July 30, 1968 C. S. RIFE 3,394,505

THEATER CONSTRUCTION WITH MOVABLE SEATS

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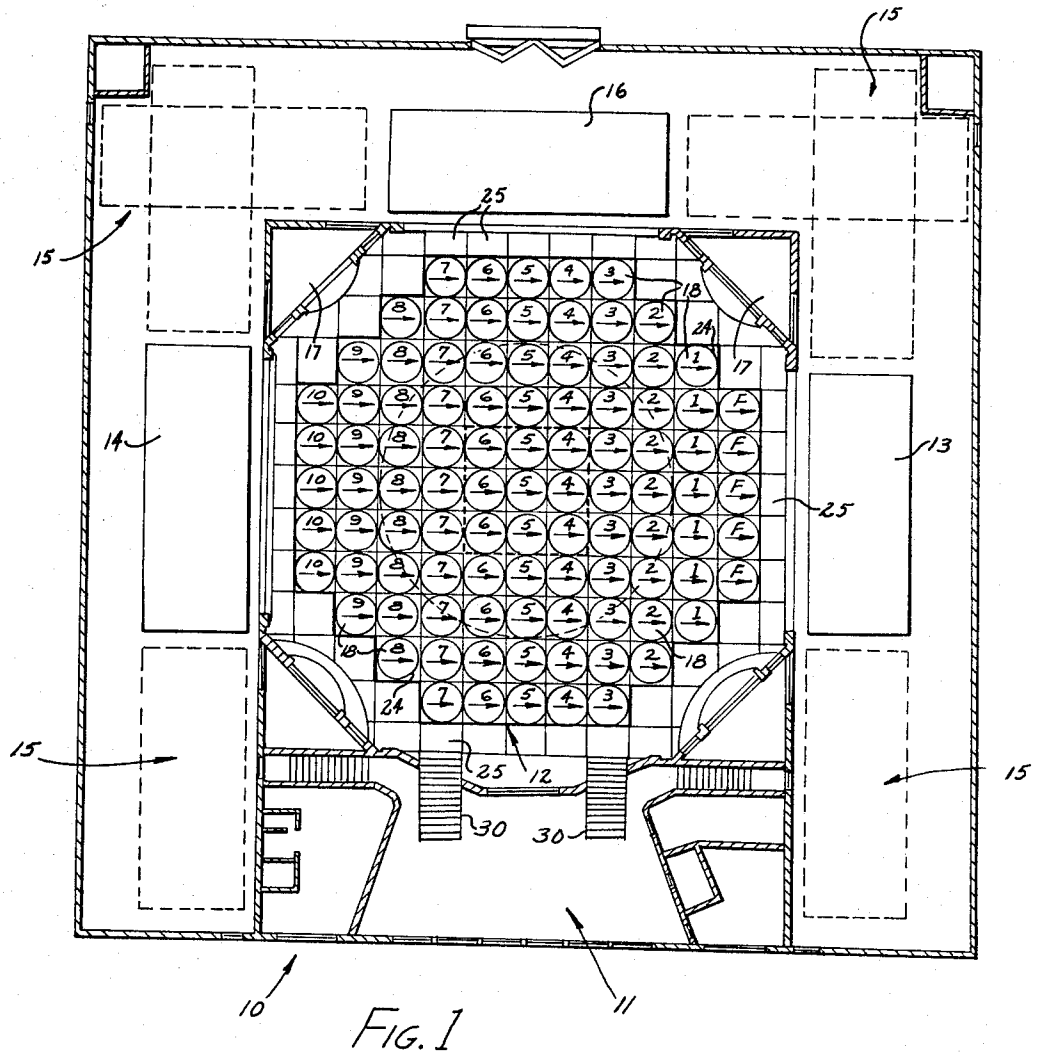


FIG. 1

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CORWIN S. RIFE

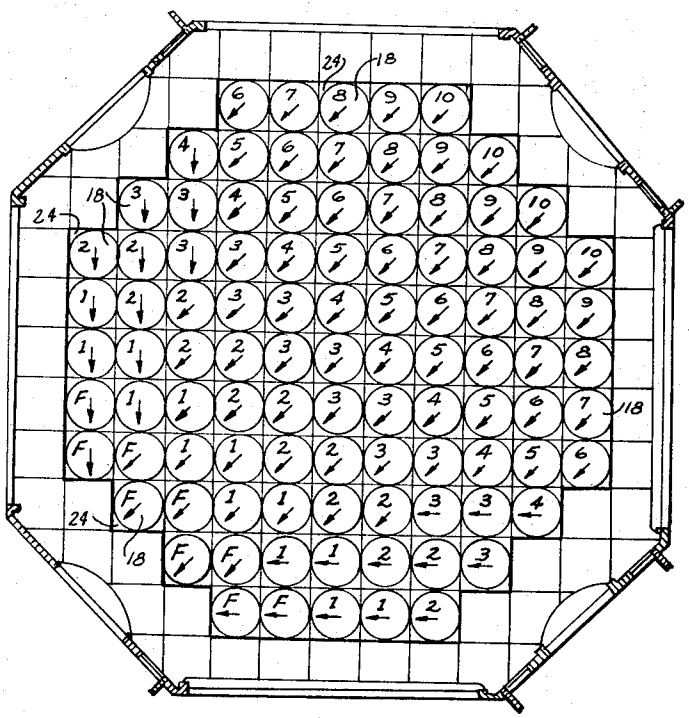
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THEATER CONSTRUCTION WITH MOVABLE SEATS

