

SPECIFICATION

Container made of thin pliable synthetic material, and process of manufacturing it

5 The present invention relates to a container made of thin pliable synthetic material, and to a process of manufacturing it.

French Patent No. 75.18358, filed by the present

10 Applicant on 12th June 1975, describes a container made of thin pliable synthetic material comprising in addition to its main cavity, at least one closed pocket filled with a fluid and not communicating with said main cavity, this pocket and the fluid with which it is

15 filled being such as to impart a degree of rigidity to the container, particularly when emptying its main cavity. In particular, the closed pocket may be so arranged as to form a handle or grip for the container. In a particular form of the container

20 described in the above-mentioned French Patent, its closed pocket and its main cavity, likewise closed, contain the same liquid, for example mineral water.

The present invention seeks to improve on the container described in the above-mentioned French

25 Patent.

In accordance with a first aspect of the invention, there is provided a container comprising two side walls and a bottom each consisting of a portion of a single sheet of thin pliable composite synthetic

30 material, heat weldable only on the faces presented to the interior of the container and said portions having juxtaposed edges welded together, said side walls also being welded to each other along a line so positioned as to divide the interior of the container

35 into a main cavity for containing a liquid and a closed pocket of smaller volume filled with gas under pressure for stiffening the container, the weld line between the two side walls being positioned such that the closed pocket, when filled with a gas

40 under pressure, forms a handle for gripping the container, the portion of said sheet forming said bottom taking the form of a V-shaped fold extending parallel to said side walls over their entire length, the lateral ends of said fold being closed by welds, and

45 wherein the bottom edges of the container in the region of the lateral ends of the V-shaped fold are cut away in such a way that the container has bevelled bottom corners, which are closed by welds in such a way that the arms of the V-shaped fold are separate

50 from each other over their entire length, including welds.

It will thus be seen that the invention makes it possible to avoid filling the closed pocket, acting as a handle or grip for example, with the same liquid as

55 that put into the main cavity. It has been found that users have shown some reluctance to make use of the liquid contained in the handle or grip of the container, doubtless because they were not sure that it was precisely the same drinkable liquid as that

60 contained in the main cavity.

The container of the invention uses, as the material of the bottom and the two side walls of the container, a composite synthetic material head weldable only on the faces presented to the interior

65 of the container. It is known that there exist

composite synthetic materials of this kind which offer considerable resistance to permeation by atmospheric gases, and this is very advantageous in the preservation of beverages.

70 Containers made in accordance with the present invention are particularly advantageous in that they can greatly facilitate the rapid and completely automatized manufacture of a large number of identical containers in rows.

75 In the containers of the invention, the lateral ends of the V-shaped fold at the bottom, corresponding to the bottom corners of the container, are cut off and welded to form bevelled corners in such a way that the two folds are separate from each other over their entire length. When the main cavity of such a

80 container is filled with liquid, the weight of the latter has the effect of substantially flattening out the V-shaped fold at its bottom, at least in the median portion of the bottom, and this results in a large and

85 practically flat standing surface of the filled container.

The present invention is also concerned with rows of interconnected identical containers of the type defined above. According to a preferred

90 embodiment of the present invention, the containers of such rows are connected together along the welded edges of their side walls by a narrow joint consisting of a frangible or cuttable synthetic material, at least one of the end receptacles of the

95 row being similarly connected to a substantially rigid end handle.

Such rows, comprising for example from two to ten closed containers each accommodating the same liquid and provided with a handle, at one end

100 only in the case of a row of two or three containers, or at each end, in the case of a large number of containers, are particularly convenient in the marketing of beverages such as mineral water. In this latter case in particular, it is especially

105 advantageous to provide rows of six to ten containers each filled with a litre of mineral water and each row being provided with a handle at each of its two ends so that it can be carried in one hand, said row being bent round so that the two handles at

110 its ends coincide with each other.

