Oct. 18, 1966 R. S. CURRA, JR 3,279,131

GYMNASIUM STAND

Filed March 9, 1964 4 Sheets-Sheet 1

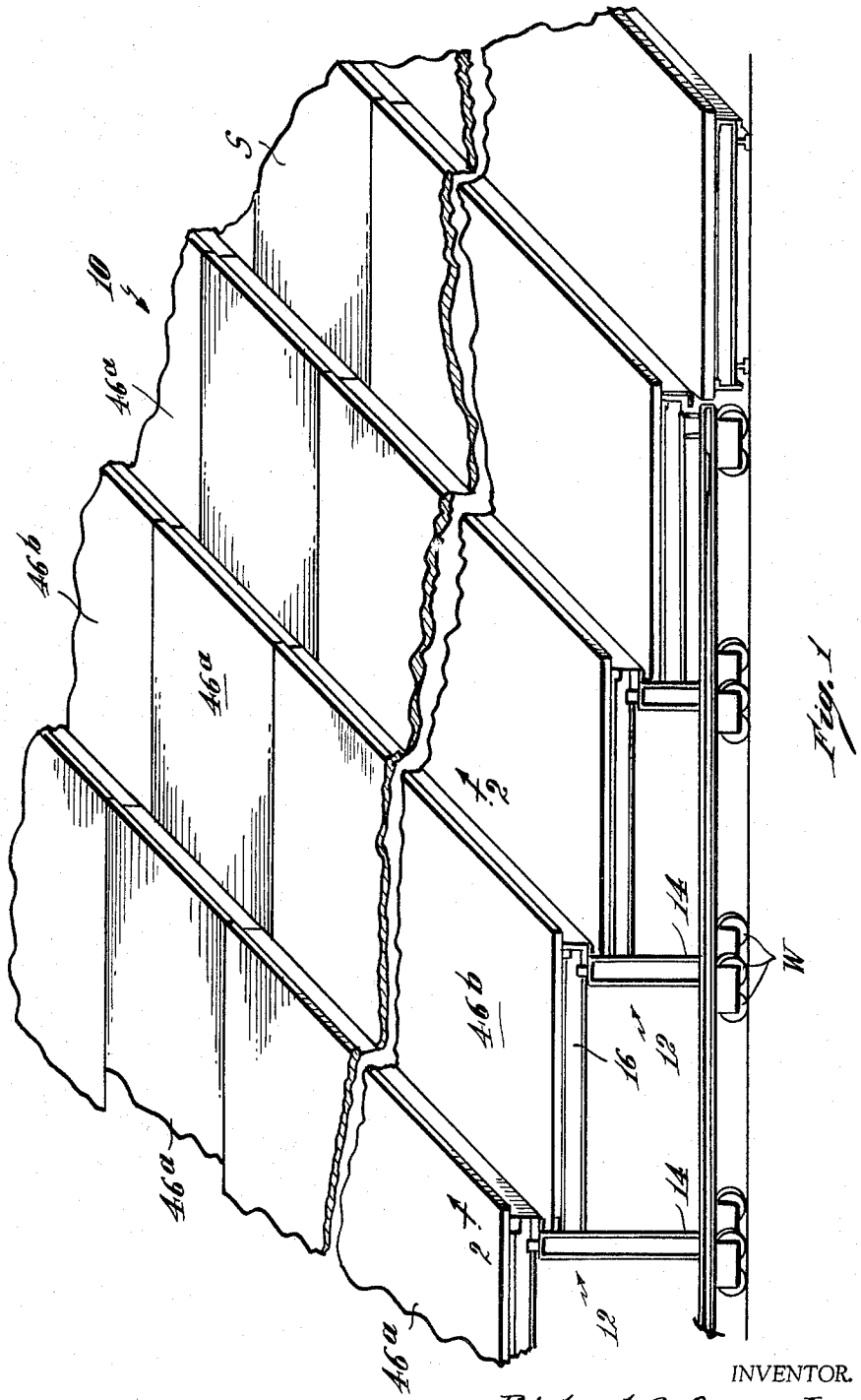


Fig. 1

INVENTOR.
Richard S. Curra, Jr.
BY
Roberts, Cushman & Grover

Oct. 18, 1966 R. S. CURRA, JR 3,279,131

GYMNASIUM STAND

Filed March 9, 1964 4 Sheets-Sheet 2

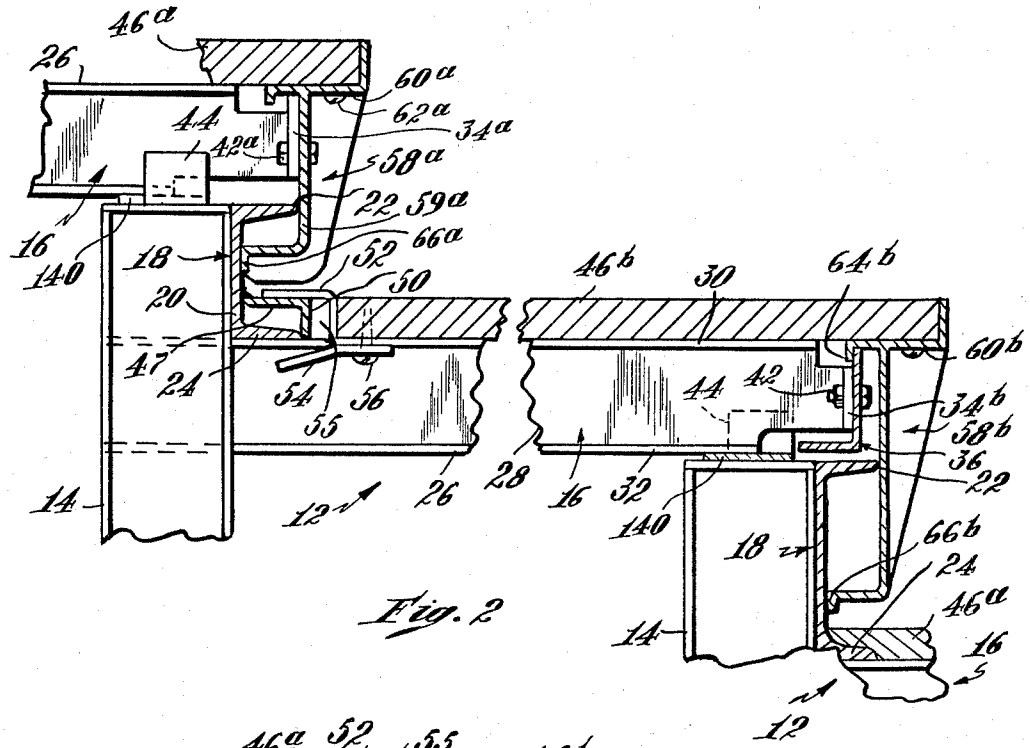


Fig. 2

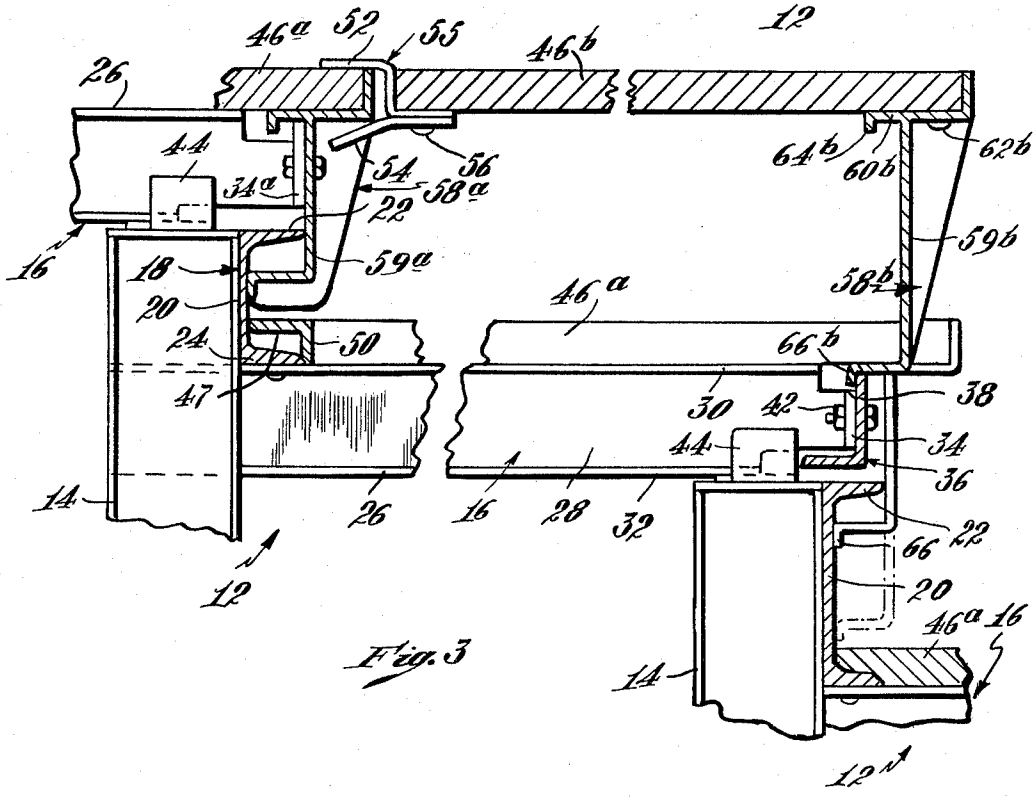


Fig. 3

Oct. 18, 1966 R. S. CURRA, JR 3,279,131

GYMNASIUM STAND

Filed March 9, 1964 4 Sheets-Sheet 3

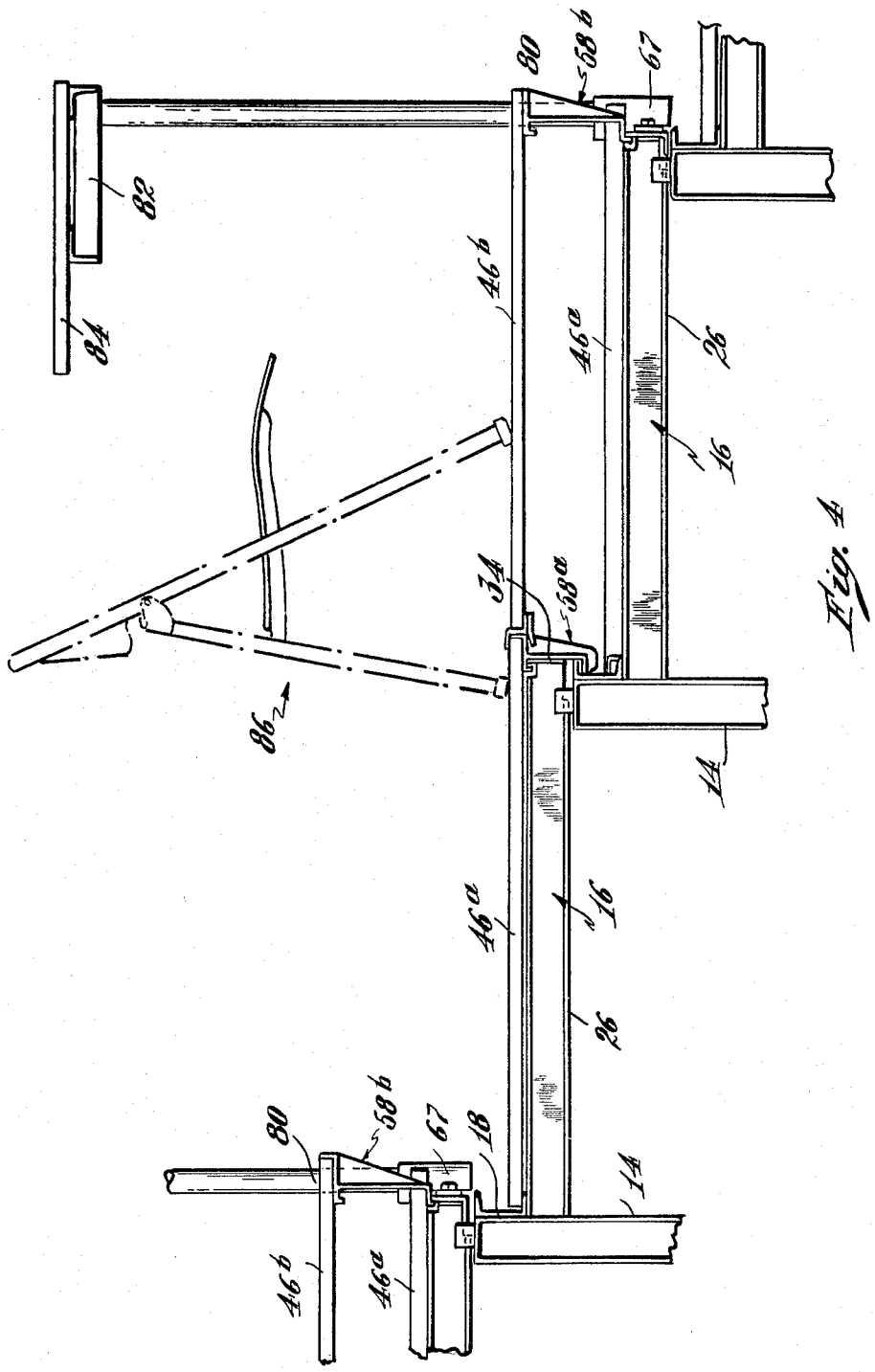


Fig. 4

Oct. 18, 1966 R. S. CURRA, JR 3,279,131

GYMNASIUM STAND

Filed March 9, 1964 4 Sheets-Sheet 4

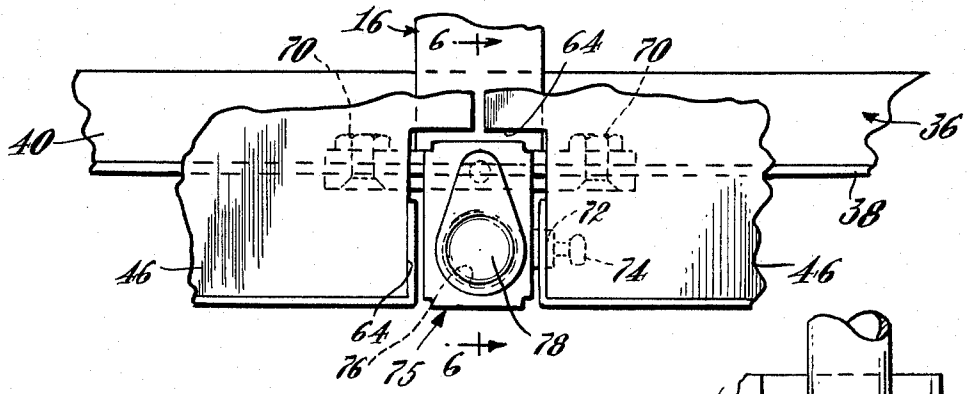


Fig. 5

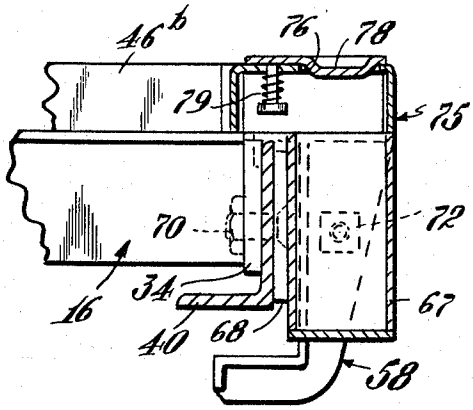


Fig. 6

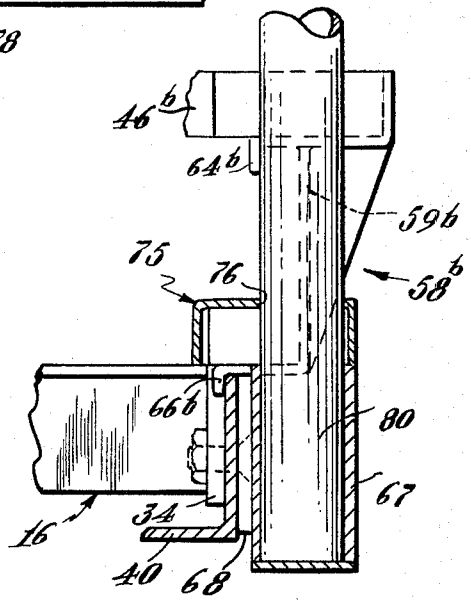


Fig. 7

United States Patent Office 3,279,131 Patented Oct. 18, 1966

3,279,131

GYMNASIUM STAND

Richard S. Curra, Jr., North Berwick, Maine, assignor to Hussey Manufacturing Company, Inc., North Berwick, Maine, a corporation of Maine

Filed Mar. 9, 1964, Ser. No. 350,369