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FIG. 2



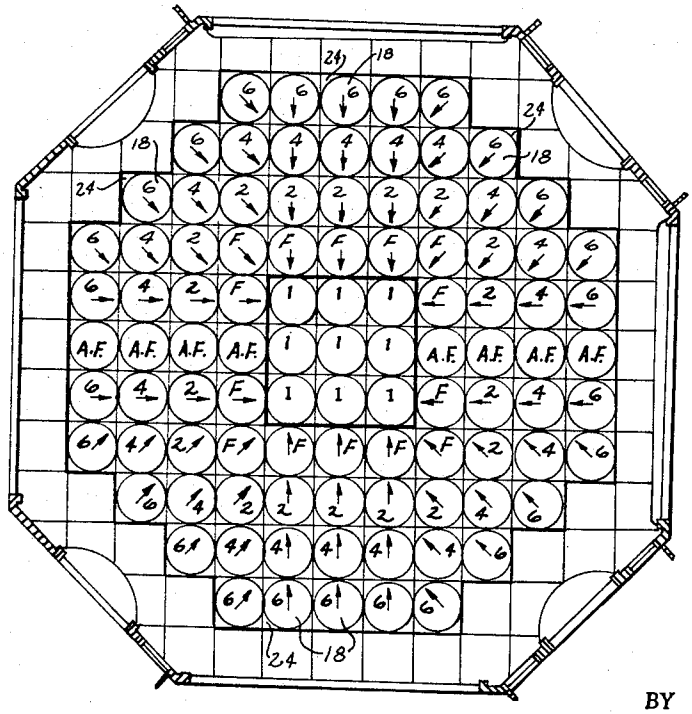


FIG. 3

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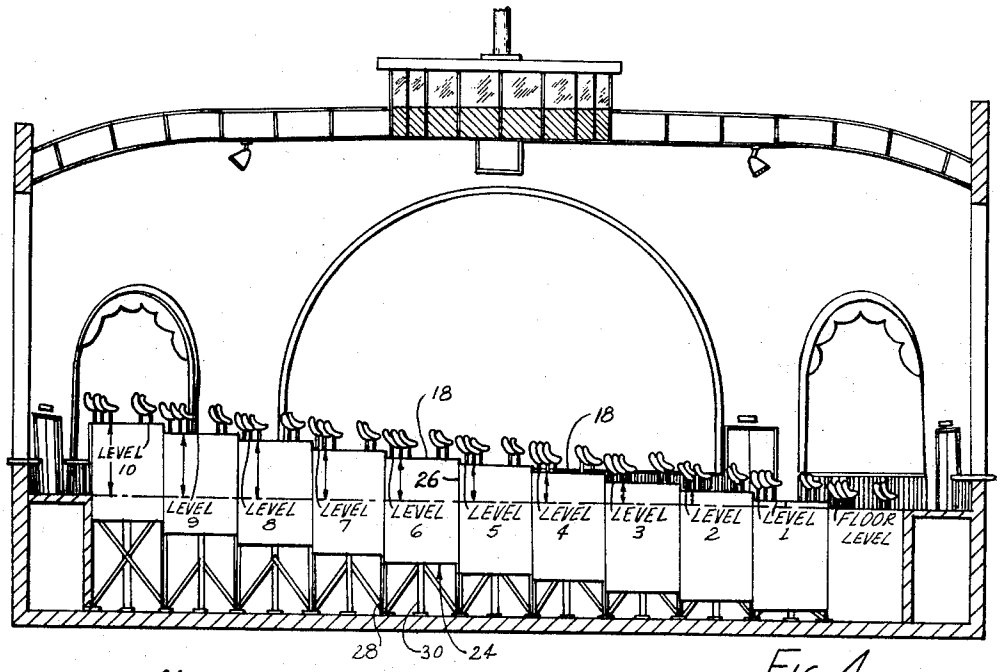


