(57) Abstract: A receptacle (10) of moulded paper pulp has a flat circular base wall (12) and a side wall (14) of an inverted frusto conical shape extending upwardly from the base wall to define a receiving volume. The upper edge of the side wall defines the periphery of an opening located above the base wall and has an outwardly projecting peripheral lip (22, 24) having at least two recessed portions (26, 28). The two recessed portions (26, 28) form first and second spaced apart outwardly projecting lip portions (22, 24) which form convenient handles for the receptacle. In addition, the side wall (48) is provided with a stiffening or reinforcing shoulder (18) adjacent to its upper edge.
DESCRIPTION

MOULDED PAPER PULP RECEPTACLE

The present invention relates to receptacles and in particular, but not exclusively, to disposable receptacles manufactured from moulded paper pulp.

Disposable paper pulp receptacles are widely used in hospitals, care homes and the like where it is desirable, for hygiene reasons and to minimise the risk of cross-infection, to have single-use receptacles. Moulded paper pulp receptacles can be reduced to a fibrous slurry in a macerator after use for immediate disposal into a drain or sewer.

One known type of moulded paper pulp receptacle is a so-called "general purpose" bowl. As its name suggests, this bowl is used for many different applications, such as use as a receiver dish, vomit bowl or a disposable liner for a child's potty.

The known general purpose bowl comprises a generally flat, circular base and a side wall extending upwardly from the base. The side wall is flared outwardly so that the opening of the bowl is larger than the base wall. The upper peripheral rim of the side wall is formed into a generally planar horizontally-extending flange whose outermost edge is formed into a downwardly-projecting overhanging peripheral lip. The projecting flange portion is rebated for approximately 15% of its periphery. The rebate thus formed allows the bowl to be used with reduced interference from the peripheral flange. For example, the rebate may be positioned adjacent to a patient's throat or neck to position the patient's
mouth closer to the opening of the bowl or may accommodate the handle of a reusable support if the bowl is being used as a child's potty.

The outwardly extending flange allows the bowl to be handled easily and in addition it forms a reinforcement for the bowl, which is important when the bowl contains liquid.

However, the provision of the flange consumes a significant amount of pulp material. Not only does this increase the cost of the finished product, but it also increases the pulp slurry formed in the macerator for disposal into the sewerage system.

It is an object of the present invention to provide a receptacle which overcomes or alleviates the problems associated with the prior art.

In accordance with a first aspect of the present invention, a receptacle comprises a flat or substantially flat base wall and a side wall extending upwardly from the base wall to define a receiving volume, the upper edge of the side wall defining the periphery of an opening located above the base wall and comprising an outwardly projecting peripheral lip whose periphery comprises at least two recessed portions.

The provision of two recessed portions, as compared with the single recessed portion of the prior art, makes it easier to locate the receptacle in the desired position.

In a preferred embodiment, the receptacle comprises two recessed portions. Conveniently, the recessed portions may be located on opposite sides of the side wall. Preferably, the recessed portions are identical.
The receptacle may further comprise a stiffening or reinforcing shoulder adjacent to the upper edge of the side wall.

Preferably, the stiffening or reinforcing shoulder extends around substantially the whole of the side wall.

In one embodiment, the width of the outwardly projecting peripheral lip between two recessed portions is non-constant.

The provision of an outwardly-projecting lip of non-constant width provides improved handle portions and allow easier and safer handling and manoeuvring of the receptacle.

Preferably, the width of the outwardly-projecting lip portion is a minimum at a point adjacent to the two recessed portions and a maximum between the two recessed portions. More preferably, the width of the outwardly projecting peripheral lip portion is at a maximum at a point substantially mid-way between the two recessed portions.

In one embodiment, the width of the outwardly projecting peripheral lip portion varies smoothly.

In one embodiment, the periphery of the outwardly projecting peripheral lip lies on a locus which is substantially oval or elliptical.

Preferably, the upper edge of the side wall is generally circular and the periphery of the oval or elliptical locus upon which the outwardly-projecting lip lies is centred on the centre of the base wall.

