

[54] **TABLE FOR VERTICAL STACKING AND HORIZONTAL GANGING**

[75] Inventors: **Norman Polsky**, Kansas City, Mo.; **Ambrose Spencer**, Shawnee Mission; **Daniel W. Pike**, Overland Park, both of Kans.; **Edgar M. Lieberman**, Kansas City, Mo.; **Bobbie L. Snyder**, Shawnee Mission, Kans.

[73] Assignee: **Fixtures Mfg., Corp.**, Kansas City, Mo.

[22] Filed: **July 29, 1971**

[21] Appl. No.: **167,347**

[52] U.S. Cl. **108/64, 108/91**
 [51] Int. Cl. **A47b 7/02**
 [58] Field of Search **108/91, 64; 297/239, 297/248; 248/188, 188.1, 188.8**

[56] **References Cited**

UNITED STATES PATENTS

2,970,635	2/1961	Fields.....	297/239
3,111,344	11/1963	Hoven.....	297/248 X
2,999,662	9/1961	Lappin et al.....	248/188
3,328,075	6/1967	Albinson.....	297/248 X
3,319,999	5/1967	Lieberman et al.....	297/239 X
2,657,965	11/1953	Bargen.....	108/91 X

FOREIGN PATENTS OR APPLICATIONS

640,867	8/1950	Great Britain.....	108/64
83,945	1/1957	Netherlands.....	108/91

Primary Examiner—Francis K. Zugel
Attorney—Claude A. Fishburn et al.

[57] **ABSTRACT**

A table for vertical stacking and horizontal ganging including a table top with a pair of legs at each end, which are spaced and projecting outwardly and then diverging downwardly whereby the legs at each end are a pair in an inverted V-shape, the projection of the legs being of sufficient distance to clear a subjacent table top in vertical stacking. The legs at one end are offset laterally of the legs at the other end whereby when tables are at end-to-end relation one leg of one table projects between the upper portions of the adjacent pair of legs of the other table whereby the legs generally overlap and are along side of opposed legs of the other table. The legs are fixed to a mounting member secured to the underside of the table top and the mounting member has handle means extending therefrom to facilitate handling of the table. The mounting member has depending portions adapted to engage the top surface of a subjacent table and support the weight of overlying tables. Each end of the table has a male and female connector with connectors at one end being opposed to the connectors at the other end whereby when the tables are at end-to-end relation the male connector of one table is received in the female connector of the other table to secure the tables in ganged relation.

5 Claims, 6 Drawing Figures

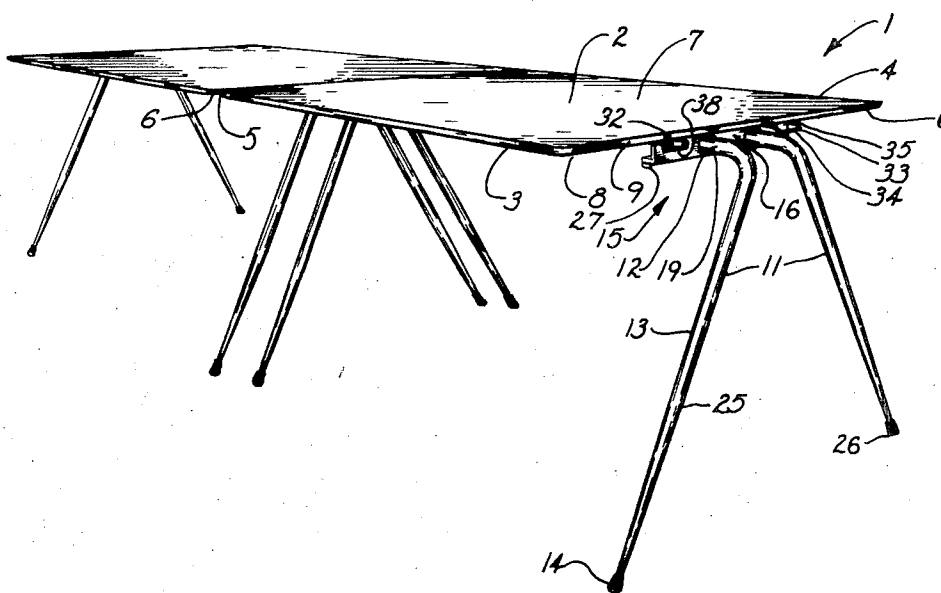


Fig. 1.