FIG. 4

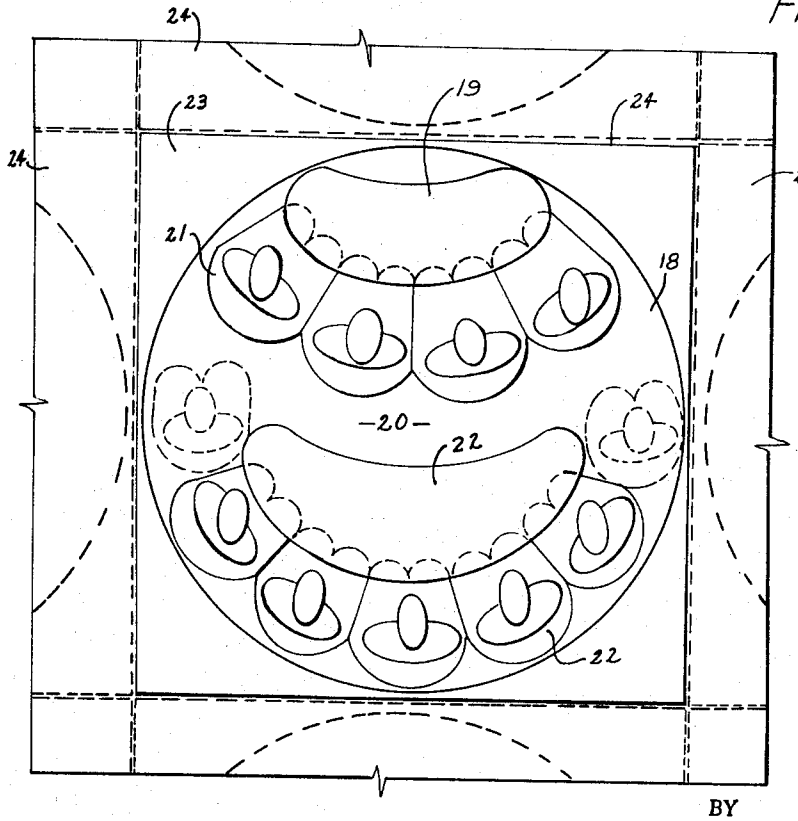


FIG. 5

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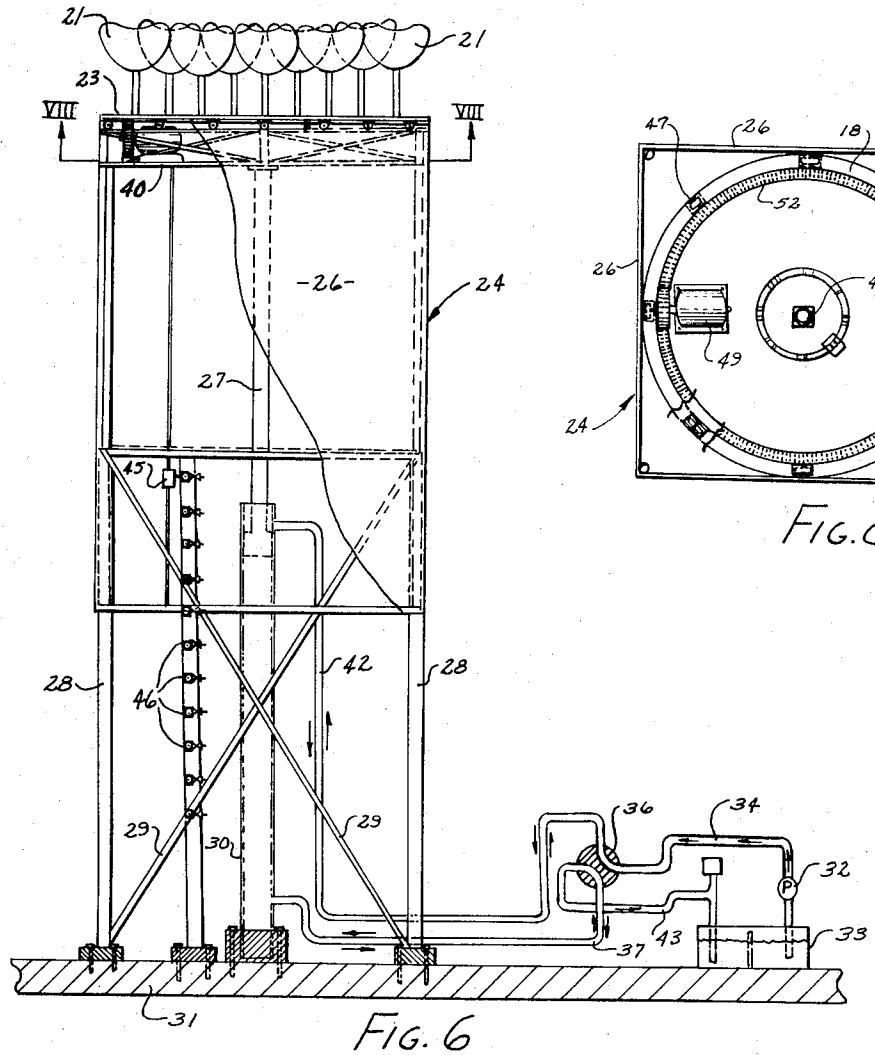


