

[54] **DISPOSABLE PALLET**

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**Related U.S. Application Data**

[63] Continuation-in-part of Ser. No. 134,647, April 16, 1971, abandoned.

[52] U.S. Cl. .... **108/51, 108/56, 108/57, 108/58**

[51] Int. Cl. .... **B65d 19/00, B65d 19/38**

[58] Field of Search ..... **108/56-58; 206/60 A, 65; 229/25; 248/174**

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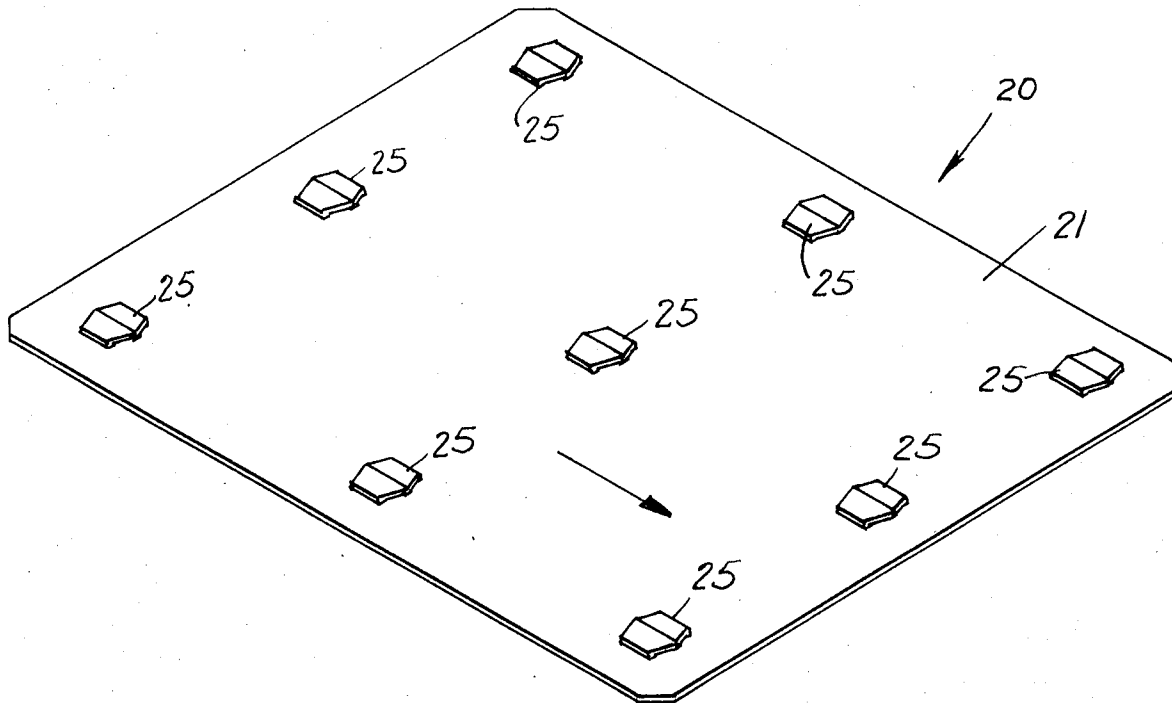
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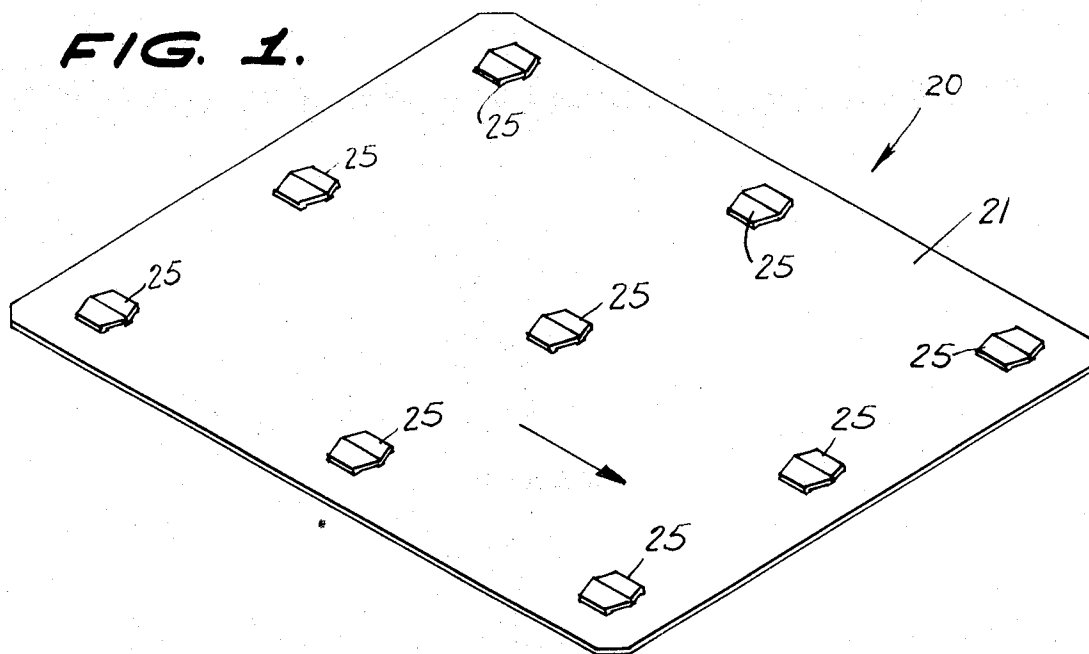
[57] **ABSTRACT**

