Feb. 9, 1965 H. GRAF 3,168,761

COMBINED AXIAL THEATER AND ARENA

Filed Oct. 27, 1961 4 Sheets-Sheet 1

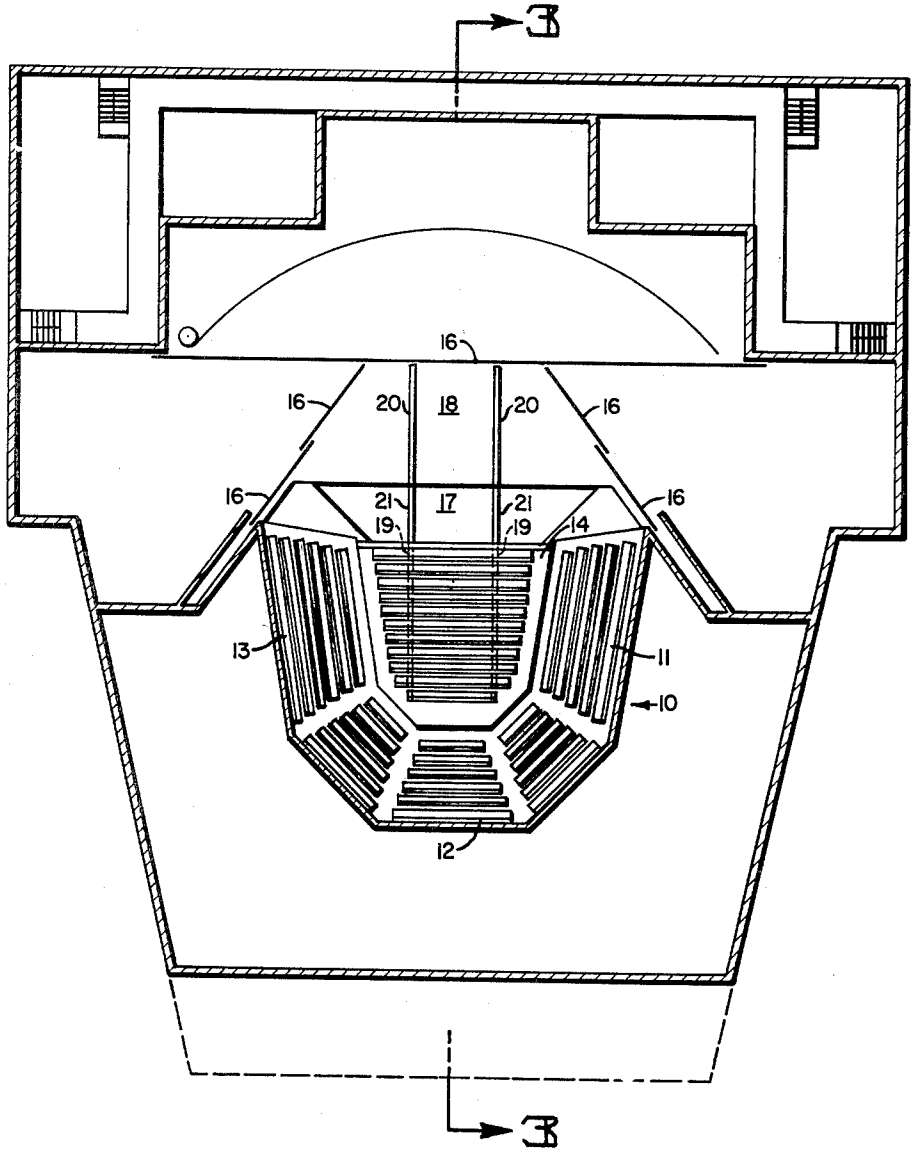