FIG. 6

FIG. 8

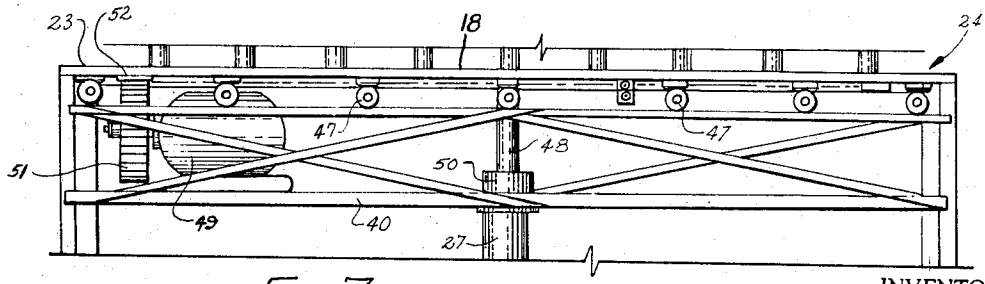


FIG. 7

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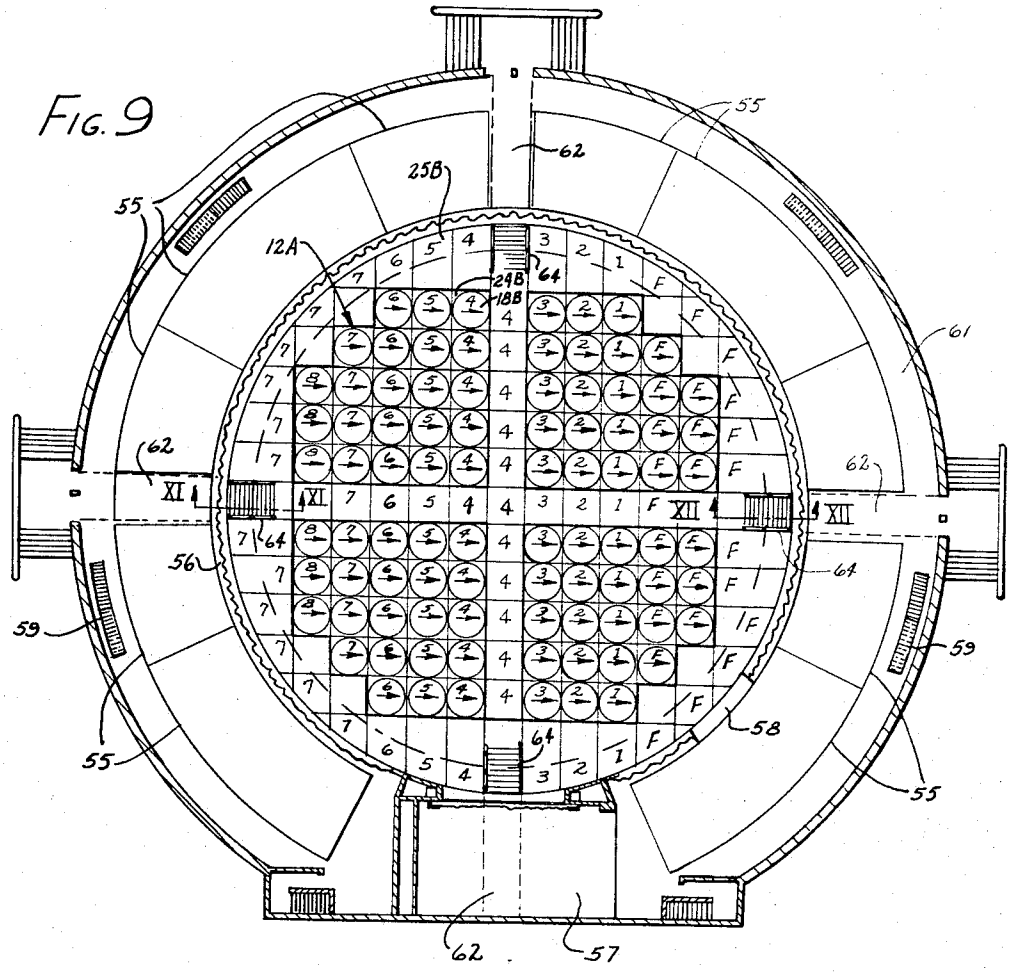
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FIG. 9



