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(71) Applicant: E.I. DU PONT DE NEMOURS AND COMPANY [US/US]; 1007 Market Street, Wilmington, DE 19898 (US).

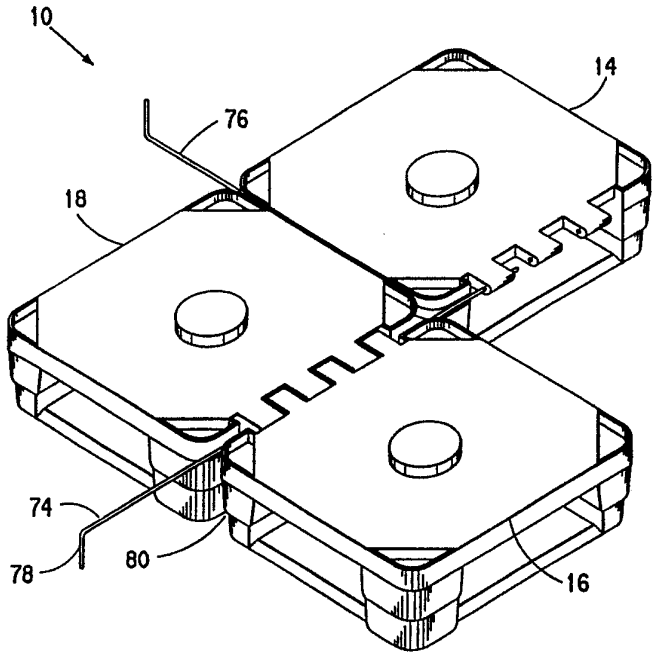
(72) Inventor: REYNOLDS, William, Boyd ; Route 7, Box 205C-1, Fayetteville, NC 28306 (US).

(74) Agents: CORLE, James, T. et al.; E.I. du Pont de Nemours and Company, Legal/Patent Records Center, 1007 Market Street, Wilmington, DE 19898 (US).

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Published
With international search report.
With amended claims.

(54) Title: INTERLOCKING PALLET



(57) Abstract

A pallet (10) having at least two sections (12, 14, 16, 18) has interlocking means (36, 38) for joining the sections together, the interlocking means comprising knuckles (36, 38) on sections which mate to receive a releasable locking member (74).

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+ DESIGNATIONS OF "SU"

It is not yet known for which States of the former Soviet Union any designation of the Soviet Union has effect.

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TITLE

INTERLOCKING PALLET

BACKGROUND OF THE INVENTION

This invention relates to a new interlocking pallet comprised of at least two sections which can be joined together.

Interlocking pallets which are formed by a plurality of sections are known. These pallets are useful for supporting loads to be moved by lift trucks, particularly when only a portion of a load is to be transported from place to place. Such a pallet is disclosed in U.S. Pat. No. 3,650,224. While the various sections of the pallet can be joined in a releasable interlocking relationship, no positive locking means is provided, and in lifting and moving the pallet, the sections may come apart.

SUMMARY OF THE INVENTION

In accordance with the present invention there is provided a pallet consisting of at least two sections having releasable interlocking means for positively joining the sections together. The locking means effectively prevents separation of the sections during both lateral and vertical movement of the pallet.

Each section of the pallet has a top load supporting deck with foot members positioned at each corner of the section. The locking means comprises knuckles on each section which can be brought into mating relationship. The knuckles of a first section are spaced apart along the periphery of at least one side of the deck and along an underlying member on an adjoining side of the deck. When similarly configured

sections are in the mated position, the two sections can be locked together by inserting a locking member through openings in the mated knuckles.

In another embodiment of the pallet of this invention, knuckles on a first section of the pallet are spaced apart along the periphery of the surface of at least one side of the deck and along a member underlying the side of the deck. Knuckles on a second section of the pallet are similarly spaced apart as just described to permit mating with knuckles on the first section of the pallet. When the knuckles of the two sections are in the mated position, the sections can be locked together by inserting a locking member through openings in the mated knuckles.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a pallet of the present invention illustrated by four interlocked sections;

FIG. 2 is a view of one section of the pallet of FIG. 1;

FIG. 3 is view of the pallet shown in FIG. 1 in a partially broken down state;

FIG. 4 is a view of another embodiment of the present invention illustrated by two interlocked sections; and

FIG. 5 is a view of one section of the pallet of FIG. 4.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to Figure 1, pallet 10 is comprised of four sections 12, 14, 16 and 18. Each of the four sections is substantially identical having a top load supporting deck 20, 22, 24 and 26 and foot

members 21, 23, 25, 28, 30, 32 and 34 at the corners of each section.