A disposable pallet which includes one or two platform panels formed of corrugated cardboard or paperboard stock supported on a plurality of corrugated cardboard or paperboard legs. The legs are folded to produce a rigid box-like structure having tongues which extend in a first direction through slots in the platform panel and fold over to extend in a direction opposite to said first direction through additional slots in the panel. A locking tongue on each side of each leg engages in a slot in the panel to maintain the leg in its box-like form.

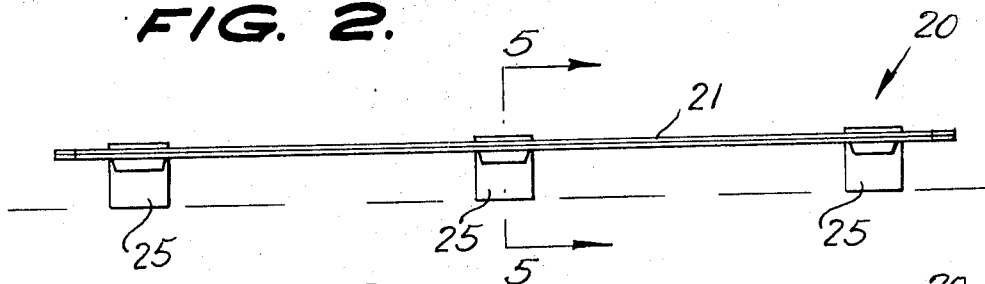
**20 Claims, 22 Drawing Figures**



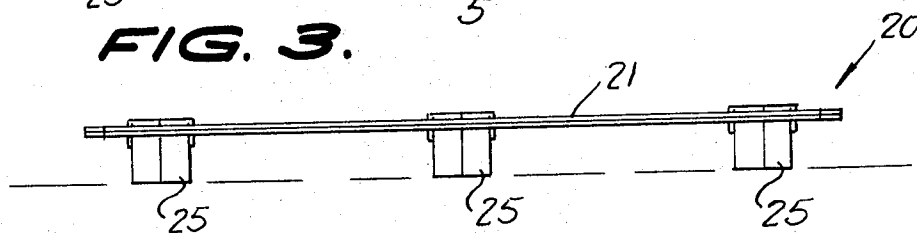
**FIG. 1.**



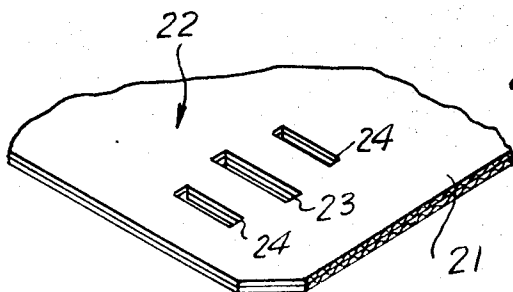
**FIG. 2.**



**FIG. 3.**



**FIG. 4.**



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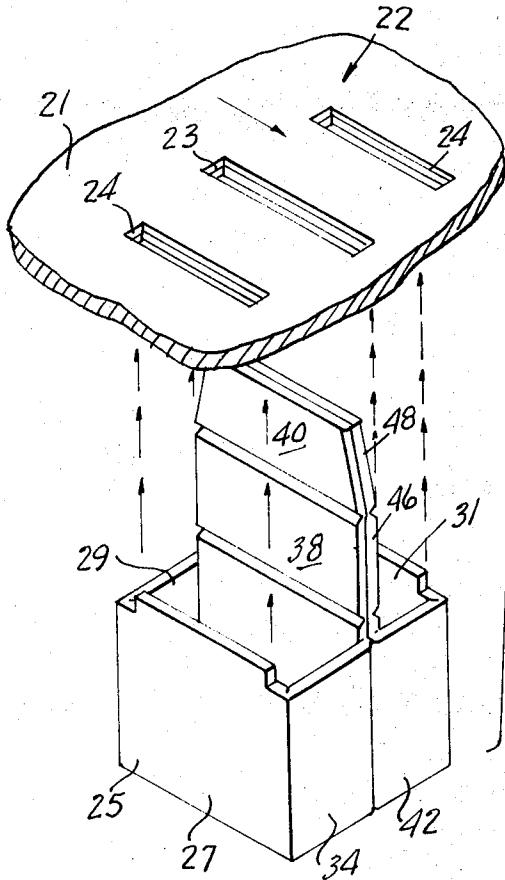


FIG. 9.