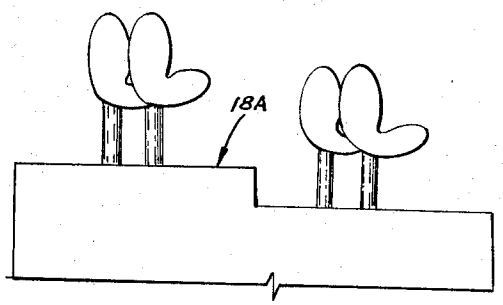


FIG. 13

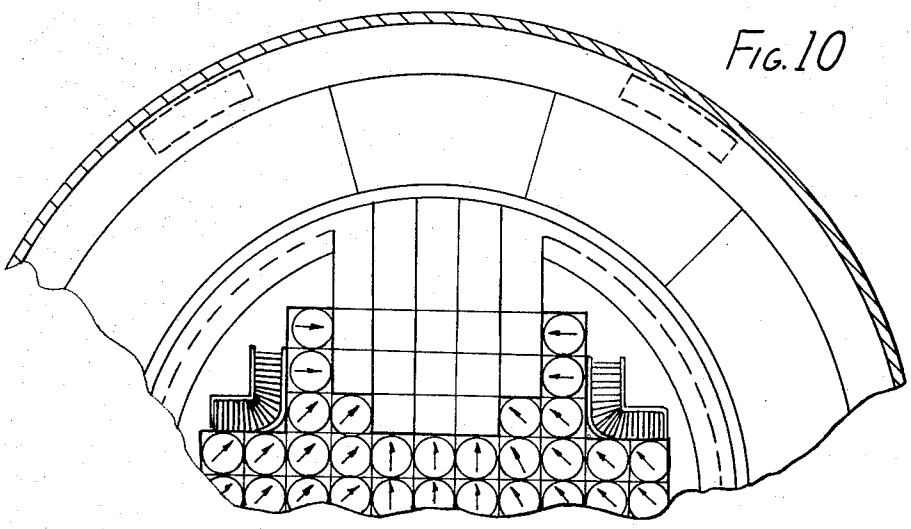
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FIG. 10



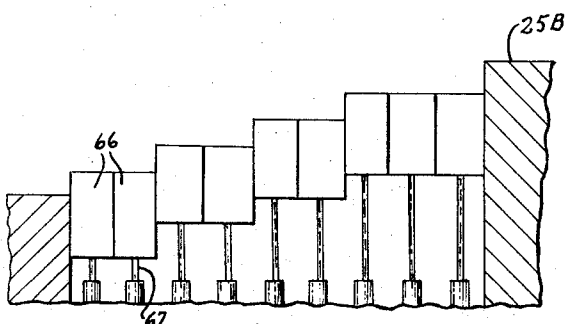


FIG. 12

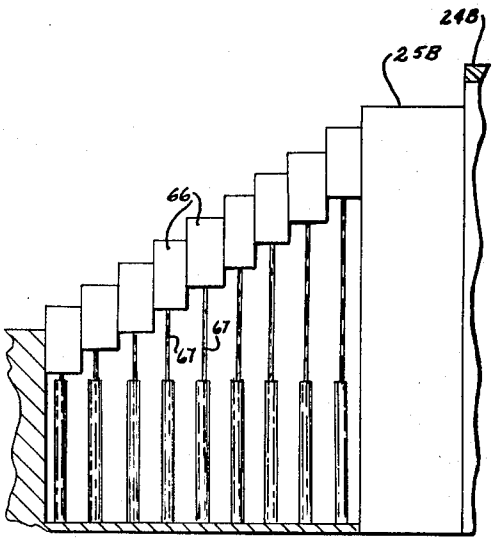


FIG. 11

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United States Patent Office 3,394,505 Patented July 30, 1968

3,394,505

THEATER CONSTRUCTION WITH MOVABLE SEATS

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Filed Jan. 30, 1967, Ser. No. 612,566
9 Claims. (Cl. 52—10)

ABSTRACT OF THE DISCLOSURE

A theater construction in which a plurality of stages are arranged around a seating area. The seats are arranged so that they can be moved to face in different directions and the vertical elevation of the seats can be changed so that patrons can view any of the stages.

This invention relates to a theater construction and more particularly relates to a theater construction employing rotatable, vertically adjustable seating equipment for seating an audience in a theater or hall.

In the construction of theaters it has long been the practice to provide stationary seats facing a single stage area. Traditionally, rows of seats have been placed such that those nearest the stage are at the lowest elevation and the rows are placed at progressively higher elevations toward the rear of the theater, thus making it possible for those seated toward the rear to see over those seated in front. Although this arrangement has been in use for a very long time, it has numerous disadvantages, foremost of which is that generally only a single stage area is provided. This usually requires a substantial break during a production while the scenery is hastily changed. This also often places practical limits on the number of scenery changes that can be made during a production. The traditional seating arrangement has an additional disadvantage in that seats in the rear of the auditorium are far from the stage and, thus, usually must be sold at a lower price than those closer to the stage.