In one embodiment, the outwardly-projecting lip portion is formed into first and second spaced-apart outwardly-projecting lip portions.
Preferably, the first and second spaced-apart outwardly projecting lip portions are substantially identical.

In accordance with a second aspect of the present invention, a receptacle comprises a flat or substantially flat base wall and a side wall extending upwardly from the base wall to define a receiving volume, the upper edge of the side wall being formed into first and second spaced-apart outwardly projecting lip portions.

The first and second spaced-apart outwardly projecting lip portions form convenient handles for lifting and handling the receptacle, particularly when the receptacle contains liquid.

In a preferred embodiment, the first and second spaced-apart outwardly projecting lip portions are substantially identical.

The spaced-apart outwardly projecting lip portions are preferably separated by a recessed portion. In the preferred embodiment, the receptacle comprises two recessed portions and preferably the recessed portions are located on opposite sides of the side wall. Conveniently, the recessed portions are substantially identical.

The receptacle may further comprise a stiffening or reinforcing shoulder adjacent to the upper edge of the side wall. Preferably, the stiffening or reinforcing shoulder extends around substantially the whole of the side wall.

In accordance with a third aspect of the present invention, a receptacle comprises a flat or substantially flat base wall and a side wall extending upwardly from the base wall to define a receiving volume, the
upper edge of the side wall defining the periphery of an opening located above the base wall and the side wall further comprising a stiffening or reinforcing shoulder adjacent to its upper edge.

The provision of a stiffening or reinforcing shoulder allow the receptacle to be formed from less material as compared with the prior art.

Preferably, the stiffening or reinforcing shoulder extends around substantially the whole of the side wall.

In a preferred embodiment, the upper edge of the side wall further comprises an outwardly projecting peripheral lip having at least two recessed portions. Conveniently, the receptacle comprises two recessed portions. The two recessed portions are preferably located on opposite sides of the side wall. Conveniently, the recessed portions may be identical.

Preferably, the upper edge of the side wall is formed into two substantially identical peripheral lip portions.

Preferably, in each of the above aspects, the first and second spaced-apart outwardly projecting lip portions are overturned.

For each of the above aspects, it is preferred that the base wall is substantially circular.

In addition, it is preferred that the side wall flares upwardly and outwardly with respect to the base wall. In preferred embodiment, the side wall has an inverted frusto-conical shape.

The side wall may conveniently further comprise a plurality of integrally-formed markings adapted to indicate the depth of liquid above
the base wall. The integrally-formed markings preferably form a graduated scale.

The markings are preferably recessed when viewed from within the receptacle.

Preferably, the receptacle comprises moulded paper pulp.

In one embodiment, the receptacle comprises a bowl.

By way of example only, a specific embodiment of the present invention will now be described with reference to the accompanying drawings in which:-

Fig. 1 is a perspective view from above of a first embodiment of receptacle in accordance with the present invention;

Fig. 2 is a perspective view from below of the receptacle of Fig. 1;

Fig. 3 is a perspective view from above of a second embodiment of receptacle in accordance with the present invention;

Fig. 4 is a plan view of the receptacle of Fig. 3; and

Fig. 5 is a side view of the receptacle of Fig. 3.

Figs. 1 and 2 illustrate a first embodiment of bowl 10 manufactured from moulded paper pulp by a known vacuum forming process such as that described in GB-A-21 53740. The bowl is an upwardly-open hollow receptacle formed from a substantially flat circular base wall 12 and a side wall 14 which extends upwardly from the base wall 12. The side wall 14 has an inverted frusto-conical shape whereby the side wall flares outwardly and upwardly from the base wall. The base wall 12 and the side wall 14 together define a receiving volume.
It will also be noted from Fig. 1 that the side wall 14 is provided with a graduated scale 16 which indicates the approximate volume corresponding to various levels of liquid within the bowl. Since the bowl is vacuum-formed, the scale 16 and associated markings are recessed when looking from the inner face of the side wall 14 of the bowl.

