

Description

This invention relates to an end wall seam for a pail for the storage and transportation of materials and which is especially useful in the transportation of dangerous goods such as paint.

A seam according to the invention is useful for securing an irremovable end wall to a tubular pail body. The end wall may serve as the bottom end wall of a pail having a removable lid at the end intended, in normal use or storage, to be the upper end of the pail, but irremovable end walls may be seamed to both ends of a pail body. The pail is then sometimes called a "drum" and at least one of the end walls may be formed with a closable filling/emptying opening. In the present specification, the term "bottom seam" is used to denote a kind of seam used to secure an end wall (referred to generally in the description as a "bottom") irremovably to an end of a pail (which is sometimes in common usage called a "drum"). An irremovable end wall is one securely clamped to a pail body by interengagement of deformed flanges of the pail body and the end wall and which cannot, therefore, be simply levered off. Thus, the term "bottom seam" does not imply that a pail (or drum) cannot have both end walls secured by such a seam, or that such a seam or the "bottom" of the pail must necessarily be, even in the normal position of storage or use, at the lower end of the pail.

It is important in transporting materials which are corrosive or flammable that secure packages are used which are not readily susceptible to damage and leakage, for example if they are dropped during loading and unloading. Specifications for packaging have been raised over the years and it can be expected that they will be further raised.

The present invention seeks to provide a bottom seam for fastening the bottom of a pail to the pail body which is less susceptible to damage and leakage on dropping of the pail than a conventional bottom seam.

Discussion of Prior Art

Conventionally, a bottom seam for a pail is made by bending a flange at the lower extremity of the pail body to extend outwardly from the body at right angles. The bottom is then inserted in the pail body, a flange at the periphery of a downwardly extending rim having been formed so as to extend outwardly at right angles to the rim so that it will lie in contact with the flange on the pail body but extend beyond it. The extremity of the flange on the bottom is then bent back through 180° so that it will lie against the upper surface of the body flange. Finally, the flanges are then bent upwards through a right angle to lie close against the adjacent lower part of the pail body forming a seam in which five thicknesses of metal are compressed into contact with one another.

The present invention provides a bottom seam which is made in a manner basically similar to that described above but before the seaming operations are begun, a region of the wall of the pail body near the lower rim of the wall is formed so that it is inclined outwardly with respect to the pail body and the axis of the pail body. This enables a bottom seam to be produced which demonstrates a greater degree of integrity and resistance to damage on dropping of the pail than is shown by conventional bottom seams.

US-A-3108005 discloses a food package in which a bottom wall of transparent plastic film material closes a container body of relatively rigid metal sheet by the use of a ring closing member by trapping a margin of the film between deformed flanges of the body and ring.

According to one aspect of the invention a sheet metal pail body seamed to at least one sheet metal end wall by outward bending of a flange at an open end of the pail body and interengagement of this body flange with a flange on an end wall introduced into the open end, wherein a region of the pail body wall adjacent the body flange is bent so that it is outwardly inclined with respect to the longitudinal axis of the pail body to form a frusto-conical surface at a small angle Y° , is characterised in that the end wall has a substantially plane bottom and a rim part extending outwardly at an angle of $(90 + Y)^\circ$ with respect to the plane of the bottom, said rim part being in close contact with the outwardly inclined region of the pail body so as to leave substantially no gap between said rim part and said region and to leave the plane of the bottom substantially level with the inward extremity of the said region, and in that the pail body, adjacent to the said outwardly inclined region and further from the body flange, is provided with a further region which is bent inwardly to form a frusto-conical surface inclined at a small angle X° with respect to the axis of the pail body.