Some attempts have been made to overcome these disadvantages. For example, one or more rotatable platforms have been used to move persons past stationary centrally located viewing areas. This, however, has the disadvantage in that the attention of the entire viewing audience cannot be focused on one area at one time.

Thus, the objects of the invention include:

(1) To provide a theater construction in which the viewing direction of the entire audience can be progressively changed between a series of stages or viewing areas.

(2) To provide a theater construction, as aforesaid, in which the viewing direction can be quickly and easily changed during a production.

(3) To provide a theater construction, as aforesaid, which can be quickly and easily changed from a traditional front stage arrangement to an arena stage arrangement.

(4) To provide a theater construction, as aforesaid, in which a wide variety of different stage arrangements can be provided.

(5) To provide a theater construction, as aforesaid, in which the stage scenery need not be hurriedly changed between scenes but might possibly remain in place for the entire run of a production.

(6) To provide a theater construction, as aforesaid, in which the various seats are of more equal desirability.

(7) To provide a theater construction, as aforesaid, which can be provided with tables so that meals and/or refreshments can be served to the partons.

Other objects and purposes of the invention will become apparent to persons acquainted with theater design upon reading the following specification and upon inspection of the accompanying drawings.

In the drawings:

FIGURE 1 is a floor plan view of the theater construction to which the invention relates and illustrates the seating turntables directed toward a primary stage on the right side of the theater.

FIGURE 2 is a floor plan view of the seating area of the theater construction and illustrates the turntables directed toward one of the small intermediate stages.

FIGURE 3 is a similar floor plan view of the seating area with the seating turntables placed in an arena arrangement.

FIGURE 4 is a cross section of the seating area of the theater.

FIGURE 5 is a top plan view of an individual turntable showing a preferred seating design.

FIGURE 6 is a vertical diagrammatic view of an individual turntable illustrating the hydraulically powered elevating apparatus and the electrically powered rotating apparatus.

FIGURE 7 is a view on an expanded scale of a fragment of FIGURE 6.

FIGURE 8 is a sectional view of the rotating apparatus taken on the line VIII—VIII in FIGURE 6.

FIGURE 9 is a floor plan view of an alternate theater construction.

FIGURE 10 illustrates an alternate staging arrangement.

FIGURE 11 is a side view taken substantially along the line XI—XI of FIGURE 9 of a stairway arranged for entry into the rear section of the seating area.

FIGURE 12 is a similar side view taken along the line XII—XII of FIGURE 9 of a stairway arranged for entry into the front section of the seating area.

FIGURE 13 illustrates an alternate turntable surface having two levels.

Certain terminology will be used in the following description for convenience in reference only and will not be limiting. The words "upwardly," "downwardly," "rightwardly," "leftwardly" and words of similar import will designate directions in the drawings to which reference is made.

General description

In general, the invention provides a theater construction comprising a seating area defined by a plurality of platforms each of which is supported for independent vertical movement, preferably by hydraulic equipment. A turntable is rotatably mounted on each platform and said turntable is adapted to be rotated by suitable mechanism, such as an electric motor located on the platform. A plurality of seats are mounted on each of said turntables. The seating area of the theater is at least partially surrounded by a plurality of stage areas. Control means are provided to rotate the turntables so that the seats can face each of the stage areas in succession. The control means also effects vertical movement of the platforms so that the platforms closest to the stage area being viewed are lowermost and the remaining platforms are at progressively higher elevations in a direction away from said stage area.

Detailed description

The theater **10** (FIGURE 1), which illustrates a preferred embodiment of the invention, is comprised of an entrance **11**, a central seating area **12** and a plurality of primary stages, such as right stage **13**, left stage **14** and center stage **16**, the stage areas being located outside of and at least partially surrounding the seating area. The primary stages may be either of a movable or a sta-

tionary design. Smaller stages **17** may be positioned between said primary stages. The theater has storage zones **15** for storing movable stages or scenery when same are not in use. The remaining areas of the theater such as the ticket booths, business offices and make-up rooms may be of a conventional nature.

The seating area **12** (FIGURES 1, 2, and 3) is comprised of a multiplicity of individual turntables **18**. The arrows on said turntables indicate the viewing direction, that is, the direction in which the seats on the turntables face, which direction may be changed, as hereinafter described. The turntables are arranged in rows and the rows, as shown in FIGURE 4, are usually arranged at progressively higher elevations in a direction opposite the viewing direction so that portions farther away from the stage being viewed are better able to view the stage. The reference characters F and **1–10** on the individual turntables indicate the vertical positions of the turntables, the reference character F being applied to turntables at the floor level and the reference characters **1–10** indicating progressively higher elevations above the floor. The number of rows and the number of turntables within a given row may be selected to conform with the size and shape of the given auditorium.

