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⑤④ **Improved pallet for transport and storage of goods.**

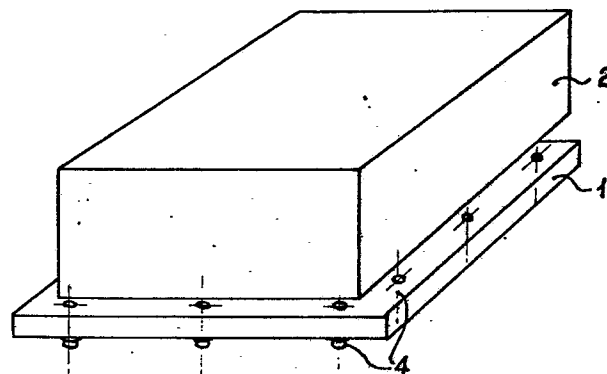
⑤⑦ An improved type of pallet for handling goods is, according to the invention, provided with means for reinforcing the pallet platform and means for supporting the pallet platform on the ground, which are distinct from one another.

The distinct, supporting means consist of supporting elements (4) having a substantially cylindrical cross-section and being provided at the ends thereof with a pierced neck (7) and a ground foot (8), respectively. The neck (7) is fitted into a corresponding hole formed through the boarding member (3) and is locked in place thereon by the aid of a rivet (9) the shank of which immovably fits within the hole (7') in the neck (7).

The distinct, reinforcing means consist of pierced laths (5) which are fitted against the lower surface of the boarding member (3) and are locked in place there by simultaneously inserting the neck (7) of supports (4) into both the holes (5') in the laths (5) and the holes in the boarding (3), where by the locking in place is finally achieved by means of the rivets (9). Laths (5) may also be fitted to the ground feet (8) of supports (4).

In an alternative from, anchoring of the supports to the boarding member is by means of a protruding rim (70) provided on the body (60) of the supports, and the reinforcing laths (50) are fitted to the feet (80) of the supports.

In still an other form, the supports (41) are partially inserted within recesses (52) in the boarding member (31), and are locked in place therein by gluing.



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AN IMPROVED TYPE OF PALLET FOR TRANSPORTING AND STORING GOODS

This Patent for an Invention is related to an improved type of pallet for transporting and storing goods.

"Pallets", as is known, is the English, commonly accepted term for designating those portable platforms that are used for
5 collecting thereon given quantities of goods in bulk or packaged form, in such a manner that an unit load is obtained which is easy to be transported and stacked by mechanical devices such, for example, as fork trucks.

Pallets are conventionally composed of a series of cross-
10 overlapping wood laths, wherein one face of this cross-system structure defines the flat, load supporting means, while the opposed face is the means by which the pallet will rest upon the ground. In this case insertion of the fork-member of a lift-truck occurs into the gaps between the spaced apart wood laths.

15 An other conventional method is to construct the flat member of the pallet from cardboard, with loops or folds length-wise formed on the bottom: located within these folds are cubes, usually



made of a foamed material and designed to serve as the means for bearing on the ground.

In both the above conventional solutions the pallet structure is entirely preformed at the time when pallets are manufactured.

5 This is unfavourable not only for reasons connected with floor space considerations, particularly when transporting and storing the pallet, but also because it implies structure sizes of these items to be restricted to standardized loading values. As a result, the user is, more likely than not, compelled to use pallets that

10 are oversized with respect to the load to be handled; or he is faced with the problem of being unable to utilize articles which are unserviceably lying in a store because not sufficiently strong to meet load requirements at a given time.

Moreover, on the one hand, conventional pallets constructed of

15 wood laths are likely to transmit shocks and vibration to the transported product, with the risk of damaging it, and, on the other hand, pallets made of cardboard are, as a matter of fact, unsuitable for handling and storing goods in moist areas or on wet surfaces.

20 The primary object of this invention is to provide a pallet in which the main components thereof, namely the boarding or platform on which loads are placed, and the supporting feet, are separate and distinct from one another so to enable the user to optionally fit the boarding member with such a number of supporting

25 elements as is required.