FIG. 1

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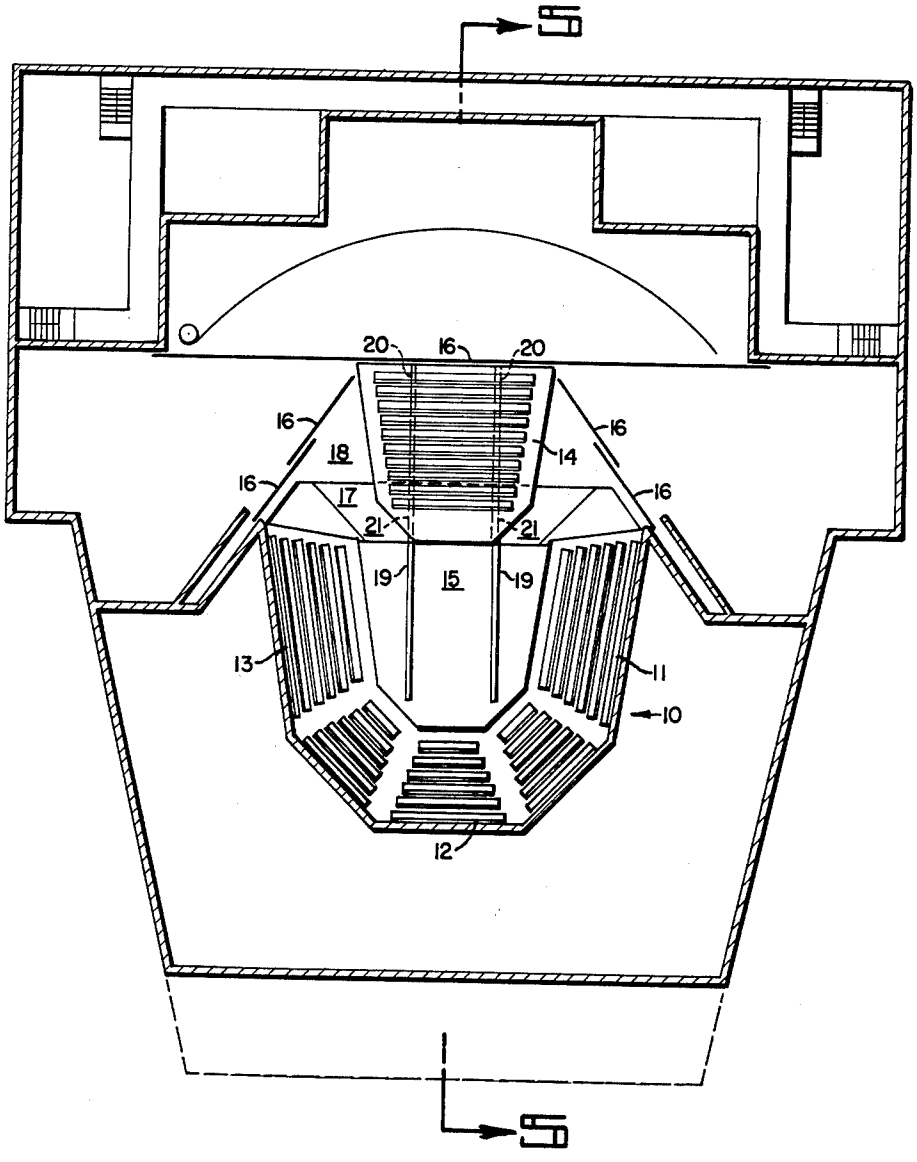


