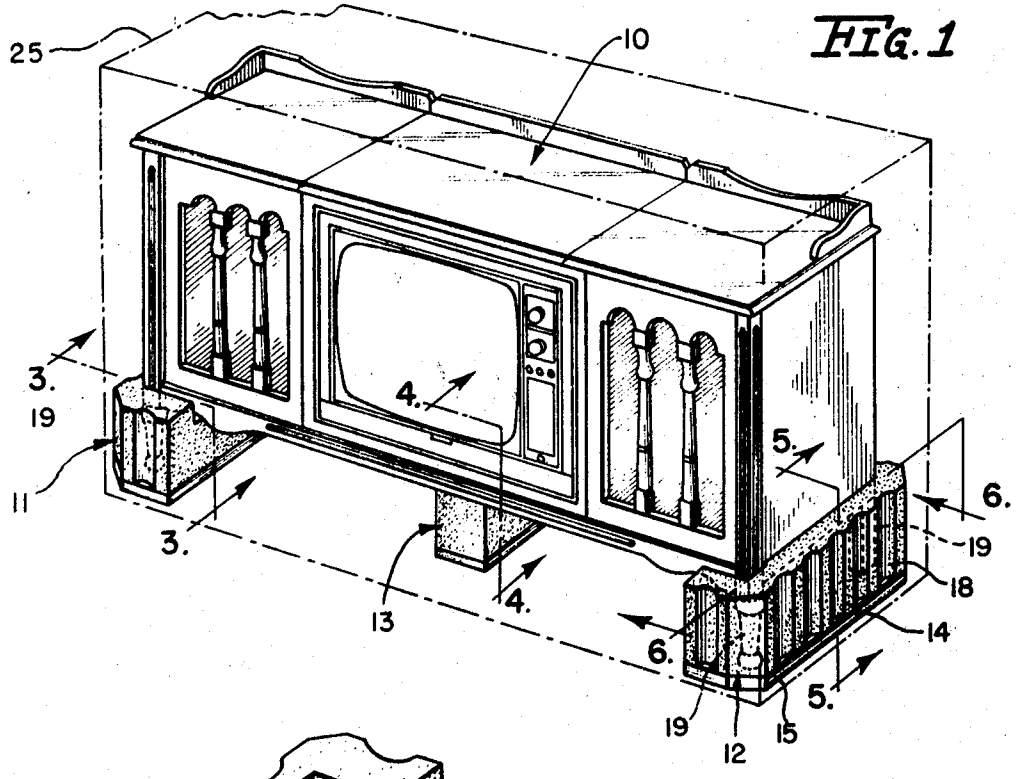
Oct. 7, 1969 T. H. DE CHERRIE 3,471,116

PALLETS

Filed April 7, 1967 2 Sheets-Sheet 1

FIG. 1



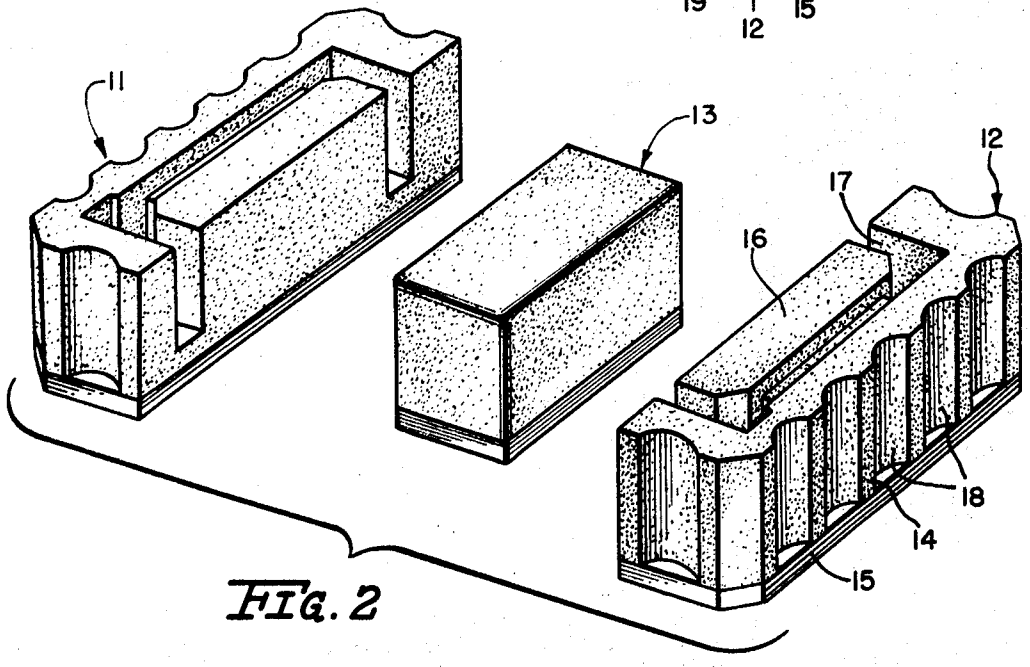


FIG. 2

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PALLETS

