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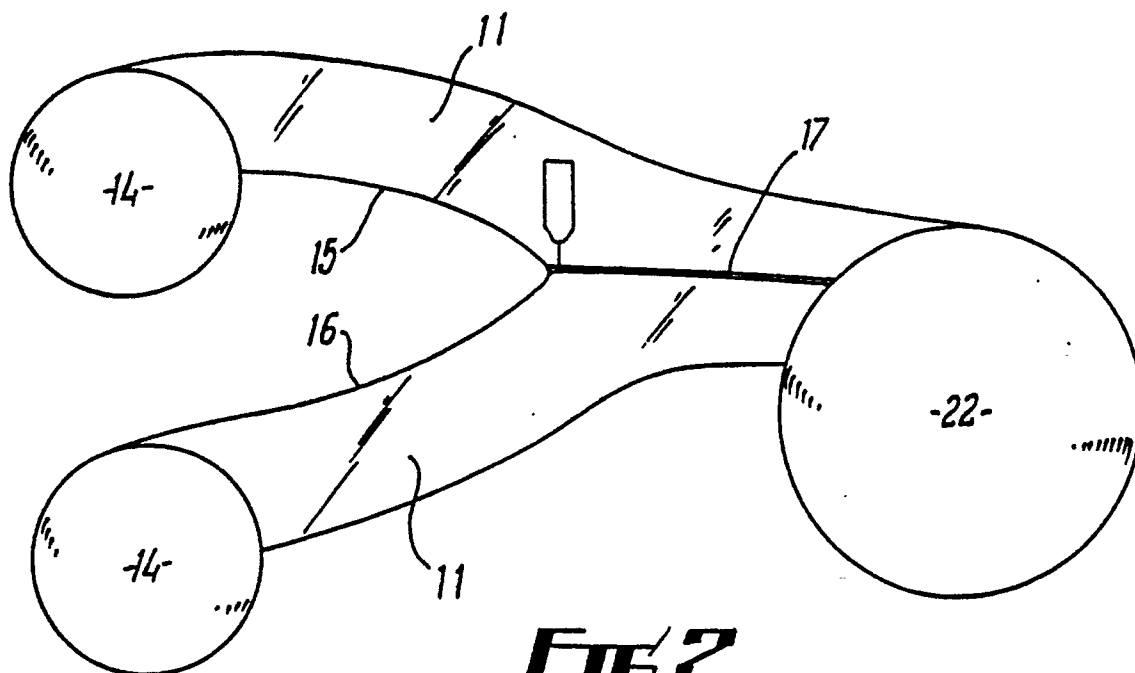
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Manchester M2 7BD(GB)(54) **A method of packaging objects.**

(57) A method of packaging objects utilises joining together of two or more preformed continuous, heat shrinkable, plastics sleeves (11) along longitudinal edges to form a continuous tubular structure (18) having multiple compartments thereto. Objects (23,

24) to be packaged are introduced into the compartments (19, 21) and the structure (18) shrunk into contact with the objects (23, 24) by the application of heat.



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FIG. 2

A METHOD OF PACKAGING OBJECTS

This invention relates to a method of packaging objects using heat shrinkable plastics film.

Objects can be packaged using a tubular sleeve formed from thin thermoplastics film, the sleeve being cut to length and heat shrunk onto the objects. When a number of objects are required to be packaged together, it is known to divide such a sleeve into a number of separate compartments by welding opposite sides of the sleeve together at appropriate positions.

An object of the present invention is to provide an alternative method of packaging objects together.

According to the present invention therefore there is provided a method of packaging objects comprising the steps of:

forming a continuous tubular structure from a heat shrinkable plastics film, having multiple compartments thereto, introducing objects into the compartments, and shrinking the film into contact with the objects by the application of heat, characterised in that said tubular structure is formed by joining together a plurality of preformed continuous sleeves longitudinally thereof.

With this arrangement a multi-compartment tubular structure with which objects can be packaged together can be formed in a particularly convenient manner.

The preformed sleeves may be formed from a flat strip of film which is joined at opposite longitudinal edges, e.g. by solvent or adhesive or by ultrasonic welding to give a tubular sleeve.

The sleeves may be joined along a single longitudinal line (or strip) between adjacent said sleeves.

Alternatively the sleeves may be joined with two or more mutually spaced longitudinal lines (or strips) between adjacent said sleeves. Most preferably there are two said sleeves although possibly more than two may be used.