15 Claims. (Cl. 52—36)

This invention relates to stands having a plurality of interconnected supporting structures which telescope into subjacent relation to each other for storage and are extendible into stepped relation for use. Stands of the foregoing kind are often used in auditoriums, halls, gymnasiums, and the like, for seating spectators attending athletic contests, cultural gatherings, rallies, and the like. Not infrequently a banquet is provided as part of the function and the principal objects of this invention are to provide a stand of the foregoing kind which can be converted to permit setting up tables and chairs, for seating of those attending the function, in stepped relation from the back and sides of the hall toward the front so as to enable all to view the activities; to provide ample room for access and departure to and from the tables and for the serving of the tables; to provide for ease in conversion from one form to the other; and to provide for conversion without in any way lessening the safety of the stand. It is to be understood that the tables can be used for other than banquet purposes without departing from the spirit of the invention.

The stand comprises telescoping supporting structures supporting platforms and, in accordance with this invention, the platforms on alternate supporting structures are removable and repositionable thereon substantially at the level of the platforms rearwardly thereof to provide composite platforms of twice the width of the single platforms. Each supporting structure comprises upright supporting legs and cantilever-supported frames mounted thereon. The forward ends of the cantilever-supported frames overlie the upper ends of the legs of the supporting structures forwardly thereof and the latter provide support for the cantilever-supported frames when they are loaded.

The fixed platforms are secured at their rear and forward sides to their supporting frame whereas the removable platforms have first means at the rear sides and vertically spaced second means at the forward sides, said first means and the upper one of the second means being collectively operable, by engagement with the rear and forward supports, to hold the removable platforms intermediate the platforms rearwardly and forwardly thereof, and said first means and the lower one of the second means being collectively operable, by engagement of the first means with the forward edge of the platforms rearwardly thereof and by engagement of the lower of the second means wih the forward shoulder, to hold the removable platforms at the level of the platforms rearwardly thereof. The first means are in the form of channel members secured to the rear sides of the platforms which are engageable with shoulders at the rear sides of the supporting structures. The second means are vertically spaced, hook-shaped flanges alternately engageable with shoulders at the forward sides of the frames. There are socket members secured to the forward sides of the supporting frames on which the removable platforms are mounted for receiving the lower ends of legs which may be inserted into the socket members when the removable platforms are elevated to provide supports for tableboards.