In a preferred form of the row of containers each end handle comprises one or more closed pockets of pliable synthetic material containing at least one rigid plate or a pressurized gas, for example slightly

115 compressed air. Preferably, all the containers and the end handle or handles of the row are formed by a single strip of pliable synthetic material, folded to the shape of a letter W, which strip is cut to the required length, welded and, optionally, adhesive

120 bonded. This arrangement is particularly advantageous in that it enables large number of rows of containers in accordance with the present invention to be manufactured continuously, automatically and rapidly.

125 In accordance with a second aspect of the invention, there is provided a process for the continuous manufacture of identical containers of the above-indicated type, said process comprising the steps of advancing horizontally and in a stepwise

130 manner, a strip of composite synthetic material,

folded longitudinally to the shape of a letter W, each feed-step being a little greater than the width of each container or than a multiple of its width and, for the production of each container, simultaneously
 5 welding the bottoms of the W-shaped-fold in the strip, making a first and second weld transversely of the strip and separated by a distance corresponding to the required width of each container, each first and second weld being so formed as to provide a
 10 bevelled corner in the area of the V-shaped fold in the strip, making a third weld, delimiting, together with the first weld, the main cavity in the container and, together with the second weld, the pocket of the container, said cavity and pocket remaining open at
 15 the upper edges of the folded strip separating the upper edges of the strip at least at the main cavity so as to enable the introduction of a liquid into the main cavity and so as to enable the introduction of a small pipe for injecting gas under pressure into the pocket:
 20 pressing the upper edges of the folded strip against each other and around the small pipe during injection of gas under pressure; then, after retraction of the small pipe, welding the upper edges of the folded strip to each other to close the main cavity
 25 and the pocket.

In order that the invention may be better understood, several embodiments thereof will now be described by way of example only and with reference to the accompanying drawings in which:-

30 *Figure 1* is a diagrammatic perspective view of a first embodiment of container in accordance with the present invention and made of thin pliable synthetic material and containing mineral water;

Figure 2 is a diagrammatic perspective view of a process for the continuous and automatic production of rows of containers as illustrated in *Figure 1*;

Figures 3 to 7 show various details of the process of *Figure 2* in cross-section; and

40 *Figures 8A and 8B* are diagrammatic perspective views of two consecutive portions of a modified form of the machine of *Figure 2*.

Referring to *Figure 1*, the container comprises a main cavity A, and a closed pocket B, filled with a gas and not communicating with the main cavity. The pocket B and the gas contained therein are so selected as to impart a degree of rigidity to the container particularly when emptying the main cavity A, this being done for example, after making a
 50 cut through its pouring spout along the broken line C. The main cavity A is filled with mineral water, whereas the closed pocket B is filled with a pressurized gas, for example slightly compressed air.

55 The container has a bottom 1 and two side walls 2a and 2b which are formed by a single thin sheet of pliable synthetic material welded along its juxtaposed edges 3a and 3b. The closed pocket B is separated from the main A by a continuous weld line
 60 8 interconnecting two juxtaposed zones of the side walls 2a and 2b. The bottom 1 and the two side walls 2a and 2b are made of a composite synthetic material of a known type which can be heat-welded only on the faces presented to the interior of the
 65 container, and the bottom 1 has two V-shaped folds

1a and 1b which extend parallel to the two lateral walls 2a and 2b over their entire length, the end of each of these V-shaped folds being closed by welds 5a, 5b in the one case, and by welds 6a, 6b in the
 70 other; however, the two V-shaped folds 1a and 1b at the bottom 1 are separate from each other and their ends are cut off and bevel-welded, as can be clearly seen at 5a in *Figure 1*. Finally, the lower edge of each of the two V-shaped folds 1a and 1b of the bottom 1
 75 is stiffened by welds 7a and 7b respectively extending over the entire length of the folds 1a and 1b.

