Aug. 13, 1968 D. G. RUSSELL 3,396,896

CONTAINER AND METHOD OF MAKING SAME

Filed Aug. 16, 1967 4 Sheets-Sheet 1

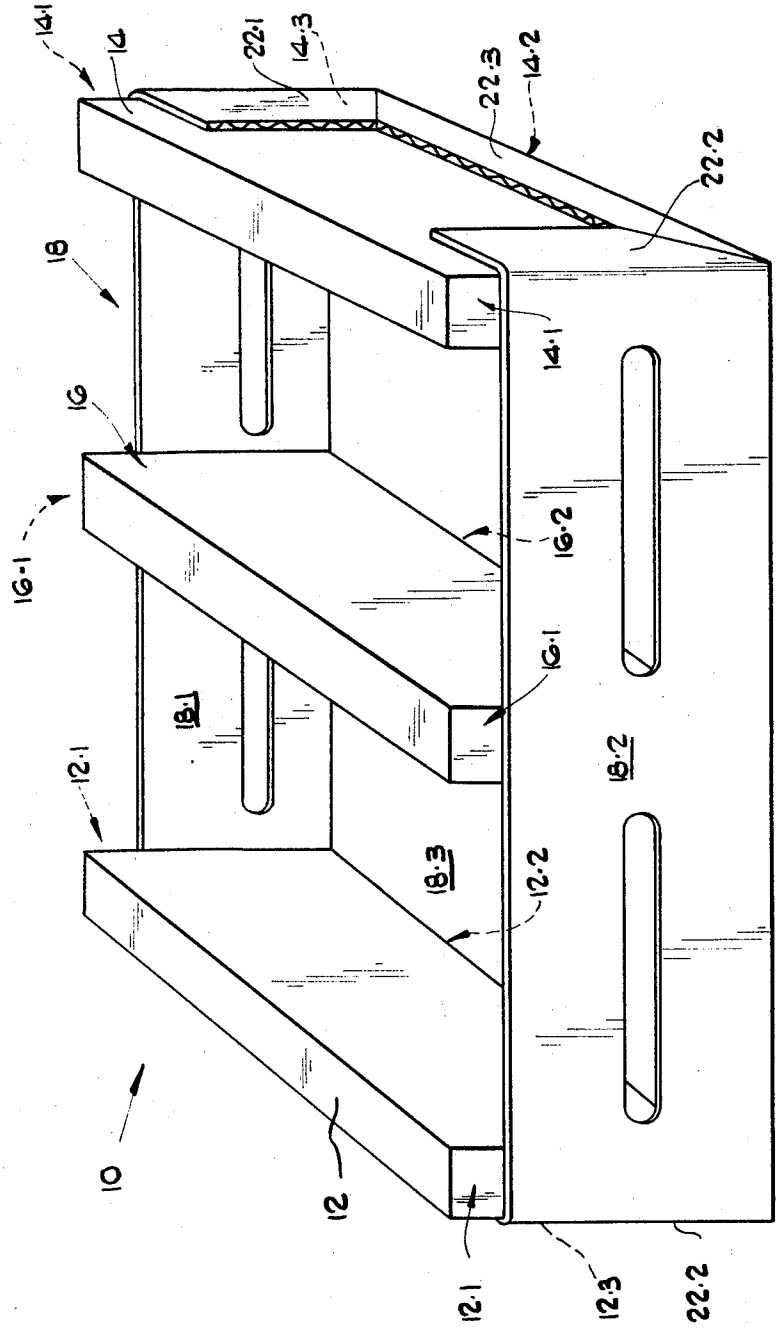

FIG. 1.