The invention will now be described in greater detail with reference to the accompanying drawings wherein:

FIG. 1 is a fragmentary perspective of the stand with the successive supporting platforms extended in stepped relation to each other;

FIG. 2 is an elevation, partly in section, taken on the line 2—2 of FIG. 1, perpendicular to the supporting platforms, showing a position for use as a bleacher in which each supporting platform is adapted to support a row of seats or chairs;

FIG. 3 is a corresponding vertical section showing a removable supporting platform of one supporting structure repositioned to bring it to substantially the same level as the supporting platform of the platforms rearwardly thereof, and beyond it a fixed platform forming one of the steps providing access to the stand;

FIG. 4 is an elevation showing the relation of the raised supporting platform to the supporting platform rearwardly thereof, with a table mounted at the forward edge of the raised platform and in outline a chair on the combined platforms behind the table;

FIG. 5 is a plan view of a fragmentary portion of the raised supporting platforms showing a socket member for supporting the leg of a table such as shown in FIG. 4;

FIG. 6 is a vertical section taken on the line 6—6 of FIG. 5; and

FIG. 7 is an elevation similar to FIG. 6, showing the front supporting platform elevated and the lower part of the table leg inserted in the socket.

Referring to the drawings, each stand **10**, of which there may be several placed end-to-end, is comprised of a plurality of supporting structures **12** interconnected for telescoping movement relative to each other to permit storage against the wall or extension for use. Each supporting structure comprises supporting legs **14** and supporting frames **16**. The legs **14** have at their lower ends wheels W to facilitate extending and telescoping of the structures.

The supporting frames **16** are mounted at the upper ends of the legs **14** and are comprised of horizontally disposed channel beams **18** (FIGS. 2 and 3) secured by their webs **20** to the forward sides of the legs with their flanges **22** and **24** projecting horizontally forward therefrom. Welding or bolting is suitable for fastening the channel beams **18** to the legs. Channel beams **26** are fastened at their rear ends to the legs below the channel beams **18** so as to extend horizontally forward therefrom and these beams are distributed at uniformly spaced intervals lengthwise of the stand to provide the necessary strength, rigidity and support required. The beams **26** have vertically disposed webs **28** and horizontally disposed flanges **30** and **32**. The flanges **30** and **32** and portions of the webs **28** therebetween are cut away and face plates are attached by welding to the reduced end portions of the beams for a purpose which will appear hereinafter. The lower flanges **32** of the beams **26** rest on bearing plates **140** on the upper ends of the legs **14** and are slidably constrained thereon by spaced guide members **44—44** at opposite sides of the bearing plate **140**. The supporting frames **16** are adapted to support platforms and at suitable intervals lengthwise of the stand the platforms forming a single row of platforms extending from the top of the stand to the bottom are fixed on their supporting frames to provide aisles S (FIG. 1) in the form of stairs affording access to the stand. Between the aisles or stairs all of the platforms along one row lengthwise of the stand are fixed on their supporting frames and all of the platforms along the next row are removably mounted on their supporting frames so that throughout the stand there are alternate and intermediate rows of fixed and removable platforms which are designated *46a* and *46b* respectively. Whether the removable platforms are designated as alternate or intermediate makes no difference as long as the structure is made up in such fashion that the rows rearwardly and forwardly of a row of fixed platforms are removable.

The fixed platforms 46*a* which include the platforms forming the stairs or aisles are secured at their rear sides by screw bolts to the flanges 24 of the beams 18 and are secured at their forward sides by bracket beams 58*a*. The bracket beams 58*a* have vertical leg portions 59*a* which are attached by bolts 42*a* to the face plates 34*a* welded to the forward ends of the beams 26, horizontal shelf portions 60*a* at the upper ends of their leg portions which receive the forward sides of the platforms 46*a* and are secured thereto by screw bolts 62*a*, and flanges 66*a* at the lower ends of their leg portions bearing against the forward sides of the beams 18 of supporting structures situated below the beams.