Moreover, in order to adapt the strength of the pallets to



the loads placed thereon, the invention provide for enabling the user to choose at will the number of auxiliary reinforcing elements to be fitted, thus obviating the necessity of using oversized -and therefore more expensive- articles, or articles
5 that are not strong enough for the loads to be handled.

A further object of the invention is to provide pallets that while being equipped with a boarding member made of wood, that is to say of a strong material, are fitted with means for supporting the pallet on the ground which are constructed of an elastic
10 shock absorbing material.

The above and other objects are achieved by the improved pallet for handling goods according to this invention, wherein said pallet is substantially characterized in that it is provided with means for reinforcing the pallet platform and means for supporting
15 the pallet platform on the ground, which are distinct from one another.

Said distinct means for bearing on the ground consist of supports made of a strong material and carrying at their ends a pierced neck and a supporting or ground foot, respectively. The
20 neck of said supports is designed to be fitted into a corresponding hole extending through the thickness of the platform, and to be locked in place on this latter by riveting. The shock-absorbing property of said supports is obtained by forming same supports from a synthetic elastic material or by entrapping air within the
25 body portion of said supports.

Reinforcement of the boarding member carrying the loads, is



achieved by means of appropriate laths or strips made of a strong material, that are also pierced and which are arranged between the boarding member and the supporting elements described above.

The above and alternative forms of the pallet according to the invention will now be described by way of example with reference to the accompanying drawings, in which :-

- Figure 1 is a perspective view of the pallet according to the invention when in working position;
- Figure 2 shows the lower face of the pallet according to the invention during the step in which the reinforcing laths and the supports are fitted to the boarding member;
- Figure 3 illustrates a supporting element according to the invention, for supporting the platform on the ground;
- Figure 4 illustrates a reinforcing lath;
- 15 - Figure 5 is a cross-section taken through the area where the support of figure 3 is fastened to both the boarding member and the reinforcing lath;
- Figure 6 shows, in cross-section, the fastening area of figure 5 with reinforcing laths being fitted to both ends of the supports;
- 20 - Figure 7 is an alternative form of the supports according to the invention, and
- Figure 8 is a view taken from the bottom, showing the pallet during the step in which the supports of figure 7 and the reinforcing means are fitted to the boarding member; and
- 25 - Figures 9 and 10 show an alternative form for the pallet of

the invention.

Referring now to figures 1 and 2, a first embodiment of the invention is shown in said figures where the pallet is designated by reference 1 as a whole

5 This pallet essentially comprises a boarding member 3 of wood, cardboard or the like, which is the carrying base for a load 2, a number of reinforcing laths 5 and a number of supporting elements 4.

Both the boarding member 3 and the reinforcing laths 5 are
10 formed with holes therein (see fig. 5), and the holes in these components are made to register during setting up of the pallet. Within said aligned holes there is inserted, in a manner to be described later, the supporting element 4 a detail view of which is shown in figure 3.

15 The support 4 comprises a substantially cylindrical body 6 of a synthetic, strong material, or other appropriate material, and, formed on said body as integral parts thereof, a neck 7 provided with a blind hole 7', and a foot member 8 which is the element designed for bearing on the ground.

20 Provision of the foot 8 is, however, not essential to the purposes of this invention, since the lower base portion of the support 6 may, as such, act as the element for bearing on the ground.

As is clearly apparent from figure 5, the neck 7 of the
25 support 4 is caused to fit into both the hole 5' in the lath 5 (see also fig. 4) and in an aligned hole (not to be seen on the drawings)



formed in the platform 3, whereby insertion of the shank of
rivet 9, under exerted pressure or by other appropriate means,
into the hole 7' of the element 4, will simultaneously bring
about clamping of the lath 5 against the boarding member 3 and
5 locking in place of same element 4 on the body of pallet.

Advantageously, the body of element 4 has incorporated therein
an air cushion 4', thus permitting said element 4 to exert a
shock-absorbing effect, when it is made from a flexible material.

