Jan. 19, 1937. J. R. MILLER 2,068,064

SHIPPING CONTAINER

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Fig. 2

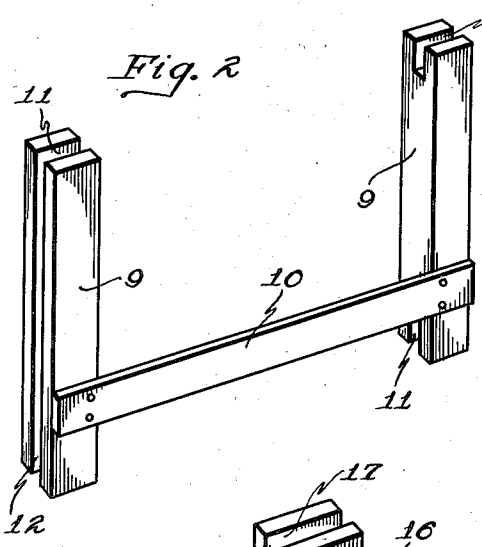



Fig. 5

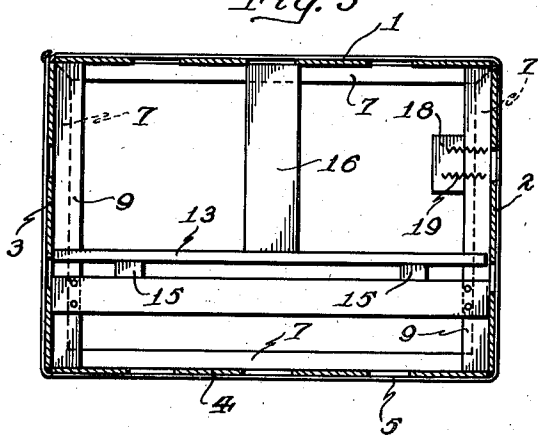



Fig. 3

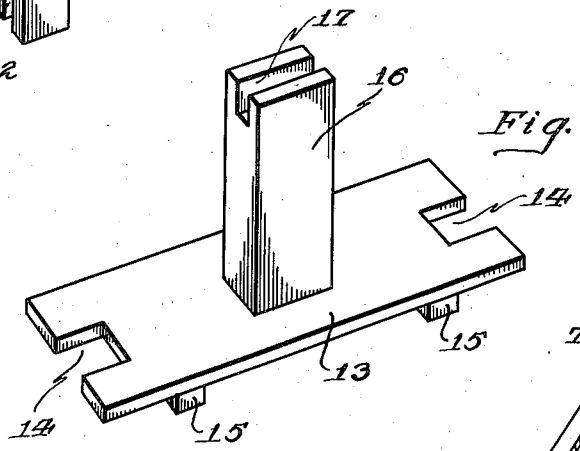



Fig. 4




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## SHIPPING CONTAINER

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7 Claims. (Cl. 217—36)

This invention relates to improvements in interior blocking of shipping containers and particularly folding wire-bound box constructions arranged for assembly at the time they are packed.

The main objects of this invention are to provide an improved arrangement of bracing or blocking for supporting material or objects packed in shipping containers; to provide a simplified arrangement of blocking that can more readily be assembled in a shipping container; to support an article when the same is packed; to provide a simplified arrangement of blocking that can be assembled in units prior to the packing of a shipping container and rigidly mounted therein without the use of nails or other fastening devices; to provide an improved combination of shipping container and interior blocking that can be completely assembled without the use of tools or nails and the like; and to provide an improved combination with a shipping container of blocking or bracing arranged to interfit with portions of the shipping container structure and be securely held in place without the use of fastening means.

A specific embodiment of this invention is shown in the accompanying drawings in which:

Figure 1 is a perspective view of a wire-bound shipping container having its top open and showing the improved blocking or bracing in place.

Fig. 2 is a perspective view illustrating the primary frame unit of the blocking.

Fig. 3 is a perspective view illustrating a preassembled blocking unit arranged to cooperate with the frame unit shown in Fig. 2.

Fig. 4 is a sectional view of a shipping container showing the improved blocking units partly in section and partially inserted into the container, and

Fig. 5 is a sectional view of a shipping container with its top closed and the blocking units locked in place.

As shown in the drawings, the improved blocking arrangement comprises preassembled blocking units arranged to be slidably interfitted with and held in place by transversely extending cleats comprising a part of a shipping container structure, the blocking or bracing units being of predetermined size and form to fit within the container and coact with each other to properly secure an article or articles packed therein.