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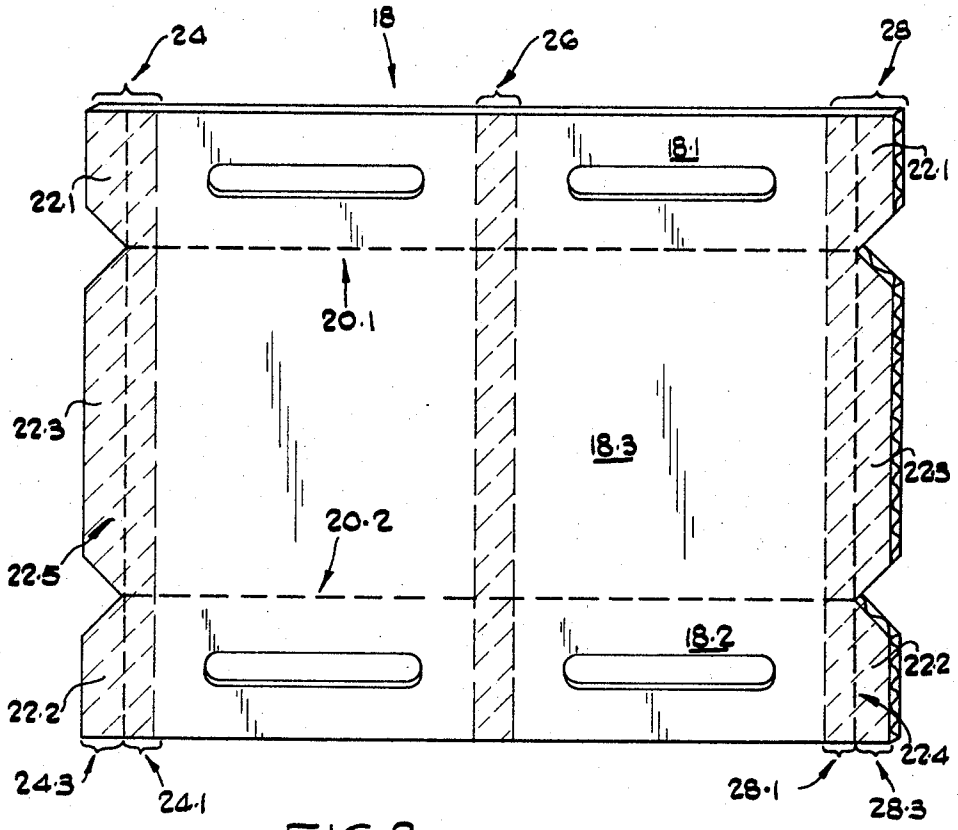

FIG. 2.

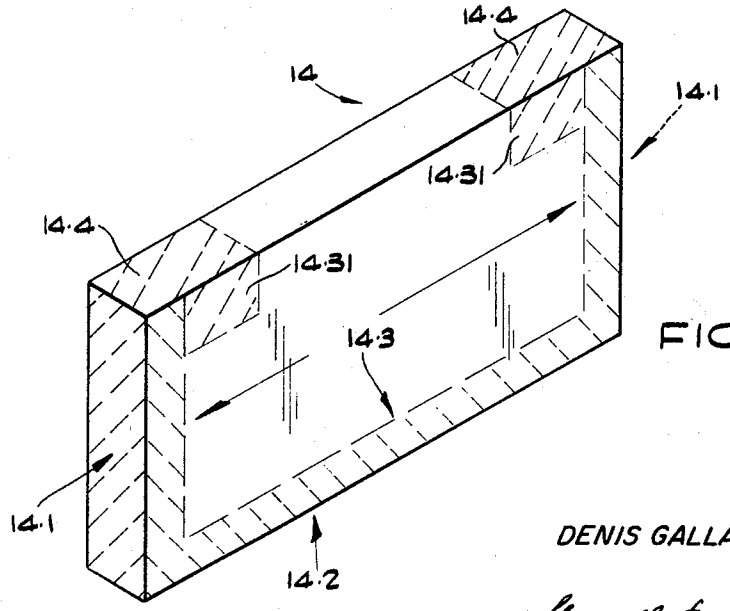

FIG. 3.