The portion facilities on each turntable **18** may be designed in accordance with the desires of the theater operator. However, a preferred design is illustrated in FIGURE 5. In the preferred arrangement the walking surface is carpeted and two tables **19** and **22** are provided for use, such as serving either foods or beverages. Placed behind the front table **19** are a plurality of seats **21**, four seats being illustrated. The rear table **22** is here shown as having five seats positioned behind it. It seats of a swivel type are provided, two additional seats may be included, as indicated in broken lines. An aisle **20** is provided between the forward seats and the rear table. It will be understood that the tables **19** and **22** can be omitted if it is desired to provide only seating facilities.

The turntable **18** (FIGURE 5) is preferably recessed in a central opening in the upper surface **23** of a square base or platform **24** so that the upper surface of said turntable is substantially flush with said upper surface of the platform. The platforms **24** should fit in close proximity to each other to avoid stumbling by patrons and to prevent articles from slipping between said platforms. Each of the platforms **24** may have depending side walls **26** (FIGURE 4) on each of its sides. Additional platforms **25**, which do not have seats, are located around the seating area **12** and same can be provided with guard or hand rails (not shown) for the use and protection of patrons as they enter or leave the theater. The platforms **25** are each positionable at the same vertical levels as the platform **24** adjacent thereto and they form a peripheral aisle so that patrons can leave the theater while the platforms are in raised positions. Vertically movable stairways **30** of the type illustrated in greater detail in FIGURES 11 and 12 are provided to permit patrons to walk from the raised turntables to floor level in the entrance **11**.

Referring to FIGURE 6, each platform **24** is supported upon the upper end of a piston rod **27** and said platform is slideably engaged with and guided for vertical movement by upright guides **28**. The piston **27** is vertically slideable within an upright pressure fluid cylinder **30**. The cylinder **30** and the upright guides **28** are securely mounted at their lower ends upon floor **31**. The upright guides **28** are constructed of metal, such as steel, and their stability is further increased by the provision of cross struts **29**.

Pressure fluid is supplied by a pump 32 which forces a fluid from reservoir **33** into line **34**. If the four-way valve **36** is in the "up" position, the fluid passes into line **37** and from thence into the lower end of cylinder **30** causing piston **27** to rise thereby elevating platform **24**. Simultaneously, fluid from the upper end of cylinder **32** is forced back through line **42**, through four-way valve **36**, thence into line **43** and finally the fluid returns to reservoir **33**. If the platform is desired to be lowered, four-way valve **36** is placed in the "down" position and fluid is pumped from line **34** through valve **36** into line **42**, thence into the upper end of cylinder **30** forcing piston **27** downward while the fluid from the lower end of the cylinder **30** passes through line **37**, then line **43** and finally into reservoir **33**.

The valve **36** is of a conventional type such that the platform can be elevated to, and held at any of eleven vertically spaced positions corresponding to the vertical elevations F and **1–10** shown in FIGURES 1, 2, and 3. To assure proper vertical positioning of the platform, a switch actuator **45** carried by the platform is cooperable with switches **46** which are supported in vertically spaced relation so that the switches are actuated in response to vertical movement of the platform. A master control system coordinates the operation of the individual valves for the platforms so that each platform is automatically placed at the proper elevation for the particular seating arrangement being provided.

The platform **24** has a base plate **40** secured thereto. The turntable **18** has a downwardly extending shaft **48** which is rotatably mounted and supported by bearing **50**. Further support for the turntable **18** is provided by the rollers **47**. A power source, such as an electric motor **49** is mounted on the base **40** and said motor has a geared power wheel **51** which drivingly engages annular gear **52** on the underside of the turntable so that the turntable can be rotated in order that the seats thereon can face in any desired, predetermined direction.

The master control system (not shown) in addition to automatically controlling elevation of the platforms also enables the operator to simultaneously rotate all turntables to the desired viewing direction. The master control system can be of any suitable type and since the details of such a system will be readily apparent to persons acquired with equipment of this type and form no part of the present invention, a detailed description thereof is believed to be unnecessary.

In order to reduce the number of piston and cylinder units, it may be desirable to provide rotatable turntables **18A** having two or more seating levels as illustrated in FIGURE 13.

Further, each of the individual seats could be mounted for pivotal movement on its platform, in which case it would not be necessary to provide rotatable turntables.

Operation

Although the operation of the invention has been indicated somewhat above, said operation will be repeated to insure a more complete understanding to the invention.

