April 17, 1962 T. MUNROE 3,029,995

REFRIGERATOR CRATE

Filed April 13, 1959

Fig-1

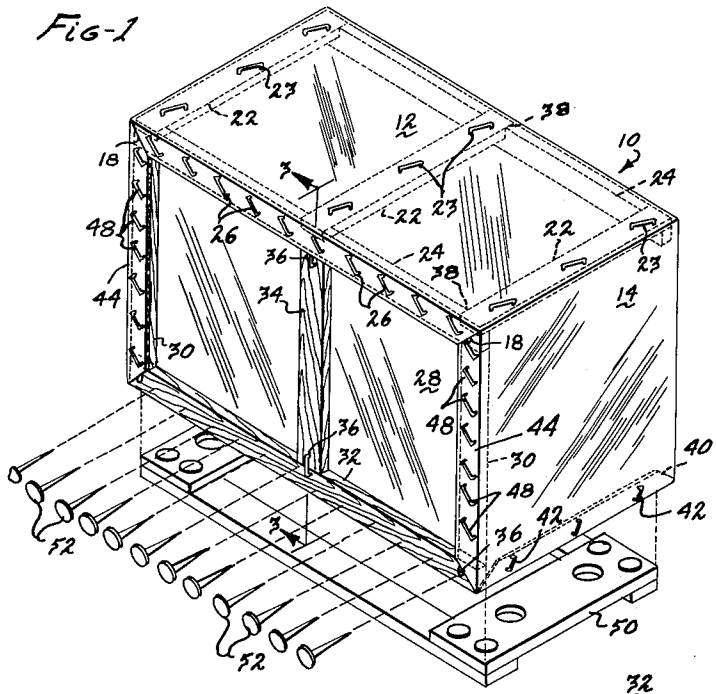


Fig-3

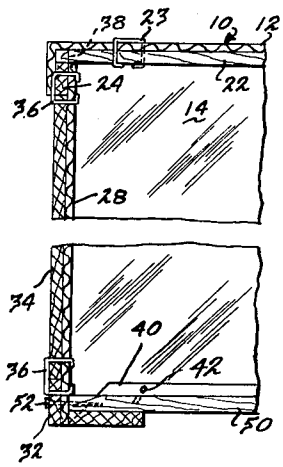


Fig-4

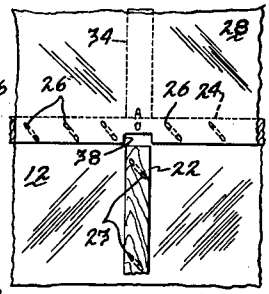


Fig-2

Fig-5

INVENTOR.
THOMAS MUNROE
BY Toulmin & Toulmin
ATTORNEYS

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REFRIGERATOR CRATE

Thomas Munroe, Dayton, Ohio, assignor to Moraine Box Company, Dayton, Ohio, a corporation of Michigan

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This invention relates to packages or shipping crates, particularly those made of corrugated paper with wooden stiffening or reinforcing rails, and more particularly relates to crates of this nature as can be substantially completely prefabricated and shipped flat to a point of use.

This application is a continuation-in-part application of my pending application Serial No. 693,375 filed October 30, 1957, now Patent No. 2,972,440 and entitled "Refrigerator Crate."

In the packaging of certain articles of commerce such as refrigerators or air conditioning units, is has been found that corrugated paper cartons are adequate for protecting the articles when the cartons are properly constructed and adequately reinforced. Such cartons or crates can readily be handled by modern conveying devices so that this type of carton or crate has come into relatively wide usage.

Most cartons or crates of any substantial size, however, require considerable fabrication at the point of use whereby considerable time and expense is involved in crating up the articles preparatory to shipping.

With the foregoing in mind, a particular object of the present invention is to provide a reinforced corrugated crate or carton which may be of substantial size and which can be completely prefabricated at the point of manufacturing the cartons or crates and shipped flat to a point of use and then readily and quickly set up and mounted about the article to be enclosed.

A further object of this invention is the provision of a corrugated paper crate or carton which is adequately reinforced with wooden rails but which is so arranged as to require a minimum of the wooden rails.

Still another object of this invention is the provision of a corrugated paper crate or carton reinforced with a minimum of wooden rails which is adequately strong to withstand the normal abuse encountered in shipping and handling and which will permit stacking of the crates on each other.

These and other objects and advantages will become more apparent upon reference to the accompanying drawings in which:

FIGURE 1 is a perspective view showing a carton or crate according to the present invention as it is being lowered over the supporting platform for an article to be crated,

FIGURE 2 is a plan view showing the crate or carton before it is folded up preparatory to placing it about the article to be created,

FIGURE 3 is a vertical sectional view indicated by line 3—3 on FIGURE 1 showing a portion of the top of the crate and one side wall,

FIGURE 4 is a view looking up from beneath FIGURE 2 in the region indicated by the arrow 4 showing the notching of the rails at the tops of the side panels of the carton for receiving the reinforcing rails of the top panel, and

FIGURE 5 is a fragmentary sectional view indicated by line 5—5 showing how the edges of any of the cardboard flaps of the carton could be reinforced by being folded over to present a double thickness.