Section 12 is shown in more detail in Figure 2. Knuckles 36, 36′ and 36″ are spaced apart along the periphery of the surface of deck 20. Similar knuckles 38, 38′ and 38″ are spaced apart along stringer 40. The knuckles have eyes 42, 42′, 42″, 44, 44′ and 44″ for receiving locking members. Sections 14, 16 and 18 include similarly spaced knuckles and eyes.

As shown in Figure 1, the sections have openings 46, 48, 50 and 52 which are wide enough to permit entry of the forks of a fork-lift or pallet truck. Stingers 54, 56, 58 and 59 have beveled outer and interior surfaces, preferably beveled at a 45 degree angle, to permit easy access and withdrawal of the wheels of a pallet truck.

The embodiments shown in the Figures are configured to transport large rolls of film. As shown in Figure 1, nodes 60, 61, 62 and 64 protrude from the surface of the sections. An open end of the core of a roll in an upright position is placed over the node to assist in retaining the roll on the pallet. The node as well as the surface of the section should be suitably reinforced for supporting heavy loads. Other configurations could be used to accommodate differently shaped loads.

As best shown in Figure 2, the surface 20 of section 12 includes wells 66, 68 and 70 for receiving corner posts. A triangular shaped post 72, a portion of which is shown, or other configuration may be used. The posts can support a cover plate, not shown, which would include nodes for receiving the open end of the core of a roll standing on the pallet. A cover plate is necessary to protect the rolls on the pallet during

shipping and stacking. A stretch-wrap package can be provided for encasing the pallet, rolls and the cover plate using a suitable polymeric film.

Referring now to Figure 3, pallet 12 is shown in a partially broken down state. Locking rod 74 is shown partially inserted through the knuckles of adjoining sections 16 and 18. A second locking rod 76 is also shown partially inserted through knuckles on sections 14 and 18. When rod 74 is fully inserted, bent end 78 fits into groove 80 which is formed between sections 16 and 18. A similar groove accommodates the end of rod 76.

In another embodiment of the pallet of this invention shown in Figure 4, sections 82 and 84 have knuckles 86, 86′, 86″, 88, 88′ and 88″ spaced along the periphery of decks 90 and 92. Rod 94 is shown in the locking position securing the sections together.

Section 82 is shown in more detail in Figure 5. A second set of knuckles 98, 98′ and 98″ is shown on underlying stringer 100. When two sections are mated, locking rods can be inserted in both the upper and lower sets of knuckles. The surface of the deck 102 of section 82 is configured with nodes 104, 106, 108, 110 and 112 to receive the hollow end of cores of rolls of film.

The pallets of this invention may be constructed from a variety of materials. They may be molded from polymeric materials such as ABS resins, high density polyethylene and polyesters. Recylcable material are particularly suited for this purpose. In molding the pallets the deck portions and the lower portion which includes the stringers and foot members can each be molded separately and joined together by suitable fastening means. Preferably, the foot members and stringers are molded simultaneously as

contiguous members. However, the sections of the pallet may be molded as integral units. Various known molding techniques can be used.

While particular embodiments of this invention have been shown and described, it will be apparent to those skilled in the art that various changes and modifications may be made therein without departing from the scope of the invention.

CLAIMS

1. A pallet comprised of at least two sections having releasable interlocking means for joining said sections together, each section having a top load supporting deck with underlying supporting members, a plurality of knuckles spaced along the periphery of at least one side of said deck and a plurality of knuckles spaced along an underlying member on an adjoining side of said deck, the knuckles on a first section of said pallet being spaced apart to permit mating with corresponding knuckles on a second section of said pallet, said knuckles being adapted to receive a releasable locking member when brought into mating relationship.

2. The pallet of claim 1 wherein each section of said pallet has a node centrally located and projecting from the surface of said deck for receiving a hollow core of a roll when said roll is placed in a standing position on said deck.