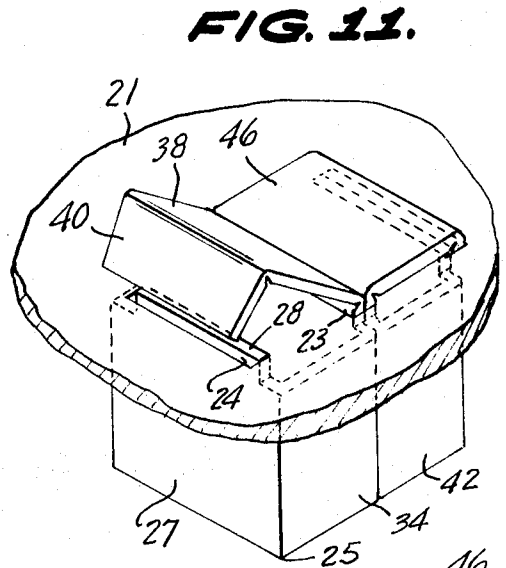


FIG. 11.

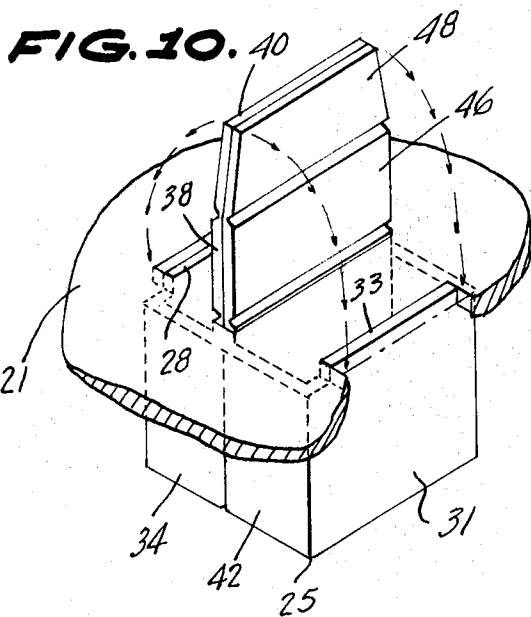


FIG. 10.

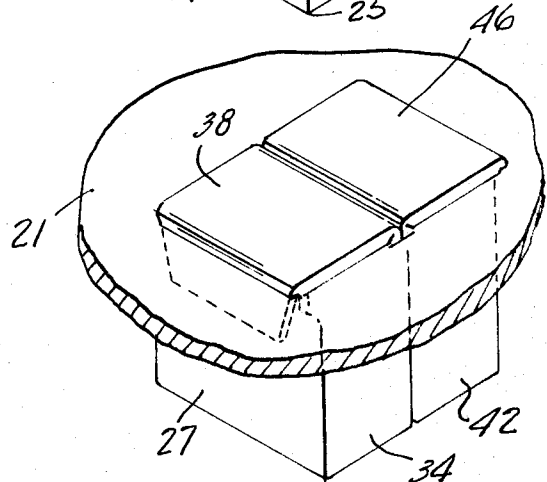
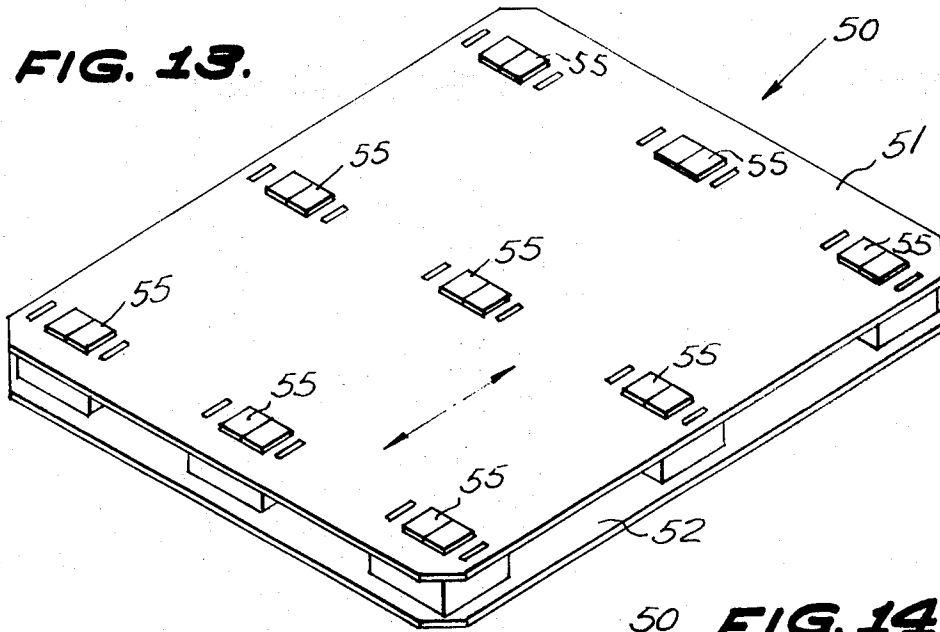


FIG. 12.