The upper peripheral annular edge of the side wall 14 is formed into a stiffening or reinforcing shoulder 18 which extends around the whole periphery of the side wall 14. Upwardly and outwardly of the shoulder 18, the side wall is formed into two discrete, outwardly-directed, overturned lip portions 22, 24 each extending for approximately 135° around the periphery of the upper edge of the bowl, the two lip portions being separated by diametrically-opposed rebated portions 26, 28 formed in the periphery of the lip portions 22, 24. The lip portions 22, 24 form two opposed handles which facilitate lifting and handling of the bowl, particularly when the bowl contains liquid.

The rebated portions 26, 28 in the periphery of the lip portions 22, 24 allow the bowl to be used with minimal interference from the handles formed by the outwardly-projecting peripheral lip portions 22, 24, for example by placing one of the rebated portions 26, 28 against the throat or neck of a patient to position the opening of the bowl close to a patient's mouth or by allowing the bowl to be used with a reusable support if the bowl is being used as a potty liner, for example. The provision of two such rebated portions 26, 28 facilitates use of the bowl.
Moreover, the provision of the reinforcing shoulder 18 adjacent to the upper peripheral edge of the side wall allows the width of the outwardly-projecting overturned lip portions 22, 24 to be significantly reduced. Not only does this reduce the amount of pulp required to produce the bowl, but it also further reduces the likelihood of the lip portions 22, 24 interfering with use of the bowl.

Figs. 3 and 4 illustrate a second embodiment of bowl in accordance with the present invention. The bowl is very similar to the bowl of the first embodiment, and the same features are identified by the same reference numerals, increased by 100.

The second embodiment is also a bowl manufactured from moulded paper pulp by a vacuum forming process such as that described in GB-A-21 53740. The bowl is in the form of an upwardly-open hollow receptacle formed from a substantially flat circular base wall 112 and a side wall 114 which extends upwardly from the base wall 112. The side wall 114 has an inverted frusto-conical shape whereby the side wall flares outwardly and upwardly from the base wall 112. The base wall 112 and the side wall 114 together define a receiving volume.

The side wall 114 is also provided with a graduated scale 116 which indicates the approximate volume corresponding to various levels of liquid within the bowl. Since the bowl is vacuum-formed, the scale 116 and associated markings are recessed when looking from the inner face of the side wall 114 of the bowl.
The upper peripheral annular edge of the side wall 114 is formed into a stiffening or reinforcing shoulder 118 which extends around the whole periphery of the side wall 114. Upwardly and outwardly of the shoulder 118, the side wall is formed into two discrete, outwardly-directed, overturned lip portions 122, 124, each extending for approximately 135° around the periphery of the upper edge of the bowl, the two lip portions being separated by diametrically-opposed rebated portions 126, 128. The lip portions 122, 124 form two opposed handles which facilitate lifting and handling of the bowl, particularly when the bowl contains liquid. The rebated portions 126, 128 serve the same functions as the rebated portions 26, 28 of the first embodiment.

The main difference from the first embodiment is that the lip portions 122, 124 are not of constant width between the rebated portions 126, 128. Instead, the width of the lip portions 122, 124 increases smoothly from the rebated portions to a maximum value at the points midway between the two rebated portions 126, 128. As best seen in Fig. 4, the general perimeter of the outwardly-directed overturned lip portions 122, 124 lies on a locus which describes an oval or ellipse shape S when viewed from above.

The lip portions 122, 124 form two opposed handles which facilitate lifting and handling of the bowl, particularly when the bowl contains liquid. By increasing the width of the peripheral lip portions 122, 124 as the distance from the rebated portions 126, 128 increases, the two handles formed by the lip portions project further from the upper periphery of the
side wall 114 of the bowl, which makes the bowl easier to grasp. However, it is possible to obtain this advantage without having to use more paper pulp than in the first embodiment, since the additional paper pulp needed to make the lip portions 122, 124 of the second embodiment is at least partially offset by the reduced amount of paper pulp needed to form the reduced-width lip portions 122, 124 nearer the rebated portions 126, 128.