The weight of the liquid contained in the main cavity A has the effect of substantially flattening the
 80 inner faces of the two V-shaped folds 1a and 1b of the the bottom 1 except, obviously, near the welded ends of the folds, but this nevertheless results in a standing surface great enough to ensure good stability of the container, the bottom 1 of which is placed on a horizontal surface. The closed pocket B forms a handle enabling the container to be easily held; it could also take any one of the numerous other forms described and illustrated in French Patent No. 75.18358, mentioned above, or it could
 85 even be cut and shaped to form a bowed handle.

Figure 2 illustrates diagrammatically and in perspective a means for carrying out the process in accordance with the present invention for producing, in a continuous and automatic manner,
 90 rows of containers identical to that of *Figure 1*. In particular *Figure 2* shows the various successive stages in the manufacture of a row of eight contiguous containers R1 to R8, each closed and filled with mineral water, these containers being
 95 connected along welded edges of their side walls by a narrow joint consisting of frangible or cuttable synthetic material, and the two end containers R1 and R8 of the row being provided in the same way with substantially rigid end handles P1 and P2. In the arrangement in question, each of the end handles P1
 100 and P2 has, in the longitudinal direction of the row, a length which is half the length L of each of the containers (see *Figures 1 and 2*).

The process illustrated in *Figures 2 to 7* is carried out in the following manner:

Known means, which do not require to be described in detail, are provided for feeding horizontally and incrementally in the direction of the arrow F (*Figure 2*) a strip 9 of a composite synthetic material, heat-weldable only on its upper face, this
 115 strip being dispensed from a supply roll b arranged with its axis horizontal; various thin pliable synthetic materials of this kind are known which are preferred for use in the preservation of substances and particularly beverages such as mineral water since they comprise a heat-weldable layer which does not react with food substances and may thus be brought into contact with the latter. These materials also
 120 comprise a layer which is not heat-weldable and which resists, to a large extent, permeation, particularly by atmospheric gases.

Known means comprising in particular suitably supported guide plates such as those shown at 10 and 11 and two guide rollers 12A and 12B, arranged with their axes vertical, are provided for folding the
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strip 9 into the form of a letter W as it is paid out from the feed roll *b*. In the cross-sectional view of Figure 3 are shown the portions of the strip 9 which are intended to form the side walls 2a and 2b of each of the containers R1 to R8 forming the row. Figure 3 also shows the two V-shaped folds 1a and 1b at its bottom (refer also to Figure 1).

With each of the incremental feed steps having a length slightly greater than the length L of each of the containers R1 to R8, the bottoms of the two V-shaped folds 1a and 1b, formed in the strip 9 pass between two electrodes 13A and 13B (see also Figure 3) which, during each time interval between two successive feed steps, are moved towards each other in a transverse direction D so as to weld the bottoms of the two V-shaped folds 1a and 1b. These two folds, however, remain separate from each other - at their welded bottoms as well - because the latter, due to the advance of the welding electrodes 13a and 13b are applied to each other by way of the non heat-weldable face portions of the strip 9 (i.e. its inner face when seen in Figure 3).

Rigid pre-cut plates p1 and p2, made of cardboard, for example, are then introduced simultaneously in juxtaposed relationship between the two portions 2a and 2b of the strip 9, folded to the shape of a letter W, to form rigid elements for the end handles P1 and P2 of two consecutive containers. This operation can take place simultaneously with the welding of the peripheries of the handles P1 and P2 (see below) during the time interval between two successive feed steps of the strip, since any two contiguous handles P1 and P2 will occupy the same length L of the strip 9 as each of the containers R1 to R8. The simultaneous welding operation on the peripheries of two contiguous end handles P1 and P2 are carried out by advancing, in the transverse direction D, two welding and cutting tools 14A and 14B of suitable shape towards each other.