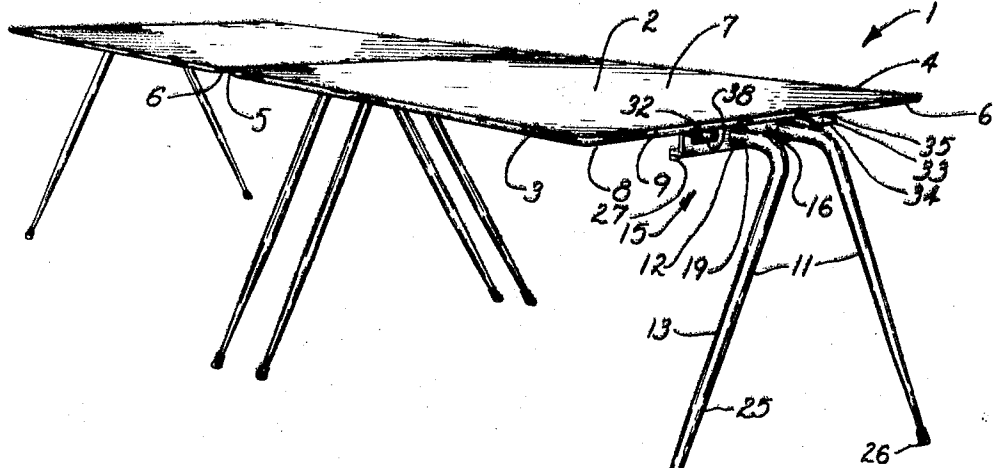
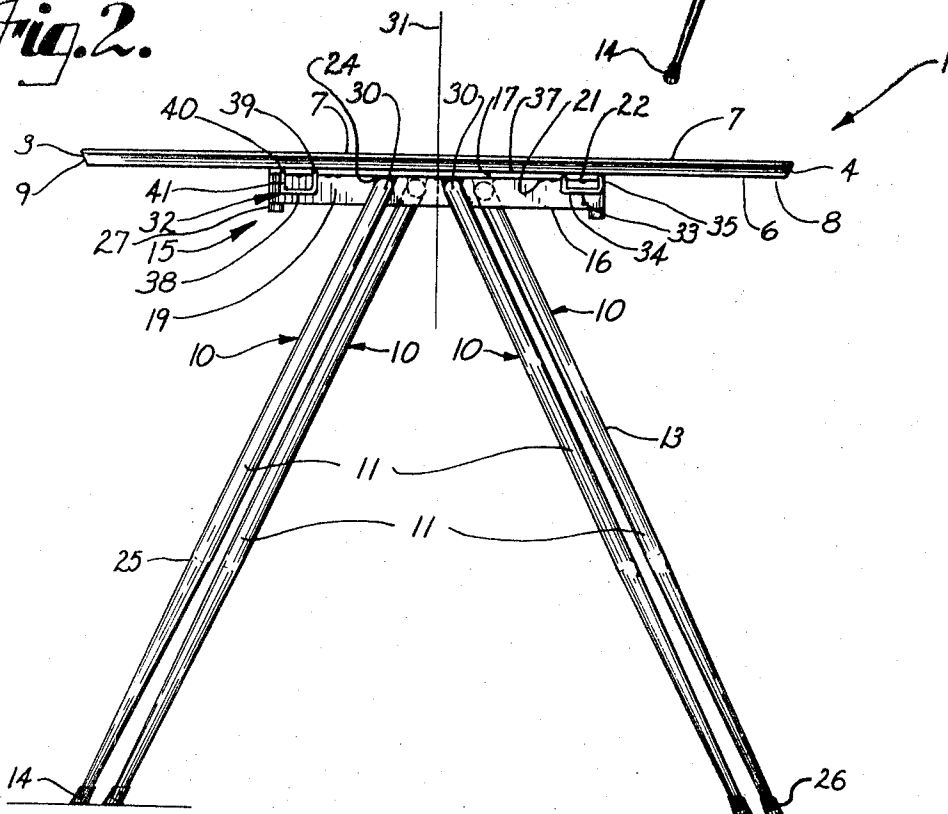


Fig. 2.



INVENTORS

Norman Polski
 Ambrose Spencer
 Daniel W. Pike
 Edgar M. Lieberman
 Bobbie L. Snyder.

BY
 Freshwater, Gold & Tetman
 ATTORNEYS

Fig. 3.