The removable platforms 46*b* are preferably made of such length as to enable handling them, that is, lifting the individual sections without mechanical assistance. These removable platforms 46*b*, as shown in FIGS. 2 and 3, are supported in position on their supporting frames at their rear and front sides so as to permit dismounting the platforms but in such a manner as to prevent accidental dislodgement by any shifting of the weight of the occupants. To this end angle members 47 are welded to the beams 18 so as to provide, in conjunction with the flanges 24, forwardly projecting, horizontal shoulders 50 and members 52 and 54 secured to the rear sides of the platforms 46*b* by screw bolts 56 to provide channels 55 telescopically engageable with the shoulders 50 to prevent either upward or downward movement of the platforms. The members 54 are bent downwardly at small angles to the members 52 to assist in engaging the channels with the shoulders. The platforms 46*b* extend forwardly beyond the forward sides of their supporting frames where they are supported by bracket beams 58*b*. The bracket beams 58*b* have vertical leg portions 59*b*, horizontal shelf portions 60*b* and vertically spaced flange portions 64*b* and 66*b*, the flange portions 64*b* being formed at the rear edges of the shelf portions 60*b* and the flange portions 66*b* being formed at the lower ends of the leg portions 59*b*. The bracket beams 58*b* support the forward side of the platform 46*b* by engagement of their upper flanges 64*b* with the upper edges of beams 36 which are fastened lengthwise of the stand to the face plates 34*b* at the forward ends of the beams 26. The hook-shaped flanges 64*b*, by engagement with the rear sides of the beams 36, in cooperation with the flanges 66*b* which bear against the front sides of the beams 18 of the supporting structure forwardly thereof, lock the platforms 46*b* against movement forwardly and rearwardly. The channels 55 at the rear sides prevent movement of the platforms up or down.

As herein illustrated, the platforms are flat sections of plywood of suitable thickness, however it is to be understood that they may be made of other materials without departing from the spirit of the invention.

The demountable platforms 46*b* provide for converting the stand from ordinary gymnasium seating for use for setting up tables and chairs suitable for banquets or other purposes. This is achieved by lifting the front sides of the removable platforms 46*b* to disengage the flanges 64*b* from the upper edges of the beams 36, pulling the platforms forwardly to disengage the channels 55 at their rear sides from the shoulders 50 on the beams 18, lifting the platforms from the positions shown in FIG. 2 to the positions shown in FIG. 3, and securing them in place by engagement of the channels 55 at their rear sides with the forward edges of the fixed platforms 46*a* rearwardly thereof and repositioning of the lower flanges 66*b* so as to rest on the upper edges of the beams 36. The leg portions 59*b* are of greater length than the leg portions 59*a* and in order to raise the forward sides of the removable platforms 46*b* to the same horizontal level as the fixed platform 46*a*, they must correspond in length to the vertical distance between the frames supporting the removable platforms and the frames supporting the fixed platforms rearwardly thereof.

The platforms 46*b* where they meet, as shown in FIG. 5 and at other conveniently spaced intervals, contain substantially rectangular openings 64. A socket member 67 (FIGS. 6 and 7), welded to a plate 68, is mounted within each opening 64 and secured to the beam 36 by bolts 70. One side of each socket (FIGS. 5 and 6) contains a threaded opening 72 and a thumb screw 74. A housing 75 is secured within each opening 64 above the socket with a sufficient clearance to permit normal expansion of the plywood of which the platform is comprised. The top of the housing is flush with the top of the platform and contains a hole 76 corresponding in diameter to the hole in the socket. A cover plate 78 is pivotally secured to the top of the housing over each hole to close it while it is not in use and a spring-biased pivot pin 79 holds the cover plate 78 in place.

Each socket member 67 is adapted to receive the lower end of a table leg 80 (FIGS. 4 and 7) to hold the latter in upright, substantially perpendicular position adjacent the front side of the elevated platform. At the upper end of each leg there is fixed a horizontal arm 82 and tableboards 84 of suitable width and length are mounted crosswise of the arm 82.

As thus supported, there is ample room between the tables at the front sides of the combined platforms of two successive supporting structures to receive a row of chairs; to enable guests to obtain access to their places and leave the same without difficulty; and to afford room for waitresses, bus boys, and the like, to serve those seated at the table.

Although the provision of the replaceable platforms is described herein with reference to a stand of the kind which has parts which may be telescoped against a wall for storage, the replaceable platforms are equally useful with stands of the fixed type.

It should be understood that the present disclosure is for the purpose of illustration only and that this invention includes all modifications and equivalents which fall within the scope of the appended claims.

I claim:

1. The combination with a stand comprised of a plurality of interconnected supporting structures arranged to support rows of platforms in parallel stepped relation; of means at the rear and forward sides of the platforms of alternate rows of platforms disengageable from their supporting structures and repositionable to support the platforms in said alternate rows substantially at the level of the platforms in the rows of platforms rearwardly thereof.

2. A stand according to claim 1, characterized in that all of the platforms in the intermediate rows are fixed, that there are groups of removable platforms with fixed platforms interposed between said groups in the alternate rows of platforms, and that the fixed platforms in the alternate rows, in combination with the fixed platforms in the intermediate rows rearwardly and forwardly thereof, form steps affording access to the stand.

3. A stand according to claim 1, wherein the repositioned platforms, in combination with the fixed platforms rearwardly thereof, provide horizontal supporting surfaces lengthwise of the stand substantially twice the width from front to back of single rows of platforms.

