

Sept. 23, 1952

W. E. COLEMAN ET AL

2,611,569

PAPERBOARD PALLET

Filed March 26, 1948

2 SHEETS—SHEET 1

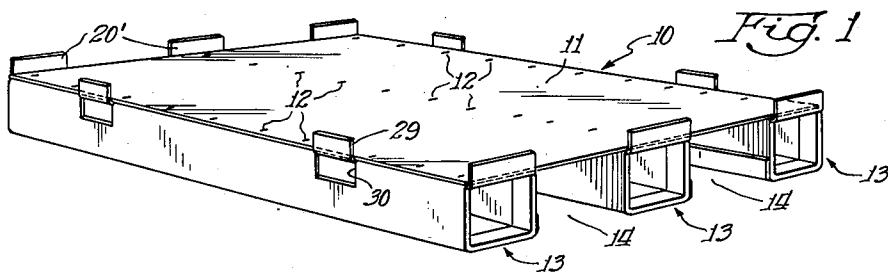


Fig. 2

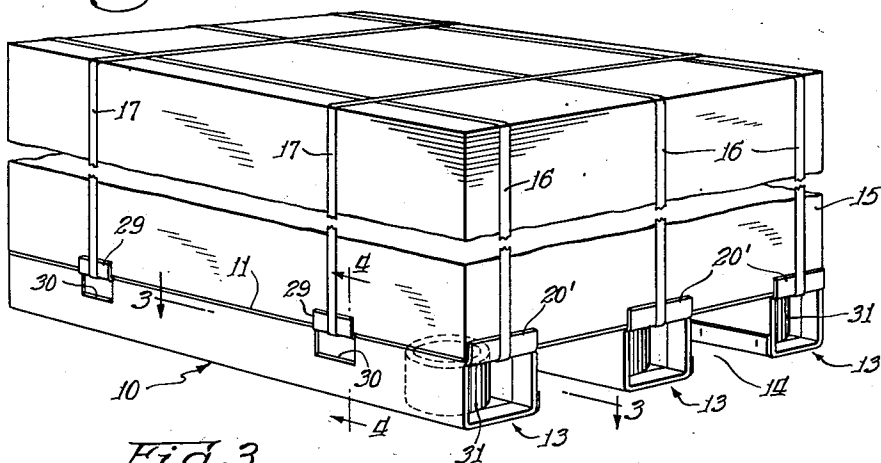


Fig. 3

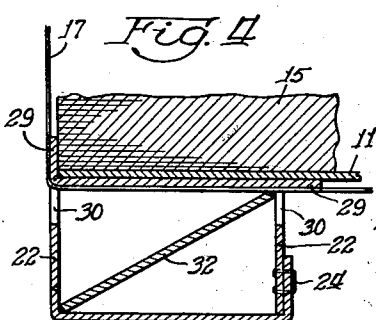
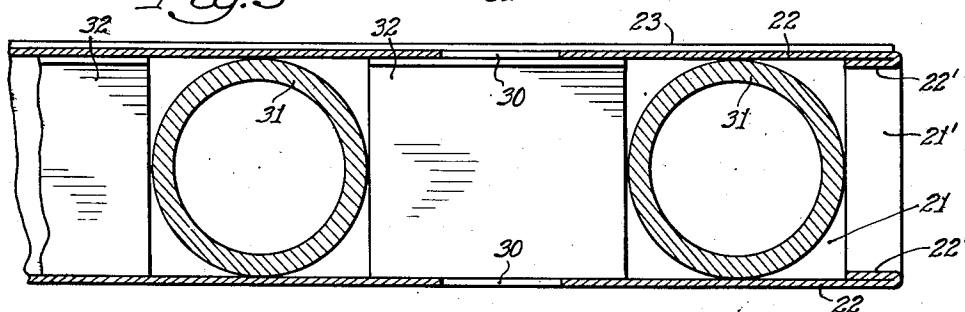
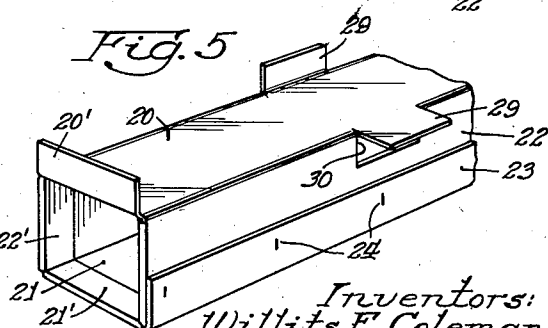