FIG. 2

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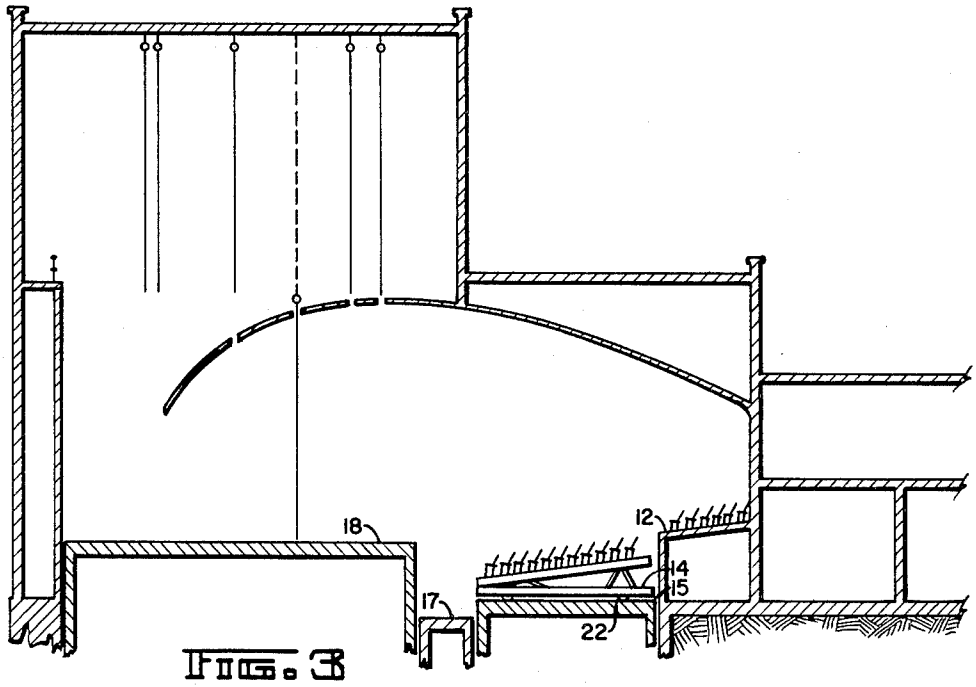


FIG. 3

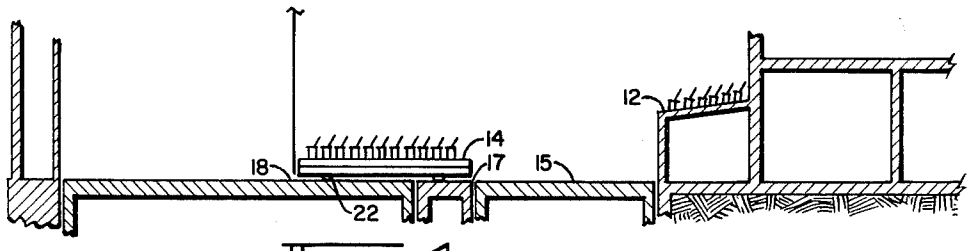


FIG. 4

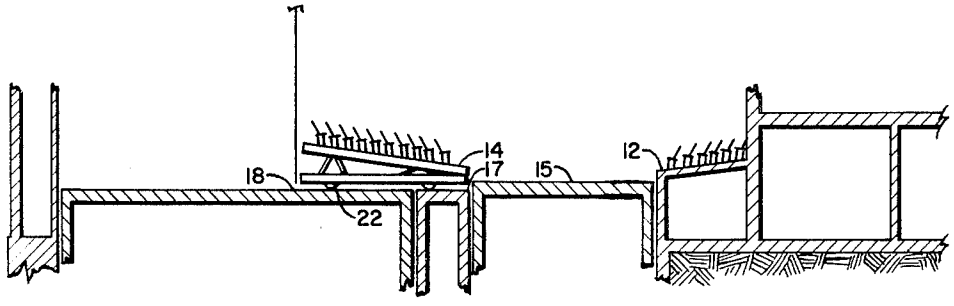


FIG. 5

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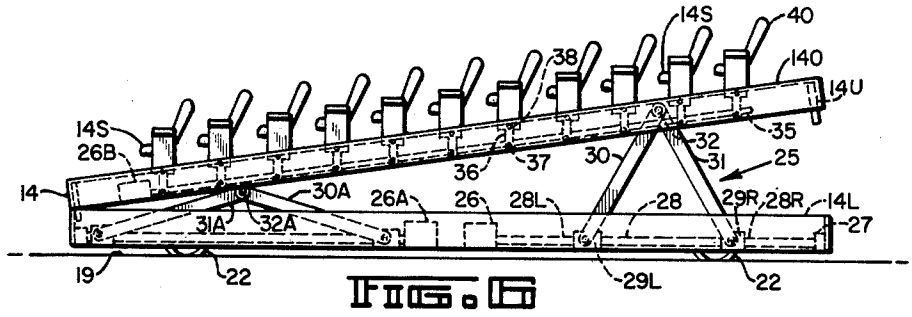