The joining of the sleeves may be effected e.g. by solvent materials and/or adhesives or by ultrasonic welding.

The tubular structure may be cut transversely and/or otherwise before or after insertion of the objects or heat shrinking of the film.

The invention will now be described further by way of example only and with reference to the accompanying drawings in which:-

Fig. 1 is a schematic representation showing the formation of a tubular sleeve according to the invention;

Fig. 2 is a schematic representation showing part of the formation of a package according to the invention;

Fig. 3 is a side view, to an enlarged scale, of the package formed as shown in Fig. 2;

Fig. 4 is a schematic representation showing part of the formation of an alternative embodiment of package according to the invention, and

Fig. 5 is a side view, to an enlarged scale, of the package formed as shown in Fig. 4.

In accordance with the embodiment of Figs. 1, 2 and 3, objects can be packaged with the following steps:

A supply of plastics shrink film 10 in strip form is provided wound onto a reel. From this film a tubular sleeve 11 is formed in a conventional manner. The film is withdrawn from the reel 10 and folded over so that the opposite longitudinal edges 12 and 13 meet in the middle. The sleeve 11 is formed by joining the two edges 12, 13 of the film for example with a solvent or alternatively by ultrasonic welding.

The sleeve 11 thus formed is of flattened tubular construction and is wound onto a further reel 14 for storage. Two such reels 14 containing a supply of the tubular sleeve material are utilised in the next stage of the method.

Tubular sleeve material is withdrawn from the two reels 14 at the same rate and the material 11 is brought into such position that the long edges 15, 16 of the sleeves 11 are adjacent and the respective sleeves 11 run side by side. This can be achieved in any suitable manner for example by the use of guide rollers (not shown) to guide the material into position. One or more tensioned intermediate rollers (not shown) can be provided associated with each reel 14, over which rollers the tubular sleeve material is drawn into the abovementioned position with the long edges 15, 16 adjacent. The tensioned intermediate rollers can be formed by rollers biased by a spring or can be formed in any other suitable manner as desired or as appropriate. The adjacent long edges 15, 16 are then joined to each other by a continuous longitudinally extending seam 17 to form an integral tubular structure by the application of solvent or by ultrasonic welding. The tubular structure 18 so formed has two longitudinally extending compartments 19, 21 separated from each other by the seam 17. A tubular structure 18 can be fed onto a storage reel 22 and subsequently can be used to package side by side two objects 23, 24 by cutting the structure transversely to size and heat shrinking onto the objects 23, 24. Stepped transverse cutting can be used to give compartments 19, 21 of different lengths to suit differently sized objects, as appropriate.

In accordance with an alternative embodiment,

as illustrated in Figs. 4 and 5, it is possible to package objects of generally rectangular configuration in 'box' shaped compartments. In this case two tubular sleeves 11 are fed into position one on top of the other. In this disposition both long edges 26, 28 and 27, 29 of the sleeves 11 are adjacent and are joined together by respective continuous longitudinally extending seams 31, 32 by solvent or by ultrasonic welding. In this way a spine 33 is created between the two sleeves 11 which acts to form a tubular structure 34 with two longitudinally extending 'box' shaped compartments 36, 37 suited to easy packaging of rectangular objects 38, 39. As with the embodiment of Figs. 3 and 4, the tubular structure 34 is cut transversely and heat shrunk onto the objects 38, 39.

By appropriate selection of number and positioning of the joins between individual sleeves 11 it is possible to conveniently accommodate objects of different configurations.

It is of course to be understood that the invention is not intended to be restricted to the details of the above embodiments which are described by way of example only.

Claims

1. A method of packaging objects comprising the steps of:

forming a continuous tubular structure from a heat shrinkable plastics film (10), having multiple compartments (19, 21) thereto, introducing objects (23, 24) into the compartments, and shrinking the film into contact with the objects by the application of heat, characterised in that said tubular structure is formed by joining together a plurality of preformed continuous sleeves (11) longitudinally thereof.

2. A method according to claim 1, characterised in that said preformed sleeve (11) is formed from a flat strip of film which is joined at opposite longitudinal edges (12, 13) to give a tubular sleeve.

3. A method according to claim 1 or claim 2, characterised in that said sleeves (11) are joined along a single longitudinal line (or strip) between adjacent said sleeves.

4. A method according to claim 1 or claim 2, characterised in that said sleeves (11) are joined with two or more mutually spaced longitudinal lines (or strips) between adjacent said sleeves.