Upon the next incremental stoppage of the strip 9 the movement, in the transverse direction D, of two welding electrodes 15A and 15B of appropriate shape (see also Figure 4) makes it possible to form simultaneously a first and second weld transversely of the strip 9 and separated by a distance corresponding to the width L of each of the containers R1 to R8, which welds interconnect the inner faces of the lateral walls 2a and 2b (Figure 4) of the folded strip and of its two V-shaped folds 1a and 1b, and, at the same time, a third weld 8 which, together with the first weld, delimits the main cavity A of the container and, together with the second weld, delimits the pocket B of the container. This operation therefore enables the welded joints 3a, 3b and 8 of the container illustrated in Figure 1 to be formed simultaneously. The cavity A and the pocket B of course then remain open at the upper adjacent edges of the strip. Furthermore, each first welded joint 3a and each second welded joint 3b is so formed as to provide a bevelled connection between the inner faces of the two V-shaped folds 1a and 1b of the strip 9. In this way a substantially trapezoidal zone Z is formed between two consecutive containers, which zone is bounded at the top in the two V-shaped folds 1a and 1b in the strip 9 by the

adjacent bevel-welded portions 3a and 3b corresponding to two containers formed one after the other, for example the containers R6 and R7. With the next incremental stoppage of the strip, this substantially trapezoidal zone Z is cut away by a punch 16A and a die 16B which are moved towards each other in the transverse direction D (see also Figure 5).

The container that is being formed in the strip 9, still folded in the shape of a W, for example the container R6 of a row that is being formed, then stops below a spout 17 for supplying the beverage, for example mineral water, intended to be charged into the main cavity A of the container. The upper edges of the container in question, for example the container R6, are then separated at said main cavity A by any suitable means, for example, with the aid of the two suction pads 18A and 18B (see also Figure 6), which are displaceably mounted so that they can be moved away from each other in the transverse direction D, this then enabling the beverage, supplied through the spout 17, to flow into the main cavity A of the container R6. When its main cavity A is filled with the required amount of mineral water, the flow of liquid through the spout 17 is stopped and the action of the suction pads 18A and 18B is interrupted.

The next incremental step in the movement of the strip 9 then brings its upper edges, released by the suction pads, between two jaws 19A and 19B each of which has a width substantially equal to the length L of each container and which are made of or at least lined with a resilient substance such as rubber. A small pipe 20 for injecting compressed air is then moved down into the pocket B of the container, the upper edges of which container are still free, after which the jaws 19A and 19B are brought towards each other in the transverse direction D (see also Figure 7), and are applied against each other under a predetermined pressure so as to close temporarily the cavities A and B of the container. The pipe 20 then introduces compressed air into the pocket B, after which it is extracted from the said pocket B by an upward vertical movement. Because of the resilience of the edges of the jaws 19A and 19B, the compressed air previously introduced into the pocket B remains trapped therein. The upper edges of the walls 2a and 2b of the container are then immediately welded just below the jaws 19A and 19B, and are held in the gripped position by moving, in the transverse direction D, two electrodes 21A and 21B having a length substantially equal to L so that the upper weld 4A-4B of the container is formed (see also Figure 1).

Upon the next incremental stoppage of the strip 9, a narrow notch *f* is formed between the spout C of a finished container, such as the container R3, and the upper portion of the adjacent container, such as the container R4, or the contiguous handle (see notch *f* formed between the container R8 and the handle P2 at the right-hand side of Figure 2). The notch *f* is formed by moving a blade 22A and a die 22B towards each other in the transverse direction D.

Finally, there is provided a last station, not illustrated, where a shear separates the contiguous

end handles P1 and P2 of a first row (the last container R8 of which is only visible at the extreme right in Figure 2) and of a second row immediately following the first row. Thus, rows of, for example, eight closed containers, each filled with one litre of mineral water for example, are obtained in an automatic and very rapid manner. Each of these rows can be carried in a particularly simple manner by bringing together its two end handles P1 and P2 so as to enable the hand to be inserted into their central openings, brought into register with each other.