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CONTAINER AND METHOD OF MAKING SAME

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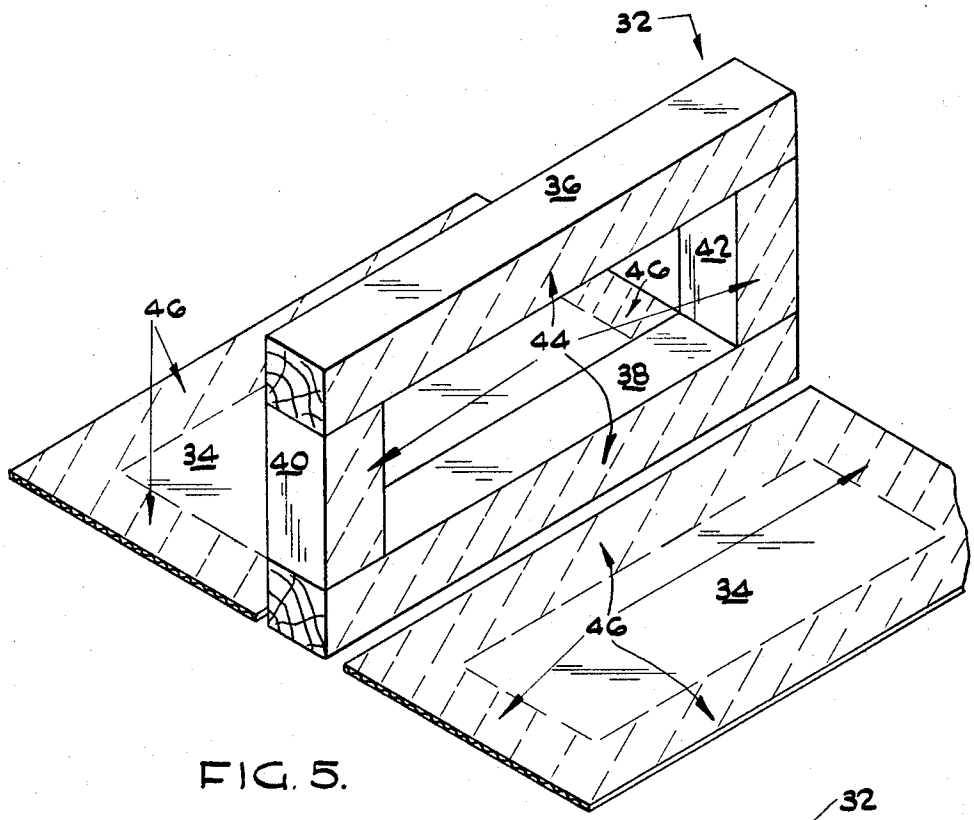

FIG. 5.

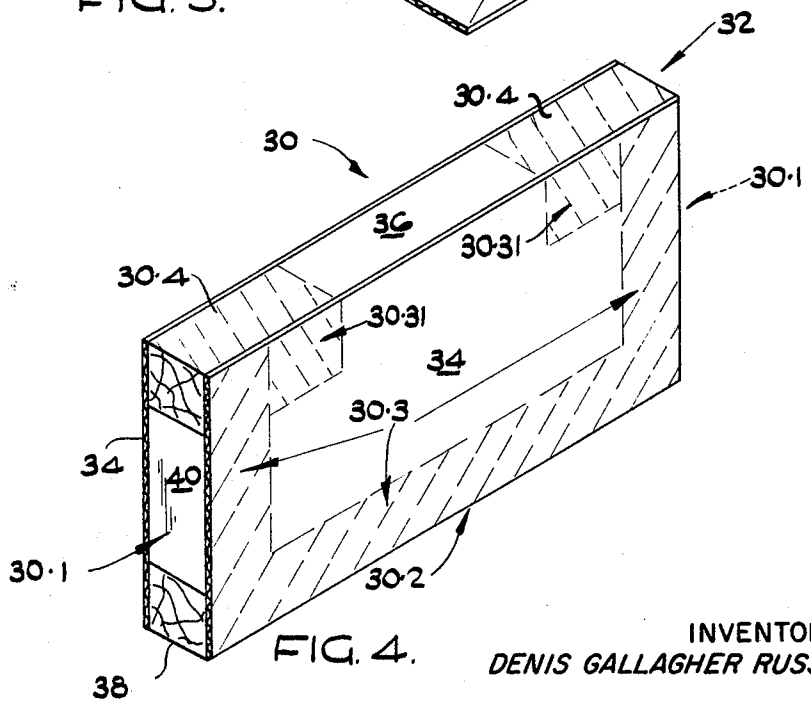

FIG. 4.