FIG. 6

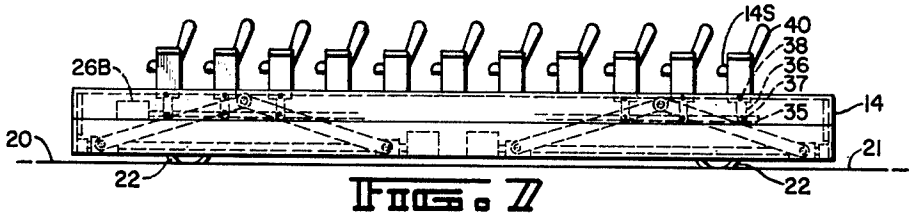


FIG. 7

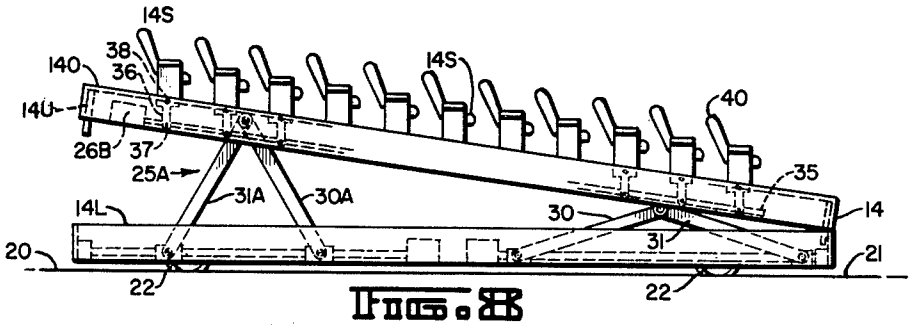


FIG. 8

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3,168,761

COMBINED AXIAL THEATER AND ARENA

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2 Claims. (Cl. 20—1.12)

This invention relates to spectator structures and more particularly to an axial or proscenium theater which is capable of conversion into an arena or "theater in the round."

Convertible theaters have been devised which make it possible to arrange theaters for greater or smaller seating capacity by means of movable walls. Furthermore, it is possible to create either an orchestra pit or a forestage area by lowering or raising sections of the floor within the proscenium zone. However such expedients have the disadvantage that the position of the acting area remains essentially the same and cannot be adjusted, from a visual and acoustical point of view, to the particular character of the production.

The design of the system presented here avoids these disadvantages. In addition, it creates a number of practical advantages and offers, for the first time, the possibility of constructing a single theater which is truly adequate for multiple purposes—grand opera, medium-size opera, musical comedies, plays, concerts and television transmissions—all in the same space. This is accomplished in a combination theater and arena which can be converted from a theater having full orchestra seating with all seats generally confronting a stage at one side of the structure to an arena having a central performing area substantially surrounded by seats on all sides with all seats confronting the central performing area.

My combination theater and arena comprises a group of permanent seats arranged around three sides thereof, a stage area occupying the fourth side thereof, movable seat structure including seating means to provide seats at the fourth side and also to provide seats positioned centrally of the group of permanent seats, and combined means for actuating the seat structure to provide seating which completely surrounds an arena-type performing area located centrally of the group of permanent seats and which includes seats replacing at least a substantial portion of the stage area and, alternately, to provide seats positioned centrally of the group of permanent seats and clearing the stage area of seats.

In one mode of practicing my invention the combined means for actuating the seat structure comprises reversible means for moving the seat structure from a position substantially overlying the central performing area to a position substantially overlying the stage area and exposing the central performing area and means for tilting the seat structure to inclined positions alternately inclined toward the stage and central performing areas.

With reference to the accompanying drawings, I shall now describe the best mode contemplated by me for carrying out my invention.

FIG. 1 is a plan view of a proscenium theater adapted for conversion to an arena in accordance with my invention;

FIG. 2 is a plan view of the structure of FIG. 1 after conversion to an arena;

FIG. 3 is a vertical sectional view taken along lines 3—3 of FIG. 1 in the direction of the arrows;

FIG. 4 is a view similar to FIG. 3 illustrating the structural arrangement at an intermediate step during conversion;

FIG. 5 is a vertical sectional view taken along lines 5—5 of FIG. 2 in the direction of the arrows; and

FIGS. 6, 7 and 8 are enlarged elevational views of the retractable or movable seat structure in the positions shown in FIGS. 3, 4 and 5, respectively.

