Nov. 11, 1958 C. MACKINTOSH 2,859,488

STANDS

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FIG. 1.

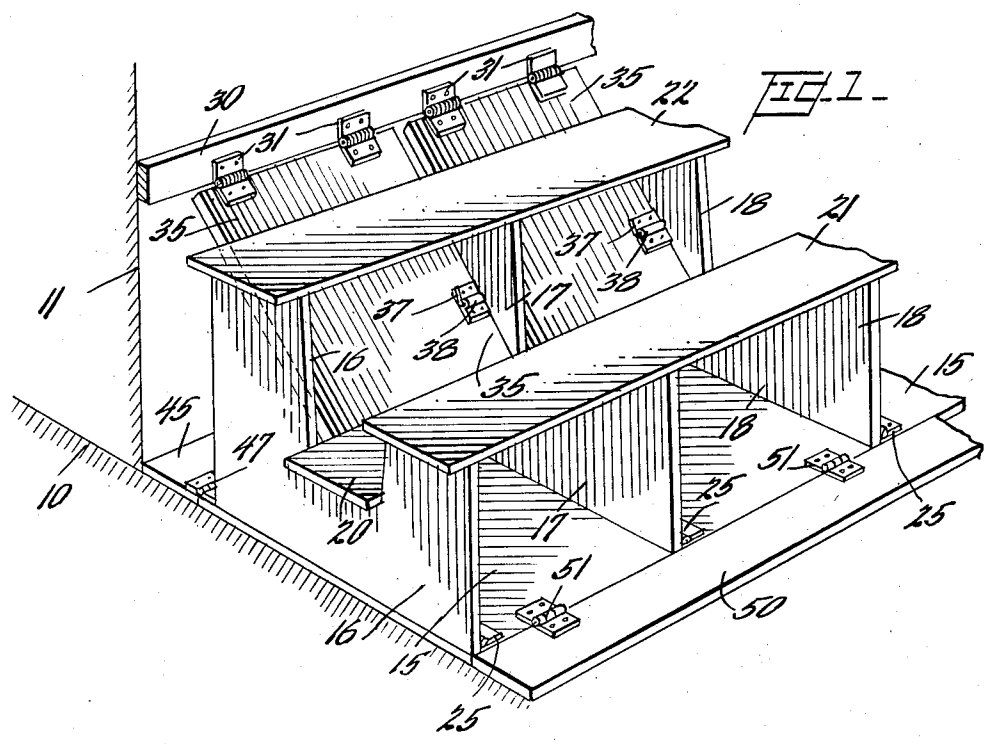


FIG. 2.

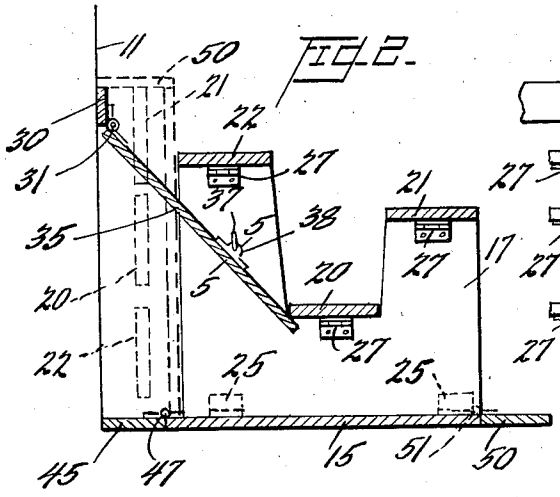
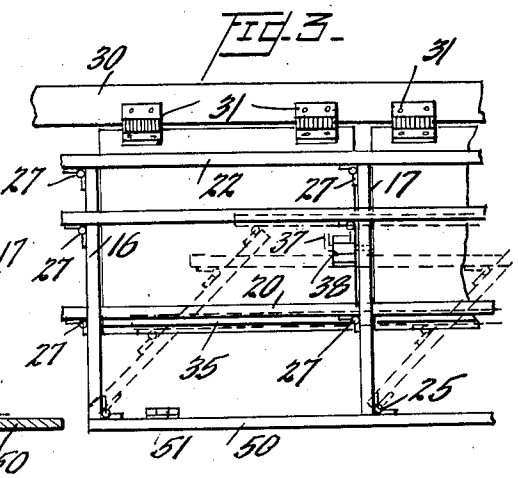


FIG. 3.



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FIG. 4.

