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(54) **Improvements in or relating to rubbish containers.**

(57) A container assembly intended to receive and store different types of rubbish, comprises a first existing rubbish container (1) into which is fixed a second container (22), which has a depth substantially equal to the depth of the first container, to partition the first container into two separate compartments.

The present invention concerns improvements in or relating to rubbish containers, especially but not exclusively wheeled rubbish bins for domestic and commercial use.

There is an increasing trend in rubbish treatment to separate certain articles of rubbish from others. For example, reclaimable articles can be separated from incineratable or compostible rubbish. In a domestic situation aluminium cans can be collected separately from food waste, glass can be collected separately from other waste or paper can be collected separately from other waste. The economic and ecological advantages of such rubbish selection are obvious but the main difficulty results from the need to provide separate rubbish containers which enable the various types of rubbish to be isolated from other types at the point of disposal rather than at some later stage where separation is much more complex and consequently expensive. The immediate solution to the problem is to provide two or more rubbish bins at each collection point but this is uneconomic and generally undesirable in view of the additional space required. With a view to obviating or mitigating this problem there have been proposed rubbish bins of a standard design which are fitted with an internal partition or partitions defining different collection areas for different material. The fitment of these partitions has proved to be difficult if economy in manufacture has to be maintained and without making the partitions and fixing means particularly sophisticated it is very difficult to provide an impenetrable barrier between one compartment and the other. In certain instances the whole point of material separation will be destroyed if one material is contaminated by, for example, liquid or dust separating from another collection compartment.

It is an object of the present invention to provide a compartmented rubbish container which obviates or mitigates these disadvantages.

According to the first aspect of the present invention there is provided a container assembly comprising a first rubbish container including a further container accommodated therein and rigidly affixed thereto to divide the first container into two or more compartments.

Preferably the further container conforms in its external peripheral shape to the internal peripheral shape of the first container on all but one of its sides which provides a partition separating the existing container into two or more compartments.

Preferably the volume of the additional container is equal to or greater than half the volume of the first container.

Preferably the wall of the additional container forming said partition has strengthening ribs formed therein.

Preferably both containers are formed from plastics material, by injection, rotational or blow moulding.

Preferably the first container has a peripheral

flange at its upper end and a lid hingedly attached thereto.

Preferably the additional container has no flange at its upper end and has fixed to said side forming the partition at its upper end an additional member providing a flange extending along said partition and over the additional container, the flange projecting over the transverse edges of the additional container to provide means for fixing it to the flange of the first container.

Preferably the flange member is formed from metal by a folding operation and is attached to the existing and additional containers by means of rivets. Alternative fixing means, for example adhesive, can be employed.

Preferably the additional container is attached to the first container at spaced points around its upper periphery by rivets or other fastening means. Seal means may be provided on the base and upstanding sides of the additional container especially in the region of said partition wall to seal any gap between the additional container and the first container.

Further according to the present invention there is provided a container adapted for fixing within a first container, of the type described in any one of the preceding eight paragraphs.

An embodiment of the present invention will now be described by way of example only with reference to the accompanying drawings in which:

Fig. 1 is a plan view of an existing rubbish container having an additional container fitted therein; Fig. 2 is a sectional elevation of the container and additional container along the line II-II of Fig. 1; Fig. 3 is a sectional end elevation of the additional container viewed on the line III-III of Fig. 2; and Fig. 4 is a part sectional end elevation taken on the line IV-IV of Fig. 1.

Fig. 1 shows a plan view of a first, existing domestic or commercial rubbish container 1 with its hinge lid removed. The container is wheeled and is commonly referred to as a two wheeled refuse container. It is formed by any suitable moulding technique from plastics material and comprises an essentially rectangular cross-section container having radiused corners with a base 10, upwardly diverging side walls 12 and an outwardly extending peripheral flange 14 surrounding its upper end. The rear wall 12, at its upper end, is provided with hinge brackets 16 which serve also as handles for manoeuvring the bin and at the lower end of the back wall 12 there is provided a rotatable wheel 18 on each side of the bin. The container so far described is of an existing design and includes other features but as they are already known and do not form part of the present invention they will not be described. They are, however, illustrated in the attached drawing.