In the theater structure generally shown at 10 in FIGS. 1 and 2, there are provided a group of permanent seats 11, 12, 13 arranged around substantially three sides of an auditorium confronting a retractable or movable centrally located orchestra seat structure 14 (FIG. 1) which substantially overlies a central arena stage or viewing area 15 (shown uncovered in FIG. 2). Within an area, defined by movable walls or curtains 16 and the forward boundaries of the permanent seats and arena stage, are located an orchestra pit 17 and proscenium stage 18. As shown in FIGS. 3, 4 and 5, each of the stages 15, 18 and pit 17 are vertically movable to independently desired elevational positions by suitable means (not shown), and each carries adjacent its upper surface a plurality of track members 19, 20 and 21 respectively. A track member from each of the stages and pit constitutes a track unit. The movable or retractable seat structure 14 has aligned pairs of wheels 22 journalled in the bottom thereof which, when suitable power (not shown) is supplied thereto, are adapted for rolling support along the track units when the constituents of the latter are aligned in a common horizontal plane as in FIG. 4 to thus provide means for actuating or moving the seat structure 14 horizontally from a position overlying the arena stage area 15 (FIGS. 1, 3) to a position generally overlying the orchestra pit 17 and proscenium stage area 18 (FIGS. 2, 4, 5). The stages and pit may be provided with hinged cover elements which can be positioned flush with adjacent flooring and overlying the respective track members when the latter are not in use.

The group of permanent seats 11, 12, 13 preferably slant downwardly toward the central arena stage area and in order to position the seats of the retractable seat structure 14 at desired inclination such as those viewed in FIGS. 3 and 5, means are provided (FIGS. 6, 7, 8) for tilting the upper portion of the seat structure 14 to opposed inclinations about a horizontal position thereof illustrated in FIGS. 4 and 7. The aforementioned means for moving the seat structure and means for tilting the upper portion thereof form a combined means for actuating the seat structure to provide seating completely surrounding an arena-type performing area located centrally of the group of permanent seats and which includes seats replacing at least a substantial portion of the stage area and, alternately, to provide seats positioned centrally of the group of permanent seats and clearing the stage area of seats. Although a seat structure movable by combined means between two useful locations has been heretofore described, it is apparent that distinct seat structures could be employed having separate means for moving them alternately from a useful position to a remote position.

The tilting means preferably comprises a plurality of jack-knifing structures 25, 25A each pivotally interconnecting the upper and lower portions (14U, 14L) of the seat structure 14. While but a pair of identically opposite jack-knifing structures are illustrated in the drawings, it is obvious that these could be multiplied across the seat structure at desired locations to accommodate designed load requirements, and a description of one may suffice for all.

The jack-knifing structure 25 preferably has a reversible motor 26 mounted in fixed relation to the inner bottom of lower seat structure portion 14L, at a location slightly to the right of the mid-point thereof (as viewed in FIG. 6). With its free end journalled in a bearing or the like support 27, rod 28, drivingly connected to the motor 26, has a left-hand threaded portion 28L adjacent the motor and a right-hand threaded portion 28R adjacent the bearing support 27. Mating threaded sleeves 29L, 29R are positioned on the respective threaded rod portions and each has the corresponding lower end of identical links 30, 31 pivoted thereto. The upper ends of links 30, 31

are joined by a common pivot 32 which may have a sliding connection in a suitable slotted member suspended from the upper seat structure portion 14U.

With the upper seat structure portion 14U in a horizontal position (FIG. 7) following movement of the seat structure 14 to its desired position overlying central arena stage area 15 thereby exposing proscenium stage area 18, energization of motor 26 will cause sleeves 29L, 29R to approach each other forcing links 30, 31 to jack-knife the pivot 32 upwardly and elevate the right end (FIG. 6) of the upper seat structure portion 14U, while the extreme left end thereof remains in contact with and resting upon the extreme left end of the lower seat structure portion 14L. During this jack-knifing period motor 26A is not energized, links 30A, 31A of jack-knifing structure 25A remain in their extended position and the slotted member in which pivot 32A is slidably connected has sufficient length to permit the relative movements of the seat structure portions 14U, 14L for providing the inclination desired.