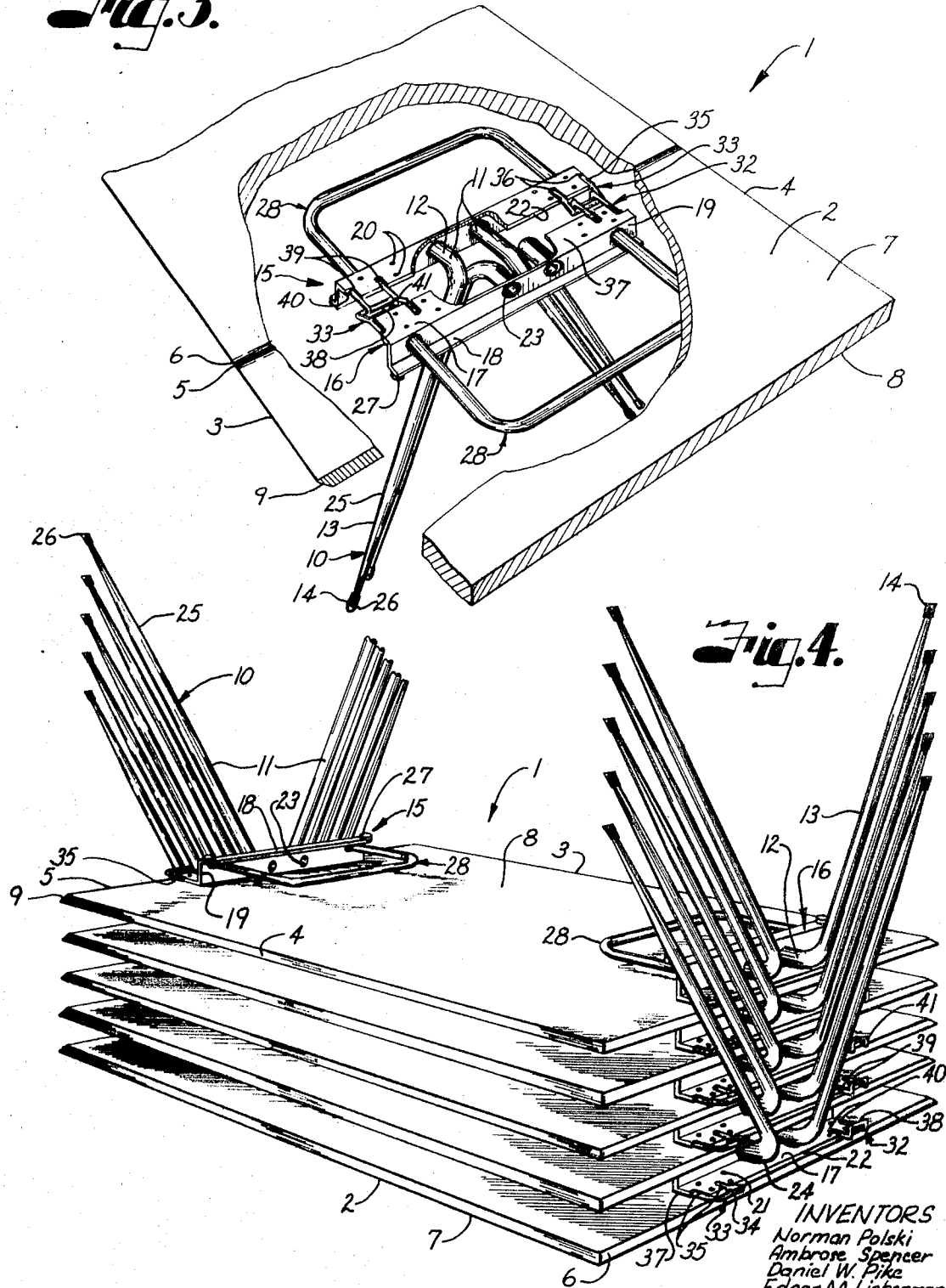


Fig. 4.

INVENTORS
Norman Polski
Ambrose Spencer
Daniel W. Pike
Edgar M. Lieberman
Bobbie L. Snyder