The invention also extends to a method of seaming an end wall to the open end of a sheet metal pail body by outward bending of a flange at the open end of the pail body and interengagement of this body flange with a flange on the end wall introduced into the open end of the pail body and deforming the two flanges to interengage them and produce a seam securing the end wall to the pail body, which method involves the steps of bending an end part of the pail body wall so that a region of the pail wall is outwardly inclined with respect to the longitudinal axis of the pail body to form a frusto-conical surface at a small angle Y° and the flange of the pail body extends outwardly at a substantially greater angle to the said axis, inserting the end wall in the open end of the pail body, the end wall having a tapering rim part extending outwardly towards the flange, which method is characterised in that the rim part extends at an angle of $(90 + Y)^\circ$ with respect to the plane of a bottom of the end wall, and the insertion is undertaken to bring the tap-

ering rim part on the end wall in close contact with the said outwardly inclined region of the pail wall to leave substantially no gap between said rim part and said region, and to bring the plane of the bottom substantially level with the inward extremity of the said region, and in that a part of the pail body adjacent to said outwardly inclined region is bent inwardly to form a frusto-conical surface inclined at a small angle X° with respect to the axis of the pail body.

The invention also includes a pail including a pail body as described above and a pail incorporating a bottom seam made by the method described above.

The outward inclination of the said region near the flange of the pail body allows close contact between the whole of this body region and the associated rim part of the end wall of the pail. This end wall necessarily has a slight taper to facilitate introduction of the end wall into the pail body and the invention is based on the discovery that the small gap between the inner end of the tapering rim part of the end wall and a parallel sided pail body of the prior art pails seriously affects the resistance to breakdown of the seam between the pail body and the end wall due to entry of surging liquid when a pail containing liquid is dropped onto its rim on a hard surface. By eliminating, or considerably reducing, the gap, the resistance of the associated seam to this sort of breakdown is increased.

However, if the taper on the said region of the pail body is too great, the seam between the end wall and the pail body will tend to open out when the pail is dropped onto its rim. Thus, the criteria for choosing the angle of taper (outward inclination) of the said region of the pail body are that this region is advantageously in close contact with the tapered rim part of the end wall throughout the whole of the width of the narrower of the two and above all that no gap, or virtually no gap, is left between the said region and the said part at the inner edge of the rim part. However, the taper on the pail body must not be so great that the seam between the pail body and the end wall will tend to open out when a pail full of liquid is dropped on the rim concerned.

Further, there may be other factors involved in achieving a successful seam since an improvement in the strength of the seam is observed at an outward inclination of the said pail body region of 4° and it may be found even at a slightly lower angle, perhaps 3° or slightly more. It is believed that above 15° a serious tendency for the seam to "unwind" when the pail is dropped on its rim will generally be found to occur. The references to "a small angle" in the present specification are to be understood in the context of the above explanation.

Brief Description of the Drawings

The invention will be further described, by way of

example, with reference to the accompanying drawings in which :

Figure 1 is a view, partly in section of a lower part of a pail with a bottom seam according to the invention,

Figure 2 is a section through part of the body of the pail shown in Figure 1 at its lower rim at an intermediate stage of the deformation of this part to prepare the pail body for reception of a bottom, Figure 3 is a section similar to Figure 2 showing an intermediate stage in the fitting of the pail bottom to the pail body,

Figure 4 is a section through part of a forming tool for preparing a pail body for the reception of a bottom, and

Figure 5 is a section through part of a forming tool for fitting a pail bottom to a pail body.

Description of Preferred Embodiment

The pail 20 partially shown in Figure 1 has a capacity of 20 litres and its body 21 is made from 27 gauge (0.43 mm thick) mild steel.

The first stage in manufacturing the pail body 21, in the present case, is a conventional procedure involving rolling to form a cylinder and crush welding to produce a longitudinal seam. Other welding techniques can be used to form this seam. At some stage in manufacture of the pail body, the upper rim of the body is curled ready to receive a lid, the curl and the method of fitting the lid preferably being such as to produce a head seam of a similar standard to the bottom seam to be described below.

In securing an end wall constituted by a bottom 60 to the pail body 21, the pail body is first deformed by deflecting a lower end part of the pail wall inwardly so that it lies at a small angle with the axis 61 of the pail body of from for example 8° to 15° . The region of the pail wall near its lower rim is then bent to extend outwardly with respect to the axis 61 at an angle from 4° to 15° . The result of these operations is shown in Figure 2 where a lower end part 62 of the pail body 21 is inwardly inclined at an angle X with respect to the pail axis 61 (and thus with respect to the pail wall 33) and a region 63 of the pail wall adjacent the lower rim of the pail body 21 is outwardly inclined at an angle Y with respect to the pail axis 61 and the pail wall 33. It is preferred that X and Y are equal and in the illustrated instance X and Y are both equal to 6° .