Filed April 7, 1967 2 Sheets-Sheet 2

FIG. 3

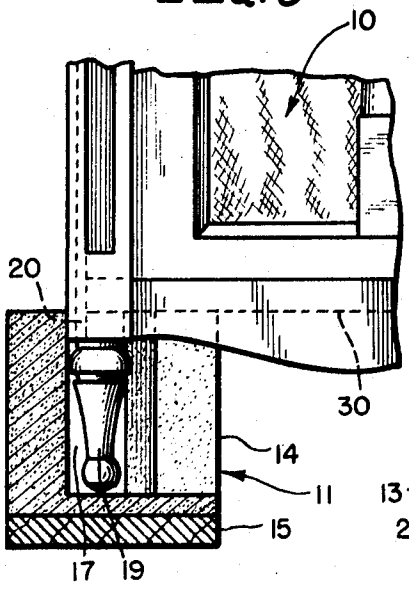


FIG. 4

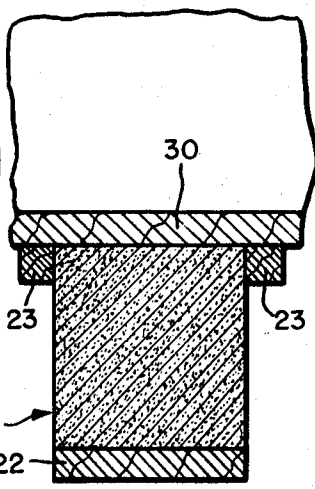


FIG. 5

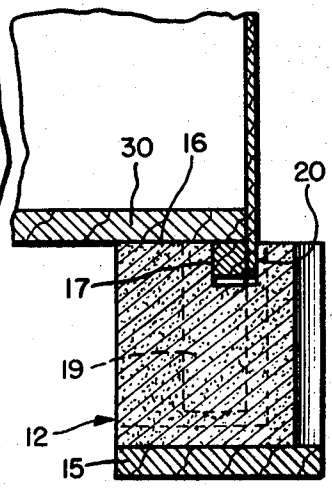


FIG. 6

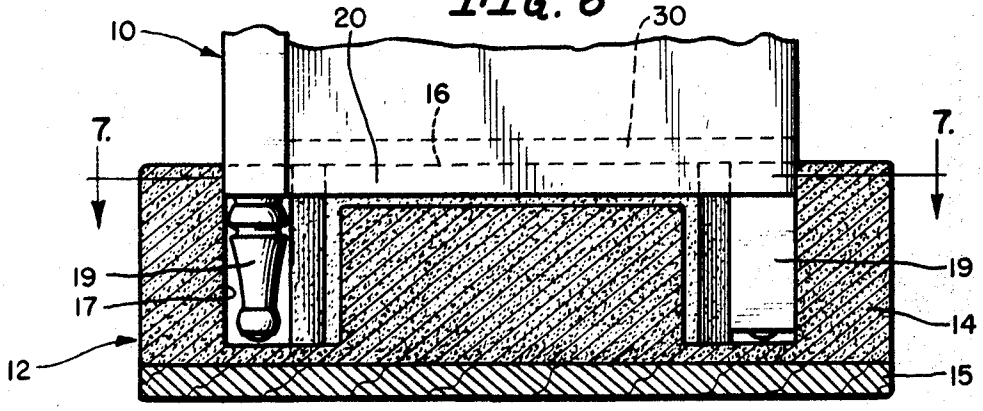
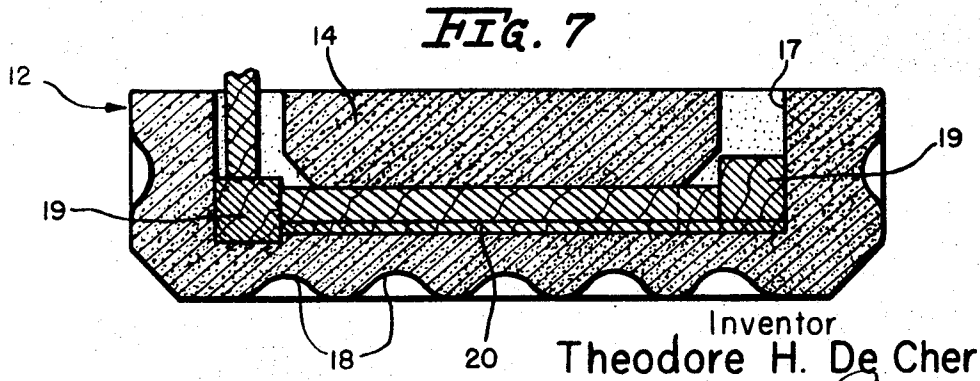