As shown, the shipping container is a wire-bound box construction comprising a top panel 1, side panels 2 and 3 and a bottom panel 4 disposed between the side panels, the several panels being suitably spaced apart to permit their being folded into rectangular form and being tied together by a plurality of wire bindings 5.

The several panels are reinforced by means of a plurality of cleats 6 extending transversely of the panels along their end edges and in series with each other, and a series of transversely extending cleats 7 disposed at a predetermined position intermediate the ends of the panels.

The ends of each of the cleats on each panel are mitered, as shown, so as to coact to form square-cornered joints when the panels are folded to assemble the box; and suitable end panels 8 are provided to close the ends of the construction as shown in Fig. 1, the end panels 8 being positioned against the inner side of the end cleats 6 and suitably secured by means, not shown.

The type of box construction shown is well known and is commonly designated as a wire-bound box. In the present invention, however, the location of the series of intermediate cleats 7 is definitely predetermined in accordance with the nature of the article or articles to be packed within the container and which require internal bracing or blocking for their proper support, the intermediate cleats 7 being positioned at the point where the desired blocking or bracing is to be placed. Thus, as shown in Fig. 1, there will be, at the location of the desired blocking, a series of internal cleats or reinforcing members extending transversely around the walls of the container.

The improved blocking, according to the present invention comprises a supporting framework made up of one or more pre-assembled units arranged to be interlockingly interfitted with each other and with the intermediate cleat members 7 of the container to provide a rigid and fixed bulkhead fitting around and supporting the article packed within the container.

An illustrative example of an article thus supported is not shown for the reason that the blocking units may, in accordance with this invention, be arranged to support articles of substantially any form or shape and may be constructed to any suitable plan convenient for assembly into a container with the article being packed.

A particular improvement comprised in this invention is the arrangement whereby the blocking units, comprising the supporting bulkhead, are rigidly interlocked with the transversely extending series of intermediate cleats 7. This arrangement is clearly shown in Figs. 2 to 5 inclusive wherein the invention is embodied in an illustrative blocking or framing construction.

In the blocking shown, the primary unit is a

frame, illustrated in Fig. 2, comprising a pair of parallel vertical members 9 spaced apart so that the distance between their outer surfaces will be substantially the internal width of the container in which they are to be placed. These members are tied together in the unit by a transverse cross-piece 10, positioned adjacent the lower ends of the members 9, or wherever convenient with reference to the article to be supported. As shown in Fig. 2 each end of the members 9 and the outer sides thereof are provided with transverse and longitudinal grooves 11 and 12 respectively which are of such depth and width as to wholly receive the cleats 7.

This frame unit is positioned in the assembled container while the top of the container is open and before the article to be supported is placed therein. The frame unit is dropped into place from the open top of the container by fitting the cleats 7, on the sides of the container, into the grooves 12 and sliding the frame along these cleats until the cleats 7 on the bottom of the container are engaged in the bottom or lower grooves 11 of the vertical members 9.

After the primary frame unit is positioned within the container and the article to be supported has been placed therein, a second blocking unit may be employed to brace the article from the top of the container as well as laterally. As shown in Fig. 3, this secondary blocking unit may comprise a transversely extending member 13, arranged to extend from side-to-side of the container and having its ends cut out as at 14 so as to fit over and around the vertical members 9 of the primary frame unit.

As shown the transverse member 13 is provided with attached downwardly projecting members or legs 15 which are arranged to directly engage either the article to be supported, or the cross member 10 when the member 13 rests upon or is engaged by the article to be supported, the legs 15 being positioned wherever convenient with respect to the supported article.

An upstanding element 16 of such length as to reach from the member 13 to the top of the box, when the same is closed and the member 13 is properly positioned, is also provided as a part of the secondary blocking unit and is provided with a transverse groove 17 in its upper end to receive the intermediate cleat 7 attached to the top of the box.

In this manner a rigid bulkhead or framework is provided to amply support an article packed within the container, which bulkhead comprises simple, convenient, prefabricated blocking units arranged to interfit with each other and to interlockingly engage the transverse reinforcing cleats which comprise a part of the usual container structure. The supporting bulkhead is thus not only locked in place within the container without the use of fastening means, but is also arranged so that it, as well as the article packed within the container, is amply braced and supported from every direction.

