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(54) **Improved fishbox.**

(57) A fishbox having a unitary structure of a base (10), end-walls (11, 12) and side-walls (13, 14) is distinguished from conventional such fishboxes in that the base (10) slopes downwardly from its ends towards the centre of its length and also slopes from that central region towards a zone in the middle of the length of one or both of the sides of the base. Open channels (16, 17) may be provided at the sides of the base and may slope downwardly towards the ends of the base.

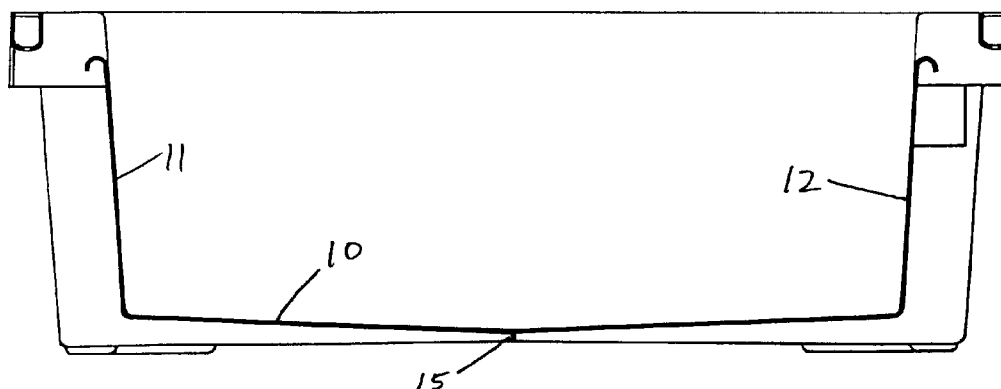


Fig. 2.

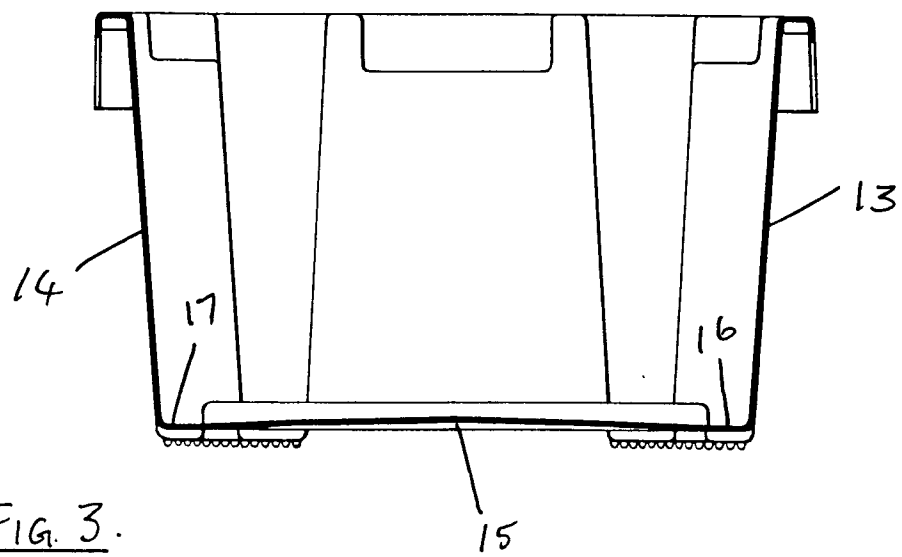


FIG. 3.

The present invention is an improved fishbox.

Fishboxes are the open-topped, generally rectangular containers in which fresh fish are held during the time between their being caught and subsequently sold. Modern fishboxes are usually unitary structures moulded in a plastics material, especially HDPE, and are often designed so that several fishboxes may be nested in one relative orientation but may be stacked by turning alternate superimposed boxes through an angle of 180 degrees.