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CONTAINER AND METHOD OF MAKING SAME

Filed Aug. 16, 1967 4 Sheets-Sheet 4

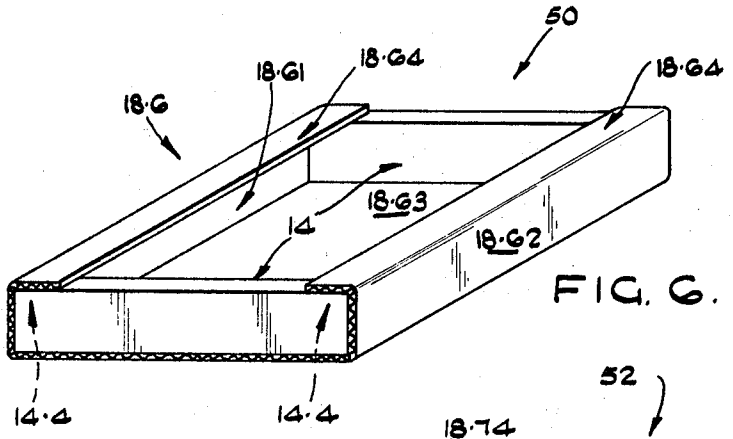

FIG. 6.

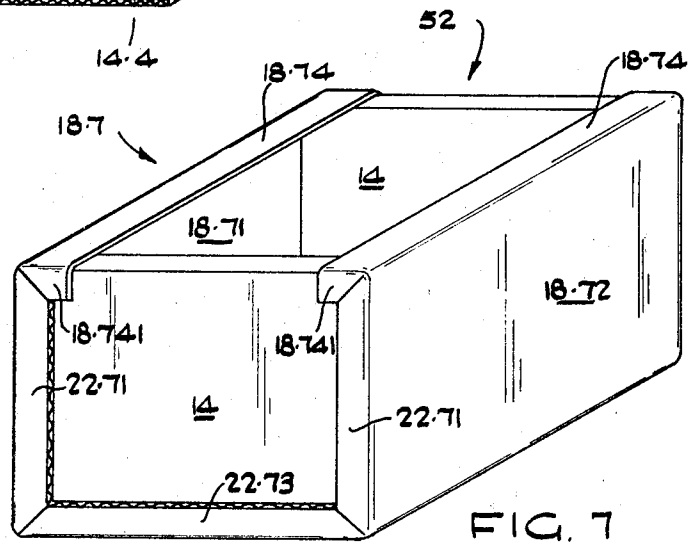

FIG. 7

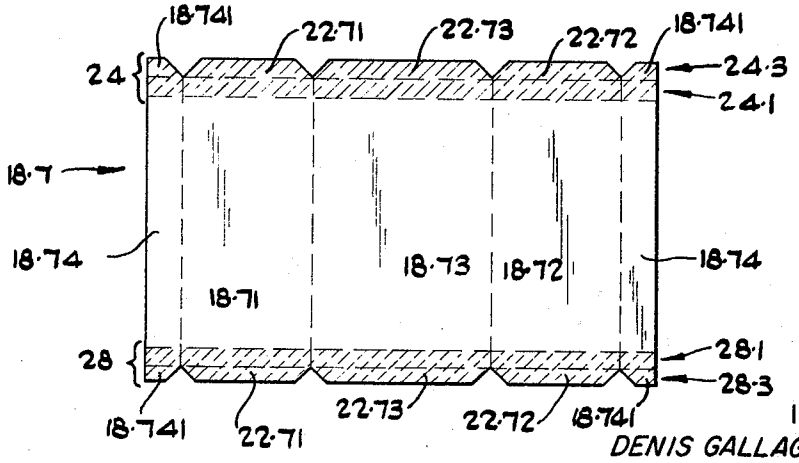

FIG. 8.