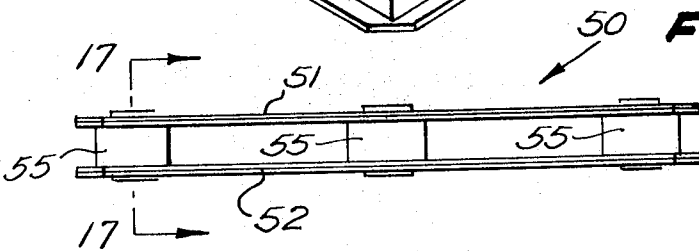
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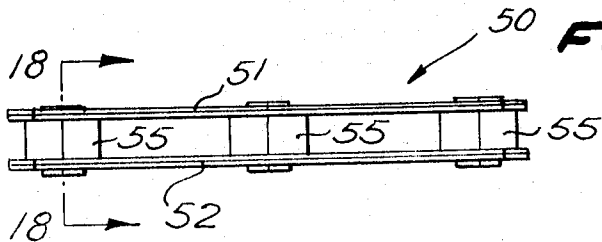
**FIG. 13.**



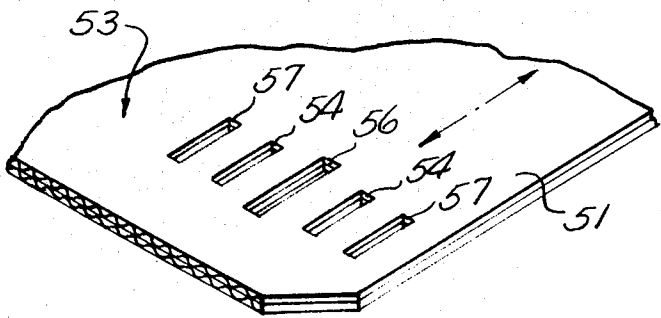
**FIG. 14.**

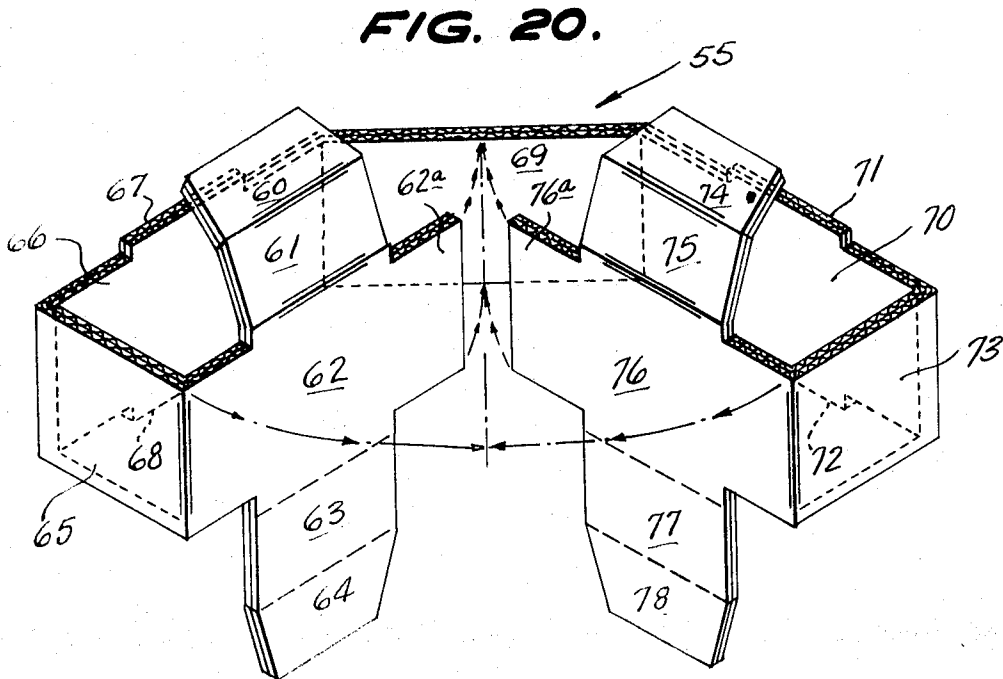
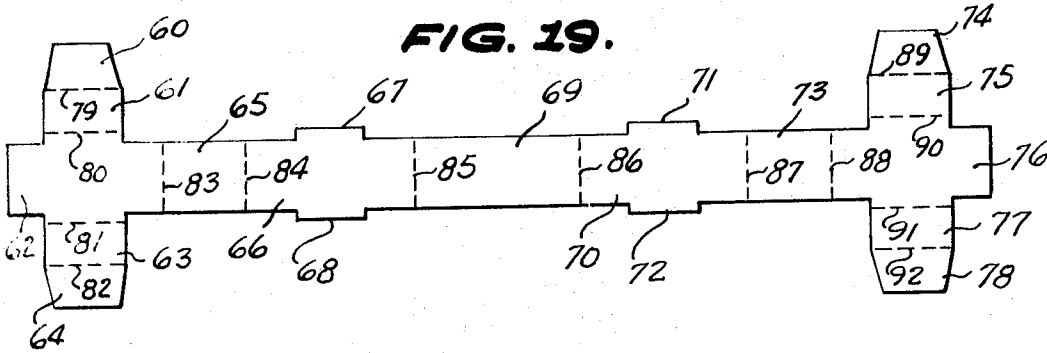
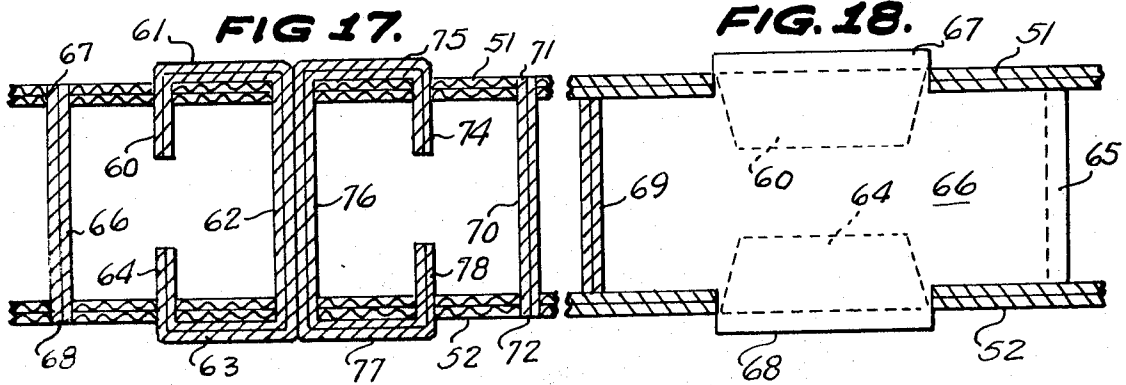


**FIG. 15.**



**FIG. 16.**







**DISPOSABLE PALLET****RELATED APPLICATIONS**

This application is a continuation-in-part of application, Ser. No. 134,647, filed on Apr. 16, 1971, now abandoned.

**FIELD OF THE INVENTION**

The present invention relates to disposable pallets for supporting material ready for shipment to permit it to be easily handled by a fork lift truck.

**SUMMARY OF THE INVENTION**

A corrugated or paperboard platform panel is supported on a plurality of box-like corrugated or paperboard legs with each leg folded from a single piece of material. The legs have locking tongues which engage in slots in the panel and additional somewhat longer tongues which extend through a central slot in the panel and fold over to extend back through the panel to lock each leg to the panel.

The primary object of the invention is to provide a substantially rigid extremely strong disposable pallet which can be easily assembled without tools.

Other objects and advantages will become apparent in the following specification when considered in the light of the attached drawings.