The article according to this embodiment, is sold with components
10 3, 4 and 5 supplied as parts completely separate from one another,
assembling of said parts being, in fact, effected by the user, at the
time when the pallet is to be used, by driving the rivet 9, under
an exerted pressure or by other means, in the neck 7 of support 4
in the manner as described above.

15 As it should be apparent, if the load 2 to be handled is of a
kind which the platform 3, as such, may carry with ease, then
fitting of the supports 4 to the boarding member 3 may be carried
out even without provision of laths 5 arranged therebetween.

The above features result in noticeable advantages during
20 transport of said components, since space saving they permit to
achieve is so great, when comparing the present articles with
conventional preformed articles, as to render the invention very
interesting under the standpoint of reduction in costs.

Furthermore, the number of reinforcing laths to be fitted to the
25 boarding member may be chosen by the user at the time when he
selects a pallet for a given load to be loaded: depending on the



weight of this latter, the appropriate number of required reinforcements 5 will be determined, thus ensuring that the strength (and, therefore, the cost) of the pallet will be adequate to the expected stress condition under which same pallet is to operate.

5 On the other hand, possibility is given to further reinforce, if necessary, a pallet used for carrying lighter loads, by fitting the boarding member 3 thereof with a greater number of reinforcing laths 5.

10 In order to further improve stability of cushioned supports 4, especially when forming big stacks of these articles burdened with heavy loads, the laths of figure 4 may also be fitted to the feet 8 of the supports, on which feet the laths are locked in place by the aid of rivets 9 (see fig. 6).

15 An alternative form of the invention is shown in figures 7 and 6. In this embodiment, the supporting element 40 consists of a body 60 and a foot 80 which are similar to those of the previously described support 4; moreover, the top face of the support 40 has a circumferentially protruding edge or lip 70 which is embedded into the body of the boarding member 30 when building this latter.

20 The pallet according to this embodiment is supplied with the elements 40 already attached thereto, while the user is able to fit the pallet with an optional number of reinforcing laths 50 which are fastened to the feet 80 by the aid of rivets 9 in the same manner as previously described with reference to the first
25 embodiment.

 In a further form of the pallet according to the invention, which is shown figures 9 and 10, the lower surface of the

boarding member 31 is provided with recesses or cavities 52 within which the cylindrical body 61 of supporting elements 41 are received in part. In this case, anchorage of said elements to the boarding member is by gluing. Again, the reinforcing laths are fastened
5 to the ends 81 of the supports 41 by the aid of rivets 91.

In all the alternative forms described above, strong and, at the same time, cushioned pallets are obtained; the boarding member of the pallet may, indeed, be constructed of a tough, rigid material while the supporting elements are formed from a material having
10 elastic properties.

It is noted, finally, that the supports 4, 40, 41 may be of any shape whatever, rather than be restricted to only the cylindrical shape as shown in the accompanying drawings.

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WHAT IS CLAIMED IS:

1. An improved type of pallet for handling of goods, wherein said pallet is provided with means for reinforcing the pallet platform and means for supporting the pallet platform on the ground, which means are distinct from one another.

2. The pallet according to claim 1, wherein said distinct means for supporting the platform on the ground consist of supports (4) made of a strong material and provided at one end thereof with a pierced neck (7).

3. The pallet according to claims 1 and 2, wherein that end of the support (4) which is remote from the neck (7) is provided with a ground foot (8).

4. The pallet of claims 1 and 2, wherein said supports (4) are made of a synthetic, elastic, internally air-cushioned material.

5. The pallet according to claims 1 and 2, wherein the platform (3) is formed with holes extending throughout the thickness thereof.

6. The pallet of claims 3 to 5, wherein said neck (7) of the support (4) is inserted into a corresponding hole formed in the platform (3) and is locked in place on this latter by the aid of a rivet (9) the shank of which immovably fits into the hole (7') of the neck (7), the head of said rivet clamping the support (4) against the platform (3).

7. The pallet according to any of the preceding claims, wherein said distinct means for reinforcing the platform (3) are pierced

laths (5) constructed of a strong material, said laths (5) being fitted between said supports (4) and said platform (3).