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3,396,896

CONTAINER AND METHOD OF MAKING SAME

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Filed Aug. 16, 1967, Ser. No. 661,060
Claims priority, application Republic of South Africa, Aug. 19, 1966, 4,986/66; Aug. 19, 1966, 4,985/66
5 Claims. (Cl. 229—23)

ABSTRACT OF THE DISCLOSURE

This invention provides for the premanufacture of cardboard panels and timber panels or timber-containing panels, coats of contact adhesive being provided on the panels to permit their being assembled subsequently to form containers.

This invention relates to the manufacture of boxes or containers for the packing of agricultural produce such as fruit, tomatoes, and the like.

At present, panels and staves of timber are provided, and these are made into boxes or containers by agricultural producers as and when required, for the packaging of agricultural produce. The applicant believes that panels in accordance with his invention, can also be used by the agricultural producer for the manufacture of his containers at the time when packaging is to take place, but that the containers so made will be more economical than boxes or containers presently in use.

According to the invention, there is provided a container which includes a cardboard composite panel comprising a floor part and front and rear side walls integral therewith, and a pair of longitudinally spaced end wall panels which include at least some timber for stiffness to permit stacking of loaded containers, the said floor part and the said side walls of the composite panel adhering to the end walls by means of contact adhesive.

The adhesion of the end wall panels to the floor part and to the said side walls may be by the contact adhesive being provided in coats prior to assembly on at least three peripheral faces of the side walls and on the mating faces of the floor part and the said side walls.

The adhesion of the end wall panels to the floor part and to the said side walls may include having fold-over tabs at the ends of the side floor part and the said side walls, and by the contact adhesive being provided in coats prior to assembly on the said tabs and on the outer side faces of the end walls, said tabs adhering to the outer side faces of the end walls.

The front and rear side walls may have integral with them front and rear top longitudinal strips adhering by contact adhesive to the upper faces at the ends of the end walls. The top longitudinal strips may be provided with fold-over tabs secured by contact adhesive to the outer side faces of the end walls.

An end wall panel may include a peripheral timber framework and at least one side panel secured thereto. The end wall panel may include a peripheral timber framework sandwiched between side panels.

Further according to the invention, a method of manufacturing containers includes the step of manufacturing composite panels comprising a floor panel and front and rear side walls, and end wall panels which include at least some timber, of providing the said panels with

coated regions of contact adhesive, and of subsequently assembling the said panels to form containers as described.

The invention will now be described by way of example, with reference to the accompanying drawings, in which different types of containers are shown.

In the drawings:

FIGURE 1 shows an oblique side view of a two-compartment container;

FIGURE 2 shows a development of the composite panel of the container shown in FIGURE 1;

FIGURE 3 shows an isometric view of an end wall panel for the container of FIGURE 1;

FIGURE 4 shows an isometric view of an end wall panel of special construction;

FIGURE 5 shows an isometric view of the panel of FIGURE 4 when disassembled;

FIGURE 6 shows an oblique end view of a tray-type container;

FIGURE 7 shows an oblique end view of a deep box; and

FIGURE 8 shows a development of a composite panel for the tray and deep box of FIGURES 6 and 7.

Referring to FIGURE 1 of the drawings, reference numeral **10** refers to a container having end wall panels **12** and **14**, and a partition panel **16** disposed between the end wall panels. It includes further a composite panel of cardboard, generally indicated by reference numeral **18**. (See also FIGURE 2.) This composite panel **18** is made up of rear and front side panels **18.1** and **18.2** and floor panel **18.3**.

Referring to FIGURE 2, the panel **18**, when being assembled to form part of a container, folds along fold or crease lines **20.1** and **20.2**, between the floor panel **18.3** and the side panels **18.1** and **18.2**. The side panels **18.1**, **18.2**, and floor panel **18.3** have fold-over tabs **22.1**, **22.2**, and **22.3** respectively at their ends. In assembly, these tabs are folded over onto the end wall panels **12** and **14**, the tabs folding along fold lines **22.4** and **22.5**. The panel **18** is provided with contact adhesive coats along regions **24**, **26** and **28**.