The result of the next series of operations performed in fitting the bottom 60 to the pail body 21 is shown in Figure 3. First, the lower extremity of the pail body 21 is formed with a flange 64 constituting the lower edge part of the region 63 of the pail body and extending outwardly at right angles or approximately at right angles to the remainder of the region 63, and thus approximately at right angles to the pail wall 33 (that is the pail body is adapted for fitting of an end wall

by outward bending of the flange 64 to lie at an angle to the pail wall substantially greater than the angle γ).

The bottom 60 of the pail is initially formed so that a part 65 of its rim adjacent its periphery extends downwardly and outwardly at an angle with respect to the plane of the bottom 60 of $(90 + \gamma)^\circ$. The region 66 of the part 65 of the bottom is then bent to extend outwardly at right angles or approximately at right angles to the remainder of the part 65 and the bottom 60 is then ready for fastening to the pail body 21. To achieve this, the bottom 60 is inserted in the pail body so that the upper portion of the region 63 of the pail body 21 lies against the upper portion of the part 65 of the bottom 60 and the flange 64 of the pail body 21 rests on and is in contact with the region 66 of the bottom 60, the angular disposition of those parts being chosen to ensure this juxtaposition. Next, the outer edge part 67 of the region 66 is bent back at 180° to lie against the upper surface of the flange 64 as shown in Figure 3 and finally the flange 64, already clamped between the outer edge part 67 and the upper part of the region 66 is bent upwards to lie close against the upper parts of the region 63 of the pail body 21 and the part 65 of the bottom 60, thus producing the bottom seam 68 shown in Figure 1 in which the flange 64 on the pail body 21 is interengaged with a flange on the bottom 60 constituted by the region 66 of the bottom, the two flanges being deformed to achieve this interengagement. The forming operation involved in making the bottom seam 68 can be carried out using conventional types of forming machinery.

The bottom 60 is formed with two annular corrugations 69 to make it more rigid.

In the present pail, the width dimension Z of the bottom seam has been increased by 50% compared with the width of a conventional bottom seam for the same size of pail; from 4 mm to 6 mm. This, and the outward inclination of the region 63 of the pail body 21, increase the integrity of the bottom seam and reduce the deformation of the seam when the pail is dropped.

In a conventional seam it is usual to find a wedge-shaped gap between the parts equivalent to the region 63 and the part 65, but in the bottom seam described above, there is no gap, or virtually no gap, between those parts. This reduces the risk of liquid surge opening up the seam by gaining ingress between these two parts when the pail is dropped. A feature of the bottom seam described is thus that all the component parts lie flat and parallel and in close contact with one another throughout the whole or substantially the whole of their width.

The outward inclination of the region 63 and thus of the whole bottom seam encourages the seam to bend outwards when the pail is dropped onto the bottom seam, the seam thus deforming in this way but remaining intact. With a conventional seam made with a part of the pail wall parallel to the pail axis and which, after manufacture, is still parallel to the pail axis or vir-

tually so, and if inclined outwardly is so inclined at a very small angle, perhaps 1° and certainly less than 4° , dropping the pail onto the bottom seam tends to crush the seam and cause it to leak.

The part 62 of the pail body is deflected inwardly so that outward deflection of the region 63 will still produce a pail in which the bottom seam lies within the taper lines of the pail for stacking.

In describing a further example of the method of the invention and of the tools used for carrying it out, reference will be made to Figures 4 and 5. The procedure for preparing a pail body for the reception of a bottom constituting part of the method now to be described differs from the similar procedure described above in that the deformation of the pail wall near the lower rim of the pail body is, in the present method, accomplished in a single forming operation.