**BRIEF DESCRIPTION OF THE DRAWINGS**

FIG. 1 is a perspective view of one embodiment of the invention shown from the top side;

FIG. 2 is a side elevation of the embodiment shown in FIG. 1;

FIG. 3 is an end elevation of the embodiment shown in FIG. 1;

FIG. 4 is a fragmentary perspective view of one corner of the pallet platform of FIG. 1 with the leg removed;

FIG. 5 is an enlarged fragmentary vertical sectional view taken along the line 5—5 of FIG. 2, looking in the direction of the arrows;

FIG. 6 is a fragmentary vertical sectional view taken along the line 6—6 of FIG. 5, looking in the direction of the arrows;

FIG. 7 is a plan view of the blank from which the leg of the FIG. 1 embodiment is formed;

FIG. 8 is a perspective view of one of the legs of the FIG. 1 embodiment in the process of being folded into position for inserting in the platform;

FIG. 9 is a perspective view of the leg of the FIG. 1 embodiment preparatory to being inserted into the platform;

FIG. 10 is a perspective view of the leg of the FIG. 1 embodiment inserted in the platform with the tongues about to be folded into locking position;

FIG. 11 is a view similar to FIG. 10 with one of the tongues completely folded to locking position and the other tongue nearly in locking position;

FIG. 12 is a perspective view similar to FIG. 10 with each of the locking tongues in locking position;

