June 4, 1935. W. C. BARNARD 2,003,573

DOUBLE SET STAGE

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Fig. 1

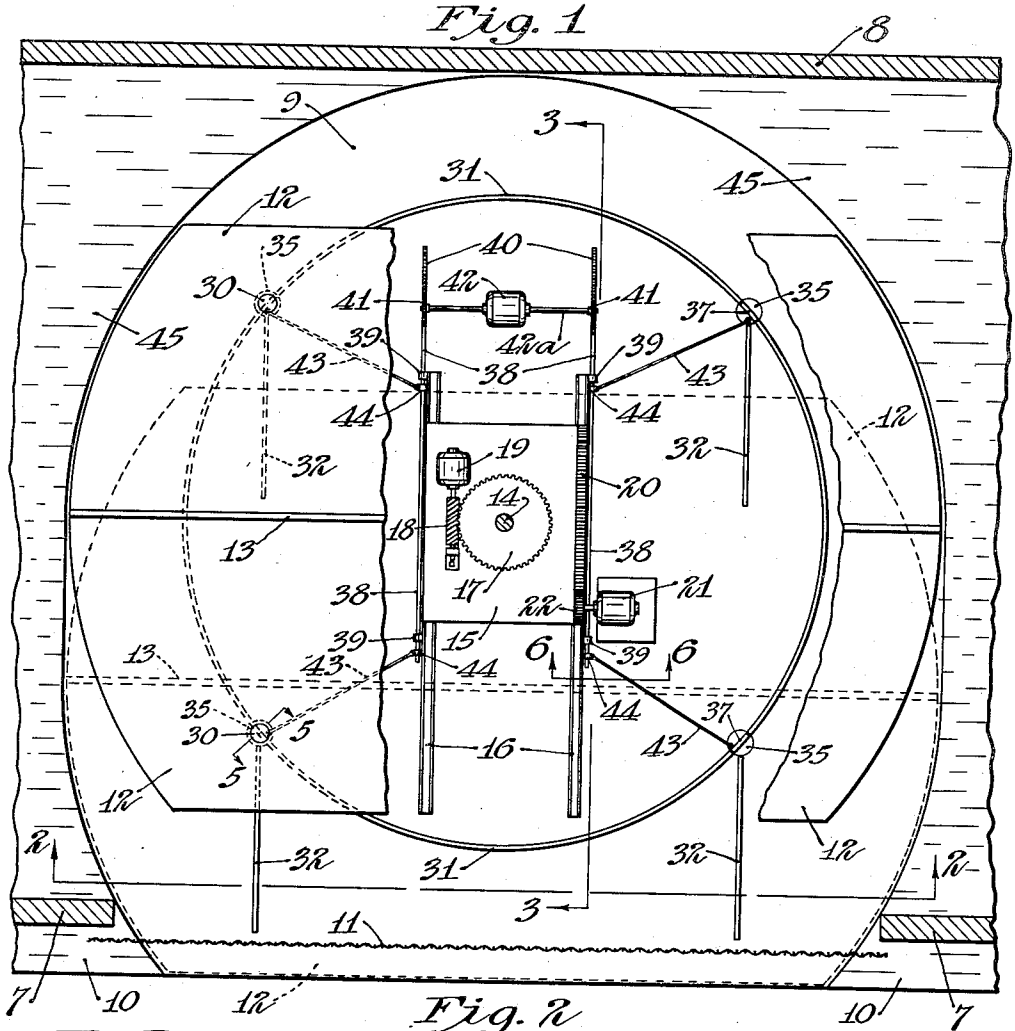
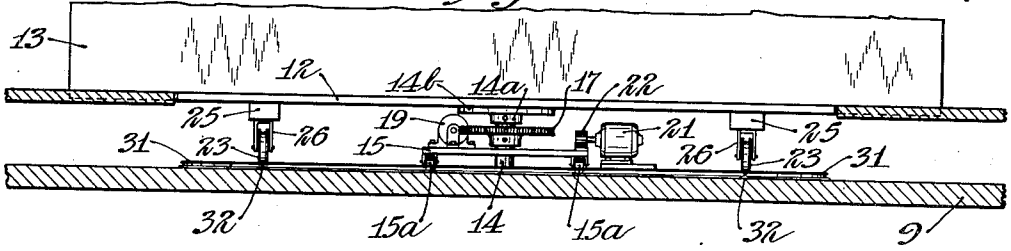