Fig. 5



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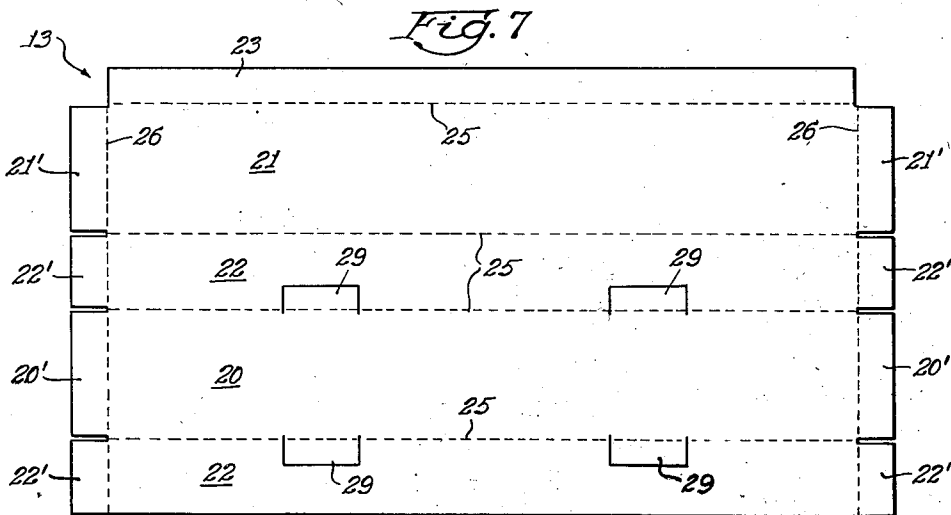
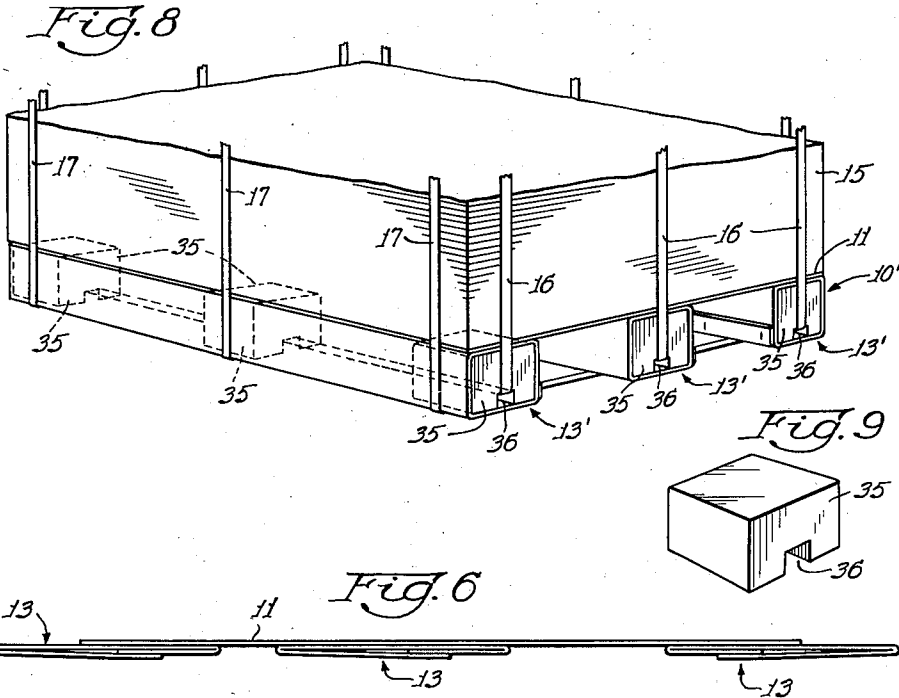
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2 SHEETS—SHEET 2



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UNITED STATES PATENT OFFICE

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PAPERBOARD PALLET

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3 Claims. (Cl. 248—120)

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This invention relates, generally, to means for carrying loads which can be picked up conveniently by a fork lift truck or the like and it has particular relation to disposable pallets of such inexpensive construction that they can be disposed of after use with a single load.