The end wall panels **12** and **14**, and the partition panel **16** are provided with contact adhesive coats along their peripheral faces, being end faces **12.1**, **14.1**, and **16.1**, and lower faces **12.2**, **14.2**, and **16.2**. (See FIGURES 1 and 3.) The end wall panels are further provided with side coats **12.3** and **14.3** along their outer side faces to co-operate with the fold-over tabs **22.1**, **22.2**, and **22.3**.

Those portions **24.1** and **28.1** of the contact adhesive coats **24** and **28** co-operate with the coated faces **14.1** and **14.2** of the end wall panels. The portions **24.3** and **28.3** of the coats (i.e., on the tabs) co-operate with the side coats **14.3** on the sides of the end wall panels **14**.

The end wall panels **12** and **14** and the partition panel **16** may be wholly or partly of timber. A construction in which these panels are partly of timber will be described more fully hereafter.

In use, panels such as **12**, **14**, **16**, and **18** are suitably coated with contact adhesive as shown, and are then dispatched in unassembled form to the user. The user, when he requires the containers, will assemble the panels into container form, as shown for example in FIGURE 1. In such assembly the coated faces of the various panels are brought into registration and pressure is applied. The panels then stick together at those regions and the container is firm and strong. If desired or necessary, the contact adhesive coats may be activated immediately prior

to use by wiping with a solvent. This activation may be necessary if assembly takes place a long time after coating.

After a container has been filled with produce, a cover panel is fixed on top by convenient means permitting opening for inspection of the contents.

Different types of panels will be provided for different types of containers.

Referring now to FIGURES 4 and 5 of the drawings, there is shown an alternative end wall panel, partly of timber. Reference numeral **30** refers to an end wall panel comprising a peripheral timber framework, generally indicated by **32**, and side panels **34**. The timber framework comprises upper and lower longitudinal members **36** and **38**, and front and rear upright members **40** and **42**. The longitudinal and upright members may be secured together, such as by staples, nails or adhesive, prior to the attachment of the side panels **34**. But if desired, they may be held together merely by the side panels **34** when in position. These side panels may be of cardboard, corrugated or plain, of kraft, or of synthetic plastic sheet material which may be translucent or transparent.

The framework and side panels are shown having coats of adhesive along regions **44** and **46** for securing them together. This adhesive need not necessarily be a contact adhesive.

In use, the panel may be used in the place of timber panels in the making of containers for example, for agricultural produce. Accordingly, these panels may be used as end wall panels and partition panels in the manufacture of containers, as described.

As abovementioned, different types of containers can be made in accordance with the invention.

Referring now to FIGURES 6, 7, and 8 of the drawings, there are shown a shallow tray-type container in FIGURE 6, and a deep box in FIGURE 7.

The tray container **50** of FIGURE 6 has a composite panel **18.6** similar to the composite panel for FIGURES 1 and 2, except that it has no tabs for co-operating with side coats, such as **14.3**, on the end wall panels, and except that it has also top longitudinal strips **18.64**. It has rear and front panels **18.61** and **18.62** corresponding to the panels **18.1** and **18.2** of FIGURES 1 and 2. It has a floor panel **18.63** corresponding to the floor panel **18.3** of FIGURES 1 and 2. It also has adhesive coats corresponding to **24.1** and **28.1** for adhering to the end wall panels **14**. This composite panel **18.6** looks very much like the composite panel **18.7** of FIGURE 7, except that panel **18.6** has no tabs **22.71, 22.72, 22.73,** and **18.741**. Furthermore, the side walls **18.61** and **18.62** are of course shallower than the side walls **18.71** and **18.72**.

In addition, the composite panel **18.6** has front and rear top longitudinal strips **18.64** secured by contact adhesive to the upper faces of the end wall panels **14** by contact adhesive coats **14.4**. These coats or others corresponding thereto are shown in greater detail in FIGURES 3 and 4.