FIG. 13 is a perspective view of a second embodiment of the invention shown from the top side;

FIG. 14 is a side elevation of the embodiment shown in FIG. 13;

FIG. 15 is an end elevation of the embodiment shown in FIG. 13;

FIG. 16 is a fragmentary perspective view of one corner of the pallet platform of FIG. 13 with the leg removed;

FIG. 17 is an enlarged fragmentary vertical sectional view taken along the line 17—17 in FIG. 14, looking in the direction of the arrows;

FIG. 18 is an enlarged fragmentary vertical sectional view taken along the line 18—18 in FIG. 15, looking in the direction of the arrows;

FIG. 19 is a plan view of the blank from which the leg of the FIG. 13 embodiment is formed;

FIG. 20 is a perspective view of one of the legs of the FIG. 13 embodiment in the process of being folded into position for insertion into the platform;

FIG. 21 is a perspective view of the leg of the FIG. 13 embodiment, preparatory to being inserted into the platform; and

FIG. 22 is a perspective view of the leg of the FIG. 13 embodiment inserted in the platform, with the tongues about to be folded into locking position.

**DESCRIPTION OF THE PREFERRED EMBODIMENTS**

Referring now to FIGS. 1 through 12 of the drawings in detail wherein like reference characters indicate like parts throughout the several figures the reference numeral 20 indicates generally a disposable single platform pallet constructed in accordance with a first embodiment of the invention.

The pallet 20 includes a generally rectangular flat platform panel 21 formed of corrugated cardboard or paperboard. The panel 21 may be formed of either one or two thicknesses of material as desired.

The platform panel 21 is provided with a plurality of slot groups 22. Each slot group 22 includes a generally rectangular narrow central slot 23 and a pair of side slots 24 arranged in spaced parallel relation on opposite sides thereof. The slots 24 have the same width as the slot 23 and have a length somewhat less than the length of the slot 23.

A plurality of generally rectangular tubular legs 25 are secured to the platform panel 21 by means of the groups of slots 22.

Each of the legs 25 is formed from a blank indicated generally at 26 in FIG. 7 and is cut from corrugated cardboard or paperboard stock as desired. The leg 25 includes a generally rectangular side panel 27 having a generally rectangular locking tab 28 extending integrally upwardly from the upper edge thereof. The tab 28 is shorter than the width of the side panel 27. A generally rectangular end panel 29 is integrally formed on one edge of the side panel 27 and a fold line 30 forms the juncture therebetween. A second side panel 31 identical to the side panel 27 is joined to the end panel 29 along a fold line 32. A generally rectangular locking tab 33 extends from the upper edge of the side panel 31 and is shorter than the width of the side panel 31. A relatively short generally rectangular end panel 34 is integrally joined to the side panel 27 along a fold line 35 and a generally rectangular central panel 36 is joined to the short end panel 34 along a fold line 37. A generally rectangular tongue 38 is integrally joined to the upper edge of the center panel 36 along a fold line 39 and a tapered tab 40 is integrally joined to the upper edge of the tongue 38 along a fold line 41.

A relatively narrow end panel 42 is integrally joined to the side panel 31 along a fold line 43. A generally



rectangular center panel 44 is integrally joined to the end panel 42 along a fold line 45. A generally rectangular tongue 46 is integrally joined to the top edge of the center panel 44 along a fold line 47. A tapered tab 48 is integrally joined to the upper edge of the tongue 46 along a fold line 49.

The width of the slots 23, 24 is slightly greater than double the thickness of the material used to form the leg 25 and the leg 25 is attached to the platform panel 21 as follows. The leg 25 is folded inwardly along all of the vertical fold lines as shown in FIG. 8 to arrive at the box-like generally rectangular cross-sectional configuration illustrated in FIG. 9. It should be noted that the corrugations in the corrugated board comprising the leg 25, extend in a vertical direction to impart strength and rigidity to the construction. With the leg 25 in the position illustrated, the tabs 40, 48 and tongues 38, 46 are in contact and extend upright. The tabs and tongues are then inserted through the central slot 23 and the leg is brought up against the bottom of the platform panel 21 with the locking tabs 28 and 33 extending upwardly through the slots 24 into the position illustrated in FIG. 10. The tongues 38, 46 are then folded flat down to the top surface of the platform panel 21 with the tabs 40 and 48 being inserted into the slots 24 alongside of the locking tabs 28 and 33 respectively, as shown in FIGS. 11 and 12. The engagement of the locking tabs 28 and 33 in the slots 24 prevent the tubular leg 25 from losing its generally rectangular cross-sectional shape by collapsing. The tabs 40 and 48 extending downwardly through the slots 24 alongside of the locking tabs 28 and 33 respectively, lock the leg 25 to the platform panel 21 and prevent the locking tabs 28 and 33 from disengaging from the slots 24.