The contents of fishboxes are inevitably wet. In addition, during some at least of the time in which the fish are contained in the box, it is common to preserve the fish in a cool condition by packing them in ice. For example, the fish may be stored in this way during their transit from the off-shore point at which they are caught to the eventual on-shore point of sale. Since the ice melts to a greater or lesser extent during that time, the melt-water produced would remain in the fishboxes if provision were not made to drain the water from the boxes. However, if the method used to drain the water is simply to provide drain-holes in the base of each box, then water from the upper boxes in a stack of filled boxes drains through the lower boxes and becomes progressively more tainted as it drains.

It has therefore been proposed to construct fishboxes in such a way that liquid in each box is directed towards the ends and/or corners of the box and is there either encouraged to overflow down the outer face of each box or caused to flow downwardly through vertically aligned drain-holes in the stacked fishboxes. While such fishbox constructions do indeed divert melt-water from the box below, they are not wholly free of disadvantages. First of all, some fish-boxes of this type do still allow some of the water from one box to enter the box below, at least in some conditions. Forthcoming regulations may require that fishboxes be so designed that this drainage from one box to another is not possible. Secondly, in fishboxes which have been designed to overcome these problems, the floor of the box has an upwardly-convex surface to drain the water to the ends and/or corners of the box; floors of this shape are liable to distort into a concave orientation under pressure of the contents of a full box, possibly reinforced by the weight of the fish in the box above. This distortion can occur even when the box floor is provided with a support rib on its underside. Modification of the floor cross-section to impart additional rigidity may require an irregular upper convex surface, which in turn can mark or damage the stored fish in contact with that surface.

One prior fishbox which has been devised to assist drainage of the melt-water from the centre of the box is described in UK Patent Specification No. 2104047. The fishbox therein described has a raised middle portion to the floor of the box, that is, it is generally convex as discussed above.

It is an object of the present invention to provide

an improved fishbox wherein some at least of the disadvantages of prior fishboxes are reduced or eliminated.

The fishbox according to the present invention has the conventional unitary structure of a generally rectangular base and four walls upstanding from the base but it is characterised in that the base slopes downwardly from its ends towards its longitudinally central region and further slopes downwardly from that central region towards a zone in the middle of the length of one or both of the longer sides of the base. Thus, in longitudinal cross-section, the base of the fishbox slopes downwardly towards the centre of the box but, in transverse cross-section in the region of the box centre, the fishbox slopes downwardly towards one or both of the box sides. Preferably the transverse cross-section is generally symmetrical such that the base is higher in the middle and slopes downwardly towards both sides.

It can be seen that the fishbox of the invention adopts the unexpected approach of draining its liquid contents firstly towards the centre from the ends of the box (unlike prior fishboxes which drain the liquid from the centre towards the ends) and only then from the central region towards one or both of the box sides. In a preferred form of the box, the liquid is drained as aforesaid to the two sides of the box and is then drained along those sides towards the box ends in open channels extending along the sides of the base.

The fishbox according to the present invention has the very important merit that the base of the box is already generally concave from above and is therefore not subject to the possibility of distortion under the weight of the contents of the box, but still drains the liquid contents away from the centre of the box towards one or more positions at which they can be drained out of the fishbox in any desired manner.

The various slopes of the base and channels referred to above may be plane or curved slopes and the lines of intersection of the different slopes may be rounded or angular. It is envisaged that the slopes will in any case be relatively shallow, for example not exceeding five degrees relative to the horizontal, and the lines of intersection will therefore not be acute. In the preferred embodiment described below and illustrated in the accompanying drawings, the inclination of the base towards the centre as seen in longitudinal cross-section is of the order of two degrees and the outward inclination in transverse section is only one degree. The inclination of the drainage channels along the sides of the base towards the ends is of the same general order of about one degree only.

although the base is inherently not liable to the distortion to which upwardly-convex bases are liable, it may be given additional strength, if desired, by the provision of a transverse rib on the underside of the box in the region of the lateral drainage slope.