Referring now to FIGURE 7, there is shown a deep box **52** somewhat similar in construction to that of the tray **50** shown in FIGURE 6, except that tabs are provided at the ends of the various panels constituting the composite panel shown in developed form in FIGURE 8. The container **52** of FIG. 7 may have end wall panels **14** or **30** of FIGURES 4 and 5 construction.

The rear and front panels **18.71** and **18.72** of this embodiment correspond to the rear and front panels **18.1** and **18.2** of the FIGURES 1 and 2 embodiment. This embodiment also has tabs **22.71** and **22.73** corresponding to the tabs **22.1** and **22.3**. It has, however, in addition, the top longitudinal strips **18.74** and tabs **18.741** for the said strips. These tabs are secured to contact adhesive coats such as **14.31** and **30.31** (see FIGURES 3 and 4). The top longitudinal strips are secured to coats such as **14.4** and **30.4** (see FIGURES 3 and 4).

By way of explanation, a coat of contact adhesive will not adhere to anything except another coat of contact adhesive. It is thus possible to transport panels in bulk in stacks in unassembled form, as long as the contact adhesive coats do not come into contact with one another until assembly.

The applicant believes that the making of a container without nails and such that it has an appreciable cardboard content, brings about significant savings in material and labour.

I claim:

1. A container which includes

(a) a cardboard composite panel comprising a floor part and front and rear side walls integral therewith;

(b) a pair of longitudinally spaced end wall panels adhesively secured to the front and rear side walls, and which include at least some timber for stiffness to permit stacking of loaded containers; and

(c) top longitudinal strips integral with the front and rear side walls, and adhering by contact adhesive to the upper faces at the ends of the end wall panels, the said top longitudinal strips having fold-over tabs secured adhesively to the outer side faces of the end wall panels.

2. A container which includes

(a) a cardboard composite panel comprising a floor part and front and rear side walls integral therewith; and

(b) a pair of longitudinally spaced end walls panels adhesively secured to the front and rear side walls, each of the said end walls including a peripheral timber framework sandwiched between sheets of cellulosic sheet material adhesively secured to such timber framework.

3. A container as claimed in claim **2**, in which there is provided a center panel spaced midway between the end wall panels, and including a peripheral timber framework sandwiched between sheets of cellulosic sheet material adhesively secured to such timber framework, the center panel being adhesively secured to the floor part and to the front and rear side walls.

4. A container which includes

(a) a cardboard composite panel comprising a floor part and front and rear side walls integral therewith;

(b) a pair of longitudinally spaced end wall panels adhesively secured to the front and rear side walls, each of the said end walls including a peripheral timber framework sandwiched between sheets of cellulosic sheet material adhesively secured to such timber framework; and

(c) top longitudinal strips integral with the front and rear side walls, and adhering by contact adhesive to the upper faces at the ends of the end walls panels, the said top longitudinal strips having fold-over tabs secured adhesively to the outer side faces of the end wall panels.

5. In the packing of agricultural produce, the method which includes the steps of

(a) obtaining a plurality of premanufactured composite panels and end wall panels, a composite panel comprising a floor part and front and rear side walls integral therewith, and an end wall panel comprising a peripheral timber framework sandwiched between sheets of cellulosic sheets material adhesively secured thereto, the composite panel having coats of contact adhesive extending transversely at the ends of the inner faces of the floor part and the front and rear side walls, and the end walls having coats of contact adhesive wholly along those three faces around its periphery which are to engage with the floor part and the front and rear side walls of the composite panel;

(b) making at a packing station, a plurality of containers as claimed in claim **2**, by taking for each container a composite panel and locating end wall panels

in position on the composite panel such that the coated zones of contact adhesive on the composite panel and on the end wall panels are in register;

(c) folding the front and rear side walls onto the ends of the end wall panels such that the front and rear side walls are perpendicular to the floor part, and of applying pressure to the panels across the registering coated zones of adhesive to secure good adhesion; and

(d) thereafter packing produce into the containers.

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