BY
Friedman, Gold & Lerman
ATTORNEYS

Fig. 5

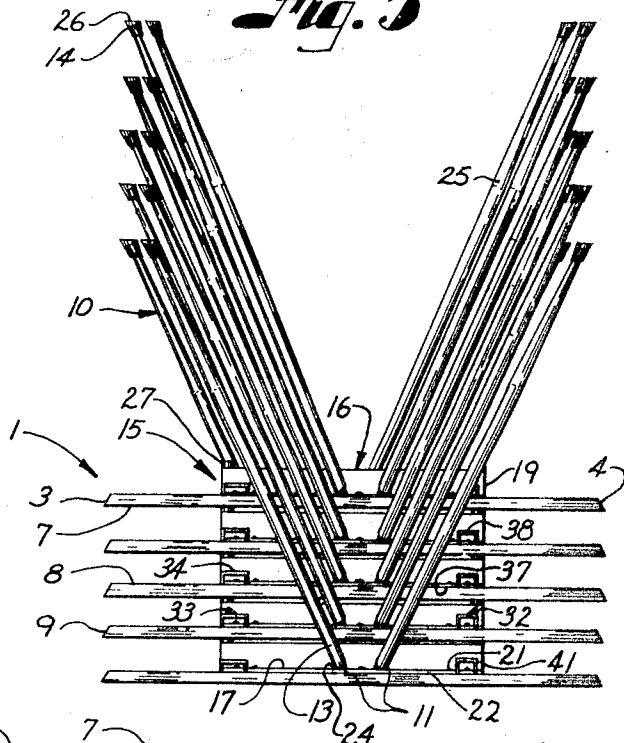
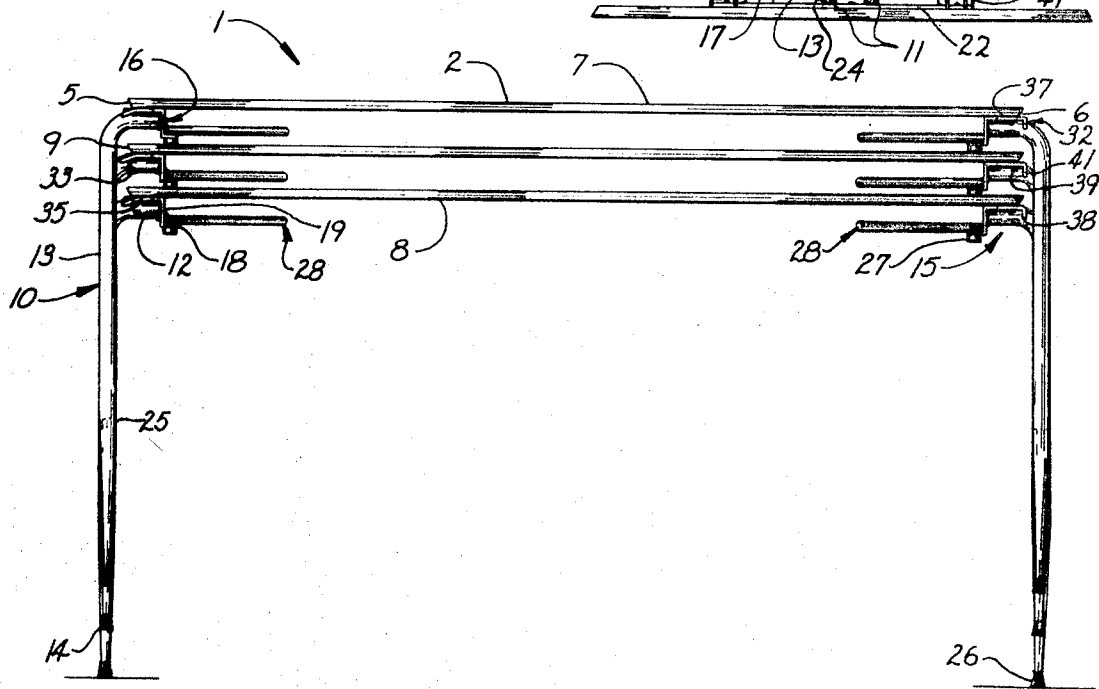


Fig. 6.



INVENTORS
Norman Polski
Ambrose Spencer
Daniel W. Pike
Edgar M. Lieberman
Bobbie L. Snyder

BY
Friedman, Gold & Litman
ATTORNEYS

TABLE FOR VERTICAL STACKING AND HORIZONTAL GANGING

This invention relates to multi-purpose tables for use in dining areas; meeting rooms and the like for varied seating and convenient storing.

Heretofore, there has been considerable difficulty in accomodating various numbers of people in dining areas and meeting rooms in order to serve functional needs as they occur. Different numbers of persons to be accomodated requires many tables to be available, and when not in use the storage thereof may be difficult. It may be desirable to arrange individual small tables for division of people into small groups for more personal contact, or to arrange long tables or elongate gangs of tables to provide more seating capacity and better vision of a speaker or the like. The storage problem has been partly solved by having tables that will stack, however, such stacking tables with an outboard arrangement of the legs at ends are not capable of being ganged with top abutting in end-to-end relation, or with a leg arrangement at table sides the seating capacity is reduced or there is discomfort of persons seated adjacent such legs.