4. The combination with a stand comprised of a pluraliy of interconnected supporting structures arranged to support rows of platforms in parallel stepped relation, platforms mounted on the supporting structures, and means removably supporting the platforms in alternate rows of platforms comprising supports at the rear and forward sides of the alternate supporting structures, means at the rear side of each removable platform alternately engageable with the support at the rear side of the alternate supporting structure and the forward side of the platform in the row of platforms rearwardly thereof, and vertically spaced means at the forward side of each removabe platform alternately engageable with the support at the forward side of the alternate supporting structure, said means at the rear side of each removable platform,

in combination with the upper one of the vertically spaced means at the forward side of each platform, being operative to hold the removable platform on the alternate supporting structure intermediate the rows of platforms rearwardly and forwardly thereof, and said means at the rear of each removable platform, in combination with the lower one of the vertically spaced means at the forward side, being operative to hold the removable platform at the level of the row of platforms rearwardly thereof.

5. The combination with a stand comprised of a plurality of interconnected supporting structures arranged to support rows of platforms in parallel stepped relation, platforms mounted on the supporting structures, and means removably securing the platforms to the intermediate supporting structures, said means comprising bearing parts at the rear and front sides of the intermediate structures, a channel member at the rear side of each removable platform alternately engageable with the bearing part at the rear of the intermediate structure and the forward side of the platform in the row of platforms rearwardly thereof, and vertically spaced bracket parts at the forward side of each removable platform alternately engageable with said intermediate supporting structure, the vertical distance between said bracket parts corresponding to the distance between said intermediate supporting structure and the supporting structure rearwardly thereof.

6. The combination with a stand comprised of a plurality of interconnected supporting structures arranged to support rows of platforms in parallel stepped relation; platforms fixed to the alternate ones of the supporting structures, the intermediate supporting structures having at their rear and forward sides shoulders, and a removable platform mounted on each of the intermediate supporting structures, each platform having along its rear side a channel-shaped member interengaged with said rear shoulder and a bracket at its forward side having vertically spaced flanges, the upper one of which rests on said forward shoulder, said channel-shaped member and said upper flange being collectively operable to hold the platform on its supporting structure in a substantially horizontal position at a level intermediate the platform rearwardly and forwardly thereof, and said channel-shaped member and said lower flange being collectively operable, by removal of the platform and interengagement of said channel-shaped member with the forward side of the platform rearwardly thereof and said lower flange with said forward shoulder, to hold the removable platform substantially at the level of the platform rearwardly thereof.

7. The combination with a stand comprised of a plurality of interconnected supporting structures arranged to support rows of platforms in parallel stepped relation; platforms fixed to the alternate ones of the supporting structures, the intermediate supporting structures having forwardly and rearwardly disposed shoulders, and a removable platform mounted on said shoulders, each removable platform having along its rear side a channel-shaped member interengaged with said rear shoulder and a bracket at its forward side having vertically spaced flanges, the upper one of which rests on said forward shoulder, said channel-shaped member and said upper flange being collectively operative to support the platform on said shoulders in a substantially horizontal position at a level intermediate the platforms rearwardly and forwardly thereof, and said channel-shaped member and said lower flange being collectively operative, by removal of the platform and interengagement of said channel-shaped member with the forward side of the platform rearwardly thereof and said lower flange with said forward shoulder, to hold the removable platform substantially at the level of the platform rearwardly thereof.

8. The combination with a stand comprised of a plurality of interconnected supporting structures arranged to support rows of platforms in stepped relation, the platforms in alternate rows of platforms being removable and repositionable at the level of the

platforms rearwardly thereof, and means providing for such repositioning comprising shoulders along the front and rear sides of the alternate supporting structures, U-shaped means along the rear sides of the removable platforms engageable with said rear shoulders, and brackets along the front sides of the platforms having vertically spaced upper and lower flanges, said U-shaped means and said upper flanges of said brackets collectively supporting the platforms in substantially horizontal positions intermediate the platforms rearwardly thereof and the platforms forwardly thereof, and said U-shaped means being removable from said rear shoulders and engageable with the forward sides of the platforms rearwardly thereof and said lower flanges of said brackets being engageable with the forward shoulders to hold the front sides of the repositioned platforms above their supporting structures substantially at the level of the platforms rearwardly thereof.

9. The combination with a stand comprised of a plurality of interconnected supporting structures arranged to support rows of platforms in stepped relation; each supporting structure comprising spaced parallel, longitudinally extending, horizontally disposed beams, longitudinally spaced, parallel beams secured at their opposite ends between said longitudinally extending beams, said supporting structures being arranged so that when extended the longitudinally extending beams at the forward side of each supporting structure are situated above the longitudinally extending beams at the rear side of the supporting structure forwardly thereof, platforms on the supporting structure, the platforms in alternate rows of platforms being removable and repositionable at the level of the platforms rearwardly thereof, and means providing for such repositioning comprising bearing shoulders at the rear and forward sides of the alternate supporting structures, U-shaped elements secured to the rear sides of the removable platforms disengageable from said rear shoulders, and brackets secured to the front sides of the removable platforms having vertically spaced, downwardly directed upper and lower hook-like flanges, the upper flanges being disengageable from said forward shoulders, said U-shaped elements and said upper flanges being operative to hold the removable platforms in substantially horizontal positions intermediate the platforms rearwardly and forwardly thereof, and said U-shaped elements and said lower flanges being engageable, respectively, with the front sides of the platforms rearwardly thereof and said forward shoulders of the supporting structures to hold the removable platforms substantially at the level of the platforms rearwardly thereof.