8. The pallet according to claims 1 to 7, wherein the neck (7) of said supporting elements (4) is simultaneously inserted into both the hole (5') in the reinforcing lath and the hole formed in the platform (3), said neck (7) being locked in said holes by riveting.

9. The pallet according to claims 1 to 8, wherein the ground feet (8) of the supports (4) are fitted into corresponding holes provided in said reinforcing laths (5) to be fastened on these latters by riveting.

10. The pallet of claim 1, wherein said distinct means for supporting the platform consist of supporting elements (40) of which the top end engaging with the platform (30) has a protruding rim or lip (70) formed thereon, which is embedded into the material thickness of said platform at the time when this latter is constructed; or said distinct supporting means may take the form of supporting elements (41) of which the top end engaging with the platform (31) is inserted into, and glued within, appropriate recessed seats (52) provided in the body of same platform (31).



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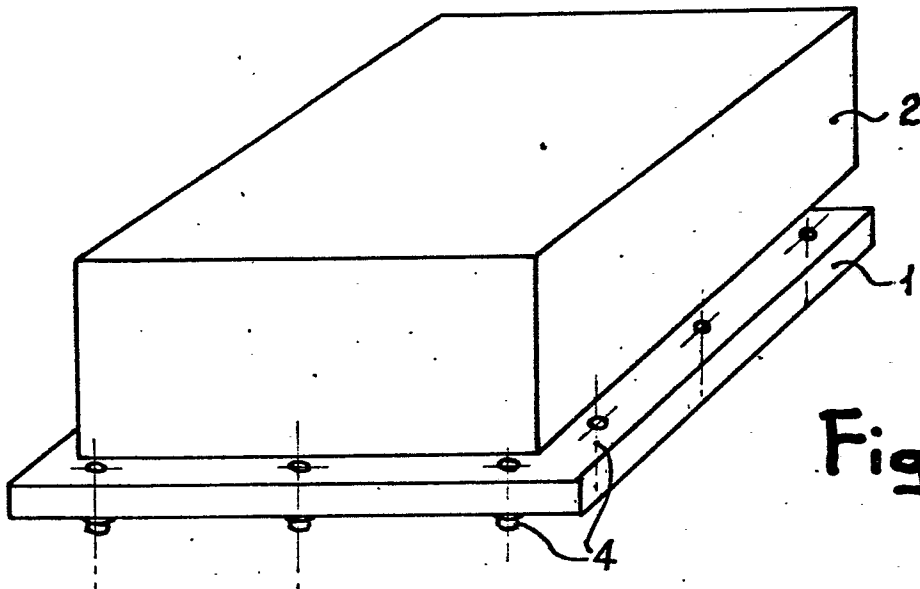