The principal objects of the present invention are to provide a table for vertical stacking and horizontal ganging which overcomes the aforementioned difficulties; to provide such a table with legs projecting from opposed edges in opposed offset relation whereby the legs are positioned in overlapping relation when the respective edges of adjacent tables are in end-to-end abutting relation; to provide such a table with male and female connectors arranged in opposed relation and projecting from opposed edges whereby when tables are arranged in edge to edge relation the male connectors are engaged in the female connectors to hold the tables in ganged relation with an absence of space between the table tops; to provide such a table wherein the legs project from table edges a distance sufficient to clear a subjacent table top in vertical stacking; to provide such a table with a leg mounting to the table top that provides rigidity, strength and stability; to provide such a table top wherein the said mounting has handles positioned between table tops when stacked for facilitating handling; and to provide such a table, for vertical stacking and horizontal ganging, that is economical to manufacture, sturdy in construction, easily handled to provide various arrangements to serve the functional needs as they occur, quickly and easily moved or stored, and that is safe to use and easily and inexpensively maintained.

Other objects and advantages of this invention will become apparent from the following description taken in connection with the accompanying drawings wherein are set forth by way of illustration and example certain embodiments of this invention.

FIG. 1, is a perspective view of tables embodying the present invention, in ganged relation.

FIG. 2, is an end elevational view of the table.

FIG. 3, is a fragmentary perspective view of adjacent ends of tables in ganged relation with portions broken away to show the legs, mounting and the gang connectors.

FIG. 4, is a perspective view of a plurality of tables in vertical stacked inverted relation.

FIG. 5, is an end view of a vertical stack of inverted tables.

FIG. 6, is a side view of a plurality of tables in vertically stacked upright relation.

It is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings since the invention is capable of other embodiments. The terminology employed herein is for the purpose of description and not of limitation.

Referring more in detail to the drawings:

The reference numeral 1 generally designates a table embodying the invention and as illustrated said table has a flat top 2. The table top has side edges 3 and 4 and end edges 5 and 6 and said top may be of any suitable shape wherein certain opposed edges correspond and said edges of one table top will mate with opposed edges of other tables arranged in edge to edge relation as when ganging of the tables. In the structure illustrated, the table top is rectangular and said tables are adapted to be ganged in end-to-end relation whereby an edge 5 of one table abuts the edge 6 of an adjacent table as illustrated in FIG. 1. The table tops 2 may be of any suitable material and may be solid, laminated or other suitable structure preferably with an uppersurface 7 that resists scratching, burns, and the like. It is preferred that the table top have a flat bottom surface 8. The side edges and end edges may be square or at right angles to the top surface 7, however, in the illustrated structure said edges are all beveled to incline downwardly and inwardly as at 9.

The table is provided with plurality of legs arranged in outward relation with the table top whereby the table may be stacked. In the structure illustrated there are two legs 10 at each end arranged to form a pair 11 wherein the individual legs are each generally L-shaped with a short portion 12 and a long portion 13. The short portion 12 of each leg is suitably secured relative to the table top and extends outwardly from the adjacent edge thereof, said short portion terminating in downwardly extending long portion which in the pair 11 diverge outwardly and downwardly forming an inverted V-shaped arrangement. The spacing between the lower ends 14 of a pair of legs is relatively wide but less than the width of the table top. The short portions 12 of a pair 11 of legs are laterally spaced and one pair of legs at one end is laterally spaced relative to the pair at the other end so that when the tables are arranged in end-to-end relation the legs at the end of one table will overlap the legs of the adjacent end of the other table permitting the end edges 5 and 6 of the tables to abut when the side edges 3 and 4 of the respective tables are in registry.