10. The combination with a stand comprised of a plurality of interconnected supporting structures arranged to support rows of platforms in stepped relation, each supporting structure including upright supporting legs and horizontal cantilever-mounted supporting frames extending forwardly from the upper ends of the legs, said supporting frames comprising longitudinally extending beams secured to the legs adjacent their upper ends, longitudinally spaced, forwardly extending beams secured at their rear ends to the legs below the longitudinally extending beams, and longitudinally extending beams secured to the front ends of the forwardly extending beams, said forwardly extending beams overlying the upper ends of the legs of the adjacent supporting structure forwardly thereof and said legs providing support for the forward ends of the frames when loaded; platforms permanently secured to alternate ones of the frames, shoulders at the rear and forward sides of the intermediate frames, removable platforms disposed on each intermediate frame parallel to and intermediate the fixed platforms rearwardly and forwardly thereof, and means removably mounting said removable platforms on said intermediate frames, said means preventing displacement of the rear sides of the removable platforms upwardly or downwardly and displacement of the forward sides of the platforms for-

wardly or rearwardly, said means being adapted, by engagement with the front sides of the platforms rearwardly thereof and repositioning on said forward shoulders, to support the removable platforms substantially at the level of the fixed platforms rearwardly thereof.

11. The combination with a stand comprised of a plurality of interconnected supporting structures arranged to support a plurality of platforms in telescoping subjacent relation for storage and extended in stepped relation for use, each supporting structure including upright supporting legs and horizontal, cantilever-mounted supporting frames extending forwardly from the upper ends of the legs, the forward sides of the supporting frames being situated adjacent the upper ends of the legs of the supporting structures forwardly thereof and bearing on said upper ends of the legs of the adjacent supporting structure forwardly thereof when loaded, platforms mounted on the cantilever-mounted frames, said platforms extending from the legs at the rear sides of the frames forwardly beyond the front sides of the frames, shoulders at the rear and forward sides of the alternate frames, means on the rear and forward sides of the removable platforms removably securing them to said shoulders, said means comprising channel-shaped members secured to the rear sides engageable with the shoulders and brackets secured to the forward sides beyond the forward sides of the frames having vertically spaced flanges, the upper ones of which are engageable with the forward shoulders when the channel-shaped members are engaged with the rear shoulders, and the lower ones of which are engaged with the forward sides of the legs of the supporting structures forwardly thereof, said channel-shaped means being adapted, by repositioning of the platforms, to be engaged with the forward sides of the platforms rearwardly thereof, and said lower flanges being adapted, when the platform is so repositioned by engagement with the forward shoulders, to support the forward sides of the platforms substantially at the level of the platforms rearwardly thereof.

12. The combination according to claim **1**, comprising means secured to alternate supporting structures for receiving and holding legs in upright position along the forward sides of said alternate supporting structures, legs supported by said means, tableboards, and means at the upper ends of the legs for supporting the tableboards thereof.

13. The combination according to claim **1**, comprising socket members secured at suitably spaced intervals along the front sides of the alternate supporting structures, legs mounted in said sockets, arms secured to the upper ends of the legs, and tableboards mounted across said arms.

14. The combination according to claim **1**, wherein the platforms on alternate supporting structures contain openings at their forward sides spaced lengthwise of the stand comprising socket members fastened to the front sides of the supporting structures within said openings for receiving legs, housing members secured to the supporting structures above the socket members having side walls coinciding with the sides of the openings substantially completely filling the openings, and top walls flush with the tops of the platforms, when the latter occupy their normal positions, containing holes through them corresponding in size to the legs to be thrust into the sockets.

15. The combination according to claim **1**, wherein the platforms on the alternate supporting structures contain openings at their forward sides spaced lengthwise thereof, comprising socket members fastened to the front sides of the supporting structures within said openings for receiving legs, housing members secured to the supporting structures above the socket members having side walls coinciding with the sides of the openings substantially completely filling the openings, top walls flush with the tops of the platforms, when the latter occupy their normal positions, containing holes corresponding in size to the legs to be thrust into the sockets, and cover members pivotally supported on said top walls positionable within said holes to cover the same when not in use.

References Cited by the Examiner

UNITED STATES PATENTS

1,895,283 1/1933 Friedemann ---------- 108—96

OTHER REFERENCES

Popular Mechanics, page 133, October 1951.

FRANK L. ABBOTT, *Primary Examiner.*

J. E. MURTAGH, *Assistant Examiner.*