Among the objects of this invention are: To provide a paper pallet that may be readily and economically manufactured; to support a paperboard panel on which a relatively heavy load may be placed by reenforced paperboard tubes; to secure the tubes to the underside of the panel in collapsed form in order to minimize the space required for shipping the pallets and storing the same; to reenforce the tubes by compression resisting members positioned in spaced relation within the same; to space the compression resisting members apart in the tube; to prevent movement of the compression resisting members out of the ends of the tubes; to space load-securing bands from a load on the panel by flaps and tongues extending from the ends and sides of the tubes above the panel; to provide for receiving load-securing bands transversely of the tubes by registering apertures therein; and to construct the compression resisting members with grooves on their under sides for accommodating load-securing bands extending through the tubes.

Other objects of this invention will, in part, be obvious and in part appear hereinafter.

This invention is disclosed in the embodiments thereof shown in the accompanying drawings and it comprises the features of construction, combination of elements and arrangement of parts which will be exemplified in the constructions hereinafter set forth and the scope of the application of which will be indicated in the appended claims.

For a more complete understanding of the nature and scope of this invention reference can be had to the following detailed description, taken together with the accompany drawings, in which:

Figure 1 is a perspective view of a paperboard pallet constructed in accordance with this invention;

Figure 2 is a perspective view of the paperboard pallet shown in Figure 1 with a load of sheet material thereon and bound by load-securing bands extending therearound in planes at right angles to each other;

Figures 3 and 4 are detail sectional views taken along the lines 3—3 and 4—4 respectively of Figure 2;

Figure 5 is a perspective view of one end of

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one of the tubes that extends along one of the sides of the paperboard panel of the pallet;

Figure 6 is an end view of the pallet shown in Figure 1 with the supporting tubes in collapsed condition;

Figure 7 is a plan view of the blank that can be used in forming the paperboard tubes shown in the preceding figures;

Figure 8 is a perspective view of a modified form of pallet construction in which solid reinforcing blocks are provided in spaced positions within the paperboard tubes; and

Figure 9 is a perspective view of one of the reinforcing blocks employed in the construction shown in Figure 8.

Referring now particularly to Figure 1 of the drawings, it will be observed that the reference character 10 designates, generally, a paperboard pallet constructed in accordance with this invention. In using the term "paperboard" herein it is intended to refer to and include fibreboard, corrugated board and like paper products which are relatively stiff and are capable of withstanding substantial loads. The paperboard pallet 10 includes a paperboard panel 11 which may be generally rectangular as shown. It will be understood that the paperboard panel 11 also may comprise the bottom of a paperboard container which serves to hold any type of material that may be packaged therein. In the drawings the paperboard panel 11 is illustrated as a rectangular sheet of paperboard on which any suitable type of load may be carried as will appear hereinafter.

It is desirable to space the paperboard panel 11, or the bottom of a box if the panel 11 forms the same, from the floor or similar loads if the loads are stacked one above the other to permit handling by a fork lift truck or the like. Accordingly on the under side or face of the paperboard panel 11 there are secured by suitable adhesive means or staples 12 paperboard tubes that are indicated, generally, at 13. The paperboard tubes 13 are generally rectangular in cross-section and are arranged parallel to each other underneath the panel 11 so as to provide spaces 14 therebetween to permit entry of the tines of a fork lift truck or the ropes of a sling for handling the same. It will be noted that three paperboard tubes 13 are illustrated in the drawings. Two of these are located along the sides of the paperboard panel 11 while the other is located midway between them. The paperboard tubes 13 extend to the ends of the panel 11. It will be understood that only two of the tubes 13

may be employed or that more than three may be used if desired. Also it will be understood that the panel 11 may be square or it may be longer than it is wide depending upon the size and character of the load to be handled.