The object of the present invention is to divide the rubbish receiving volume of the existing bin into two

by providing a transverse partition parallel to the hinge axis. This location is dictated by automatic bin emptying apparatus which can ensure that rubbish from one side of the partition is delivered to a transport container which is separate from that adapted to receive rubbish from the other side of the container. It is important that the partition divides the rubbish receiving volume into two fluid-tight volumes so that the contents of one compartment are not contaminated by the contents of the other. According to the present invention this is achieved by forming a partition wall 20 as one wall of a rectangular cross-section additional container 22 which is adapted to be neatly accommodated within the existing container with its wall 24 opposite the partition wall 20 abutting a corresponding wall 12 of the existing container and its other pair of opposed side walls 26 abutting the pair of opposed side walls 12 of the existing container. The additional plastics material container has a flat base 28 and is a rotational moulding, although any suitable moulding method, for example, injection or blow moulding could be employed. Unlike the existing container it is not provided with a peripheral flange but its height corresponds to the height of the existing container.

The partition wall 20 is formed with downwardly diverging strengthening ribs 30 which extend almost to the top of the partition wall and have rounded upper ends 32. As the base 10 of the existing container is not flat whereas the base 28 of the additional container is flat, it is desirable to seal the gap which exists under the partition wall 20 and the gap between the side walls 26, 12, and this is achieved by means of a suitable sealant or seal member 34.

The additional container is fixed within the existing container along its three sides 24, 26 by a plurality of spaced pop rivets 36 located just below the flange 14, as can be best seen from Figs. 1 and 4. Additional pop rivets 37 fix the additional container to the front wall of the existing container and its rear edge is restrained against movement relative to the existing container at the rear edge of its base by a 'L' shaped metal strip 56 fixed to the base 10 of the existing container by pop rivets 58 such that the upstanding limb of the strip abuts the partition wall 20 of the container at its junction with the base of the additional container.

The fixing of the partition wall is achieved by means of a flange component 40 which is fabricated by folding a sheet metal strip. Fig. 2 shows the cross-section of the flange which has a first upright member 42, a transversely extending member 44 forming a flange surface, a second upright 48 spaced from the first upright 42 by a distance which is equivalent to the wall thickness of the partition wall 20 and an inclined member 46 joining the upper end of the upright 48 with the end of the flange member 44 remote from the upright member 42. Fig. 2 also shows that the flange member is attached to the upper end of the partition wall 20 by spaced pop rivets 50.

The upright members 42, 48 and inclined member 46 of the flange component terminate at a distance spaced from the outer edge 52 of the flange member 44 by a distance which enables the outer portion of the flange member 44 to overlap the flange 14 of the existing container so that two further pop rivets 54 can be inserted. Fig. 4 shows that the outer portion of the member 44 is deformed downwardly such that its outer region abuts the upper surface of the flange 14 and it shows also that the pop rivets 54 are located close to the wall 12 of the existing container so that they do not interfere with mechanical lifting arrangement for the rubbish container which may engage the underside of the flange. Fig. 4 also shows that the end 52 of the flange is located inwardly of the container lid 60 when in its closed position.

It will be realised that the embodiment described above provides a relatively simple and inexpensive means for dividing an existing rubbish container into two compartments, for example a compartment of 1001. capacity and a compartment of 1401. capacity which compartments are completely segregated one from the other and which can be readily filled by the user and emptied by existing dedicated mechanical handling apparatus. Alternative sizes may be provided for example each compartment could have 120 l capacity.