FIG. 7



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3,471,116

PALLETS

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Int. Cl. B65d 67/00, 85/30
U.S. Cl. 248—119 1 Claim

ABSTRACT OF THE DISCLOSURE

Instead of using bolted wooden pallets to support the furniture cabinets of television receivers or the like, special discardable pallets or wood-reinforced expanded cellular plastic material such as polystyrene foam are employed as combined skids and packaging inserts. The pallets are constructed for frictional retention on the cabinet without the use of bolts or other fasteners, and are grooved to receive fragile parts such as cabinet legs in such a manner as to provide full protection for such parts and to avoid the imposition of weight-bearing stresses thereon during manufacture and shipment.

This invention relates to the manufacture, packaging and shipment of console television receivers, stereophonic high fidelity instruments and the like and more particularly to pallets employed in conjunction with such products to facilitate their factory movement and handling in accordance with mass production assembly techniques and to provide protection and stabilization for such products in their subsequent packaging and shipment.

Modern console electronic home entertainment products are supplied in a variety of fine furniture cabinetry. In an effort to reduce the amount of damage to such cabinets in the course of factory handling and subsequent shipment, it has been a customary practice in the radio and television industry to provide such cabinets with wooden pallets which serve as skids to facilitate factory handling and remain affixed to the cabinet to serve as carton fillers and spacers during shipment. While the use of such pallets has reduced the amount of cabinet damage significantly, it has failed to provide a complete solution to the problem. In designing such pallets, it has been necessary to compromise their ruggedness in favor of maintaining a sufficiently light weight to avoid excessive material costs and shipping expense. This consideration has limited the size and sturdiness of the wood stock employed and has also dictated the use of an open framework type of construction which provides only partial protection for the cabinet legs. Moreover, it has been necessary to use bolts or other fasteners in securing the pallets to the cabinets; this is not only time-consuming and therefore expensive, but also results in a rigid connection between the pallet and the cabinet, so that shocks to which the pallet may be subjected in the course of factory handling are transmitted to the cabinet and sometimes result in costly cabinet damage.

It is a principal object of the present invention to provide a new and improved pallet for use in the factory handling and shipment of console electronic home entertainment products.

It is a further and more specific object of the invention to provide such a new and improved pallet which affords a greater measure of protection to the associated product during manufacture and shipment than pallets of conventional construction.

Still another object of the invention is to provide such a new and improved pallet which is adapted to be retained on its associated product without the use of bolts or other external fasteners.

A further object of the invention is to achieve the

aforementioned objectives with a new and improved pallet construction which is of lighter weight and lower cost, and which is less susceptible to breakage in factory handling or shipment, than the pallets conventionally employed in the manufacture of such products.