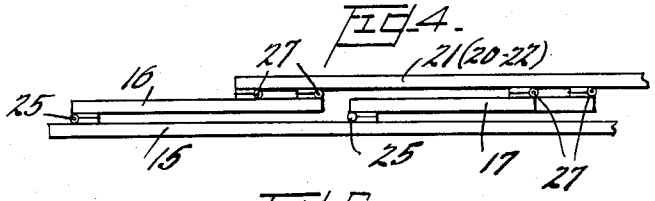


FIG. 5.

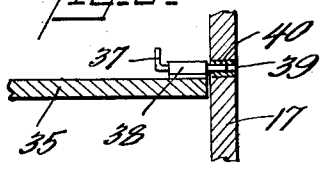


FIG. 7.

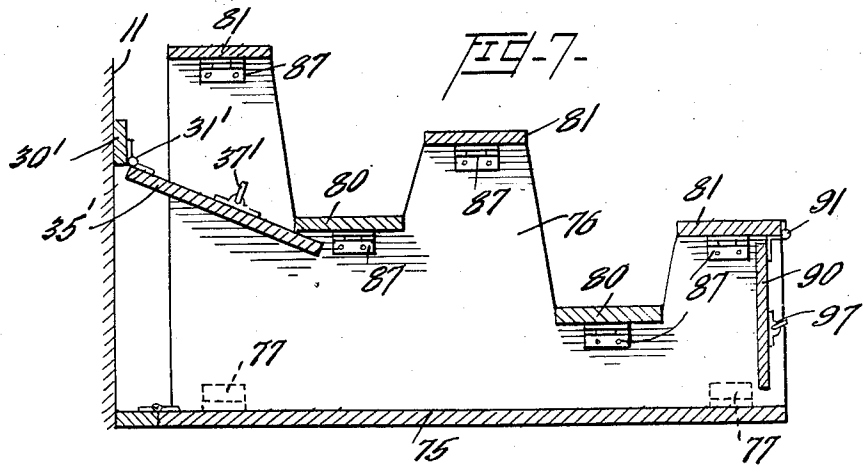
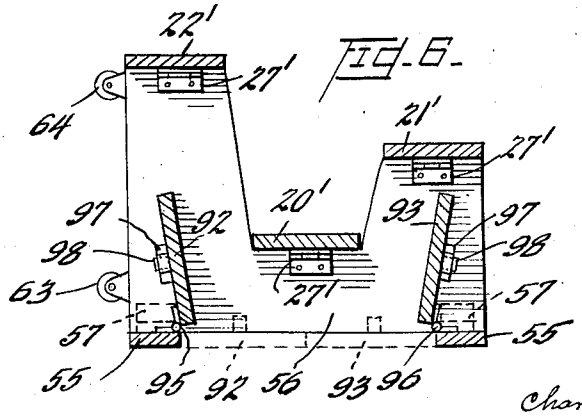


FIG. 6.



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STANDS

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6 Claims. (Cl. 20—1.126)

This invention relates to stands and more particularly to collapsible stands useful for the accommodation of spectators or participants in recitals, sporting events or like activities of schools, churches, lodges, and other organizations.

The general object of the invention is to provide a novel and improved collapsible stand which is of simple construction and easy and economical of manufacture and installation, and which is sturdy and safe in use. Although the novel stand can be produced at a very low cost, it can be made to conform esthetically to the enclosure in which it is installed and also collapsed and stowed in a very small space and in a condition exposing only a minimum surface to the observer and that surface conforming very inconspicously to the adjacent building structure.

Another object of the invention is the provision in connection with a stand of this type of novel and improved locking features preventing the inadvertent collapse of the stand when in use, these features being more sturdy and reliable than simple cross bracing employed in some prior practices.

A further object of the invention is to provide a collapsible stand of this type which, when folded, assumes the appearance of wainscoting applied to the wall of the room or other enclosure in which the stand is located.

Other objects and features of novelty will be apparent from the following specification when read in connection with the accompanying drawings in which certain embodiments of the invention are illustrated by way of example.

In the drawings:

Figure 1 is a somewhat diagrammatic view in perspective of a stand embodying the principles of the invention;

Figure 2 is a vertical sectional view through the stand from front to rear;

Figure 3 is a fragmentary view in front elevation of the stand;

Figure 4 is a fragmentary view in front elevation of the stand proper in collapsed position;

Figure 5 is a detail view in section taken on line 5—5 of Figure 2;

Figure 6 is a vertical sectional view similar to Figure 2 showing a modified form of the stand which is disassociated from the wall of the enclosure; and

Figure 7 is another embodiment of the invention in which some of the features of both of the preceding embodiments are adopted.

In connection with the embodiment shown in Figures 1–5 of the drawings, the floor of the room, which may be a hall, gymnasium or other enclosure, is indicated by the reference numeral 10 and one of the walls of the enclosure is designated by the reference numeral 11.