Various modifications can be made without departing from the scope of the invention; for example, a further additional container can be utilised to further sub-divide the existing container into more compartments. By locating the additional compartment midway between the front and rear walls of the existing compartment it can be divided into three. The configuration of the additional container can take any convenient form and in certain instances it may be desirable to form the flange on the top of the partition wall integral with the container.

In another modification the sealant or seal strip may be omitted or replaced between the partition wall at its base and the upstanding limb of the strip 56. The strip may be modified and rather than extending across the entire width of the partition wall it can be replaced by one or more relatively short brackets.

Claims

1. A container assembly characterised in that it includes a first rubbish container (1) including a further container (22) accommodated therein and rigidly affixed thereto to divide the first container (1) into two or more compartments.
2. A container assembly as claimed in claim 1, characterised in that the further container (22) conforms in its external peripheral shape to the internal peripheral shape of the first container (1) on

all but one of its sides which provides a partition (20) separating the existing container (1) in two or more compartments.

3. A container assembly as claimed in claim 2, 5
characterised in that the volume of the additional container (22) is equal to or greater than half the volume of the first container (1).
4. A container assembly as claimed in claim 2 or 10
claim 3, characterised in that the wall (20) of the additional container (22) forming said partition has strengthening ribs (3) formed therein.
5. A container assembly as claimed in any one of the 15
preceding claims, characterised in that both containers (1,22) are formed from plastics material, by rotation, injection or blow moulding.
6. A container assembly as claimed in any one of the 20
preceding claims, characterised in that the first container (1) has a peripheral flange (14) at its upper end and a lid hingedly attached thereto.
7. A container assembly as claimed in any one of 25
claims 2 to 6, characterised in that the additional container (22) has no flange at its upper end and has fixed to said side forming the partition (20) at its upper end an additional member (40) providing a flange (44) extending along said partition (20) 30
and over the additional container (22), the flange (44) projecting over the transverse edges of the additional container (22) to provide means for fixing it to the flange (14) of the first container (1). 35
8. A container assembly as claimed in claim 7, 40
characterised in that the flange member (40) is formed from metal by a folding operation and is attached to the existing and additional containers by means of rivets (50) or adhesive.
9. A container assembly as claimed in any one of the 45
preceding claims, characterised in that the additional container (22) is attached to the first container (1) at spaced points around its upper periphery by rivets (36) or other fastening means.
10. A container characterised in that it is adapted for 50
fixing within a first container (1) of a container assembly of the type described in any one of the preceding claims.

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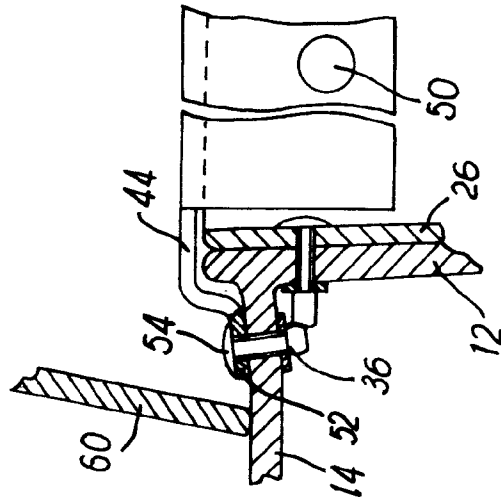