The method is carried out on a forming line having conventional means for transporting pail bodies between work stations where the bodies are operated on by forming tools. The forming tool, part of which is shown in Figure 4, comprises a cylindrical expanding chuck 70 mounted for rotation about an axis 71 and having its periphery 72 shaped to form the lower rim of a pail wall. A pail is introduced into the forming tool of Figure 4 by a platform (not shown) on which the pail is located and which is then raised to bring the pail body 21 adjacent the periphery 72 of the chuck 70. The platform continues to urge the pail body upwards throughout the forming operation. A pair of forming wheels 73 (only one of which is shown) mounted in diametrically opposite locations with respect to the chuck 70 are then moved inwards by mounting means which are conventional in forming tools and press the region of the pail body 21 near its lower rim into the shaped periphery 72 of the chuck 70 as the chuck is rotated and expanded and thus imparts its rotation to the pail body 21.

The result is that in a single operation, the pail body 21 is deformed so that the lower end part 62 of the pail body is inwardly inclined, the region 63 of the pail wall adjacent the lower rim is outwardly inclined and the flange 64 constituting the lower edge part of the region 63 extends outwardly at right angles to the remainder of the region 63. The shape of the pail body in the area of the lower rim is thus as shown in Figure 3.

One method of fitting a bottom to the pail body is illustrated in Figure 5 showing part of a forming tool at another work station. At this work station, the pail body 21 is located on a platform (not shown) and a bottom 60 with a rim preformed to the shape shown is placed in the open end of the pail body (which is of course uppermost). The platform is then raised to bring the part 65 of the bottom into contact with a chamfer 74a on an expanding chuck 74 mounted for rotation about an axis 75. The chuck is next expanded and rotated carrying the bottom 60 and pail body 21

with it and a pair of forming wheels 76 (only one of which is shown) at diametrically opposed locations with respect to the chuck 74 are moved inwards to contact the region 63 of the bottom and press it in so that the part 67 curls round further and embraces the flange 64. The shape of the groove 77 in the periphery of the forming wheel 76 is such that it causes the flange 64 and the parts embracing it to bend down so as to be inclined downwardly and outwardly in Figure. 5.

At the same work station, a further pair of forming wheels 78 (only one of which is shown) at different diametrically opposite locations in relation to the chuck 74 compared with the forming wheels 76 are now moved inwards to press the flange 64 and the parts embracing it against the region 63 of the pail body 21 and flatten and complete the bottom seam.

Claims

1. A sheet metal pail body (21) seamed to at least one sheet metal end wall (60) by outward bending of a flange (64) at an open end of the pail body (21) and interengagement of this body flange (64) with a flange (66, 67) on an end wall (60) introduced into the open end, wherein a region (63) of the pail body wall adjacent the body flange is bent so that it is outwardly inclined with respect to the longitudinal axis (61) of the pail body to form a frusto-conical surface at a small angle Y° , characterised in that the end wall has a substantially plane bottom and a rim part (65) extending outwardly at an angle of $(90 + Y)^\circ$ with respect to the plane of the bottom, said rim part (65) being in close contact with the outwardly inclined region (63) of the pail body so as to leave substantially no gap between said rim part (65) and said region (63) and to leave the plane of the bottom substantially level with the inward extremity of the said region, and in that the pail body, adjacent to the said outwardly inclined region (63) and further from the body flange (64), is provided with a further region (62) which is bent inwardly to form a frusto-conical surface inclined at a small angle X° with respect to the axis (61) of the pail body (21).

2. A pail body according to claim 1, characterised in that the angle Y° equals the angle X° .

3. A pail body (21) according to claim 1 or claim 2, characterised in that the said small angle (Y) lies in the range from 4° to 15° .

4. A pail body (21) according to claim 3, characterised in that the said small angle (Y) lies in the range from 4° to 12° .

5. A pail including a pail body (21) as claimed in any one of claims 1 to 4.

6. A method of seaming an end wall (60) to the open end of a sheet metal pail body (21) by outward bending of a flange (64) at the open end of the pail body (21) and interengagement of this body flange