No glue, staples, or other fastening is required to secure the legs 25 to the platform panel 21, nor are special tools required. After a desired number of legs 25 have been attached to the platform panel 21, it is then ready for use as a pallet to receive a load for movement by a fork lift truck as required.

Referring now to FIGS. 13 through 22 of the drawings, wherein like reference characters indicate like parts throughout the several figures, the reference numeral 50 indicates generally a disposable double platform pallet constructed in accordance with a second embodiment of the invention. This embodiment, which differs from that described above in connection with FIGS. 1 through 12 in utilizing a double platform pallet with accompanying modifications in the slot and tubular leg construction, provides a stronger and more rigid construction than that described above, and for this reason, represents the preferred embodiment of this invention.

The pallet 50 comprises upper platform panel 51 and lower platform panel 52, joined by tubular legs 55 having a substantially rectangular cross-sectional configuration. The platform pallets 51 and 52 may be formed of corrugated cardboard or paperboard as described above with respect to the embodiment of FIG. 1.

Platform panels 51 and 52 are provided with a plurality of regularly spaced identical slot groups 53, illustrated, for example, in FIG. 16. Each slot group 53 comprises a generally rectangular central slot 56, flanked by parallel pairs of slots 54 and 57. Slot 56 should be approximately twice the width of either of slots 54 and 57, since, as will become apparent, it must accommodate a double thickness of the locking portion

of leg 55. It should be noted that each group of slots 53 in the upper platform panel 51 is precisely aligned with a correspondingly located group of slots in the lower platform panel 52. The aligned groups of slots in the upper and lower platform panels 51 and 52 are engaged with tubular legs 55, so as to form a unitary rigid double platform pallet, as illustrated in FIG. 13, in a manner more precisely described hereinbelow.

The corrugated paperboard or cardboard blank from which each leg 55 is formed, is illustrated in FIG. 19. The leg 55, comprises a substantially rectangular end panel 69 joined at vertical fold lines 85 and 86 to side panels 66 and 70, respectively. Depending from the upper edge of side panel 66 is locking tab 67, while a corresponding locking tab 71 depends from the upper edge of side panel 70. Identical locking tabs 68 and 72 depend from the lower edges of side panels 66 and 70, respectively. Short end panel 65 is joined to side panel 66 along vertical fold line 84, while identical short end panel 73 is joined to side panel 70 along vertical fold line 87. Joined to short end panel 65 along vertical fold line 83 is central panel 62, while identical central panel 76 is joined by vertical fold line 88 to short end panel 73. The construction of each of central panels 62 and 76 is identical and includes upper and lower depending tongue and tapered tab members similar to those described in connection with FIG. 7. Centrally depending from the upper edge of central panel 62 along horizontal fold line 80 is tongue 61, while identical tongue 63 centrally depends from the lower edge of central panel 62 along horizontal fold line 81. Tapered tab 60 is joined to tongue 61 along horizontal fold line 79 and tapered tab 64 is joined to tongue 63 along horizontal fold line 82. The depending tongue and tab structure associated with central panel 76 is identical to that described in connection with central panel 62 and comprises tongues 75 and 77, tapered tabs 74 and 78 and horizontal fold lines 89, 90, 91 and 92.

The manner in which tubular leg 55 is formed from the blank illustrated in FIG. 19 and described above, is shown in FIG. 20. As illustrated therein, the blank is folded inwardly along all of the vertical fold lines shown in FIG. 19 until inner edges of central panels 62 and 76 abut against end panel 69. When this occurs, tapered tabs 60 and 74, tongues 61 and 75, central panels 62 and 76, tongues 63 and 77, and tapered tabs 64 and 78 will be congruently aligned, short end panels 65 and 73 will form an uninterrupted surface, parallel with end panel 69 and side panels 66 and 70 will be perpendicular to end panel 69 and parallel to each other and locking tabs 67 and 71 aligned with tongues 61 and 75, respectively, and locking tabs 68 and 72 aligned with tongues 63 and 77, respectively. There will thus be formed, a tubular leg 55 of generally rectangular cross-sectional configuration having upwardly and downwardly depending aligned sets of tongues, tapered tabs and locking tabs, as shown in FIG. 21. It is to be noted that, as in the case of the FIG. 1 embodiment, the corrugations in the corrugated paperboard or cardboard comprising the leg 55, in its assembled condition, are disposed vertically to impart strength and rigidity to the construction.