In Figure 2 of the drawings a load 15 in the form of a stack of sheets of paperboard is illustrated as being positioned on the paperboard pallet 19 constructed in accordance with this invention. The load 15 may be bound by sets of load-securing metal bands 16 and 17. It will be observed that the set of metal bands 16 extends through the openings in the paperboard tubes 13 and around the ends of the load 15. The other set of load-securing metal bands 17 is located in planes which are at right angles to the planes of the bands 16 and they extend around the sides of the load 15 and through the paperboard tubes 13 in a manner to be described.

As illustrated in Figure 6 the paperboard panel 1 may have the tubes 13 secured thereto in collapsed condition. This reduces the space required for shipping and storing the assembly. When it is desired to use the paperboard pallet 10 of the present invention, the collapsed tubes 13 are expanded to their rectangular configurations and are held thus in a manner to be described.

A blank for forming one of the paperboard tubes 13 is illustrated in Figure 7. It will be noted that the blank includes a top section 20 which is immediately adjacent the underside or face of the paperboard panel 11 and is secured thereto by adhesive or by the staples 12. The blank has a bottom section 21 which is intended to engage the floor or another load in the event that the loads are stacked one above the other. The top and bottom sections 20 and 21 are joined by side sections 22 and a flap 23 extends from one edge of the bottom section 21 for folding over one of the side sections 22, as shown in Figures 4 and 5, to which it is held by a suitable adhesive or staples 24.

It will be observed that the top section 20 has top end flaps 20' extending therefrom. As shown in Figure 2 these end flaps 20' are arranged to be turned upwardly past the surface of the paperboard panel 11 for the purpose of spacing the straps 16 from the load 15.

The bottom section 21 has end flaps 21' and the side sections 22 have side end flaps 22' all of which are arranged to be turned inwardly as illustrated more clearly in Figure 5 of the drawings. The sections 20, 21 and 22 and the flap 23 may be folded to provide the rectangular construction along longitudinal score lines 25. Transverse score lines 26 are provided for the top, bottom and side end flaps 20', 21' and 22'.

With a view to spacing the metal bands 17 from the load 15 and to permit their being inserted through the tubes 13 tongues 29 are struck from the side sections 22 and are foldable along the score lines 25 at the edges of the top section 20. When the tongues 29 are folded away from the side sections 22 apertures 30 are provided through which the bands 17 may be threaded as illustrated in Figure 2. It will be understood that the apertures 30 in the several tubes 13 are in registry so that the bands 17 can be threaded directly therethrough. The tongues 29 that are immediately adjacent the edges of the panel 11 are turned upwardly, as illustrated in Figures 2, 4 and 5, so as to provide the desired spacing between the band 17 and the load 15.

In order to provide the desired degree of rigidity in the generally rectangular paperboard tubes 13

so that they will resist without collapsing the load to be imposed thereon and to hold the same in the rectangular position, compression resisting members 31 are provided therein as shown in Figures 2 and 3 of the drawings. The compression resisting members 31 may be in the form of thick walled rings of chip board and, as shown in the drawings, are located with their longitudinal axes normal to the plane of the paperboard panel 11. It will be understood that the members 31 act principally in compression for which purpose their shape makes them readily suitable. The members 31 are prevented from moving longitudinally out of the tubes 13 by the abutment which is provided by the intumed bottom and side end flaps 21' and 22'. It will be understood that the members 31 are inserted in the tubes 13 and that subsequently these end flaps are turned inwardly to provide the desired abutment for holding the members 31 therein.

The lengths of the compression resisting members 31 may be such that they fit snugly within the sections forming the paperboard tubes 13. In such case they are frictionally held therein and thereby prevented from shifting longitudinally. If desired, spacers 32, in the form of flat strips of paperboard, can be provided within the tubes 13 for maintaining the members 31 in the desired spaced relation. As shown in Figures 3 and 4 of the drawings, the spacers 32 extend diagonally across the rectangular opening of the tubes 13. The number of spacers 32 and members 31 required depends upon the character of the load 15 that is to be transported by the paperboard pallet 10. Also the number depends upon the length of the tubes 13.