(64) with a flange (66, 67) on the end wall (60) introduced into the open end of the pail body and deforming the two flanges (64 : 66, 67) to interengage them and produce a seam (68) securing the end wall to the pail body, which method involves the steps of bending an end part of the pail body wall so that a region (63) of the pail wall is outwardly inclined with respect to the longitudinal axis (61) of the pail body to form a frusto-conical surface at a small angle Y° and the flange (64) of the pail body extends outwardly at a substantially greater angle to the said axis, inserting the end wall (60) in the open end of the pail body, the end wall having a tapering rim part (65) extending outwardly towards the flange (66, 67), characterised in that the rim part (65) extends at an angle of $(90 + Y)^\circ$ with respect to the plane of a bottom of the end wall, and the insertion is undertaken to bring the tapering rim part (65) on the end wall (60) in close contact with the said outwardly inclined region (63) of the pail wall to leave substantially no gap between said rim part (65) and said region (63), and to bring the plane of the bottom substantially level with the inward extremity of the said region (63), and in that a part (62) of the pail body adjacent to said outwardly inclined region (63) is bent inwardly to form a frusto-conical surface inclined at a small angle X° with respect to the axis (61) of the pail body (21).

7. A method according to claim 6, characterised in that the angle Y° equals the angle X° .

8. A method according to claim 6 or claim 7, characterised in that the small angle Y lies in the range from 4° to 15° .

9. A method according to any one of claims 6 to 8, characterised in that said two flanges (64 : 66, 67) are deformed by curling the end of the end wall flange (66, 67) around the pail body flange (64) to embrace the latter and pressing the two flanges (64, 66) to lie against said outwardly inclined region (63) of the pail body (21).

10. A pail comprising a pail body seamed to an end wall by the method claimed in any one of claims 6 to 8.

Patentansprüche

1. Blechkübelkörper (21), der dadurch, daß ein Flansch (64) an einem offenen Ende des Kübelkörpers (21) nach außen gebogen wird und dieser Körperflansch (64) und ein Flansch (66, 67) an einer in das offene Ende eingeführten Endwand (60) ineinandergreifen, mit mindestens einer Blechendwand (60) zusammengefalzt wird, wobei ein Bereich (63) der in der Nähe des Körperflansches liegenden Kübelkörperwand so gebogen ist, daß er bezüglich der Längsachse (61) des Kübelkörpers so nach außen geneigt ist, daß er eine kegelistumpfförmige Oberfläche unter einem kleinen Winkel Y° bildet,

with it and a pair of forming wheels 76 (only one of which is shown) at diametrically opposed locations with respect to the chuck 74 are moved inwards to contact the region 63 of the bottom and press it in so that the part 67 curls round further and embraces the flange 64. The shape of the groove 77 in the periphery of the forming wheel 76 is such that it causes the flange 64 and the parts embracing it to bend down so as to be inclined downwardly and outwardly in Figure. 5.

At the same work station, a further pair of forming wheels 78 (only one of which is shown) at different diametrically opposite locations in relation to the chuck 74 compared with the forming wheels 76 are now moved inwards to press the flange 64 and the parts embracing it against the region 63 of the pail body 21 and flatten and complete the bottom seam.

Claims

1. A sheet metal pail body (21) seamed to at least one sheet metal end wall (60) by outward bending of a flange (64) at an open end of the pail body (21) and interengagement of this body flange (64) with a flange (66, 67) on an end wall (60) introduced into the open end, wherein a region (63) of the pail body wall adjacent the body flange is bent so that it is outwardly inclined with respect to the longitudinal axis (61) of the pail body to form a frusto-conical surface at a small angle Y° , characterised in that the end wall has a substantially plane bottom and a rim part (65) extending outwardly at an angle of $(90 + Y)^\circ$ with respect to the plane of the bottom, said rim part (65) being in close contact with the outwardly inclined region (63) of the pail body so as to leave substantially no gap between said rim part (65) and said region (63) and to leave the plane of the bottom substantially level with the inward extremity of the said region, and in that the pail body, adjacent to the said outwardly inclined region (63) and further from the body flange (64), is provided with a further region (62) which is bent inwardly to form a frusto-conical surface inclined at a small angle X° with respect to the axis (61) of the pail body (21).

2. A pail body according to claim 1, characterised in that the angle Y° equals the angle X° .

3. A pail body (21) according to claim 1 or claim 2, characterised in that the said small angle (Y) lies in the range from 4° to 15° .

4. A pail body (21) according to claim 3, characterised in that the said small angle (Y) lies in the range from 4° to 12° .