The invention is not restricted to the details of the foregoing embodiments. For example, although the aforementioned embodiments comprise two lip portions separated by two rebated portions, more than two lip portions and rebated portions may be provided, if desired.

Additionally, the general perimeter of the outwardly-directed lip portions may have a shape other than a circle, oval or eclipse. In particular, the general perimeter of the outwardly-directed lip portion may be teardrop-shaped (giving rise to a bowl with a single handle or a major handle and a minor handle) or any other non-circular shape (e.g. a square, a rectangle, a triangle, etc.).

Furthermore, although in the second embodiment the width of the lip portions 122, 124 is shown and described as increasing smoothly from the rebated portions 126, 128, this need not be so. For example, it may be preferred to make part of the projecting lip portions 122, 124 of increased width portion and projecting in a more stepwise fashion from the adjacent lip portions of smaller width.
Moreover, although it is preferred for the width of the lip portions 122, 124 to be a maximum at a point midway between two rebated portions 126, 128, this need not be so.
CLAIMS

1. A receptacle comprising a flat or substantially flat base wall and a side wall extending upwardly from the base wall to define a receiving volume, the upper edge of the side wall defining the periphery of an opening located above the base wall and comprising an outwardly projecting peripheral lip whose periphery comprises at least two recessed portions.

2. A receptacle as claimed in claim 1, comprising two recessed portions.

3. A receptacle as claimed in claim 2, wherein the recessed portions are located on opposite sides of the opening.

4. A receptacle as claimed in any of the preceding claims, wherein the recessed portions are substantially identical.

5. A receptacle as claimed in any of the preceding claims, further comprising a stiffening or reinforcing shoulder adjacent to the upper edge of the side wall.

6. A receptacle as claimed in claim 5, wherein the stiffening or reinforcing shoulder extends around substantially the whole of the side wall.

7. A receptacle as claimed in any of the preceding claims, wherein the width of the outwardly projecting peripheral lip between two recessed portions is non-constant.
8. A receptacle as claimed in claim 7, wherein the width of the outwardly-projecting lip portion is a minimum at a point adjacent to the two recessed portions and a maximum between the two recessed portions.

9. A receptacle as claimed in claim 8, wherein the width of the outwardly projecting peripheral lip portion is at a maximum at a point substantially mid-way between the two recessed portions.

10. A receptacle as claimed in any of claims 7 to 9, wherein the width of the outwardly projecting peripheral lip portion varies smoothly.

11. A receptacle as claimed in any of claims 7 to 10, wherein the periphery of the outwardly projecting peripheral lip lies on a locus which is substantially oval or elliptical.

12. A receptacle as claimed in claim 11, wherein the upper edge of the side wall is generally circular and the periphery of the oval or elliptical locus upon which the outwardly-projecting lip lies is centred on the centre of the base wall.

13. A receptacle as claimed in any of claims 7 to 12, wherein the outwardly-projecting lip portion is formed into first and second spaced-apart outwardly-projecting lip portions.

14. A receptacle as claimed in claim 13, wherein the first and second spaced-apart outwardly projecting lip portions are substantially identical.

15. A receptacle comprising a flat or substantially flat base wall and a side wall extending upwardly from the base wall to define a receiving
volume, the upper edge of the side wall being formed into first and second spaced-apart outwardly projecting lip portions.

16. A receptacle as claimed in claim 15, wherein the first and second spaced-apart outwardly projecting lip portions are substantially identical.

17. A receptacle as claimed in claim 15 or claim 16, wherein the spaced-apart outwardly projecting lip portions are separated by a recessed portion.

18. A receptacle as claimed in claim 17, wherein the receptacle comprises two recessed portions.

19. A receptacle as claimed in claim 18, wherein the recessed portions are located on opposite sides of the side wall.

20. A receptacle as claimed in claim 19, wherein the recessed portions are substantially identical.

21. A receptacle as claimed in any of claims 15 to 20, further comprising a stiffening or reinforcing shoulder adjacent to the upper edge of the side wall.