Fig. 1

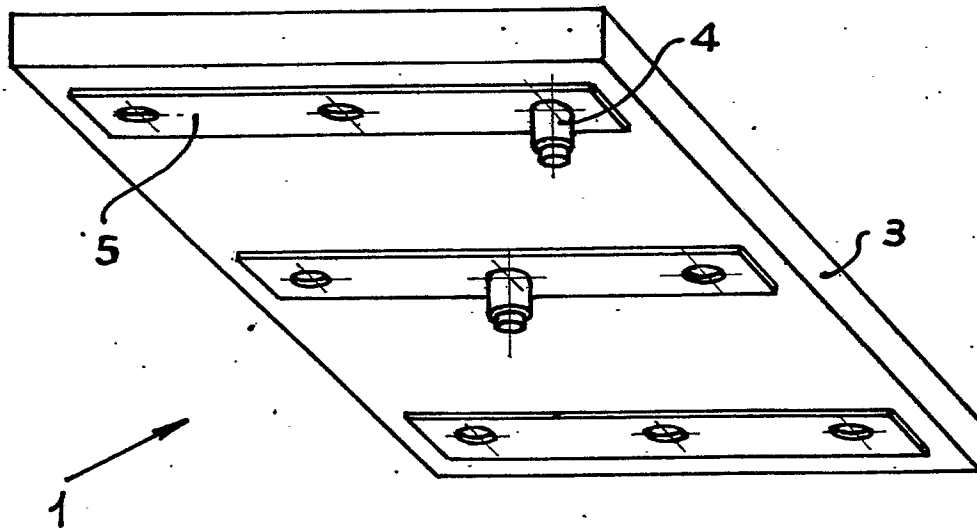
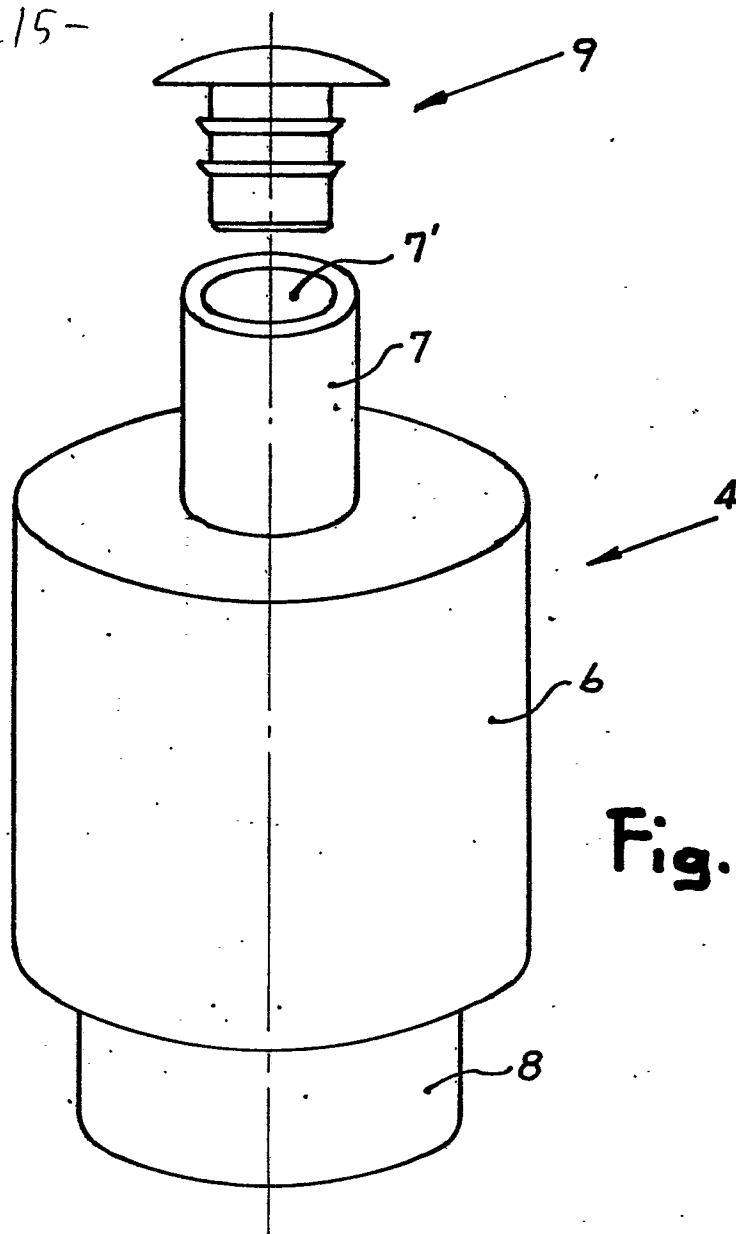
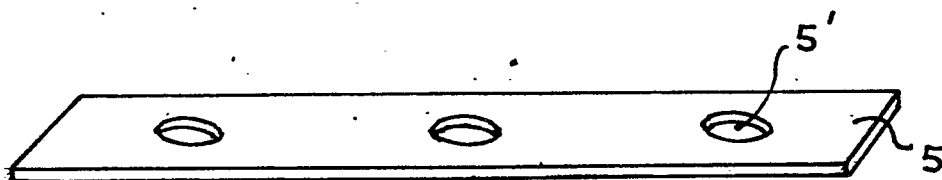