The leg structures illustrated are arranged with each pair of legs 11 secured in a leg assembly 15 including a mounting member 16 which is preferably an elongate rigid member suitably secured in engagement with the underface 8 of the table top 2 near the end edges 5 and 6 to form a rigid structure. The mounting 16 is illustrated as a bracket of generally Z-shaped cross-section having spaced flanges 17 and 18 connected by a web 19. The flange 17 is adapted to engage the underface 8 of the table top and has the plurality of apertures 20 for fastening devices 21 which secure the flange 17 and bracket to the table top 2. It is preferred that the bracket be arranged with the free edge 22 adjacent the respective lower portion of the end edge of the table top 2 whereby the web 19 is spaced inwardly therefrom and the flange 18 is directed inwardly from the web in

vertically spaced relation to the undersurface 8 of the table top 2. The web 19 of the bracket 16 preferably has spaced apertures 23 to receive ends of the short portions 12 of the legs of the respective pairs with said short portions 12 extending from the web 19 outwardly substantially in engagement with the under surface of the flange 17, the short portions 12 of the legs 10 being secured to the web 19 and to the flange 17 as by welding as at 24 to form a rigid structure. It is also preferred that the legs be formed of rigid tubular material for strength and lightness in weight and that the lower portion be tapered inwardly as at 25 to provide a small lower end mounting for feet or glides 26 to provide a neat, streamlined appearance. Each of the flanges 18 of the brackets 16 have spaced depending pads or projections 27 preferably adjacent the ends of the respective bracket 16 and adapted to engage the upper surface 8 of a subjacent table top 2 in vertical stacking to support said table and tables thereabove. The leg assembly also preferably has handle members 28 to facilitate handling of the tables. In the illustrated structure the handles are generally U-shaped members with free ends secured to the web 19 and the flange 18 as by welding whereby the handles extend inwardly from the brackets in substantially parallel relation to the table top whereby said handles are between table tops of stacked tables.

The short portions 12 of each of the legs 10 of a pair 11 are such that they project outwardly of the table edge and the long portions 13 of the legs are spaced outwardly of said respective edges a distance sufficient to clear a subjacent table top in vertical stacking. However, the tables with this outboard arrangement of the legs are adapted to be ganged with the edges adjacent said legs abutting the respective edge of the next adjacent table as said legs are arranged to overlap when in ganging position. In the structure illustrated a pair of legs 11 at one end of the table are offset laterally as at 30 of the longitudinally center line 31 of the table top and the pair of legs at the other end of the table are offset laterally toward the opposite side of the table a corresponding amount. The offset of the pair of legs from the center line 31 and the spacing between the short portions 12 of the pair 11 of legs 10 is such that when the tables are moved into end-to-end relation the short portion of a leg projecting from one table extends between the short portions of the legs projecting from the adjacent end of the other table whereby the legs on the same side of the center line, at the engaged ends of the tables, are substantially parallel as illustrated in FIG. 3.

The tables are each provided with connectors 32 and 33 for holding the tables in ganged relation. It is preferred that each of the tables have a male connector 32 and a female connector 33 at each end with the connectors at one end being arranged in opposed relation to the connectors at the other end whereby when arranged in end-to-end relation the male connector is received in the female connector to hold the tables. In the structure illustrated, the female connector 33 is a generally U-shaped member having a bight 34 with spaced legs 35, said legs 35 being secured to the flange 17 of the bracket 16 adjacent one end thereof by suitable means such as welding. It is preferred that the flange be notched as at 36 and the legs 35 positioned in the notches so the upper portion of the legs will be substantially flush with the top surface 37 of the flange 17. The legs 35 extend outwardly to the respective table edge

and are then turned downwardly slightly to position the bight downwardly from the table top and facilitate connection, as later described.

The male connector 32 is also a U-shaped member having a bight 38 connecting spaced legs 39 with the outer dimension across the legs being slightly less than the spacing between the legs 35 of the female connector 33. The legs 39 are also arranged in notches 40 in the flange 17 and secured by welding whereby said legs 39 extend outwardly of the respective table edge with the outer portion turned downwardly substantially at a right angle to form a depending tongue portion 41 that will extend downwardly below the bight 34 of the female connector in which it is received.