The invention will now be further described with reference to the accompanying drawings, which illustrate, by way of example only, one preferred embodiment of the improved fishbox according to the present invention and wherein:-

Fig. 1 is a plan view of the box;

Fig. 2 is a longitudinal sectional view along the line II-II of Fig. 1;

Fig. 3 is a transverse sectional view along the line III-III of Fig. 1; and

Fig. 4 is an elevation from one side of the box.

The illustrated fishbox is a one-piece product formed by injection moulding in plastics. It is in the form of a generally rectangular, open box having a base 10, end-walls 11 and 12 and side-walls 13 and 14. While the central volume of the box, in which the fish are stored, is wholly symmetrical in longitudinal and transverse sectional view (Figs. 2 and 3 respectively), the external structure of the box differs between its two ends, as seen in Fig. 1. This difference, while permitting boxes to be nested when being transported empty, allows superimposed boxes to be stacked un-nested above each other when alternate boxes in a stack are turned through 180 degrees about a vertical axis.

As shown in Figs. 2, the base 10 of the fishbox is inclined inwardly towards the centre of the length when viewed from the side. At that centre a shallow bracing rib 15 imparts additional strength to the base. The inclination of the two halves of the box in this view is approximately two degrees to the horizontal. Thus water draining through the box contents down to the base drains towards the centre of the length of the base. As shown in the transverse cross-sectional view of Fig. 3, at this central point the base tapers outwardly towards the sides of the box, at an inclination of the order of one degree to the horizontal. Thus water draining to the centre of the length of the box from its ends in turn drains outwardly towards the sides of the box.

Shallow longitudinal channels 16 and 17 extend along the sides of the base at the foot of the side walls 13 and 14 respectively. These channels in turn slope from the centre of their lengths down towards the ends of the box, the inclination of the channel halves being of the order of one degree relative to the horizontal. At the ends of the channels 16, 17 are drain holes 18 and 19. In the side view of the fishbox illustrated in Fig. 4, the interior slope of the box base 10 towards the centre from its ends is hidden by the side wall 14, of which the external lower edge follows the slope of the channel 17 towards its ends.

Thus all surplus liquid draining to the base of the illustrated fishbox eventually flows out of the drain holes 18 and 19 in the base of the box. Below these drain holes the liquid is led by short inclined surfaces 20 and 21 respectively to overflow from the end walls away from the box, without draining or spilling on to

lower boxes in a stack.

## Claims

1. A fishbox having a unitary structure comprising a generally rectangular base (10) and four walls (11, 12, 13, 14) upstanding from the base, characterised in that said base (10) slopes downwardly from its ends towards its longitudinally central region and further slopes downwardly from that central region towards a zone in the middle of the length of one or both of the longer sides of the base.
2. A fishbox according to claim 1, characterised in that the base (10) is generally symmetrical in transverse section in said central region such that the base is higher in the middle and slopes downwardly towards both of said longer sides.
3. A fishbox according to claim 2, characterised by open channels (16, 17) extending along said longer sides of the base.
4. A fishbox as according to claim 3, characterised in that said open channels (16, 17) slope downwardly towards the ends of the base.
5. A fishbox according to any of the preceding claims, characterised in that the angle of slope of each of the sloping surfaces is not greater than five degrees relative to the horizontal.
6. A fishbox according to claim 5, characterised in that said angle of slope is not greater than two degrees relative to the horizontal.
7. A fishbox according to any of the preceding claims, characterised by a transverse rib (15) on the underside of the base (10) in said central region of the base.