3. The pallet of claim 1 wherein each section has foot members contiguous with said underlying members, said foot members being positioned at each corner of said section.

4. The pallet of claim 1 wherein said knuckles have eyes adapted to receive an elongated rod for securing said sections in interlocking relationship.

5. A pallet comprised of at least two sections having releasable interlocking means for joining said sections together, each section having a top load supporting deck with foot members positioned

at each corner of said section, each section having a first set of knuckles along the periphery of the surface of at least one side of said deck and a second set of knuckles along a member underlying said first set of knuckles, said first and second sets of knuckles being spaced apart to permit mating with knuckles on a second section of said pallet, said knuckles being adapted to receive a releasable locking member when brought into mating relationship.

6. The pallet of claim 5 wherein each section of said pallet has at least one node projecting from the surface of said deck for receiving a hollow core of a roll when said roll is placed in an upright position on said deck.

7. The pallet of claim 5 wherein said foot members are contiguous with members underlying said supporting deck.

8. The pallet of claim 5 wherein said knuckles have eyes adapted to receive an elongated rod for securing said sections in interlocking relationship.

AMENDED CLAIMS
[received by the International Bureau on 19 November 1991 (19.11.91); original claims 1 and 5 amended; other claims unchanged (2 pages)]

1. A pallet comprised of at least two sections having releasable interlocking means for joining said sections together, each section having a top load supporting deck with underlying supporting members, a plurality of knuckles spaced along the periphery of at least one side of said top load supporting deck and a plurality of knuckles integral with and spaced along an underlying member on an adjoining side of said deck, the knuckles on a first section of said pallet being spaced apart to permit mating with corresponding knuckles on a second section of said pallet, said knuckles being adapted to receive a releasable locking member when brought into mating relationship said sections being joined together to provide a rigid integrated platform when said locking member is inserted through the knuckles on said first and second sections of said pallet.

2. The pallet of claim 1 wherein each section of said pallet has a node centrally located and projecting from the surface of said deck for receiving a hollow core of a roll when said roll is placed in a standing position on said deck.

3. The pallet of claim 1 wherein each section has foot members contiguous with said underlying members, said foot members being positioned at each corner of said section.

4. The pallet of claim 1 wherein said knuckles have eyes adapted to receive an elongated rod for securing said sections in interlocking relationship.

5. A pallet comprised of at least two sections having releasable interlocking means for joining said sections together, each section having a top load supporting deck with foot members positioned at each corner of said section, each section having a first set of knuckles integral with and spaced along the periphery of the surface of at least one side of said deck and a second set of knuckles integral with a spaced along a member underlying said first set of knuckles, said first and second sets of knuckles being spaced apart to permit mating with knuckles on a second section of said pallet, said knuckles being adapted to receive a releasable locking member when brought into mating relationship said sections being joined together to provide a rigid integrated platform when said locking member is inserted through said knuckles on said first and second sections on said pallet.

6. The pallet of claim 5 wherein each section of said pallet has at least one node projecting from the surface of said deck for receiving a hollow core of a roll when said roll is placed in an upright position on said deck.

7. The pallet of claim 5 wherein said foot members are contiguous with members underlying said supporting deck.

8. The pallet of claim 5 wherein said knuckles have eyes adapted to receive an elongated rod for securing said sections in interlocking relationship.