Assuming the turntables **18** to be all properly positioned, both vertically and horizontally, for viewing the right stage **13** as shown in FIGURE 1, the viewing direction and elevation can be adjusted so that the patrons can view the center stage **16** by the following. The turntables are each rotated by their motors **49** so that their seats face the stage **16**. Simultaneously the elevation of the respective platforms is changed so that the row closest to stage **16** is at floor level and other rows of platforms are positioned at successively higher levels in a direction away from the stage **16**. Similarly the corner stages **17** can be viewed by adjusting the viewing direction and elevation of the platforms as illustrated in FIGURE 2.

An arena stage arrangement can be created by removing the seats from a group of center platforms and positioning them at the "1" level to form a stage, as shown in FIGURE 3. An entrance and exit for performers can be provided by removing seats from certain other platforms and positioning them at floor level as shown. All remaining turntables are rotated to face the center and each row from the stage out may be placed at progressively higher elevations. It will be understood that guard rails will be provided on the sides of the platforms adjacent the entrance and exit aisles for safety purposes.

A further modification of the invention in which the theater has a circular exterior shape, is illustrated in FIGURE 9. The seating area **12A** is comprised of a plurality of turntables **18B** and platforms **24B** and **25B** identical to the turntables and platforms described above and therefore same need not be further described. A series of stages **55** completely surround the seating area so that a multiplicity of scenery arrangements can be provided. The stages **55** can be mounted for vertical movement so that same can be moved into the basement of the theater for scenery changes. Also bleacher seats can be placed on the stages **55** when the theater is used in an arena seating arrangement or on other occasions when extra seating is desired. A draw curtain **56** may be provided for concealing the stages **55** not in use. A main stage **57** having a proscenium arch also is provided.

A movable orchestra cart **58** may be provided between the seating area and the stages. This will enable the orchestra to be placed adjacent the stage which is presently being used and to be shifted from stage to stage as required.

Stairways **59** are provided so that the actors can go to the basement of the theater when necessary.

The stage level **61** is positioned a suitable distance, such as about 9 feet, above floor level, that is, the lowest level at which the platforms **24A** can be placed. Passageways **62** are provided underneath the stage level on four sides of the seating area whereby patrons can enter or leave the seating area.

Stairways **64** (FIGURES 9, 11 and 12) may be provided which cooperate with the vertically movable peripheral platforms **25B**. Each stairway **64** may be comprised of a plurality of individual stair steps **66**, each being vertically movable by pistons **67** in the same manner as the seating platforms **18B**. The steps **66** are arranged so that the step adjacent the platform **25B** is one step below the level of the platform and the remaining steps are at progressively lower levels. The stairway **64** at the rear (highest level) of the seating area, as shown in FIGURE 11, is fully extended. The stairway **64** at the front (lowest level) of the seating area during viewing of the stage, as shown in FIGURE 12, provides only four steps. The side stairways provide an intermediate number of steps. Thus, the stairways **64** can be arranged in any desired manner so that patrons can easily enter or leave the seating area even when the platforms are raised. It will be understood however, that the platforms will be positioned at their lowest levels before and after the performance and at intermissions. In this embodiment, seats are omitted on the two mutually perpendicular central rows of platforms to provide aisles for patrons to enter or leave the seating area during a performance.

Similarly a variety of other stage arrangements may be provided, such as the one illustrated in FIGURE 10, simply by removing the seats from the appropriate turntables and elevating the platforms to the proper level.

Although particular preferred embodiments of the invention have been disclosed above for illustrative purposes, it will be understood that variations or modifications therein which lie within the scope of the appended claims are fully contemplated.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A theater construction comprising:
a centrally located seating area;
a plurality of stage areas arranged around and at least partially surrounding said seating area;
said seating area being comprised of a plurality of individually vertically adjustable platforms, a plurality of seats mounted on each of said platforms, and means supporting said seats for pivotal movement so that the seats can face the respective stage areas.

2. A theater construction according to claim **1**, in which the means supporting the seats comprises a turntable mounted on each platform for rotation about a vertical axis, the seats being mounted on the turntable.

3. A theater construction according to claim **2**, including elevating means connected to each turntable for positioning same at selectable vertically spaced levels.

4. A theater construction according to claim **3**, in which said elevating means comprise a piston and cylinder.

5. A theater construction according to claim **3**, including a motor mounted for rotating each turntable.

6. A theater construction according to claim **5**, in which the motor is stationarily mounted on the platform and having a drive gear on the shaft thereof, said drive gear being meshed with an annular gear mounted on the underside of said turntable.

7. A theater construction according to claim **1**, including vertically adjustable stairs extending downwardly from adjacent selected ones of said platforms.

8. A theater construction according to claim **1**, including a plurality of additional individually vertically adjustable platforms arranged between said seating area and said stage, and vertically adjustable stairs extending downwardly from adjacent selected ones of said additional platforms.

9. A theater construction according to claim **8**, including passageways extending underneath said stage areas, said stairs extending to adjacent said passageways.

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JOHN E. MURTAGH, *Primary Examiner.*