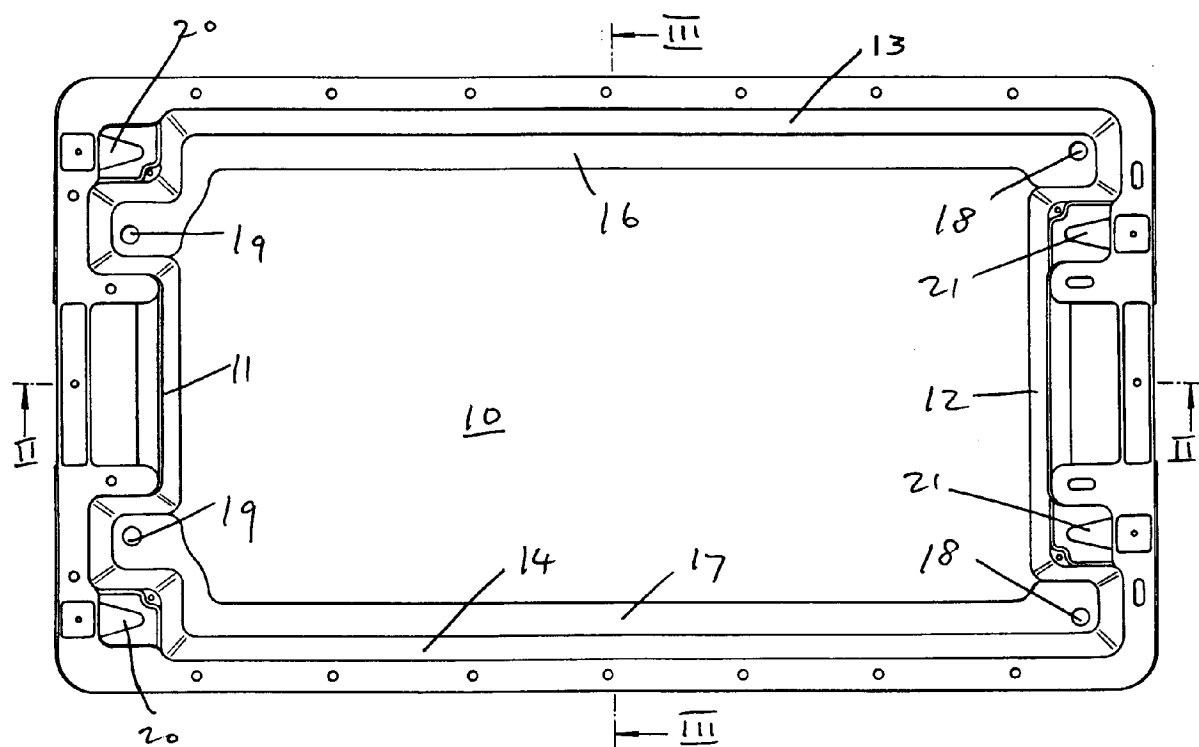


Fig. 1.