Referring to the drawings somewhat more in detail and in particular to FIGURES 1 and 2, the crate or carton according to this invention comprises a center corrugated paper panel member 10 which consists of a center section 12 that is to form the top of the carton and end sections 14 which are to form the ends of the carton. The panel 10 may be scored at 16 to form lines where the end flaps can be bent downwardly relative to center panel 12, and there may also be the 90° cutouts at 18 at the ends of center panel 12 to dispose of portions of the corrugated paper that would otherwise overlap when the carton is folded about the article to be packaged.

The panel 12 is also scored along the lines 20 and the portions of panel 12 outwardly of lines 20 form portions of the side panels that fold downwardly when the carton is placed about an article to be enclosed.

On the underneath side of center panel 12 there are located the rails 22 which may be attached to the panel as by staples 23 or by adhesive or by any other suitable fastening means or any combination thereof. There may be as many of the rails 22 as desired although for a large class of articles rails at the ends are sufficient and many other articles require only an additional center rail. Window type air conditioning units, for example, are generally packaged in crates or cartons of the nature disclosed in this application utilizing three rails across the underside of the top panel.

Along the longer edges of top panel 12 and underneath the panel are attached the longer rails 24 as by staples 26 or other fastening means. These rails are actually portions of the side panels of the carton and to this end have attached to their underneath sides, as viewed in FIGURE 2, one edge of the adjacent corrugated paper side panels 28. The side panels 28 are framed with wooden rails comprising the end rails 30 and a rail 32 at the edge opposite rail 24. A center rail 34 is provided that will align with the center one of rails 22 of panel 12. The wooden rails of the side panels may be connected together as by staples 36 or by any other connecting means that will fix the wooden rails together.

When the side panels of the carton or crate are folded down, the notches 38 provided along the rails 24 receive the ends of rails 22 of the top panel and the said rails of the top panel are thus firmly supported at their opposite ends by the rails 30 and 34 of the side panels which, when the carton is folded, are in vertical positions and are thus in compression. This makes for an extremely strong carton arrangement which will withstand considerable abuse and wherein the cartons can be stacked one upon the other without the possibility of damaging the contents of the lower cartons.

The previously mentioned end flaps 14 are without reinforcing although it is conceivable that reinforcing rails could be provided thereon, if so desired. In general, it is found that it is sufficient for these members to be simply of corrugated paper although each end panel may be provided with an outer end flap 40 adapted for being turned under, as indicated in FIGURES 2 and 5, and stapled as by staples 42 or by adhesive.

The cartons are manufactured in a carton manufacturing establishment and shipped flat, as indicated in FIGURE 2, or with the side panels folded back over the center panel. A great many cartons can thus be placed in a stack and banded together and shipped to a point of use. When the cartons are to be used, the side panels 28 are folded downwardly, and then the end panels 14 are folded downwardly and the flaps 44 along the edges thereof are bent back along the score lines 46 so that the flaps extend over the rails 30 of the side panels and staples 48, or a like fastening means, can then be employed for securing the flaps 44 in position.

The carton is now ready to be lowered over the article to be crated and about the supporting base 50 for the article and it can then be attached to the base as by staples or nails 52 along the side and there may also be

nails or staples driven in through end panels 14 at the bottom into the end members of base 50.

In certain cases it may be desirable to place a corrugated paper top cap on the article before the carton is lowered over the article and this will serve to brace and support the carton about the article to resist blows from the side or ends of the carton.

In any case the carton can very quickly be set up at the point of use and mounted about the article to be shipped, thus reducing to a minimum the time and expense of getting the articles packaged and shipped.

It will be understood that this invention is susceptible to modification in order to adapt it to different usages and conditions and, acordingly, it is desired to comprehend such modifications within this invention as may fall within the scope of the appended claims.

I claim:

1. In a corrugated carton blank adapted for being manufactured and shipped flat and adapted for being quickly placed about a refrigerator to be crated that is supported on a base, a rectangular center corrugated paper panel, flaps extending hingedly from the ends of said center panel, rectangular corrugated paper side panels at the sides of said center panel having wooden rails on top thereof attached thereto and extending about the periphery of the side panels, said wooden rails of the side panels being fixed together by staples, said center panel having marginal side portions hinged thereto extending over the tops of the adjacent side rails of the side panels and attached thereto whereby the side panels and flaps can be folded down to form a five-sided enclosure to fit over the article and its base from above, said flaps having marginal portions hinged thereto along the sides adapted for being formed over the faces of the end rails of the side panels and attached thereto, said center panel having end rails extending thereacross on the underneath side in alignment with the end rails of the side panels, and the side rails of the side panels that are attached to the center panel being notched to receive the ends of the rails on the center panel when the carton is folded up.

2. In a carton blank as set out in claim 1, and wherein each of said side panels comprises a rail arranged in alignment and parallel with said end rails and said center panel having a rail aligned with said side panel rail, and the said side rails being notched to receive said rail of the center panel, said side rail of the side panels extending the full length thereof and said end rails and said side panel rail being disposed between the said side rails.

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