With tables constructed and assembled substantially as described during periods of non-use such tables preferably are stacked for convenient storing. The table structure is such that it is adapted for vertical stacking either with inverted stacking as illustrated in FIGS. 4 and 5 or upright stacking as illustrated in FIG. 6. Also in stacking the tables maybe easily positioned on wheel carts or the like for convenient moving to and from a room in which the tables may be used. In stacking the tables, as for example, inverted stacking, one table is inverted and positioned on a supporting surface. The handles 28 of the next table are then grasped and the table inverted and the table top moved downwardly whereby the table top is between the pairs of legs of the subjacent table and the legs of the table being lowered are between the V of the pair of legs of the subjacent tables. This spacing provided by the members 27 engaging the table top of the next table provides the spacing whereby the legs nest without interference as illustrated in FIGS. 4 and 5. If desired, the storage may be with upright stacking as illustrated in FIG. 6 which is merely opposite of the inverted stacking. When it is desired to use the tables elevated and turned to upright position. The handles also facilitate carrying the tables to the adjacent area in which the respective table is to be positioned. When the tables are moved to a room for use they may be arranged individually or ganged as desired to serve the functional needs as they occur. In ganging the tables one table is moved endwise with the side edges 3 and 4 of one table substantially aligned with the side edges of the next table. The tables are then moved together and the legs of one table at the adjacent ends moved between the legs of the next table at the adjacent end as illustrated in FIG. 3 to permit the end edges 5 and 6 to abut. As they are moved together to effect engagement of the connecting members the far side of one table is raised and the near side of the other table at their adjacent ends is raised. The tables are then moved together and let down whereby the tongues of the male members enter the female members to effect the interlock of the tables. This holds the tables together and the tolerance between the connections is small whereby there can be substantially no relative lateral movement. When it is desired to disconnect the tables the lifting action is the same except the tables are then moved apart, when lifted, to quickly effect the disconnection and the tables can then be moved to stacking and storing position or can be moved and arranged with different combinations for the desired seating of the next event.

It is to be understood that while we have illustrated and described certain forms of our invention it is not to

be limited to the specific form and arrangement of parts herein described and shown.

What We claim and desire to secure by Letters Patent is:

1. A table for vertical stacking and horizontal gang- 5
ing comprising:
 - a. a flat table top having side edges and two parallel end edges;
 - b. leg assemblies mounted on the underside of the table top adjacent each end edge, said leg assemblies each including an elongate rigid mounting member having spaced flanges connected by a web, said mounting members extending substantially parallel to the adjacent end edge of the table top and extending inwardly therefrom with one flange secured to said table top; 15
 - c. two generally L-shaped legs each having a short portion and a long portion with the short portions secured to the web of the mounting members and projecting outwardly of the adjacent table and edge with the long portions diverging downwardly to form inverted V-shaped leg arrangements; 20
 - d. the projecting short portions and the long portions of the leg members being free of attachment and obstructions along their lengths; the projection of said legs being a sufficient distance for the long leg portions to clear a subjacent table top in vertical stacking; 25
 - e. the leg assembly at one end of the table top being offset from the longitudinal center of the table top between the side edges thereof in one direction, the center of the other leg assembly at the other end being correspondingly offset in the opposite direction and said short leg portions being spaced whereby when tables are arranged end-to-end with side edges substantially registering the short portion of one leg of one table extending between the short portions of the leg assembly at the adjacent end of the next table and the long portions of the adjacent legs are generally parallel; 30
 - f. means on the other flange of the mounting members for engaging the top of a subjacent table to space same for nesting of the legs in vertical stacking wherein the long portion of the legs at each end of the table are all substantially in a vertical plane. 35
2. A table as set forth in claim 1 and including:
 - a. a loop member fixed relative said rigid mounting member adjacent each table end with one having a spacing from one side edge corresponding to the spacing of the other from the other side edge, said loop member being generally U-shaped with free ends fixed to the respective rigid mounting member and a bight portion projecting from the adjacent table end edge and inclined downwardly relative thereto; 40
 - b. a hook member fixed relative to the respective mounting members at each table top end with one hook member being laterally spaced from one side edge of the table and the other hook member being spaced laterally from the other side edge of the table, said spacing being such that the hook members are in opposed relation to the loop members of the adjacent table end when the tables are in the end-to-end relation, said hook members being narrower than the loop members and projecting outwardly from the respective table end edge and having downturned portion received in the opposed loop 45

member of the adjacent table to secure the tables in end-to-end relation.