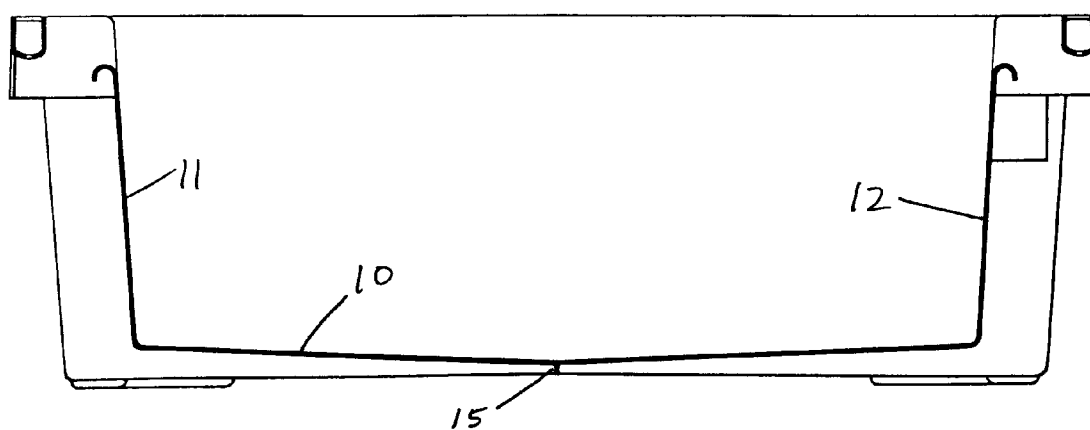
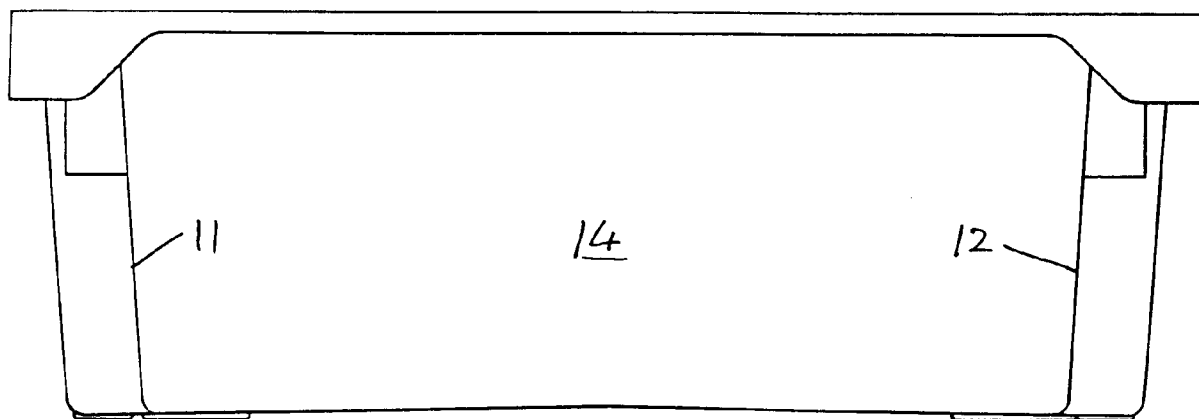
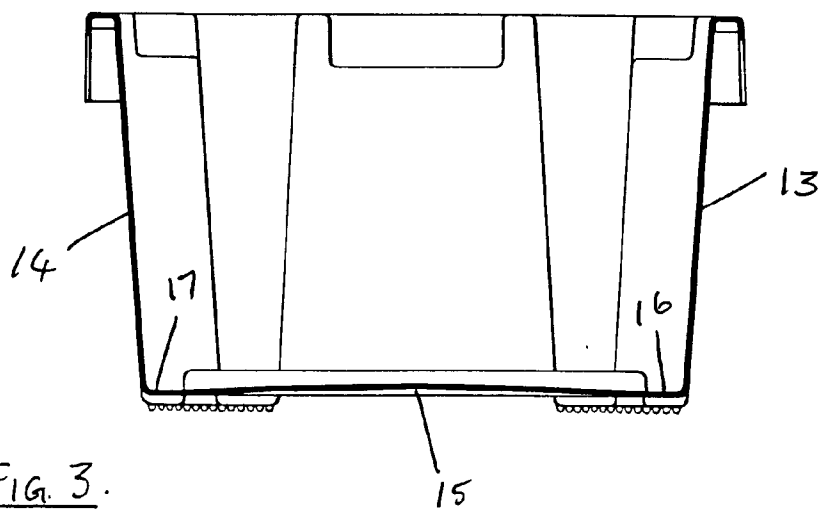


Fig. 2.





European Patent  
Office

# EUROPEAN SEARCH REPORT

Application Number

EP 91 30 8004

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
D, A	FR-A-2 508 871 (CRAEMER) * page 5, line 13 - page 7, line 11; figures 1-4 * & GB-A-2 104 047 (CRAEMER) ---	1	B65D81/26
A	FR-A-2 197 379 (LEEWARDER PAPIERWARENFABRIEK) * the whole document * ---	1	
A	FR-A-1 381 518 (DE SWARTE) * the whole document * ---	1	
A	DE-A-1 586 743 (ILTUR AG) ---		
A	BE-A-703 932 (PANICK) ---		
A	DE-A-2 115 511 (HERTZBERG) -----		
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B65D
Place of search THE HAGUE		Date of completion of the search 11 NOVEMBER 1991	Examiner MARTENS L. G. R.
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