The inclination of the seat structure, as viewed in FIGS. 3 and 6, is ideal for viewing the proscenium stage. To alter the arrangement for viewing the central or arena stage, motor 26 is reversed thereby lowering the upper seat structure portion 14U to the horizontal position (FIG. 7), whereupon the seat structure 14 is moved along the tracks to cover the proscenium stage 18 and orchestra pit 17 and expose arena stage 15 (FIG. 4). Energization of motor 26A will jack-knife links 30A, 31A to incline the upper seat structure portion 14U in the opposite direction to a desired inclination such as shown in FIGS. 5 and 8 for viewing the arena stage 15. Subsequent reversal of motor 26A may horizontally position the seat structure 14 for further conversion of the arrangement.

When the upper seat structure portion is inclined and lowered in either direction as described above, means preferably mounted on the upper portion 14U and synchronous with the motors 26, 26A are provided for maintaining the individual seats 14S substantially horizontal. Such means may include a suitable motor 26B adapted to slowly reciprocate at least one elongated rod 35 forwardly and rearwardly within the upper seat structure portion 14U. The vertical supports for each of the seats 14S are suitably pivoted in each row at 38 to the upper seat structure portion 14U and have downwardly projecting extensions 36 pivotally connected to elongated rod 35 through corresponding transverse members 37 located below the respective rows of seats.

The operation of motor 26B is such to slowly move rod 35 to the left (FIG. 6) when the motor 26 jack-knifes links 30, 31 to inclined the upper seat structure portion 14U toward the position shown. Upon reversal of motor 26, rod 35 is moved to the right to reach its normal position (FIG. 7). When the motor 26A jack-knifes links 30A, 31A to incline the upper portion 14U to the position shown in FIG. 8, rod 35 is further moved to the right, and upon reversal of motor 26A the rod 35 moves to the left to assume its normal position once again. The various movements of rod 35 will pivot the individual seats 14S in compensating for the various angular inclinations of the upper seat structure portion 14U to cause the individual seats to remain in a substantially horizontal position at all times. The individual seats 14S may be provided with suitable linkage for moving the back-rests 40

thereof to extreme positions when moving the seat structure 14 from one stage viewing position to the other. The mechanism which allows the seat backs 40 to be moved from the position shown in FIG. 6 to the reversed position shown in FIG. 8 may be of any well known type such as commonly used in reversing the seat backs of railway coach seats.

The terms and expressions which I have employed are used in a descriptive and not a limiting sense, and I have no intention of excluding equivalents of the invention described and claimed.

I claim:

1. A combination theater and arena comprising a structure having a group of permanent seats arranged around three sides thereof in the form of a horseshoe, a stage area at the fourth side thereof, and a seat structure movable alternatively into positions (1) overlying said stage area and (2) confronting said stage area and disposed centrally of said group of permanent seats,

(*a*) said movable seat structure comprising a frame, a seating platform mounted on the frame, seats carried by the seating platform and wheel means for supporting the frame,

(*b*) the movement of said movable seat structure between said positions (1) and (2) being substantially in line with the centerline of the horseshoe, and

(*c*) said movable seat structure including means for tilting said seating platform first one way and then the other into alternative oppositely inclined positions for viewing the stage from one direction and the central performing area from the opposite direction,

by virtue of all of which the structure can be converted from a theater having full orchestra seating with all seats generally confronting a stage at one side of the structure to an arena having a central performing area substantially surrounded by seats on all sides with all seats confronting said central performing area, with provision for favorable viewing from the movable seat structure in the alternative opposed directions without turning the seat structure bodily around.

2. A combination theater and arena according to claim 1, in which

(*d*) said movable seat structure includes means for tilting the seats with respect to the seating platform to compensate for reversal of the inclination of the seating platform as it is tilted first one way and then the other.

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