In accordance with the invention, there is provided a pallet adapted for dual utility (a) in the commercial manufacture of an article, such as a console television receiver, having a furniture cabinet with a chassis-supporting shelf and other parts such as legs, braces and side panels disposed below said shelf, and, (b) in the packaging of such article in a shipping carton. A new and improved pallet embodying the invention comprises a continuous body of expanded cellular plastic materials such as polystyrene foam having an extended upper supporting surface adapted to engage the chassis-supporting shelf and provide support for the cabinet from below. The expanded cellular plastic body is provided with an upwardly opened grooved portion adjacent the supporting surface for receiving the parts of the cabinet which extend below the shelf, this grooved portion being proportioned to provide vertical clearance relative to such other parts received therein when the cabinet is resting on the supporting surface but to be in gripping engagement with opposed lateral surfaces of at least some of such other parts to insure frictional retention of the pallet on the cabinet without the use of fasteners of any kind. A reinforcing member of wood or the like is secured to the bottom of the expanded cellular plastic body to permit its use as a skid in moving the cabinet between successive stations of a mass production assembly line. The pallet has an outer configuration adapted to conform with the shipping carton when the article is inserted therein, whereby the pallet also serves as a readily removable spacer and filler to stabilize the article in the carton during shipment.

The features of the present invention which are believed to be novel are set forth with particularity in the appended claims. The invention, together with further objects and advantages thereof, may best be understood by reference to the following description taken in connection with the accompanying drawings, in the several figures of which like reference numerals identify like elements, and in which:

FIGURE 1 is a perspective view of a pallet construction in accordance with the invention as employed in conjunction with a console television receiver, a shipping carton being shown in dotted outline;

FIG. 2 is a perspective view of the several pallets of FIGURE 1, with the television receiver removed;

FIGURE 3 is a sectional view taken along the lines 3—3 of FIGURE 1;

FIGURE 4 is a sectional view taken along the line 4—4 of FIGURE 1;

FIGURE 5 is a sectional view taken along the line 5—5 of FIGURE 1;

FIGURE 6 is a sectional view taken along the line 6—6 of FIGURE 1; and

FIGURE 7 is a sectional view taken along the line 7—7 of FIGURE 6.

In FIGURE 1, there is shown a console television receiver housed in a fine furniture cabinet **10**. The receiver as shown is supported by left and right pallets **11** and **12**, respectively, each of a width much less than half the overall cabinet width, and an auxiliary intermediate pallet **13**. Auxiliary pallet **13** is provided in conjunction with wider instruments such as stereophonic high fidelity instruments and TV-stereo combinations of the type shown in FIGURE 1; when the unit is of a narrower construction, such as a simple console television receiver, the intermediate or auxiliary pallet **13** may be omitted.

Pallets **11** and **12** are constructed in accordance with

the invention, and their construction may best be visualized by consideration of FIGURE 2. Since pallets **11** and **12** are of identical construction except that the configuration of each is a mirror image of the other, consideration of pallet **12** will suffice to convey an understanding of the construction.

Pallet **12** is composed of a one-piece continuous body **14** of expanded cellular plastic material, preferably polystyrene foam, to the bottom surface of which is glued or otherwise secured a reinforcing member **15** of wood or the like. Body **14** is provided with an extended upper supporting surface **16** and an upwardly opening channel or grooved portion **17** adjacent supporting surface **16** for receiving those parts of cabinet **10** which extend below the chassis-supporting shelf **30**. For the particular illustrated embodiment of the invention, channel **17** is of a C-shaped configuration and is of a width determined by the specific dimensions of cabinet **10** with which the pallet **12** is to be employed; more particularly, channel **17** is proportioned so that its opposite surfaces are in gripping engagement with opposed lateral surfaces of at least some of the cabinet parts which are disposed below chassis-supporting shelf **30**, to insure frictional retention of pallet **12** on cabinet **10** without the use of auxiliary fasteners. Moreover, the depth of channel **17** is greater than the height of the cabinet parts extending below chassis-supporting shelf **30**, to provide vertical clearance relative to legs **19** and other depending parts **20** received therein when cabinet **10** is resting on supporting surface **16**, so that no weight-bearing stresses are imparted to legs **19** and other depending parts **20**. It is preferred that channel **17** be of variable depth as shown, to provide only sufficient vertical clearance to preclude the imposition of such weight-bearing stresses, because this gives plastic body **14** its greatest strength and rigidity consistent with attainment of the objectives of the invention. The outer surface of pallet **12** is provided with a plurality of grooves or indentations **18**, which may be in any convenient pattern, for a purpose to be described. For maximum economy and optimum protection for the depending cabinet parts, expanded cellular plastic body **14** is formed in a single molding process, the mold being proportioned to insure that channel **17** is properly dimensioned as described above to cooperate with the particular cabinet configuration under consideration. This of course will necessitate the use of different molds for specifically different cabinet constructions, but the economies and other advantages of the invention are such that universal adaptability of the pallets to cabinets of all configurations is not required to achieve the benefits of the invention.