3. A table for vertical stacking and horizontal gang-
ing comprising:
 - a. a flat table top having side edges and two parallel end edges;
 - b. leg assemblies mounted on the underside of the table top adjacent each end edge, said leg assemblies each including an elongate rigid mounting member having spaced flanges connected by a web, said mounting members extending substantially parallel to the adjacent end edge of the table top and extending inwardly therefrom with one flange secured to said table top;
 - c. two generally L-shaped legs each having a short portion and a long portion with the short portions secured to the web of the mounting members and projecting outwardly of the adjacent table and edge with the long portions diverging downwardly to form inverted V-shaped leg arrangements;
 - d. the projecting short portions and the long portions of the leg members being free of attachment and obstructions along their lengths; the projection of said legs being a sufficient distance for the long leg portions to clear a subjacent table top in vertical stacking;
 - e. the leg assembly at one end of the table top being offset from the longitudinal center of the table top between the side edges thereof in one direction, the center of the other leg assembly at the other end being correspondingly offset in the opposite direction and said short leg portions being spaced whereby when tables are arranged end-to-end with side edges substantially registering, the short portion of one leg of one table extending between the short portions of the leg assembly at the adjacent end of the next table and the long portions of the adjacent legs are generally parallel;
 - f. means on the other flange of the mounting members for engaging the top of a subjacent table to space same whereby the legs nest in vertical stacking;
 - g. handle members fixed to the mounting members of the leg assemblies and extending therefrom substantially parallel and spaced from the underside of the respective table top, said handle members being between the said other flanges of the mounting member and said underside of the respective table top.
4. A table for vertical stacking comprising:
 - a. a table top having side edges and two corresponding end edges;
 - b. two leg members at each end of the table top, said leg members each having an upper portion and a long portion depending therefrom;
 - c. means securing the leg upper portions relative to the table top in laterally spaced relation whereby the legs at a table end form a pair, said leg upper portions projecting outwardly of the table top end edges a distance sufficient that the long depending leg portions are spaced outwardly from the respective end edges, the projection of said legs being a sufficient distance for the long depending leg portions to clear a subjacent table top in vertical stacking, said securing means including:
 1. an elongate rigid mounting member;

- 2. means securing the mounting member to the table top on the underside thereof near to and spaced inwardly from each end edge of the table top, said upper leg portions of a pair of legs being fixed to a respective mounting member; 5
- d. said pair of legs at one end being offset laterally relative to the other pair of legs whereby when tables are in end-to-end relation one of a pair of legs on one table extends between a pair of legs on the adjacent end of the next table; 10
- e. said leg portions projecting from the respective end edge of the table top are free of attachment and obstructions along their lengths;
- f. each pair of legs have the long depending portions thereof diverging downwardly forming a generally inverted V-shaped leg arrangement; 15
- b. spacer means depending from a table top and engaging the top of a subjacent table to space same whereby the legs nest in vertical stacking;
- h. said spacer means being on the mounting members; 20
- i. rigid handle members fixed to the mounting members and extending therefrom toward the other mounting member whereby the handle members are between the respective table top and subjacent table top when the tables are in vertical stacked relation; 25
- j. said elongate mounting members are shapes having spaced flanges connected by a web with one of the flanges being secured to the under side of the table top and the other flange having said spacer means thereon; 30
- k. said short leg portions having ends secured to said web portions;
- l. said handle members being U-shaped with free ends secured to the web and other flange adjacent ends of said mounting member. 35
- 5. A table for vertical stacking and horizontal gang-ing comprising:
 - a. a table top having side edges and two correspond- 40 ing end edges;
 - b. two leg members at each end of the table top, said leg members each being generally L-shaped with a short portion and a long portion;
 - c. means securing the short leg portions relative to 45 the table top in laterally spaced relation whereby

50

55

60

65

- the legs at a table end form a pair, said short leg portions projecting outwardly from the respective end edges, said long leg portions at each end diverging downwardly forming a generally inverted V-shaped leg arrangement, the projection of said legs being a sufficient distance for the long leg portions to clear a subjacent table top in vertical stacking;
- d. said pair of legs at one end being offset laterally relative to the longitudinal center of the table top between the side edges and the other pair of legs whereby when tables are in end-to-end relation one of the short portions of a pair of legs on one table extends between the short portions of a pair of legs on the adjacent end of the next table and the long portions of adjacent legs are generally parallel;
- e. opposed connecting means at said adjacent table ends having cooperative engagement to hold the tables in end-to-end relation, said connecting means at adjacent table ends including:
 - 1. a male and female connector at each table end with each spaced laterally outwardly from the short portions of the respective pair of legs at said end, said connectors being in opposed relation on the respective table ends whereby the female connector of one table receives the male member of the adjacent table end when the tables are in end-to-end relation;
 - 2. said male connectors being hook members with a hook member fixed relative to the table top at each end and laterally spaced from the adjacent leg, the hook member at one end being spaced toward one side edge and the hook member at the other end being spaced toward the other side edge from the respective adjacent leg;
 - 3. said female connectors being loop members with a loop member fixed relative to the table top at each end with a spacing from the side edges whereby each is in opposed relation to a hook member at the other end of said table top, said loop member being adapted to receive a hook member whereby when tables are in end-to-end relation hook members of adjacent edges are received by the loop members to secure the tables in end-to-end relation.

* * * * *