FIG. 1

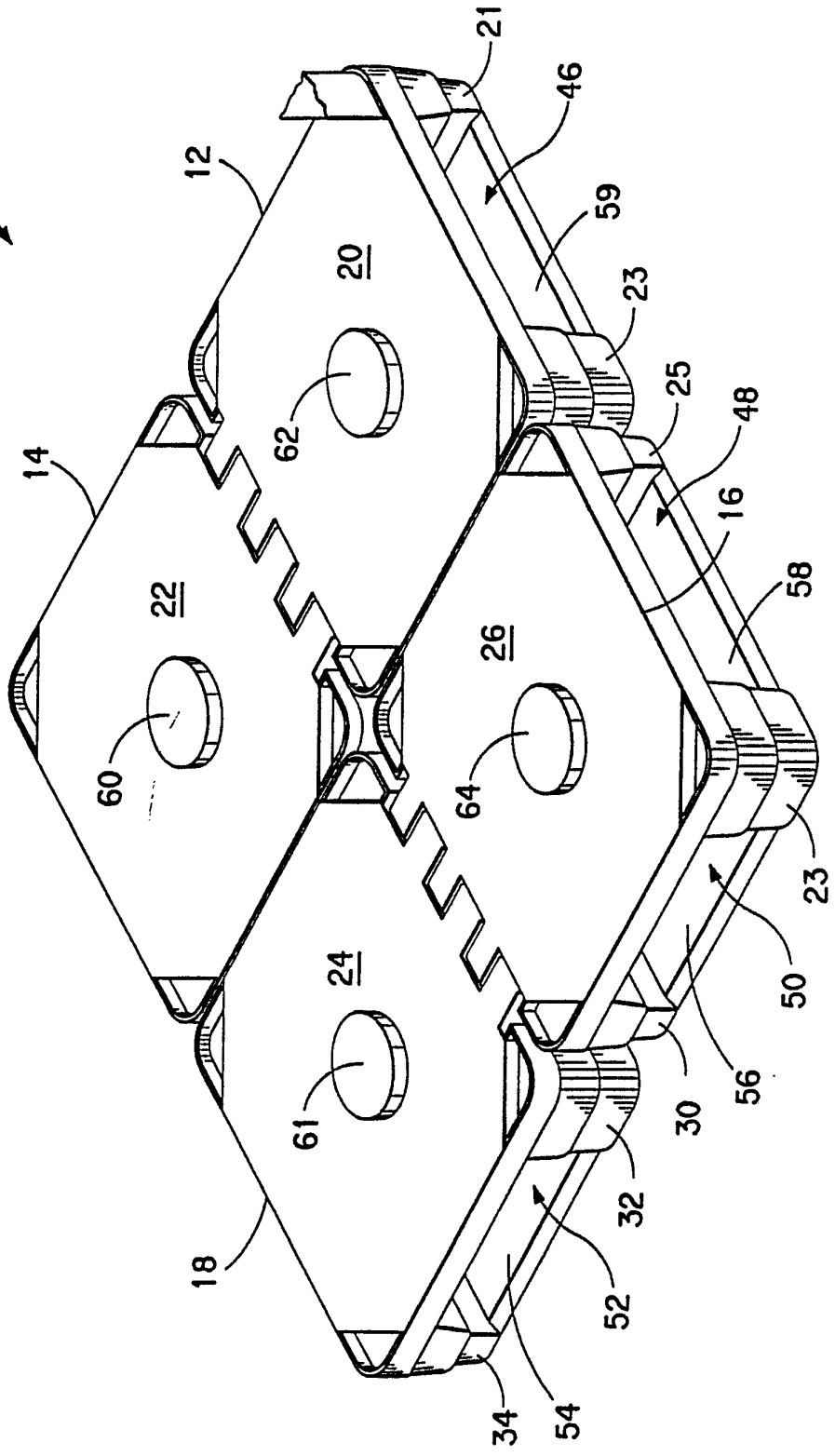

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60
61
62
64

FIG. 2

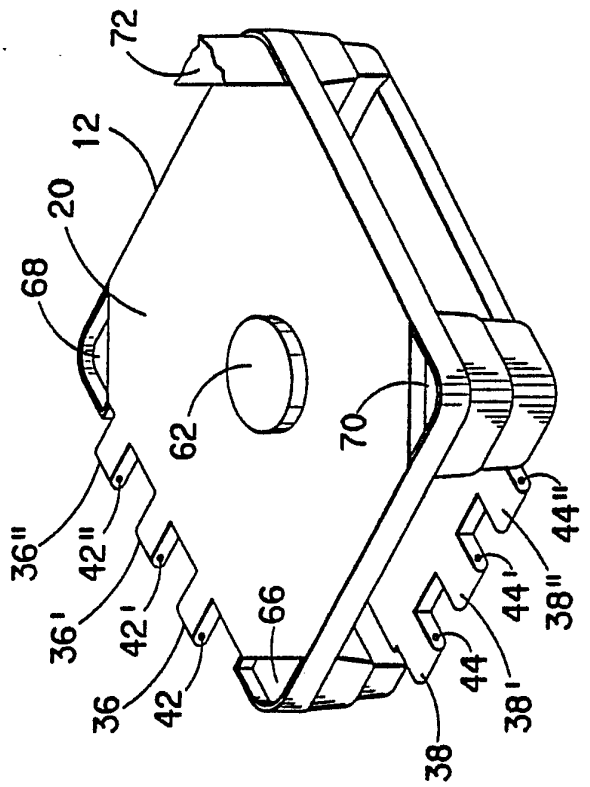

72
12
20
68
62
70
36"
42"
36'
42'
36
42
66
38
44
38'
44'
38"
44"