Fig. 2

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**Fig. 3****Fig. 4**

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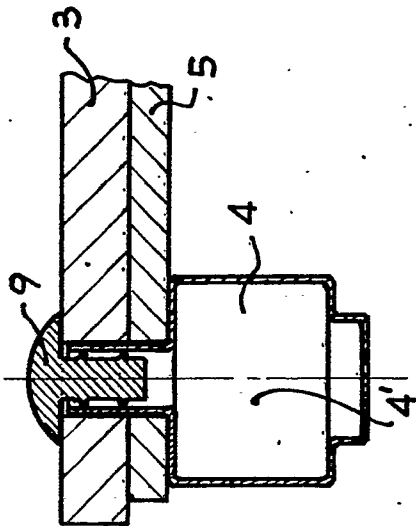


Fig. 5

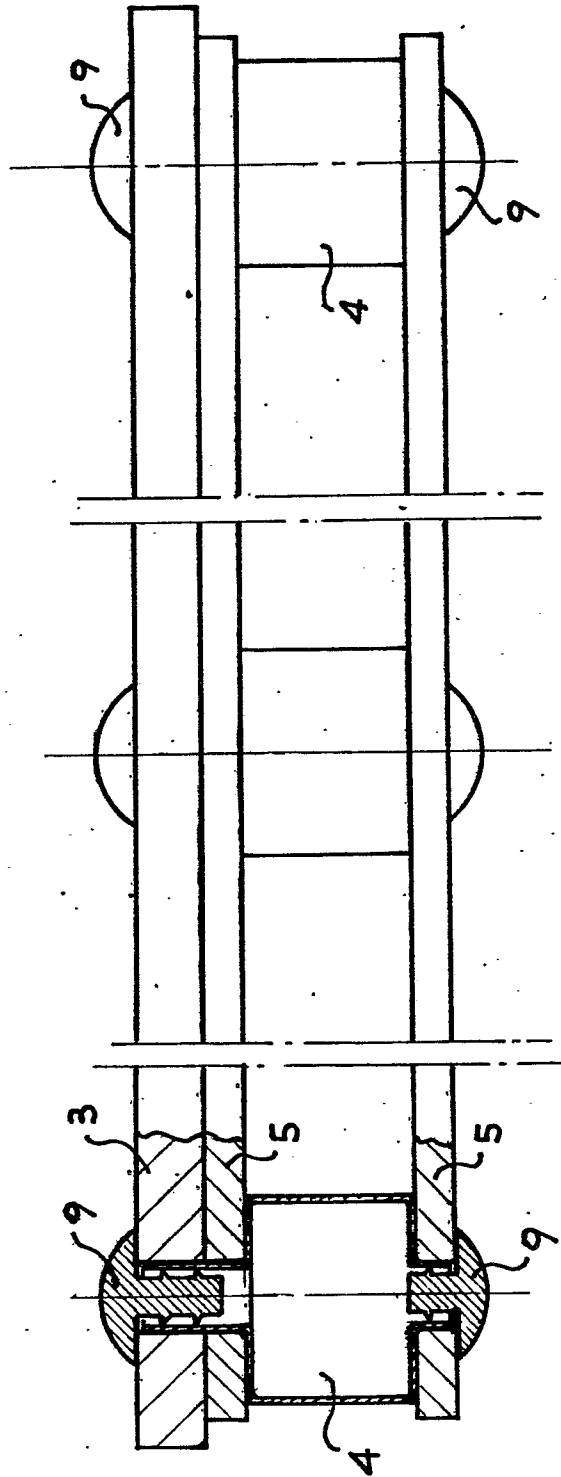


Fig. 6

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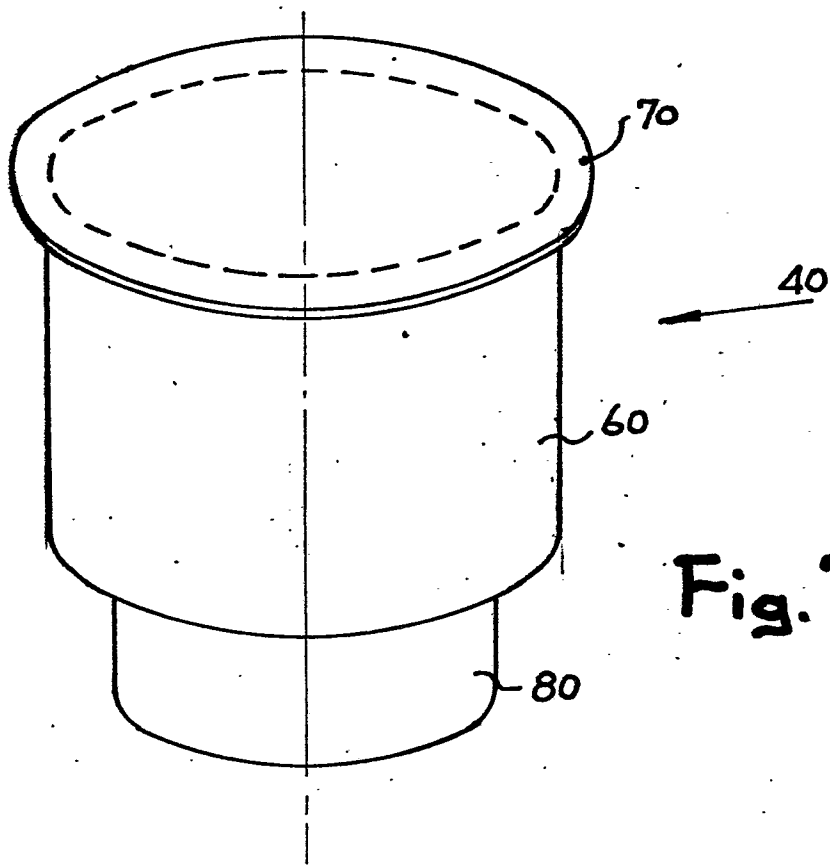