The stand proper in this suggestive illustration comprises essentially a bottom panel 15 and a plurality of upright frames 16, 17 and 18. The extent of the panel 15 and the number of uprights can, of course, be chosen according to the purposes and space requirements of the stand and may vary widely; and the rather short stand illustrated for exemplary purposes is to be considered as only suggestive and not in any sense of limitation.

It will be noted that the upright frames 16, etc. are of irregular configuration, the successive fore-and-aft portions of the frames being of different heights, the intermediate portion being the lowest and serving to support a footboard 20. The forward portion of the uprights supports the front row seatboard 21 and the rearward portions of the uprights serve to support the second row seatboard 22 at a higher level than either the front seat or the footboard.

In order to properly collapse to a flat position, each of the uprights 16, etc. is pivoted to the baseboard 15 as by means of the hinges 25. The footboard 20 and the seatboards 21 and 22 are all hinged to the several uprights as by means of the hinges 27 which are disposed upon the opposite sides of the uprights from the hinges 25. With this arrangement it will be readily seen how the stand proper, consisting of the baseboard 15, the uprights 16, 17 and 18, and the horizontal supporting boards 20, 21 and 22, may be collapsed to a rather flat assemblage of very inconsiderable thickness, all as clearly shown in Figure 4 of the drawings.

An ingenious way of locking the stand in extended supporting position is provided by the present invention, and in this particular embodiment comprises a structure which is secured against the wall 11 at a height approximating the fore-and-aft dimension of the baseboard 15. This wall-supported structure comprises the rail or strip 30 secured to the wall in any suitable or conventional manner, and pivoted to this rail, as by means of the hinges 31, are one or more locking panels 35, these panels depending from the rail 30 and preferably urged forwardly away from the wall by means of springs included in the hinge structures 31. The locking panels 35 are of widths approximating very closely the distances between the panels 16 and 17, 17 and 18, etc. Thus when the stand is in erected position as shown in Figure 1 the spring-urged locking panels 35 swing forwardly, each between two adjacent pairs of uprights. One convenient angular position of the locking panels 35 is that shown in the drawings and best exemplified in Figure 2 where the lower portion of the locking panel 35 abuts the rear lower corner of the footboard 20, although other positions of the locking panels will serve as effectively to lock the stand in open erected position for occupany.

In order to prevent displacement of the locking panels 35 during occupancy, latching means are provided for securing the locking panels 35 to one or more of the respective uprights 16, 17, 18. These latching devices may include the simple bolts 37 which may be slidably carried by the brackets 38 secured to the panels 35, the operative ends of the bolts entering openings 39 in the uprights, these openings being provided with bushings 40 if desired.

In order to ensure the proper normal spacing of the stand proper from the wall 11, and also to provide hinged support for the stand a base runner strip 45 may be secured to the floor 10 adjacent the wall, this runner strip being of approximately the width or thickness of the folded stand. The base panel 15 of the stand has its rearward edge hinged to the runner strip 45 as at 47.

At the forward edge of the base panel 15 there is hinged a narrow cover strip 50, as at 51, this cover strip lying flat against the floor when the stand is open for use.

The stand is readily collapsed and stowed in inconspicuous condition by pursuing the following steps. The bolts 37 are unlatched and the locking panels 35 swung downwardly against the wall 11 against the spring urging of the hinges 31. Then the stand proper is collapsed by swinging the uprights, 16, 17, 18 toward the right as shown in the broken line positions in Figure 3, horizontal boards 20, 21 and 22 moving arcuately downwardly until they occupy the same plane as shown in Figure 4. Then the collapsed stand carried by the base panel 15 is swung upwardly against the wall 11, the inter-folded parts then

occupying the position shown in broken lines in Figure 2 of the drawings, wherein the base panel 15 provides an outside cover for the collapsed stand and the narrow cover strip 50 is folded over the top of the installation to provide a narrow shelf. Any sort of locking means may be provided for retaining the parts in collapsed folded position such as, for example, a pin or other removable fastener securing the top flap 50 to the wall supported runner 30. It will be noted that in collapsed position the stand itself will not project much more than say about four inches from the wall and will give the appearance of comprising wainscoting around the wall of the room.

In the embodiment illustrated in Figure 6 of the drawings the stand is disassociated from the wall of the enclosure and is made portable so that in collapsed condition it can be moved from place to place as necessity requires.

The locking features in this embodiment are generically similar to those already described but are carried by the stand proper rather than the wall of the enclosure.

