wherein a tensioning tube has been sleeved over said assembly.

Fig. 3 is a perspective view of the assembly shown in Figs. 1 and 2, wherein the tensioning tube has been pulled tight and secured.

Fig. 4 is an enlarged fragmentary view of a corner of the assembly illustrating in detail the method of securing the tensioning tube.

Fig. 5 is a perspective fragmentary view illustrating a different modification of the tensioning tube.

Fig. 6 is a perspective view of a precut tensioning tube in folded relationship prior to use on a shipping unit.

Generally speaking, a shipping unit 10 as contemplated by this invention comprises a flat base plate 11 carrying an assembly 12 of a plurality of discrete shipping containers, elements, or cartons 13 vertically stacked with ad-

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jacent vertical surfaces 14. Over assembly 12 is sleeved a tensioning tube 15 which may be snugly drawn and fitted around the assembly to hold said discrete containers in assembled relation and with their vertical surfaces 14 in contiguous relation.

The base plate 11 may comprises a flat, integral rectangular plate or board preferably of relatively stiff or rigid corrugated paper stock. The area of the base plate is slightly greater than the horizontal cross-sectional area of the assembly so as to provide outer margins 16 extending entirely around the assembly 12 and beyond the periphery of the assembly.

Margins 16 facilitate stacking and pickup of the shipping unit by a material handling truck, such as a fork lift truck, when the shipping unit is to be transported. Preferably, a fork lift truck is provided with a flat metal plate carried on the tines thereof to provide a relatively large bearing area. Margins 16 enable the forward edge of the metal plate to be inserted thereunder outwardly of the assembly for initially lifting the shipping unit a slight distance to permit the truck to move in and under the load.

The tensioning tube 15 in initial form may comprise a pre-cut open ended tubular member 17 of suitable paper stock material which may be made as illustrated and described in Patent No. 2,511,031. The tubular member 17 may be made of a flexible paper stock material having relatively heavy weight. While a single thickness of paper stock is illustrated for the tensioning tube described, it will be understood that the tensioning tube may be made of several thicknesses of paper stock so as to provide a strong multi-ply tensioning tube. In addition, it is understood that the tensioning tubular member may be made of water-proofed paper stock material.

The length of each precut tubular member may be approximately equivalent to the height of an assembly of shipping containers which is to be encircled by the tubular member. The length may be greater, if desired, so as to permit folding of the longitudinally extending excess portion of the tube to provide a cover for the assembly. This may be desirable when the shipping unit may become exposed to unfavorable weather.

The tubular member 17 is provided with a normal periphery which is greater than the periphery of the assembly 12 so as to facilitate sleeving of the tubular member over the assembly and also to provide an excess or tensioning fold or zone 18. Zone 18 is delineated by phantom lines 18a and 18b. The width of the tensioning zone is sufficient to permit folding of the zone while providing sufficient paper to facilitate manual grasping of the excess zone.

A vertically extending self-sealing band or strip 19 of securing material is applied to the external surface of tensioning zone 18, the edges of band 19 coinciding virtually with the lines 18a and 18b delineating edges of the zone 18. The band 19 is preferably composed of a self-sealing material, as for example a rubber latex material, which may be readily applied to the tensioning zone when in liquid form and quickly dries thereon. When dry, such rubber latex material has important characteristics of adhering only to itself and does not adhere or stick to articles foreign thereto such as paper or hands. Thus, tubular members 17 carrying bands 19 may be conveniently stacked or piled without the self-sealing band on one member 17 adhering to the paper of an adjacent contiguous member 17.

The self-sealing band 19 is carried by the tensioning zone adjacent to the margins of said zone so that when the tensioning zone is folded upon itself, about a fold line such as 20, portions of the self-sealing band will be brought into opposed relation for interengagement thereof for reducing the normal periphery of the tubular member.

It will be readily apparent that after an assembly 12 has been stacked upon a base plate 11, the tensioning

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tube 15 may be readily sleeved over said assembly in such a manner that the tensioning zone 18 is located adjacent to one corner of the assembly. The tensioning zone may then be readily grasped so as to pull and draw the tensioning tube snugly around the assembly to take up any slack therein on sides opposite to the corner to which the tensioning zone is located. After the tube has thus been tightened, the tensioning zone may be folded upon itself, as about line 20, so as to interengage portions of the self-sealing band. Application of manual pressure along the interengaged portions of the band causes the portions to adhere to each other for securing the tube snugly around the assembly.