The containers may now be separated from one another by means of a pair of scissors by cutting through the narrow joints, made of thin synthetic material which connect, for example, the container R1 to the handle P1 and to the container R2 respectively. After having been separated from the remainder of the containers in the row, the container R1 may be placed by its substantially flat bottom on a table for example. Opening of the container involves no more than cutting through its pouring lip along the line C (Figure 1). Picking up of the container for the purpose of pouring out its contents is facilitated by the presence of the inflated handle B which furthermore imparts to the container as a whole a residual rigidity as said container is emptied. Thanks to this residual rigidity obtained by means of the inflated handle B, it is, in particular, possible to pour out a portion of the contents of the cavity A of the container while still being able to then place the partially emptied container on a flat surface without the risk of collapse of the container.

The process or method of manufacture described above can be modified in numerous ways. The number and capacity of the containers in each row as well as the nature of the liquid that they contain are matters of choice. In the case of containers of smaller capacity or of rows comprising only two or three containers, a single end handle can be provided. The same means and a similar method can be used for manufacturing not only rows of identical containers, each provided with at least one end handle, but for producing on a continuous and automatic basis identical containers which are separated from each other at the outlet station by the above-mentioned shear.

The same machine may of course also permit the manufacture of rows of empty containers or of single empty containers, having upper edges to the main cavity A that are not welded up, the closed pocket B however, being inflated. Such containers or sachets can be put to a great number of different uses and may serve in particular for preserving various substances.

Instead of being reinforced by a rigid plate, each of the end handles P1 and P2 of the various rows of containers could be filled with a compressed gas, for example slightly compressed air. In the case of the machine illustrated in Figure 2, this could be achieved for example, when the corresponding portion of the strip 9, folded to the shape of a letter W, stops below the pipe 20 for injecting compressed air; since, in this case, the electrodes 14A and 14B are so shaped as to form in the strip 9, two

communicating pockets open at the upper edges of the strip 9, it would then suffice to introduce the air-injection pipe 20 into the opening of said communicating pocket, to bring the upper edges of the folded strip 9 together and around the pipe with the aid of the resilient jaws 19A and 19B, during the introduction of compressed air and then, after retracting the injection pipe 20, to close the upper edges of the two pockets by welding with the aid of the two electrodes 21A and 21B, as well as to close them off from each other with the aid of two additional electrodes which can be moved towards each other in the transverse direction D. The welding up of the bottoms of the two V-shaped folds of the folded strip 9 with the aid of electrodes 13A and 13B is optional; however, the welds so formed (7a and 7b in Figure 1) contribute to the stability of the filled receptacle when it is placed on a flat surface.

Figures 8A and 8B illustrate two consecutive portions of a modified form of the process illustrated in Figure 2 and previously described. The same reference numerals and letters have been used for indicating, in Figures 8A to 8B, elements corresponding to certain of the elements illustrated in Figure 2. In this modified form, the strip 9, folded to the shape of a letter W by the means previously described, is advanced in a stepwise manner in the horizontal direction F, each feed step being a little greater than $(N + 1) L$ which is the total length of a row of N identical containers provided with two end handles, each having a length of $L/2$. Each of the electrodes 13A and 13B, 24A, 24B, 21A, 21B, each of the cutting tools 25A and 25B and each of the resilient jaws 19A, 19B have a length substantially equal to a feed step of the strip 9, that is to say, a little greater than $(N + 1) L$.

The electrodes 13A and 13B serve to weld simultaneously the bottoms of the V-shaped folds (1a and 1b in Figure 3) in the strip 9 over a length at least equal to the total length of a row of containers provided with end handles. The electrodes 24A and 24B are so shaped as to form simultaneously the marginal welds of the two handles P1 and P2 as well as the three transverse welds (3a, 3b and 8 in Figure 1) of each of the N containers in one and the same row. The tools 25A and 25B carry, respectively, punches or blades such as those shown at 22A and dies such as those shown at 16B and 22B for simultaneously cutting out the trapezoidal zones Z which separate the bottoms of contiguous containers R1 to R8 in one and the same row (Figure 8A), for forming the notches f (Figure 8b) which separate their pouring lips from the upper portions of the handles of contiguous containers, and, if necessary, for cutting out the central portions of the end handles P1 and P2 of the row of containers in question.