In use, the cabinet legs **19** and other depending parts **20** are inserted into channel **17**, the natural resilience of expanded cellular material permitting slight lateral expansion of channel **17** upon the insertion of the cabinet parts to provide the gripping engagement and frictional retention described previously. Since the pallet **12** is of lightweight construction, it has been found that specified objectives can be readily achieved so that even if cabinet **10** is lifted, the weight of pallet **12** is insufficient to overcome the frictional forces retaining pallet **12** in place. On the other hand, pallet **12** can be removed easily at will simply by lifting one end of cabinet **10** and applying moderate downward pressure.

FIGURES 3 through 7 illustrate the manner in which cabinet **10** is supported by pallets **11**, **12** and **13**, and the manner in which the cabinet legs **19** and other downwardly depending cabinet parts **20** are received within channels **17** provided in the outermost pallets **11** and **12**. The cabinet legs **19** are fully enclosed within the molded bodies **14** and therefore receive a much greater measure of protection than that afforded by the conventional wooden pallets. Auxiliary pallet **13**, which may simply be a block of the same expanded cellular plastic material with its glued wood reinforcing member **22**, may be frictionally retained between a pair of braces **23** provided on the under surface of the central portion of chassis-supporting shelf **30**, as shown in FIGURE 4.

After completion of the manufacturing and testing operation, to prepare the television receiver for shipment, a conventional cardboard shipping carton **25** indicated in dashed outline in FIGURE 1 is simply slipped over the top of cabinet **10**, with the pallets **11**, **12** and **13** remaining in place, and bottom sealed. Accordingly, each of the pallets **11** and **12** is provided with an outer configuration adapted to conform with the shipping carton upon insertion of the completed receiver, so that pallets **11** and **12** serve as readily removable spacer and filler elements to stabilize the product in the carton during shipment.

Grooves or indentations **18** are provided so that the total area of external surface of pallets **11** and **12** maintained in contact with the inner surface of the shipping carton **25** is materially reduced, thus providing a substantial cushioning effect which reduces the transmission to the furniture cabinet of impact forces encountered during shipment.

Thus the invention provides a new and improved pallet construction which is compact, lightweight and inexpensive while providing improved protection for the cabinet during manufacture and shipment. The pallet of the invention is frictionally retained in place without the use of bolts or other external fasteners, and has been found to withstand ordinary factory handling and shipment with less pallet breakage and materially less cabinet damage than have been encountered with use of the previously employed bolted wooden pallets.

While a particular embodiment of the invention has been shown and described, it will be obvious to those skilled in the art that changes and modifications may be made without departing from the invention in its broader aspects.

I claim:

1. A pallet adapted for dual utility (a) in the commercial manufacture of an article, such as a console television receiver, having a furniture cabinet with a chassis-supporting shelf and other parts such as legs, braces and side panels disposed below said shelf, and (b) in the packaging of said article in a shipping carton, said pallet comprising:

a continuous body of expanded cellular plastic material having an extended upper supporting surface adapted to engage said chassis-supporting shelf and provide support for said cabinet from below, and an upwardly opening grooved portion adjacent said supporting surface for receiving said other parts of said cabinet below said shelf, said grooved portion comprising a C-shaped channel and being proportioned to provide vertical clearance relative to said other parts received therein when said cabinet is resting on said supporting surface but to be in gripping engagement with opposed lateral surfaces of at least some of such other parts to insure frictional retention of said pallet on said cabinet without the use of fasteners of any kind, said vertical clearance being only sufficient to avoid the imposition of weight-bearing stress on said other cabinet parts;

and a reinforcing member of wood or the like secured to the bottom of said body to permit its use as a skid in moving said cabinet between successive stations of a mass production assembly line;

said pallet having an outer configuration adapted to conform with said shipping carton when said article is inserted therein, whereby said pallet also serves as a readily removable spacer and filler to stabilize said article in said carton during shipment, the overall width of said pallet being less than half the width of said cabinet, and said pallet being adapted to engage and support one side of said cabinet while another pallet of similar construction engages and supports the other side.

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U.S. Cl. X.R.

206—46; 248—346