5. A pail including a pail body (21) as claimed in any one of claims 1 to 4.

6. A method of seaming an end wall (60) to the open end of a sheet metal pail body (21) by outward bending of a flange (64) at the open end of the pail body (21) and interengagement of this body flange

(64) with a flange (66, 67) on the end wall (60) introduced into the open end of the pail body and deforming the two flanges (64 : 66, 67) to interengage them and produce a seam (68) securing the end wall to the pail body, which method involves the steps of bending an end part of the pail body wall so that a region (63) of the pail wall is outwardly inclined with respect to the longitudinal axis (61) of the pail body to form a frusto-conical surface at a small angle Y° and the flange (64) of the pail body extends outwardly at a substantially greater angle to the said axis, inserting the end wall (60) in the open end of the pail body, the end wall having a tapering rim part (65) extending outwardly towards the flange (66, 67), characterised in that the rim part (65) extends at an angle of $(90 + Y)^\circ$ with respect to the plane of a bottom of the end wall, and the insertion is undertaken to bring the tapering rim part (65) on the end wall (60) in close contact with the said outwardly inclined region (63) of the pail wall to leave substantially no gap between said rim part (65) and said region (63), and to bring the plane of the bottom substantially level with the inward extremity of the said region (63), and in that a part (62) of the pail body adjacent to said outwardly inclined region (63) is bent inwardly to form a frusto-conical surface inclined at a small angle X° with respect to the axis (61) of the pail body (21).

7. A method according to claim 6, characterised in that the angle Y° equals the angle X° .

8. A method according to claim 6 or claim 7, characterised in that the small angle Y lies in the range from 4° to 15° .

9. A method according to any one of claims 6 to 8, characterised in that said two flanges (64 : 66, 67) are deformed by curling the end of the end wall flange (66, 67) around the pail body flange (64) to embrace the latter and pressing the two flanges (64, 66) to lie against said outwardly inclined region (63) of the pail body (21).

10. A pail comprising a pail body seamed to an end wall by the method claimed in any one of claims 6 to 8.

Patentansprüche

1. Blechkübelkörper (21), der dadurch, daß ein Flansch (64) an einem offenen Ende des Kübelkörpers (21) nach außen gebogen wird und dieser Körperflansch (64) und ein Flansch (66, 67) an einer in das offene Ende eingeführten Endwand (60) ineinandergreifen, mit mindestens einer Blechendwand (60) zusammengefalzt wird, wobei ein Bereich (63) der in der Nähe des Körperflansches liegenden Kübelkörperwand so gebogen ist, daß er bezüglich der Längsachse (61) des Kübelkörpers so nach außen geneigt ist, daß er eine kegelstumpfförmige Oberfläche unter einem kleinen Winkel Y° bildet,





dadurch gekennzeichnet, daß die Endwand einen im wesentlichen ebenen Boden und einen Randteil (65) aufweist, der sich bezüglich der Bodenebene unter einem Winkel von $(90 + Y)^\circ$ nach außen erstreckt und mit dem nach außen geneigten Bereich (63) des Kübelkörpers in solch enger Berührung steht, daß zwischen jenem Randteil (65) und jenem Bereich (63) im wesentlichen kein Spalt zurückbleibt, und daß die Bodenebene und das innere Ende jenes Bereichs im wesentlichen auf gleicher Höhe liegen, und daß der in der Nähe jenes nach außen geneigten Bereichs (63) und weiter vom Körperflansch (64) weg liegende Kübelkörper einen weiteren Bereich (62) aufweist, der unter Bildung einer bezüglich der Achse (61) des Kübelkörpers (21) unter einem kleinen Winkel X° geneigten kegelstumpfförmigen Oberfläche nach innen gebogen ist.

2. Kübelkörper nach Anspruch 1, dadurch gekennzeichnet, daß Winkel Y° gleich Winkel X° ist.

3. Kübelkörper (21) nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß jener kleine Winkel (Y) im Bereich von 4° bis 15° liegt.

4. Kübelkörper (21) nach Anspruch 3, dadurch gekennzeichnet, daß jener kleine Winkel (Y) im Bereich von 4° bis 12° liegt.