Referring now to FIGS. 21 and 22, there is illustrated the manner in which leg 55 is joined to upper and lower platform panels 51 and 52. As can be seen, upper tongue and tapered tab assembly 61, 75, 60 and 74 is inserted through central slot 56 of slot group 53 in

upper platform panel 51, while lower depending tongue and tapered tab assembly 63, 77, 64 and 78 is inserted through central slot 56a of slot group 53a in lower platform panel 52. The tongue and tab assemblies' passage through central slots 56 and 56a is limited by the engagement of locking tabs 67 and 71 with slots 54 and locking tabs 68 and 72 with slots 54a, as shown in FIG. 22. The tongue and tab assemblies are then folded along their respective horizontal fold lines, as described above. Tapered tabs 60 and 74 are then inserted downwardly through slots 54, as shown in FIG. 22, while tapered tabs 64 and 78 are inserted upwardly through corresponding slots 54a. When this has been accomplished, tongues 61 and 75 will lie substantially flat along the upper surface of upper platform panel 51, while tongues 63 and 77 will lie substantially flat along the lower surface of lower platform panel 52.

The resulting construction after the desired number of legs 55 have been attached in the manner described above, between upper platform panel 51 and lower platform panel 52 is extremely rigid and sturdy. Tests have shown that the double platform pallet can typically withstand loads of 790 pounds per square foot. Such loads are much greater than those which would normally be expected of a structure formed from corrugated paperboard or cardboard.

While specific embodiments of the invention have been described and illustrated, it should be understood that various modifications may be made in my disposable pallet, without departing from the scope of the invention, which is defined in the claims appended hereto.

I claim:

1. A disposable pallet comprising at least one substantially two-dimensional platform having at least one group of slots extending therethrough, said group including five spaced parallel slots; a leg secured to said platform at said group of slots, said leg comprising first means extending through the center slot of said group of slots for securing said leg to said platform, second means extending through at least one other slot spaced from said center slot and third means including locking tab means integrally formed with said leg for locking said leg against transverse motion, said locking tab means engaging with at least one of said slots furthest from said center slot.

2. A disposable pallet comprising two platforms disposed in parallel planes with respect to each other, each of said platforms comprising a group of at least three parallel slots, a group of slots in one platform being in alignment with a corresponding group in the other platform; a leg joining said platforms at said aligned groups of slots, said leg comprising first means extending through a center slot of one of said groups of slots for securing said legs to said platforms, second means extending through at least one other slot spaced from said center slot, third means for locking said leg against transverse motion, fourth means extending from said leg in a direction diametrically opposite to said first means for engagement with the center slot aligned with and in a different plane from said center slot engaged by said first means and fifth means integrally formed with said leg for engaging at least one other slot spaced from said center slot in a different plane, and aligned with said at least one other slot engaged by said second means.

3. The disposable pallet set forth in claim 1 wherein said first and second means are integral and coextensive.

4. The disposable pallet set forth in claim 3 wherein said first means comprises tongue means and said second means comprises tab means, said first and second means being integrally formed with said leg.

5. The disposable pallet set forth in claim 4 wherein said tongue and tab means lie in parallel planes with respect to each other, said tab means extending through said at least one other slot in a direction diametrically opposite to the direction in which said tongue means extends through said center slot.

6. The disposable pallet set forth in claim 5 further including panel means for joining said tongue means and said tab means, said panel means being substantially two-dimensional and lying flat against said at least one panel.

7. The disposable pallet set forth in claim 1 wherein said leg is tubular.

8. The disposable pallet set forth in claim 1 wherein said second means engages with at least one slot between said center slot and said furthest slot.

9. The disposable pallet set forth in claim 7 wherein said leg is substantially rectangular in cross-section.

10. The disposable pallet set forth in claim 9 wherein said leg is formed of corrugated material and said corrugations are disposed substantially perpendicular to said platform.

11. The disposable pallet set forth in claim 1 wherein said leg is formed of corrugated material and said corrugations are disposed substantially perpendicular to said platform.

12. The disposable pallet set forth in claim 1 wherein said at least one platform consists of two platforms disposed in parallel planes with respect to each other and joined by said leg.

13. The disposable pallet set forth in claim 12 wherein each of said platforms contains a group of slots in alignment with each other.

14. The disposable pallet set forth in claim 13 wherein said leg comprises fourth means extending from said leg in a direction diametrically opposite to said first means for engagement with the center slot aligned with and in a different plane from said center slot engaged by said first means.

15. The disposable pallet set forth in claim 14 further including fifth means integrally formed with said leg for engaging at least one other slot spaced from said center slot in a different plane, and aligned with said at least one other slot engaged by said second means.

16. The disposable pallet set forth in claim 2 wherein said third means comprises locking tab means integrally formed with said leg.

17. The disposable pallet set forth in claim 16 wherein each of said platforms comprises at least one group of slots aligned with each other and consisting of five spaced parallel slots, said locking tab means engaging with at least one of said slots furthest removed from said center slot, in each of said aligned groups of slots.

18. The disposable pallet set forth in claim 17 wherein said leg is formed of corrugated material and said corrugations are perpendicular to each of said platforms.

19. The disposable pallet set forth in claim 18 wherein said leg is tubular.

20. The disposable pallet set forth in claim 19 wherein said leg is substantially rectangular in cross-section.