In this embodiment the device rests upon two or more skids 55, and uprights 56, equivalents of those designated 16, 17 and 18 in Figure 1, are hinged to the skids as at 57. The seatboards 21' and 22' and the footboard 20' are hinged to the upright frames as at 27' exactly as in the previously described embodiment and the stand proper collapses against the skids 55 in the same way as previously described.

When the stand is collapsed, it may be turned to an upright position so that the casters 63 and 64, secured to the rear edges of certain of the uprights 56, may be used to transport the collapsed stand from place to place. The casters also may serve an auxiliary function of spacing the stand adequately from the wall of an enclosure when the stand is opened up for occupancy.

The locking features in this embodiment comprise the swinging lock panels 92 and 93, these panels being respectively hinged to the rearward and forward skids 55 as by means of the hinges 95 and 96. Keeper brackets illustrated diagrammatically at 97 may be secured to one side of one of the uprights 56 and angular hook-like latching tongues may be carried by the edges of the locked panels 92 and 93 and adapted to enter the openings in these keepers 97 in order to retain the locking panels in operative position. To release the stand for collapsing, the locked panels 92 and 93 are swung downwardly to positions in alignment with the skids 55 as shown by broken lines and the two locking panels, together with the skids 55 provide a complete base structure for the collapsed installation.

The embodiment shown in Figure 7 of the drawings, while it is adapted to be installed against a wall, partakes of the locking features of both the portable and wall-installed types. The stand has a baseboard 75, uprights 76 hinged thereto by means of the hinges 77, and two footboards 80 and three seatboards 81 are pivoted at various levels to the series of uprights 76 by means of the hinges 77.

Secured to the wall 11 is a runner strip or rail 30' to which is hinged one or more locking panels 35' by means of the spring hinges 31' and these locked panels are adapted to be secured in operative position by means of the bolt devices 37'.

Since the stand in this embodiment is wider in a fore-and-aft direction than the previously described embodiments, it is deemed desirable to provide additional locking means at the forward end of the stand and this means comprises the locking panel 90 pivoted by means of an L-hinge 91 to the lower forward edge of the front seatboard 81 and bolted to one of the uprights if desired by means of the bolt 97. Of course, when the stand is in collapsed position the panel 90 is swung upwardly over the top of the front seat panel 81.

It is understood that various changes and modifications may be made in the embodiments illustrated and described herein without departing from the scope of the invention as defined by the subjoined claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. A seating installation including a stand assembly comprising a base panel adapted normally to lie flat upon a floor; two or more flat supporting frames spaced apart widthwise of the stand assembly and each adapted to be positioned vertically and extend in a fore-and-aft direction upon said base panel; means hinging the normally lower ends of said supporting frames to said base panel for pivotal collapsing movement in one direction; at least one flat horizontal seat member disposed above said supporting frames; means hinging said horizontal seat member at intervals to the upper ends of said supporting frames for relative pivotal movement in the opposite direction from the relative pivotal movement of the base panel and the lower ends of said frames, whereby when the stand assembly is collapsed the base panel, the supporting frame, and the horizontal seat member occupy parallel closely adjacent horizontal planes, and when the stand is opened up for use, the base panel, the horizontal seat member and two adjacent supporting frames define a rectangular enclosure; a rigid locking panel, the width of said locking panel being substantially the same as the width of said rectangular enclosure; and means for pivotally mounting said panel upon a portion of said installation for swinging movement from an unlocking position entirely exteriorly of said rectangular enclosure to a position within said rectangular enclosure, in which latter position the plane of said locking panel is not parallel with either the planes of said base panel or of said horizontal seat member but at an angle thereto, whereby said locking panel securely blocks said supporting frame from collapsing.

2. The seating installation as set forth in claim 1 wherein said means for pivotally mounting said locking panel comprises spring hinges constantly urging said locking panel toward said rectangular enclosure for locking purposes, and in which latching means is provided for securing said locking panel to one of the named parts of the stand assembly when in blocking position.

3. The seating installation as set forth in claim 1 in which the locking panel is hinged to the said base panel.

4. The seating installation as set forth in claim 3 in which said base panel comprises two fore-and-aft spaced floor-contacting strips, and locking panel is hinged to the inner confronting edges of each of said base strips and said locking panels serve between them to fill the intervening space when in released position and provide an uninterrupted base structure for the collapsed stand.

5. The seating installation as set forth in claim 1 in which the installation includes a runner strip secured to the wall of the room in which the stand is disposed and said locking panel is hinged to said runner strip.

6. The seating installation as set forth in claim 1 in which the locking panel is hinged to the upper horizontal seat member by means of an L-hinge whereby when in locking position it is suspended beneath said horizontal seat member and within the rectangular enclosure and when in released position lies flat upon the top surface of the horizontal seat member.

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