The unit consisting of the row of containers that has just been formed is then halted below a similar number of spouts 17 for introducing a beverage (Figure 8B), the upper edges of all of the containers in said row being held apart by the simultaneous actions of suction pads, provided in an appropriate number, only one of which, the suction pad 18A, is illustrated. When the strip 9 has advanced a further

step, the row unit is halted between two pairs of resilient jaws 19A and 19B and two pairs of electrodes 21A and 21B and below a set of ten pipes 20 for the injection of compressed air, these
 5 preferably being fed by a common duct 26; the set of pipes 20 can be vertically displaced in the direction indicated by the double-headed arrow V so as to introduce the pipes into the pockets B of the various containers of the row in question, the two extreme
 10 pipes 20a and 20b being introduced into the cavities corresponding to the end pockets P1 and P2 respectively. The injection of compressed air through these pipes is of course preceded by pressing together the upper edges of all the cavities
 15 in the row by means of two resilient jaws 19A and 19B which are moved towards each other in the transverse direction D. After the set of pipes 20a - 20b have been retracted and while the previously mentioned upper edges remain pressed together by
 20 the resilient jaws 19A and 19B, the cavities in the row of containers are closed by moving the welding electrodes 21A and 21B towards each other in the transverse direction D.

25 CLAIMS

1. A container comprising two side walls and a bottom each consisting of a portion of a single sheet of thin pliable composite synthetic material, heat
 30 weldable only on the faces presented to the interior of the container and said portions having juxtaposed edges welded together, said side walls also being welded to each other along a line so positioned as to divide the interior of the container into a main cavity
 35 for containing a liquid and a closed pocket of smaller volume filled with gas under pressure for stiffening the container, the weld line between the two side walls being positioned such that the closed pocket, when filled with a gas under pressure, forms a
 40 handle for gripping the container, the portion of said sheet forming said bottom taking the form of a V-shaped fold extending parallel to said side walls over their entire length, the lateral ends of said fold being closed by welds, and wherein the bottom
 45 edges of the container in the region of the lateral ends of the V-shaped fold are cut away in such a way that the container has bevelled bottom corners, which are closed by welds in such a way that the arms of the V-shaped fold are separate from each
 50 other over their entire length, including welds.

2. A row of identical containers according to claim 1, which containers are connected together along the welded edges of their side walls by a narrow joint made of frangible or cuttable synthetic
 55 material, and wherein at least one of the two end containers in the row is similarly connected to a substantially rigid end handle.

3. A row according to claim 2 wherein the or each end handle comprises one or more closed
 60 pockets made of a pliable synthetic material and containing at least one rigid plate or a gas under pressure.

4. A row according to claim 3 wherein said gas is slightly pressurised air.

65 5. A row according to any one of claims 2, 3 or 4

wherein all the containers and the or each end handle are formed by a single strip of pliable synthetic material folded longitudinally to the shape of a letter W, suitably cut away, and welded.

70 6. A row according to claim 5 wherein each of the two end handles has, in the longitudinal direction of the strip, a dimension equal to half the length of each of the containers.

7. A row according to any one of claims 2 to 6
 75 wherein one of the welded edges of the side walls of each container forms, at its upper portion, a pouring spout which, by means of a narrow notch formed in the corresponding narrow joint, is separated from the upper portion of the adjacent container or end handle as the case may be.