FIG. 3

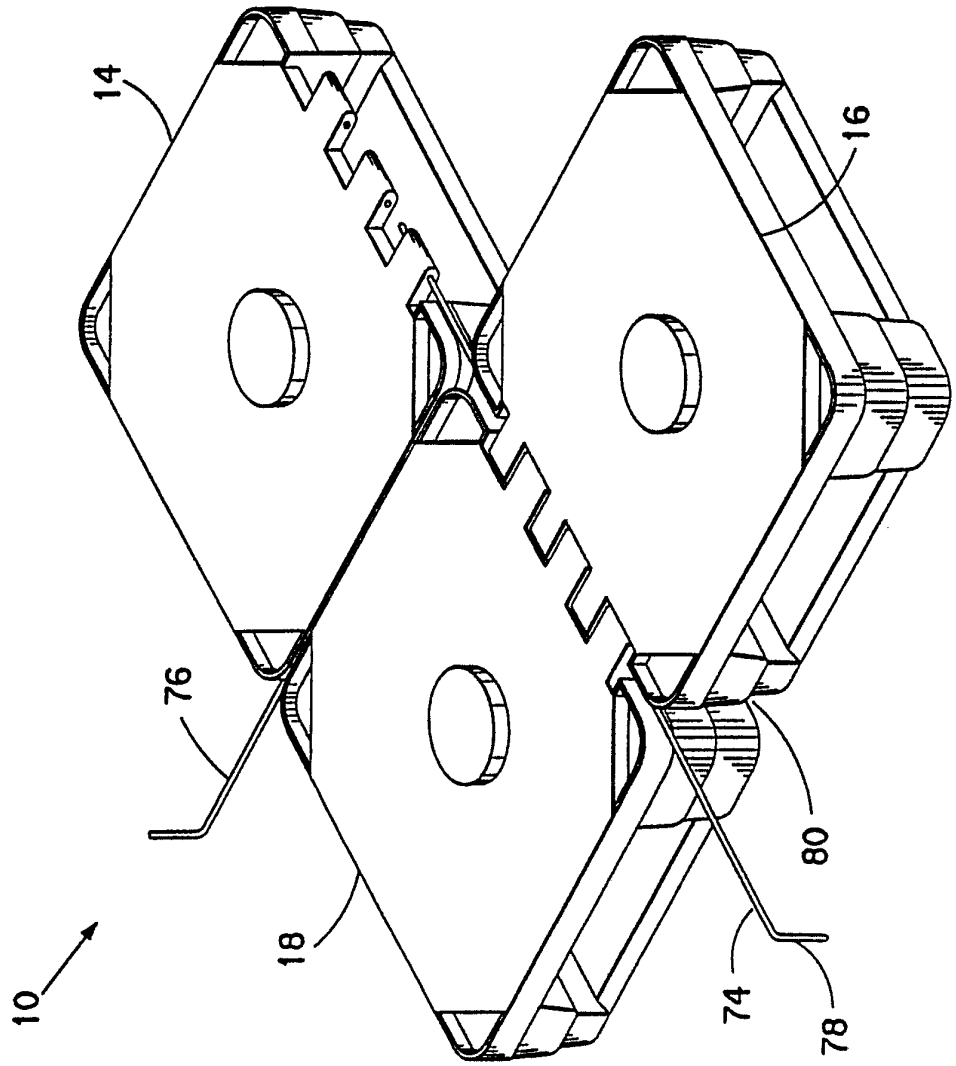

14
16
76
18
80
74
78
10

FIG.4