In Figure 8 of the drawings, the reference character 10' designates, generally, a paperboard pallet which is modified somewhat from the construction of the pallet 10 described hereinbefore. The pallet 10' includes the paperboard panel 11 which, as previously described, may constitute the bottom of a box, and which has secured to its underside or face paperboard tubes 13' which are similar to the paperboard tubes 13, described hereinbefore, except for the omission of the flaps 20', 21' and 22' and the tongues 29. The paperboard tubes 13' can be secured to the underside or face of the panel 11 and the assembly shipped in the collapsed form as illustrated in Figure 6.

The tubes 13' can be held in the desired rectangular configuration by compression resisting members 35 which also serve to reinforce the tubes 13 and enable them to carry the load 15. The members 35, as shown in Figures 8 and 9 of the drawings, are in the form of rectangular blocks, preferably of wood, which completely fill the tubes 13 except for the provision of a slot 36 on the underside which permits the metal bands 16 to be threaded therethrough as illustrated in Figure 8. The other metal bands 17 extend around the load 15 and also around the tubes 13' at positions where they are co-extensive with the members 35. It will be understood that at least three of the rectangular blocks or members 35 are provided in each of the tubes 13', one at each end and one intermediate the ends around which the intermediate metal band 17 can be secured.

Since certain further changes can be made in the foregoing constructions and different embodiments of the invention can be made without departing from the spirit and scope thereon, it is intended that all matter shown in the accompanying drawings and described hereinbefore

shall be interpreted as illustrative and not in a limiting sense.

What is claimed as new is:

1. In a paperboard pallet for use with fork lift trucks, a load receiving platform, tubular members of substantially rectangular cross section secured to the under face of said platform in parallel spaced relation and collapsible against the under face of said platform, a plurality of load supporting members fitting within the respective tubular members spaced apart lengthwise thereof and restraining the latter against collapse under load, said tubular members having means at their ends restraining the end ones of said load supporting members against movement outward of said tubular members, and spacing and reinforcing members fitting within the respective tubular members and between the load supporting members therein effective for restraining said load supporting members against relative movement lengthwise of said tubular members while also supplementing said load supporting members in supporting the load and restraining said tubular members against collapse.

2. In a paperboard pallet for use with fork lift trucks, a load receiving platform, tubular members of substantially rectangular cross section secured to the under face of said platform in parallel spaced relation and collapsible against the under face of said platform, a plurality of load supporting members fitting within the respective tubular members spaced apart lengthwise thereof and restraining the latter against collapse under load, said tubular members having at their ends elements positionable clear of the ends of said tubular members to provide unobstructed openings for insertion of said load supporting members and positionable within the ends of said tubular members providing abutments restraining the end ones of said load supporting members against movement outward of said tubular members, and spacing and reinforcing members fitting within the respective tubular members and between the load supporting members therein effective for restraining said load supporting members against relative movement lengthwise of said tubular members while also supplementing said load

supporting members in supporting the load and restraining said tubular members against collapse.

3. In a paperboard pallet for use with fork lift trucks, a load receiving platform, tubular members of substantially rectangular cross section secured to the under face of said platform in parallel spaced relation and collapsible against the under face of said platform, a plurality of load supporting members fitting within the respective tubular members spaced apart lengthwise thereof and restraining the latter against collapse under load, said tubular members having end flaps foldable to position clear of the ends of said tubular members to provide unobstructed openings for insertion of said load supporting members and foldable inward into the ends of said tubular members providing abutments restraining the end ones of said load supporting members against movement outward of said tubular members, and spacing and reinforcing members fitting within the respective tubular members diagonally thereof and between the load supporting members therein effective for restraining said load supporting members against relative movement lengthwise of said tubular members while also supplementing said load supporting members in supporting the load and restraining said tubular members against collapse.

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