5. A method according to any one of claims 1 to 4, characterised in that two said sleeves (11) are joined.

6. A method according to any one of claims 1 to 5, characterised in that the joining of said sleeves is effected by way of solvent materials.

7. A method according to any one of claims 1 to 5, characterised in that the joining of said

sleeves is effected by way of adhesives.

8. A method according to any one of claims 1 to 5, characterised in that the joining of said sleeves is effected by way of ultrasonic welding.

9. A method according to any one of claims 1 to 8, characterised in that the tubular structure is cut transversely before insertion of the objects (23, 24).

10. A method according to any one of claims 1 to 9, characterised in that the tubular structure is cut transversely before heat shrinking of the film.

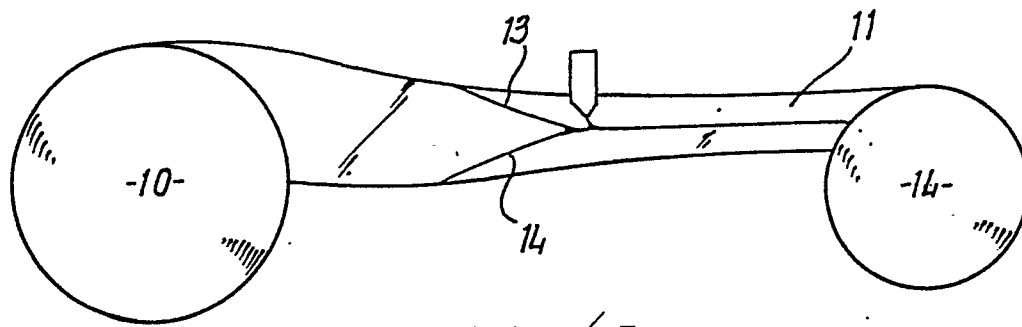


Fig. 1

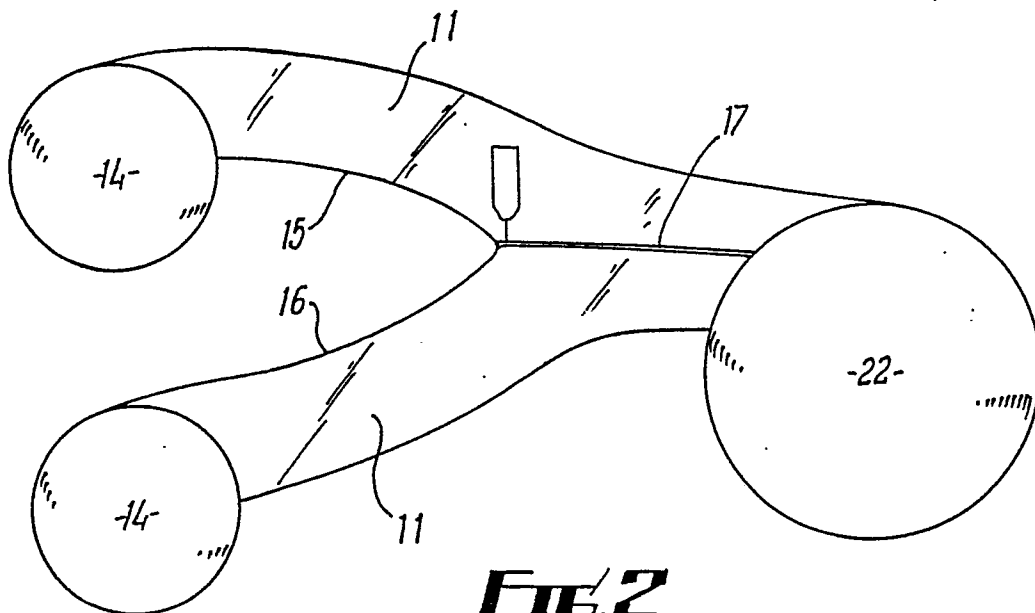


Fig. 2

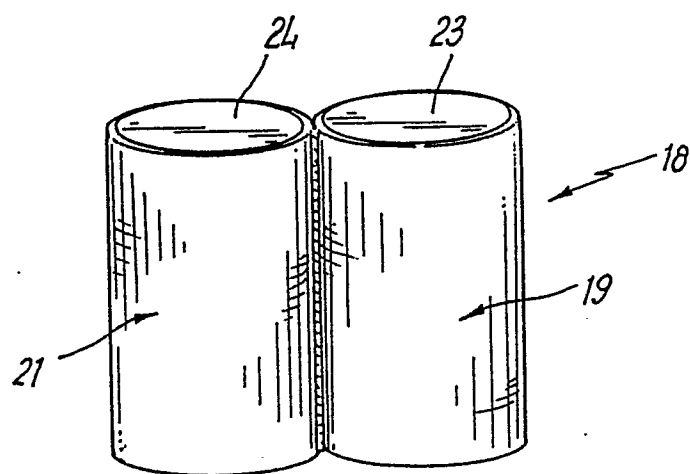


Fig. 3

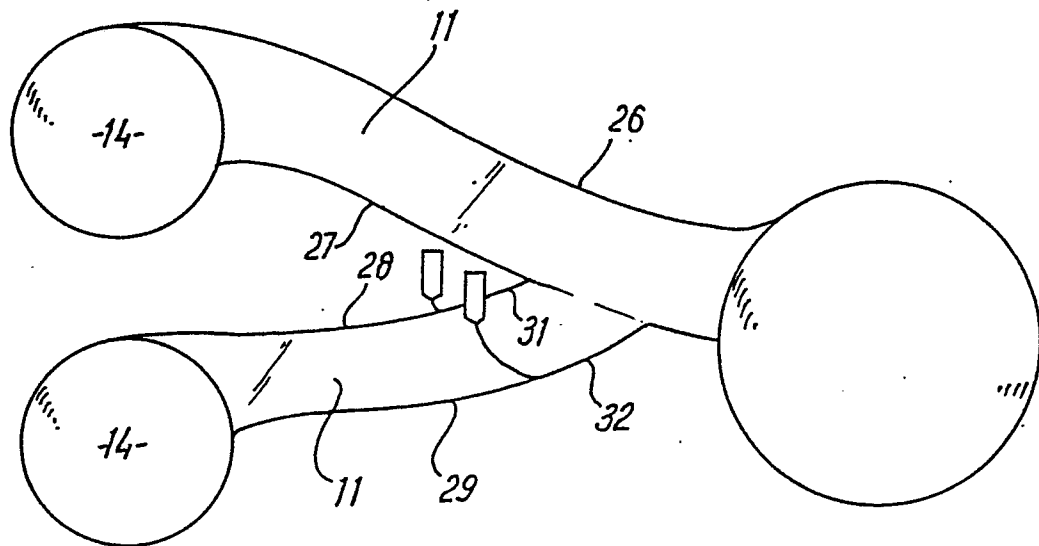


Fig. 1

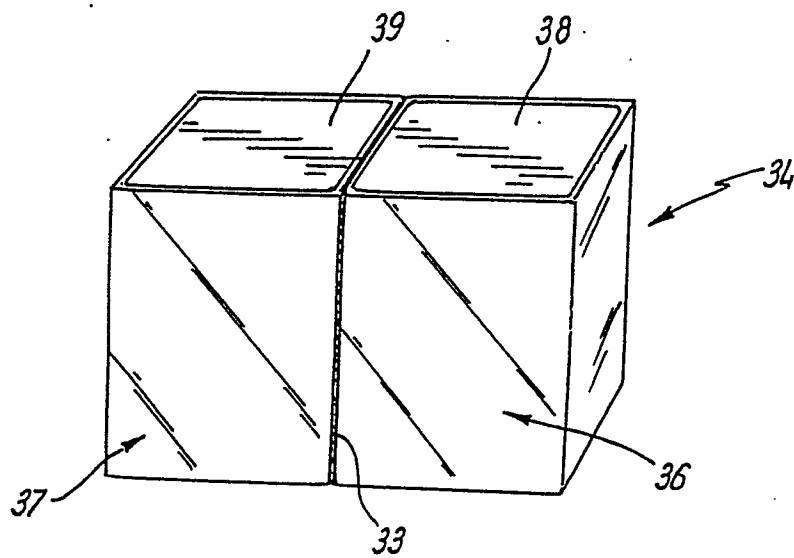


Fig. 5



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	US-A-4 377 234 (KAPLAN) * Whole document *	1,3,5,9	B 65 B 43/08
Y	---	2,7	
Y	US-A-4 617 781 (PLAYTEX) * Column 2, line 63 - column 3, line 9; figure 1 *	2	
Y	---	7	
Y	GB-A-2 113 169 (SLEEVE) * Abstract *		

The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B 65 B B 65 D
Place of search		Date of completion of the search	Examiner
THE HAGUE		06-07-1990	CLAEYS H.C.M.
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			
T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			