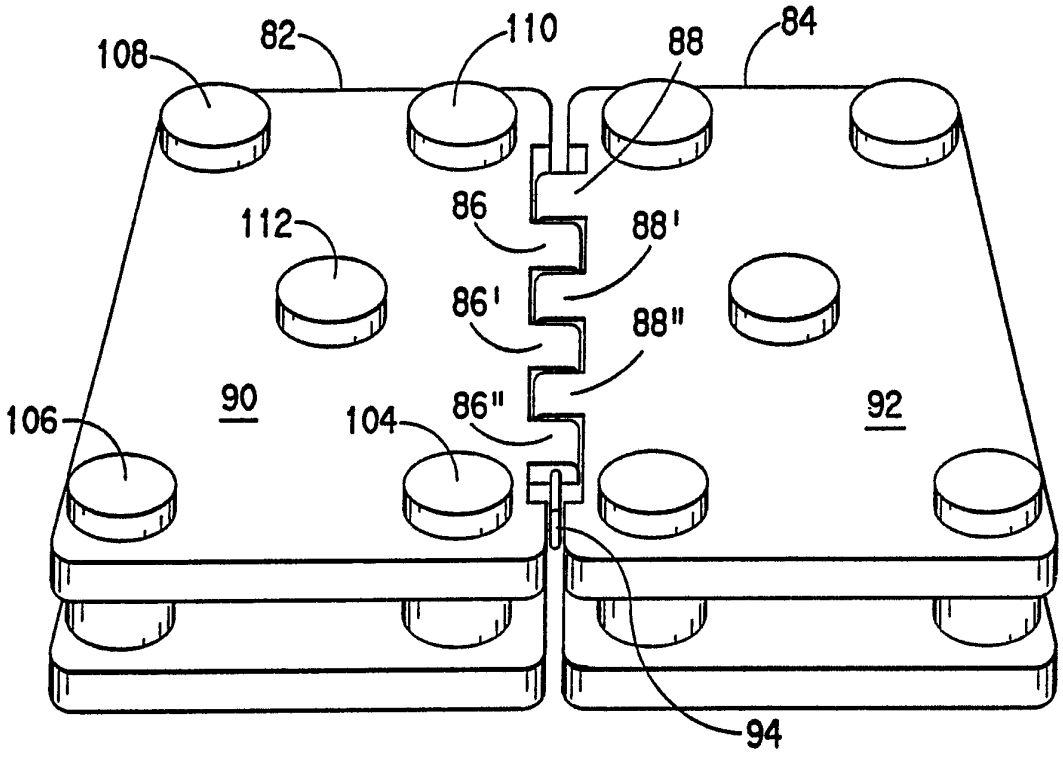
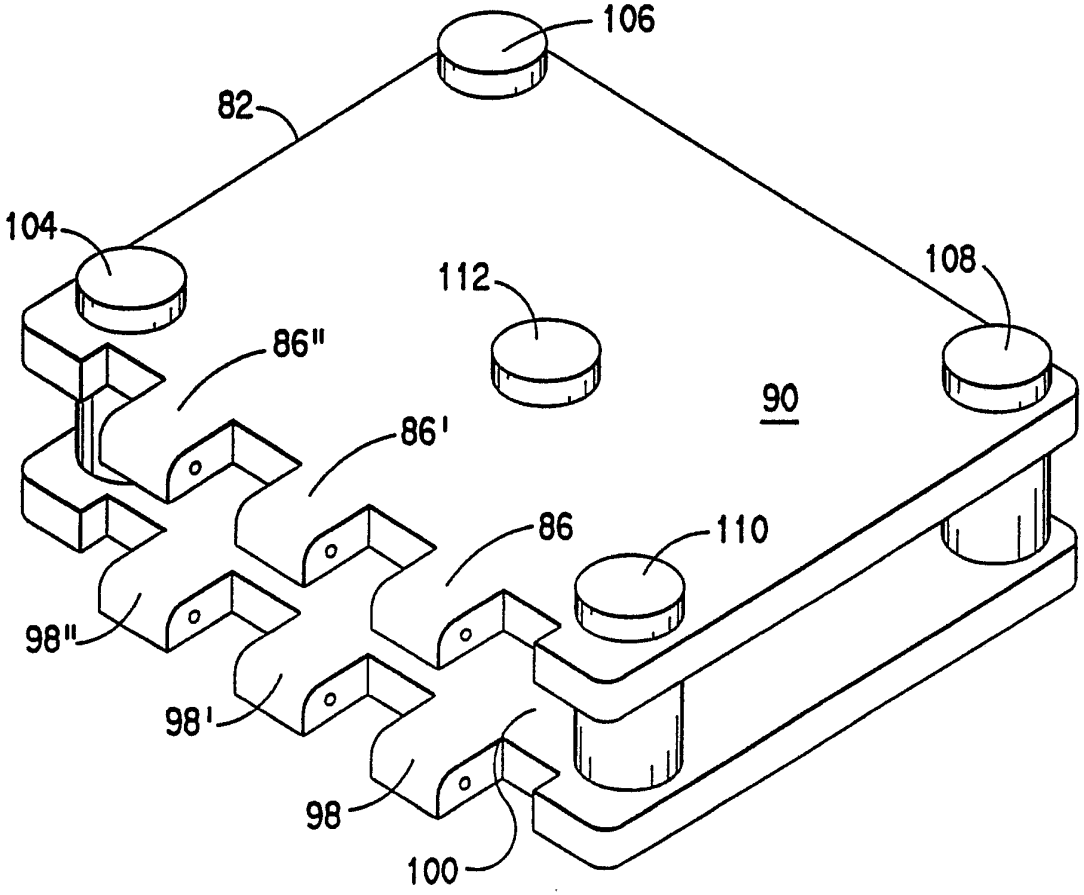