Fig. 7

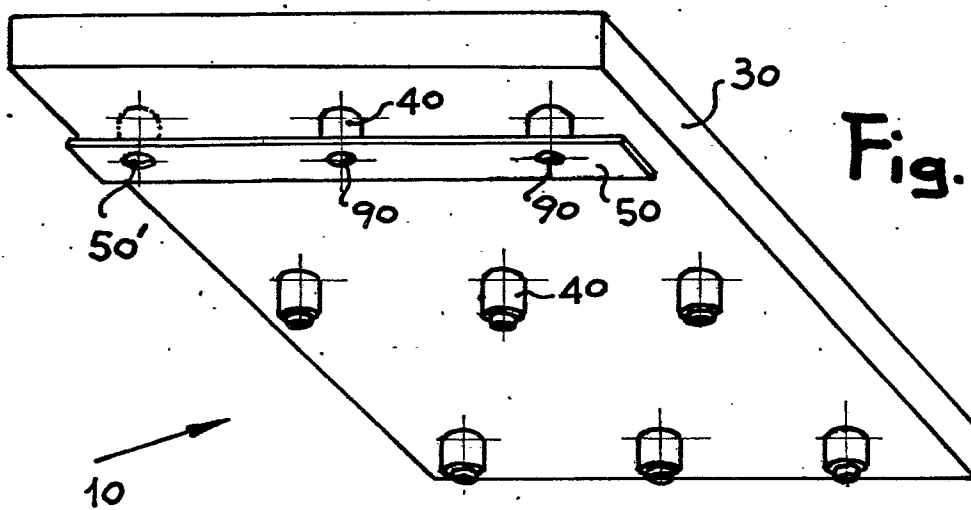


Fig. 8

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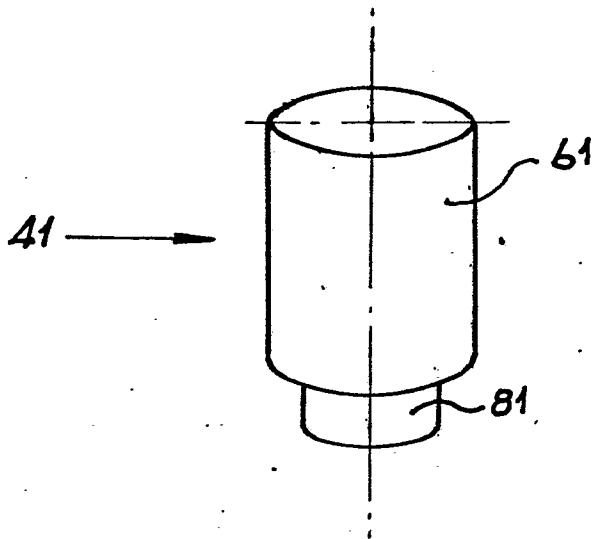


Fig. 9

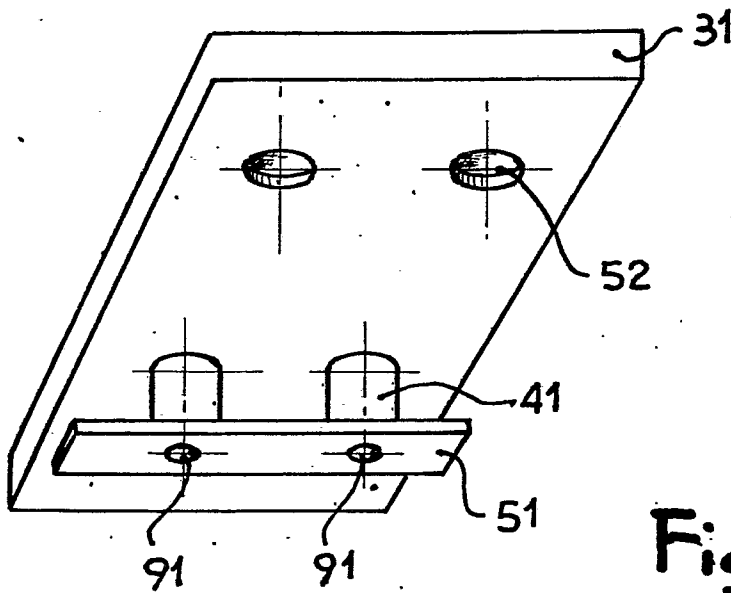


Fig. 10

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EUROPEAN SEARCH REPORT

Application number

EP 81 83 0108

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.3)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
	<u>CH - A - 492 611</u> (SCHELLING) * the whole document * -- <u>US - A - 2 955 791</u> (GEORGE) * the whole document * -- <u>FR - A - 2 182 779</u> (CHARVIN RENE & FILS) * the whole document * -- <u>US - A - 2 918 241</u> (MAHER) * the whole document * -- <u>FR - A - 2 148 342</u> (SOC. IND. DES CARTONNERIES DE LUMBRES ET CART. D'AUVERGNE) * the whole document * -- <u>FR - A - 2 258 313</u> (GUSTAFSON) * page 2, lines 30-34; figure 2 * -- <u>FR - A - 2 261 192</u> (LA ROCHETTE-CENPA) * the whole document * -- ./.	1,7,9 1 1 5,6 4,5,6,9 2,10 10	B 65 D 19/26 TECHNICAL FIELDS SEARCHED (Int. Cl.3) B 65 D CATEGORY OF CITED DOCUMENTS X: particularly relevant A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: conflicting application D: document cited in the application L: citation for other reasons &: member of the same patent family, corresponding document
X The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner	
The Hague	7-10-1981	BAERT	

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EUROPEAN SEARCH REPORT

Application number
EP 81 83 0108
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DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.3)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
	<u>US - A - 3 407 758 (SIMKINS)</u> * column 3, lines 1-60; figures 1-4 * --	10	
	<u>US - A - 2 706 099 (WHALLEY)</u> * column 2, lines 7-49; figure 2 * -----	10	
			TECHNICAL FIELDS SEARCHED (Int. Cl.3)