5. Kübel mit einem Kübelkörper (21) nach einem der Ansprüche 1 bis 4.

6. Verfahren zum Zusammenfalten einer Endwand (60) mit dem offenen Ende eines Blechkübelkörpers (21), indem ein Flansch (64) am offenen Ende des Kübelkörpers (21) nach außen gebogen wird und dieser Körperflansch (64) und ein Flansch (66, 67) an der in das offene Ende des Kübelkörpers eingeführten Endwand (60) ineinandergreifen und die beiden Flansche (64 : 66, 67) so verformt werden, daß sie ineinandergreifen und ein Falz (68) erzeugt wird, wodurch die Endwand am Kübelkörper befestigt wird, wobei das Verfahren die folgenden Schritte umfaßt: ein Endteil der Kübelkörperwand wird so gebogen, daß ein Bereich (63) der Kübelwand bezüglich der Längsachse (61) des Kübelkörpers so nach außen geneigt ist, daß er eine kegelstumpfförmige Oberfläche unter einem kleinen Winkel Y° bildet, und sich der Flansch (64) des Kübelkörpers unter einem wesentlich größeren Winkel bezüglich jener Achse nach außen erstreckt, und die Endwand (60) wird in das offene Ende des Kübelkörpers eingeführt, wobei die Endwand einen sich nach außen zum Flansch (66, 67) hin erstreckenden, sich verjüngenden Randteil (65) aufweist, dadurch gekennzeichnet, daß sich der Randteil (65) unter einem Winkel von $(90 + Y)^\circ$ bezüglich der Ebene eines Endwandbodens erstreckt und die Einführung so durchgeführt wird, daß der sich verjüngende Randteil (65) an der Endwand (60) mit jenem nach außen geneigten Bereich (63) der Kübelwand in solch enge Berührung gebracht wird, daß zwischen jenem Randteil (65) und jenem Bereich (63) im wesentlichen kein Spalt zurückbleibt, und daß die

Bodenebene und das innere Ende jenes Bereichs (63) im wesentlichen auf die gleiche Höhe gebracht werden, und daß ein in der Nähe jenes nach außen geneigten Bereichs (63) liegender Teil (62) des Kübelkörpers unter Bildung einer bezüglich der Achse (61) des Kübelkörpers (21) unter einem kleinen Winkel X° geneigten kegelstumpfförmigen Oberfläche nach innen gebogen ist.

7. Verfahren nach Anspruch 6, dadurch gekennzeichnet, daß Winkel Y° gleich Winkel X° ist.

8. Verfahren nach Anspruch 6 oder 7, dadurch gekennzeichnet, daß der kleine Winkel Y im Bereich von 4° bis 15° liegt.

9. Verfahren nach einem der Ansprüche 6 bis 8, dadurch gekennzeichnet, daß jene beiden Flansche (64 : 66, 67) deformiert werden, indem das Ende des Endwandflansches (66, 67) so um den Kübelkörperflansch (64) herumgeschlungen wird, daß er diesen einfaßt, und die beiden Flansche (64, 66) so zusammengedrückt werden, daß sie an jenem nach außen geneigten Bereich (63) der Kübelkörper (21) anliegen.

10. Kübel mit einem Kübelkörper, der durch das Verfahren nach einem der Ansprüche 6 bis 8 mit einer Endwand zusammengefalzt ist.

Revendications

1. Corps de seau (21) en tôle métallique agrafé à au moins une paroi d'extrémité (60) en tôle métallique en pliant vers l'extérieur un bord (64) d'une extrémité ouverte du corps de seau (21) et en engageant ce bord du corps (64) avec un bord (66, 67) d'une paroi d'extrémité (60) introduite dans l'extrémité ouverte, dans lequel une région (63) de la paroi du corps de seau voisine du bord du corps est pliée de telle sorte qu'elle soit inclinée vers l'extérieur par rapport à l'axe longitudinal (61) du corps de seau pour former une surface tronconique avec un petit angle Y° , caractérisé en ce que la paroi d'extrémité a un fond substantiellement plat et une partie formant collerette (65) s'étendant vers l'extérieur avec un angle de $(90 + Y)^\circ$ par rapport au plan du fond, ladite partie formant collerette (65) étant en contact étroit avec la région (63) du corps de seau inclinée vers l'extérieur, de façon à ne laisser substantiellement aucun espace entre ladite partie formant collerette (65) et ladite région (63) et à laisser le plan du fond substantiellement de niveau avec l'extrémité intérieure de ladite région, et en ce que le corps du seau, au voisinage de ladite région (63) inclinée vers l'extérieur et plus loin du bord (64) du corps, est pourvu d'une autre région (62) qui est pliée vers l'intérieur pour former une surface tronconique inclinée avec un petit angle X° par rapport à l'axe (61) du corps de seau (21).