The tubular member 17 may be provided with longitudinally extending score lines (not shown) spaced to correspond to the corner edges of an assembly 12 so as to facilitate positioning of the tubular member over the assembly.

It will thus be readily understood that an assembly of discrete shipping containers is quickly secured in snug contiguous relation by the tensioning tube of this invention. The integral vertical walls provided by the tensioning tube continuously enclose the assembly to afford lateral stability of the assembly. The external pressure applied to the assembly by the snug fitting tube imposes some friction between the vertical surfaces 14 of the contiguous discrete containers 13 to resist relative movement therebetween. A shipping unit is thus provided which is capable of being handled as a virtually integral unit and may be readily picked up and set down without separation of the discrete elements of the assembly.

In Fig. 5, a modification of the tensioning tube is illustrated wherein the self-sealing band 19' includes a plurality of spaced strips 21 carried on the tensioning zone 18' adjacent to the margins thereof. The provision of a plurality of relatively narrow strips 21 facilitates the interengaging of opposed strips when the tensioning zone is folded and also economizes on the amount of material used in the self-sealing strips. In other respects, the tensioning tube of Fig. 5 functions the same as that described above.

Normally, the tensioning tube may be drawn sufficiently tight to take out any slack in the paper tube at walls opposite to and adjacent to the tensioning corner of the assembly. Normally such removal of slack is adequate to hold the discrete containers in stable assembled relation. The self-sealing band may be of any desired width. When it is desirable to place the tube under tension beyond the take up of normal slack, the self-sealing band may be extended slightly beyond the margin of one edge of the tensioning zone.

The tensioning tube of this invention may be applied to assemblies of discrete elements of different size and character and may be modified and changed within the spirit of this invention. All such modifications which come within the scope of the appended claims are embraced thereby.

I claim:

1. A shipping unit comprising, in combination: a flat base plate of paper stock material; an assembly of a plurality of vertical stacks of discrete shipping containers positioned on said plate in abutting relation and under pressure contact with each other upon opposed vertical surfaces; and means uniformly maintaining said pressure contact between said discrete shipping containers throughout the height of said assembly including a tensioning tube of paper material tightly encircling the periphery of said assembly, said tensioning tube having a normal periphery greater than the periphery of the assembly to provide a vertically extending tensioning zone, self-sealing means carried on the outer surface of said tensioning zone and extending the entire height thereof, said tensioning zone being laterally overfolded throughout its height for interengaging portions of the self-sealing means, tightly drawing the tensioning tube around the said assembly, and for maintaining said tube under tension about said assembly

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whereby pressure contact between discrete containers affords frictional resistance to relative displacement of a container with respect to an abutting container so that the assembly may be handled as a unit.

2. A shipping unit as claimed in claim 1 wherein said self-sealing means on the outer surface of the tensioning zone includes spaced bands of self-sealing material, said bands being interengageable.

3. A shipping unit comprising, in combination: a flat thin base plate of paper stock material adapted to lie on a supporting surface; an assembly of a plurality of vertical stacks of discrete containers positioned on said plate in abutting relation and under pressure contact with each other upon opposed vertical surfaces; and means for maintaining said pressure contact throughout said assembly including a tensioning tube tightly encircling the vertical sides of the assembly and including a vertically extending laterally overfolded tensioning zone, said tensioning zone being provided with vertically disposed, interengageable, self-sealing means on the outer face of the tube for maintaining said tensioning tube under tension about said assembly.

4. A shipping unit as defined in claim 3 wherein said flat base plate of paper stock material projects beyond the periphery of said assembly for facilitating handling of said shipping unit.

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5. An article of manufacture comprising an open-ended flexible tubular tensioning member of paper stock having a normal expanded peripheral dimension and a selected length, a longitudinally extending tensioning zone included in the periphery of said tubular member, self-sealing means carried on one surface of said tensioning zone and extending for the entire length thereof, said tensioning zone being adapted to be laterally folded upon itself to reduce the normal peripheral dimension of the tubular member for tensioning said member about an assembly of discrete units to be retained thereby and to interengage portions of said self-sealing means for unyieldingly maintaining said tension.

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