As shown in Figures 4 and 5, laterally projecting supporting blocks, such as the block 18 shown attached to one of the members 9, may be provided wherever desired. When such blocks are necessary they are assembled onto the blocking unit at the time the same is prefabricated, the blocks 18 being secured by any suitable means, such as the corrugated fasteners 19.

In use the herein described invention will be mainly employed in establishments where many articles of substantially uniform size and shape are to be individually crated or packed for shipment. Containers of the proper size and construction will be provided as usual except that, in the fabrication of the containers, the location of the intermediate transverse cleats will be predetermined to suit the article for which the container is designed. The blocking units will be made up according to predetermined plan to properly fit and support the article to be packed and these units, comprising preassembled members of proper size and arrangement, will be delivered to the packers in quantities along with the containers.

Thus when packing the article to be supported, the packer has merely to slide the proper blocking units into place along the intermediate cleats of the container during the packing operations and any necessity of building and nailing blocking members into the container, piece by piece as in the usual practice, is obviated.

The main advantages of this invention lie in the increased efficiency on the part of the packers and the reduced cost of packing materials. The blocking units may be expertly designed with the view to eliminating waste and fabricated in the mill by machinery and expert workmen so that the actual packing operations may be accomplished by relatively unskilled labor. Time is thus saved in the packing operations and the shipper is positively assured that each article is properly and safely packed.

Although but one specific embodiment of this invention is herein shown and described, it will be understood that details of the construction shown may be altered or omitted without departing from the spirit of this invention as defined by the following claims:

I claim:

1. The combination with a container having a series of internal cleats extending transversely around its walls intermediate its ends, of blocking arranged to support the contents of said container and comprising an assembled frame spanning the space between the walls of said container, the portions of said frame adjacent the walls of said container having grooves formed to receive and embrace said cleats whereby said frame will slidably engage said cleats and be securely interlocked against displacement.

2. The combination with a container having a series of internal cleats extending transversely around its walls intermediate its ends, of blocking arranged to support the contents of said container and comprising preassembled members spanning the space between the walls of said container, the portions of said members adjacent the walls of said container having grooves formed to receive and embrace said cleats whereby said blocking is interlockingly engaged with said cleats and securely held in place.

3. The combination with a container having a series of internal cleats extending transversely around its walls at a predetermined location intermediate its ends, of blocking arranged to support the contents of said container and comprising preassembled members spanning the space between the walls of said container, said members being arranged to support said contents from the walls of said container and to interlock with each other, and the portions of said members adjacent the walls of said container having grooves formed to receive and embrace said cleats whereby said blocking is interlockingly engaged with said cleats and securely held in place.

4. The combination with a container having a series of internal cleats extending transversely around its walls intermediate its ends, of blocking arranged to support the contents of said container and comprising preassembled blocking units spanning the space between the walls of said container, said units being arranged to support said contents from the walls of said container and to interlock with each other, and the portions of said units adjacent the walls of said container having grooves formed to receive and embrace said cleats whereby said blocking is interlockingly engaged with said cleats and securely held in place.

5. The combination with a container having a series of internal cleats extending transversely around its walls intermediate its ends, of blocking arranged to support an article packed within said container and comprising preassembled blocking units arranged to engage said article and span the space between the walls of said container, said units being of predetermined form to fit said article, the portions of said units adjacent the side walls of said container having grooves formed to slidably receive the side ones of said cleats respectively, and the portions of said units adjacent the top and bottom of said container having grooves arranged to receive and embrace the top and bottom ones of said cleats respectively.

6. The combination with a wire-bound box comprising side, top and bottom panels foldable into box formation and having a series of internal cleats extending transversely around its walls intermediate its ends, of blocking comprising a preassembled unit arranged to engage and support an article packed in the box, said blocking having members extending to the walls of said box, and said members having grooves in the portions adjacent the said walls arranged to receive and fit the said internal cleats whereby said blocking will be rigidly interlocked with the box structure.

7. A shipping container having a series of internal cleats extending transversely around its walls at a predetermined location intermediate its ends, and a preassembled blocking unit designed and arranged to engage and support an article packed in said package, said blocking unit having members extending to and adjacent the walls of said package, and said members having grooves therein arranged to receive and embracingly fit said internal cleats, said blocking unit being arranged to be slidably engaged with said cleats when inserted into said package from an open side thereof.

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