2. Corps de seau suivant la revendication 1, caractérisé en ce que l'angle Y° est égal à l'angle X° .



3. Corps de seau (21) suivant la revendication 1 ou la revendication 2, caractérisé en ce que ledit petit angle (Y) est situé dans une gamme comprise entre 4° et 15° .

4. Corps de seau (21) suivant la revendication 3, caractérisé en ce que ledit petit angle (Y) est situé dans la gamme comprise entre 4 et 12° .

5. Seau comprenant un corps de seau (21) suivant l'une ou l'autre des revendications 1 à 4.

6. Procédé d'agrafage d'une paroi d'extrémité (60) à l'extrémité ouverte d'un corps de seau (21) en tôle métallique en pliant vers l'extérieur un bord (64) de l'extrémité ouverte du corps de seau (21), et en engageant ce bord (64) du corps avec un bord (66, 67) de la paroi d'extrémité (60) introduite dans l'extrémité ouverte du corps de seau et en déformant les deux bords (64 ; 66, 67) pour les engager l'un avec l'autre et réaliser une agrafure (68) assemblant la paroi d'extrémité au corps de seau, procédé dans lequel on plie une partie d'extrémité de la paroi de corps de seau de telle façon qu'une région (63) de la paroi du seau soit inclinée vers l'extérieur par rapport à l'axe longitudinal (61) du corps de seau pour former une surface tronconique avec un petit angle Y° et que le bord (64) du corps de seau soit dirigé vers l'extérieur avec un angle substantiellement plus grand par rapport audit axe, et on insère la paroi d'extrémité (60) dans l'extrémité ouverte du corps de seau, la paroi d'extrémité ayant une partie formant collerette (65) conique qui est dirigée vers l'extérieur en direction du bord (66, 67), caractérisé en ce que la partie formant collerette (65) est orientée avec un angle de $(90 + Y)^\circ$ par rapport au plan d'un fond de la paroi d'extrémité et que l'on opère l'insertion pour amener la partie formant collerette (65) de la paroi d'extrémité (60) en contact étroit avec ladite région (63) inclinée vers l'extérieur de la paroi de seau de façon à ne laisser substantiellement aucun espace entre ladite partie formant collerette (65) et ladite région (63), et pour amener le plan du fond substantiellement de niveau avec l'extrémité intérieure de ladite région (63), et en ce qu'une partie (62) du corps de seau, voisine de ladite région (63) inclinée vers l'extérieur, est rabattue vers l'intérieur pour former une surface tronconique inclinée d'un petit angle X° par rapport à l'axe (61) du corps de seau (21).

7. Procédé suivant la revendication 6, caractérisé en ce que l'angle Y° est égal à l'angle X° .

8. Procédé suivant la revendication 6 ou la revendication 7, caractérisé en ce que le petit angle Y est situé dans une gamme comprise entre 4° et 15° .

9. Procédé suivant l'une ou l'autre des revendications 6 à 8, caractérisé en ce que lesdits deux bords (64 ; 66, 67) sont déformés en recourbant l'extrémité du bord (66, 67) de la paroi d'extrémité autour du bord (64) du corps de seau pour enserrer ce dernier et en pressant les deux bords (64, 66) pour les appliquer contre ladite région (63) inclinée vers l'extérieur du

corps de seau (21).

10. Seau comprenant un corps de seau agrafé à une paroi d'extrémité par le procédé suivant l'une ou l'autre des revendications 6 à 8.