Fig. 4

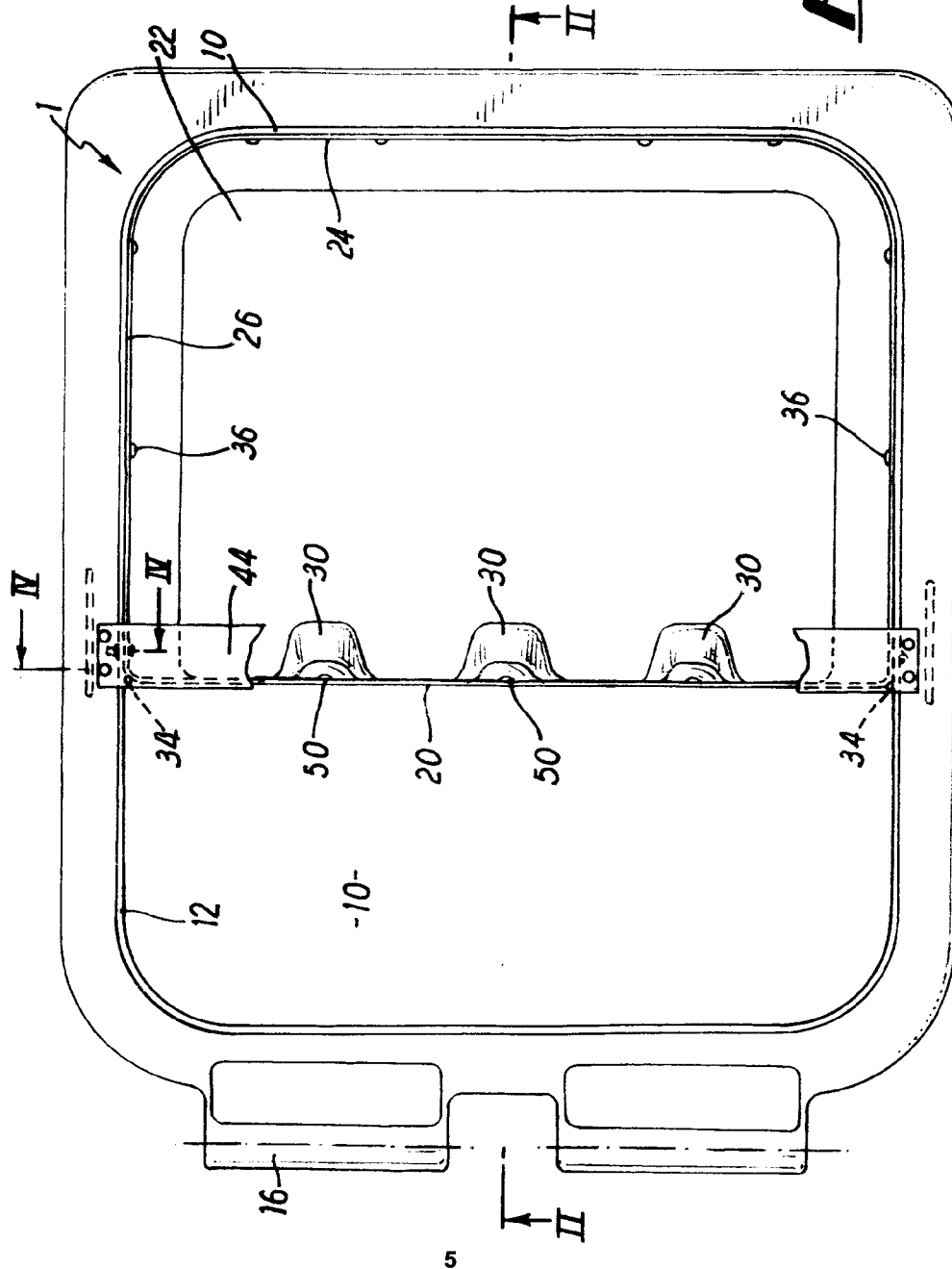


Fig. 1

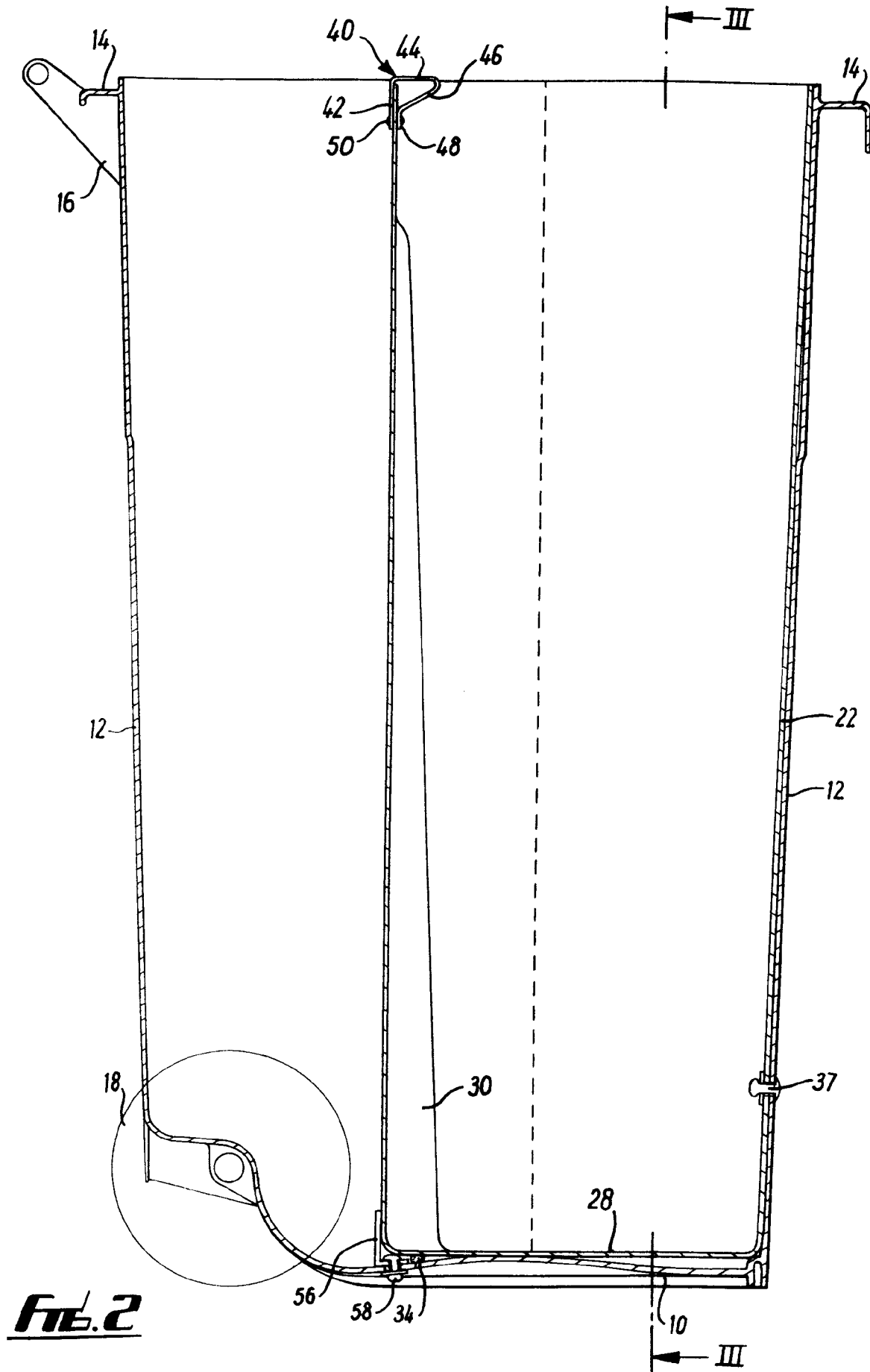


FIG. 2

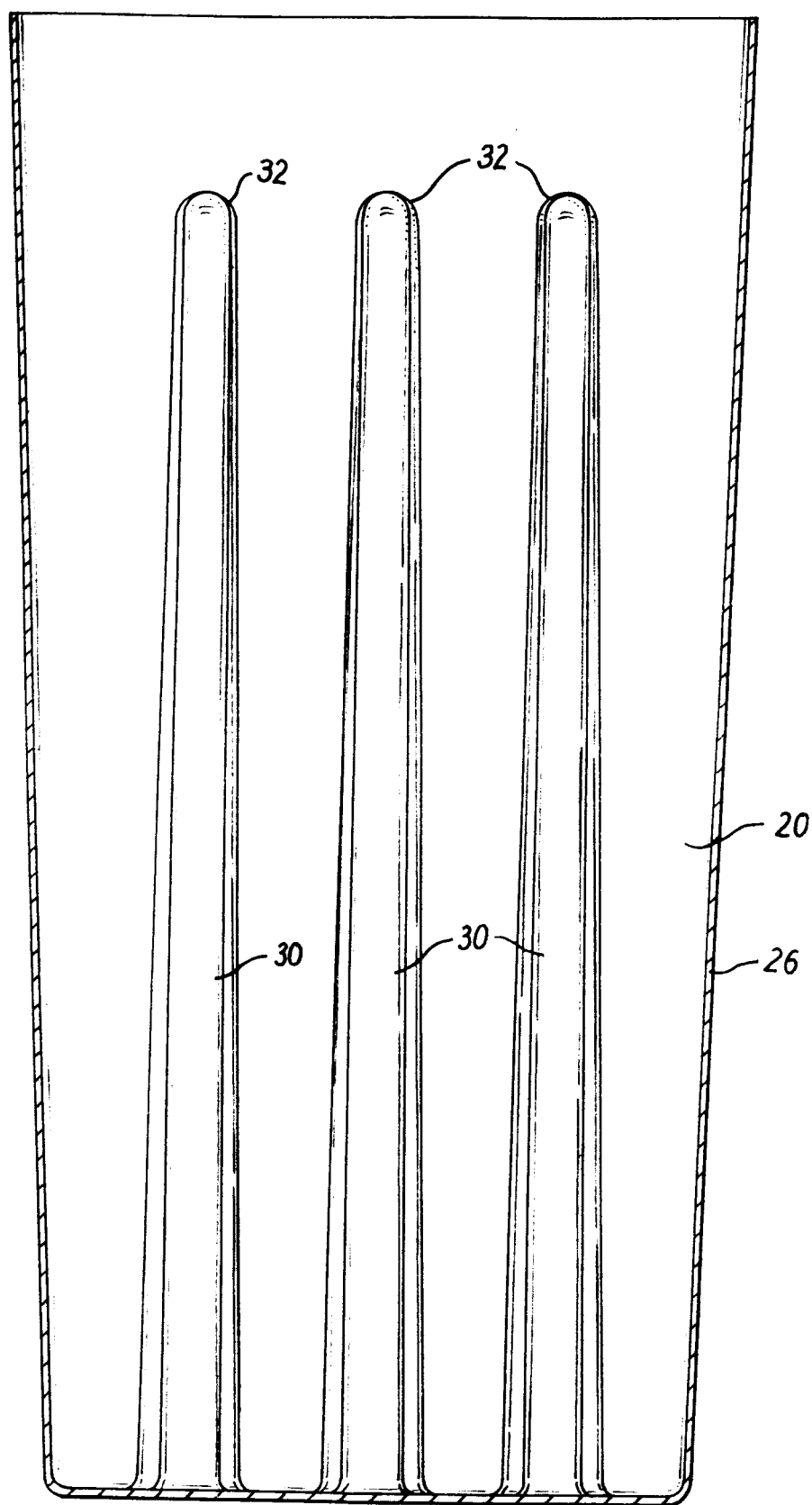


FIG. 3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 92 30 3698

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	AT-A-334 016 (HANDLECHNER HERMANN)	1-2, 9-10	B65F1/00
A	* the whole document *	3, 5-6	

A	DE-U-8 510 666 (DESTER, HARALD)	1, 10	
	* the whole document *		

A	DE-U-8 601 168 (HECKENDORF, GERHARD)	1, 10	
	* the whole document *		

			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B65F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 20 JULY 1992	Examiner NGO SI XUYEN G.
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			

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