108
82
110
88
84
86
88'
112
86'
88"
90
92
106
104
86"
94

FIG.5


106
82
104
112
108
86"
90
86'
86
110
98"
98'
98
100

INTERNATIONAL SEARCH REPORT

International Application No PCT/US91/04887

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) 3

According to International Patent Classification (IPC) or to both National Classification and IPC

IPC(5): B65D 19/12
US CL: 108/56.1

II. FIELDS SEARCHED

Minimum Documentation Searched 4

Classification System 5	Classification Symbols
US	108/56.1,51.1,55.3,57.154.164,65; 403/292; 248/346; 24/33P

Documentation Searched other than Minimum Documentation to the Extent that such Documents are included in the Fields Searched 6

III. DOCUMENTS CONSIDERED TO BE RELEVANT 14

Category *	Citation of Document, 16 with indication, where appropriate, of the relevant passages 17	Relevant to Claim No. 18
Y	US,A 1,975,862(OLSEN) 09 October 1934 See entire document	1,2,3,4,5,6,7,8
A	US,A 3,059,887 (WARD JR.) 23 October 1962 See entire document	
A	US,A 3,429,536 (PETRY et al) 25 February 1969 See entire document	
A	US,A 3,540,318 (GREENBERG) 17 November 1970 See entire document	
A	US,A 3,650,224 (PETIX et al) 21 march 1972 See entire document	
A	US,A 4,095,769 (FENGELS) 20 June 1978 See entire document	
Y	US,A 4,516,677 (ROWLAND et al) 14 May 1985 See entire document	2,6
Y	US,A 4,580,680 (WIND) 08 April 1986 See entire document	2,6

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IV. CERTIFICATION

Date of the Actual Completion of the International Search 2	Date of Mailing of this International Search Report 2
27 August 1991	04 OCT 1991
International Searching Authority 1	**Signature of Authorized Officer 20**
ISA/US	Andrea Robinson Jose V. Chen

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Category *	Citation of Document, [16] with indication, where appropriate, of the relevant passages [17]	Relevant to Claim No [18]
Y	US,A 4,694,962 (TAUB) 22 September 1987 See entire document	1,2,3,4,5,6,7,8
A	US,A 4,735,154 (HEMERY) 05 April 1988 See entire document	
Y	US,A 3,650,225 (BALL) 21 March 1972 See entire document	1,2,3,4,5,6,7,8
A	US,A 4,869,179 (SAMMONS ET AL.) 26 September 1989, See entire document.	
A	GB,A 1,156,430 (SHALTS) 25 June 1969, See entire document.	
A	FR,A, 1,241,565 (PRODAN) 08 August 1960, See entire document.	