8. A process for the continuous manufacture of identical containers as claimed in claim 1, said process comprising the steps of advancing horizontally and in a stepwise manner, a strip of
 85 composite synthetic material, folded longitudinally to the shape of a letter W, each feed-step being a little greater than the width of each container or than a multiple of its width and, for the production of each container, simultaneously welding the bottoms of
 90 the W-shaped fold in the strip, making a first and second weld transversely of the strip and separated by a distance corresponding to the required width of each container, each first and second weld being so formed as to provide a bevelled corner in the area of
 95 the V-shaped fold in the strip, making a third weld, delimiting, together with the first weld, the main cavity in the container and, together with the second weld, the pocket of the container, said cavity and pocket remaining open at the upper edges of the
 100 folded strip separating the upper edges of the strip at least at the main cavity so as to enable the introduction of a liquid into the main cavity and so as to enable the introduction of a small pipe for injecting gas under pressure into the pocket;
 105 pressing the upper edges of the folded strip against each other and around the small pipe during injection of gas under pressure; then, after retraction of the small pipe, welding the upper edges of the folded strip to each other to close the main cavity
 110 and the pocket.

9. A process according to claim 8 wherein two substantially trapezoidal zones are cut away, these zones being delimited at the top in the V-shaped fold of the strip by adjacent bevelled corner welds of two
 115 adjacent containers produced one after the other.

10. A process according to either one of claims 8 or 9, wherein each finished container is separated from the strip, folded to the shape of a letter W, at the narrow joint which connects it to the next
 120 finished container.

11. A process according to any one of claims 8 to 10 for the continuous production of rows of containers wherein there are formed in the strip, folded to the shape of a letter W, for all the
 125 containers of one and the same row, at least one contiguous end handle, by welding their respective peripheries.

12. A process according to claim 11 wherein each stage in the simultaneous formation of two
 130 continuous end handles takes place between two



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step, the row unit is halted between two pairs of resilient jaws 19A and 19B and two pairs of electrodes 21A and 21B and below a set of ten pipes 20 for the injection of compressed air, these
5 preferably being fed by a common duct 26; the set of pipes 20 can be vertically displaced in the direction indicated by the double-headed arrow V so as to introduce the pipes into the pockets B of the various containers of the row in question, the two extreme
10 pipes 20a and 20b being introduced into the cavities corresponding to the end pockets P1 and P2 respectively. The injection of compressed air through these pipes is of course preceded by pressing together the upper edges of all the cavities
15 in the row by means of two resilient jaws 19A and 19B which are moved towards each other in the transverse direction D. After the set of pipes 20a - 20b have been retracted and while the previously mentioned upper edges remain pressed together by
20 the resilient jaws 19A and 19B, the cavities in the row of containers are closed by moving the welding electrodes 21A and 21B towards each other in the transverse direction D.

25 CLAIMS

1. A container comprising two side walls and a bottom each consisting of a portion of a single sheet of thin pliable composite synthetic material, heat
30 weldable only on the faces presented to the interior of the container and said portions having juxtaposed edges welded together, said side walls also being welded to each other along a line so positioned as to divide the interior of the container into a main cavity
35 for containing a liquid and a closed pocket of smaller volume filled with gas under pressure for stiffening the container, the weld line between the two side walls being positioned such that the closed pocket, when filled with a gas under pressure, forms a
40 handle for gripping the container, the portion of said sheet forming said bottom taking the form of a V-shaped fold extending parallel to said side walls over their entire length, the lateral ends of said fold being closed by welds, and wherein the bottom
45 edges of the container in the region of the lateral ends of the V-shaped fold are cut away in such a way that the container has bevelled bottom corners, which are closed by welds in such a way that the arms of the V-shaped fold are separate from each
50 other over their entire length, including welds.

2. A row of identical containers according to claim 1, which containers are connected together along the welded edges of their side walls by a narrow joint made of frangible or cuttable synthetic
55 material, and wherein at least one of the two end containers in the row is similarly connected to a substantially rigid end handle.

3. A row according to claim 2 wherein the or each end handle comprises one or more closed
60 pockets made of a pliable synthetic material and containing at least one rigid plate or a gas under pressure.