22. A receptacle as claimed in claim 21, wherein the stiffening or reinforcing shoulder extends around substantially the whole of the side wall.

23. A receptacle comprising a flat or substantially flat base wall and a side wall extending upwardly from the base wall to define a receiving volume, the upper edge of the side wall defining the periphery of an
opening located above the base wall and the side wall further comprising a
stiffening or reinforcing shoulder adjacent to its upper edge.

24. A receptacle as claimed in claim 23, wherein the stiffening or reinforcing shoulder extends around substantially the whole of the side wall.

25. A receptacle as claimed in claim 23 or claim 24, wherein the upper edge of the side wall further comprises an outwardly projecting peripheral lip having at least two recessed portions.

26. A receptacle as claimed in claim 25, wherein the two recessed portions are located on opposite sides of the wide wall.

27. A receptacle as claimed in claim 26, wherein the recessed portions are substantially identical.

28. A receptacle as claimed in any of claims 23 to 27, wherein the upper edge of the side wall is formed into first and second spaced-apart outwardly projecting lip portions.

29. A receptacle as claimed in any of the preceding claims, wherein the outwardly projecting lip portion is overturned.

30. A receptacle as claimed in any of the preceding claims, wherein the base wall is substantially circular.

31. A receptacle as claimed in any of the preceding claims, wherein the side wall flares upwardly and outwardly with respect to the base wall.

32. A receptacle as claimed in claim 31, wherein the side wall has an inverted frusto-conical shape.
33. A receptacle as claimed in any of the preceding claims, wherein the side wall further comprises a plurality of integrally-formed markings adapted to indicate the depth of liquid above the base wall.

34. A receptacle as claimed in claim 33, wherein the integrally-formed markings form a graduated scale.

35. A receptacle as claimed in claim 33 or claim 34, wherein the markings are recessed when viewed from the interior of the receptacle.

36. A receptacle as claimed in any of the preceding claims, comprising moulded paper pulp.

37. A receptacle as claimed in any of the preceding claims, comprising a bowl.

38. A receptacle substantially as herein described, with reference to, and as illustrated in, the accompanying drawings.
**INTERNATIONAL SEARCH REPORT**

**International application No**

PCT/GB2008/051092

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**A. CLASSIFICATION OF SUBJECT MATTER**

INV. G01F19/00 A61J19/00

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**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

GOIF A61J A47G B65D

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

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**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

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**X** Further documents are listed in the continuation of Box C

**X** See patent family annex

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* Special categories of cited documents

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"I" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

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Date of the actual completion of the international search

17 April 2009

Date of mailing of the international search report

08/05/2009

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Name and mailing address of the ISA/Authorized officer

European Patent Office, P B 5818 Patentlaan 2 NL - 2280 HV RUISWIX Tel (+31-70) 340-2040, Fax (+31-70) 340-3016

Boerrigter, Herman

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Form PC17IS/V210 (second sheet) (April 2005)
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<td>WO 01/98153 A (VOGEL &amp; NOOT MEISSNER METALLVE [DE]; ALBRECHT LORENZ [DE]) 27 December 2001 (2001-12-27) abstract; figures 1-4</td>
<td>23, 24</td>
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This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. **X** Claims Nos.: 38 because they relate to subject matter not required to be searched by this Authority, namely:
   
   Claim 38 describes a receptacle with reference to the accompanying drawings. According to Rule 6.2(a) PCT, claims should not contain such references except where absolutely necessary, which is not the case here.

2. **☐** Claims Nos.: because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. **☐** Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. **☐** As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. **☐** As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of additional fees.

3. **☐** As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. **☐** No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- **☐** The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- **☐** The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- **X** No protest accompanied the payment of additional search fees.
This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-14, 29-37

   Receptacle comprising an upper edge with at least two recessed portions

2. claims: 15-22

   Receptacle comprising an upper edge formed into first and second spaced apart outwardly projecting lip portions.

3. claims: 23-28

   Receptacle comprising an upper edge with stiffening shoulder.
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