4. A row according to claim 3 wherein said gas is slightly pressurised air.

65 5. A row according to any one of claims 2, 3 or 4

wherein all the containers and the or each end handle are formed by a single strip of pliable synthetic material folded longitudinally to the shape of a letter W, suitably cut away, and welded.

70 6. A row according to claim 5 wherein each of the two end handles has, in the longitudinal direction of the strip, a dimension equal to half the length of each of the containers.

7. A row according to any one of claims 2 to 6
75 wherein one of the welded edges of the side walls of each container forms, at its upper portion, a pouring spout which, by means of a narrow notch formed in the corresponding narrow joint, is separated from the upper portion of the adjacent container or end
80 handle as the case may be.

8. A process for the continuous manufacture of identical containers as claimed in claim 1, said process comprising the steps of advancing horizontally and in a stepwise manner, a strip of
85 composite synthetic material, folded longitudinally to the shape of a letter W, each feed-step being a little greater than the width of each container or than a multiple of its width and, for the production of each container, simultaneously welding the bottoms of
90 the W-shaped fold in the strip, making a first and second weld transversely of the strip and separated by a distance corresponding to the required width of each container, each first and second weld being so formed as to provide a bevelled corner in the area of
95 the V-shaped fold in the strip, making a third weld, delimiting, together with the first weld, the main cavity in the container and, together with the second weld, the pocket of the container, said cavity and pocket remaining open at the upper edges of the
100 folded strip separating the upper edges of the strip at least at the main cavity so as to enable the introduction of a liquid into the main cavity and so as to enable the introduction of a small pipe for injecting gas under pressure into the pocket;
105 pressing the upper edges of the folded strip against each other and around the small pipe during injection of gas under pressure; then, after retraction of the small pipe, welding the upper edges of the folded strip to each other to close the main cavity
110 and the pocket.

9. A process according to claim 8 wherein two substantially trapezoidal zones are cut away, these zones being delimited at the top in the V-shaped fold of the strip by adjacent bevelled corner welds of two
115 adjacent containers produced one after the other.

10. A process according to either one of claims 8 or 9, wherein each finished container is separated from the strip, folded to the shape of a letter W, at the narrow joint which connects it to the next
120 finished container.

11. A process according to any one of claims 8 to 10 for the continuous production of rows of containers wherein there are formed in the strip, folded to the shape of a letter W, for all the
125 containers of one and the same row, at least one contiguous end handle, by welding their respective peripheries.

12. A process according to claim 11 wherein each stage in the simultaneous formation of two
130 continuous end handles takes place between two

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successive steps in the advance of the folded strip.

13. A process according to either one of claims 11 or 12, wherein a rigid plate is inserted in the strip folded to the shape of a letter W before forming the
5 or each end handle.

14. A process according to either one of claims 11 or 12 wherein, for the purpose of forming two contiguous end handles simultaneously, there are formed by welding, in the strip folded to the shape of
10 a letter W, at least two communicating pockets open at the upper brought-together edges of the folded strip, a small pipe for injecting gas under pressure being introduced into an opening into said pockets, the upper edges of the folded strip being pressed
15 against each other and around the small pipe during injection of gas under pressure, and then, after withdrawal of the small injection pipe, the openings of the two pockets and the zone by which they communicate being closed by welding.

20 15. A process according to any one of claims 11 to 14, wherein the first weld is so formed that its upper portion delimits a pouring spout and, after the next container or the next end handle has been formed, a narrow notch is formed in the
25 brought-together upper edges of the folded strip, which notch separates said pouring spout from the next container or the next handle.

16. A container made of thin pliable synthetic material substantially as hereinbefore described
30 with reference to the accompanying drawings.

17. A process of making a container as claimed in claim 8 substantially as hereinbefore described with reference to Figures 2 to 8 of the accompanying drawings.