Fig. 2



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Fig. 3

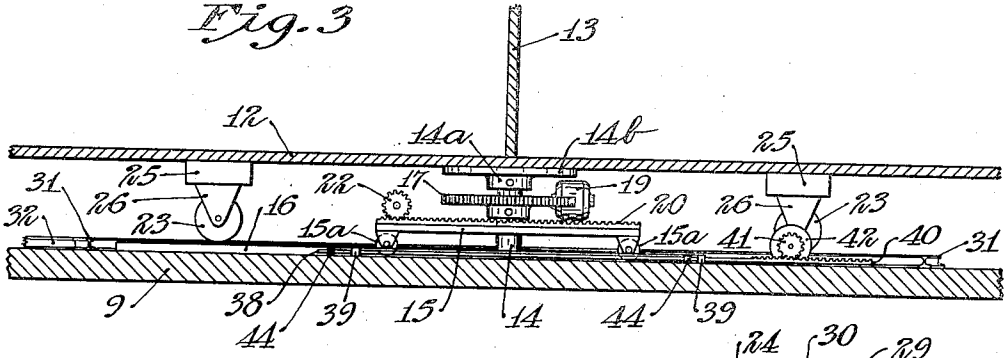
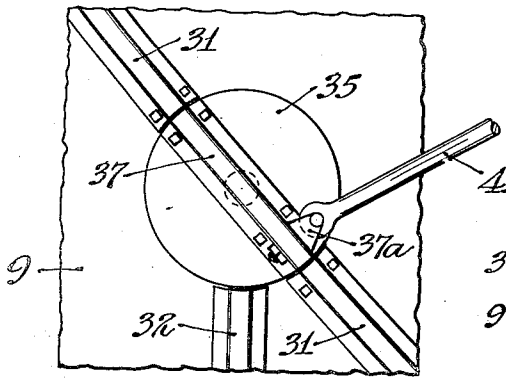


Fig. 4



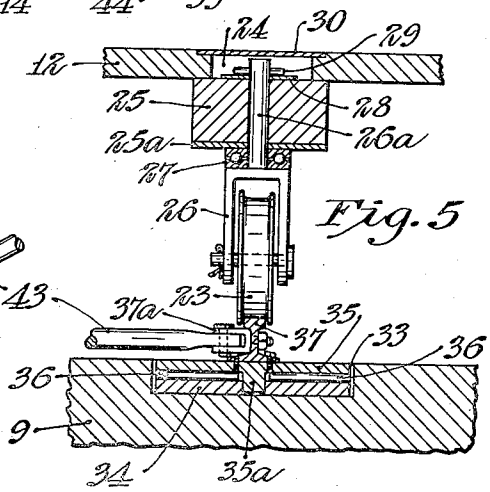
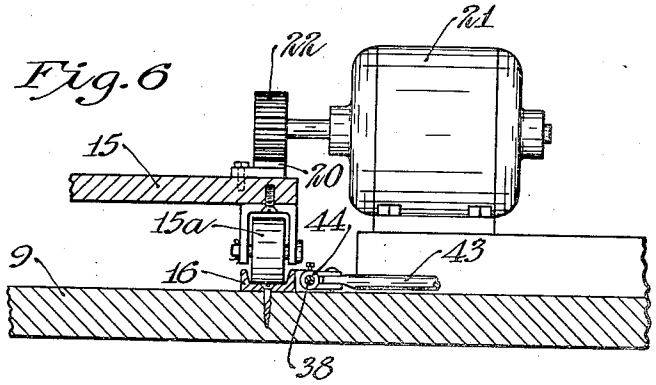


Fig. 5

Fig. 6



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2,003,573

DOUBLE SET STAGE

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Application May 4, 1934, Serial No. 723,921

6 Claims. (Cl. 20—1.123)

My invention relates to theater stages and particularly to stages which accommodate two sets of scenery and may be moved to present one set to the audience at a time while the remaining set is concealed from the audience.

At the present time it is customary to provide a theater with a stage adapted to accommodate only one set of scenery at a time. During each change of scenery a considerable period of time is involved in the removal of one set and the setting up of another and the curtain must conceal the stage during this period of time. During each of such periods of time either the audience must wait through a lapse in the performance or else entertainment adapted to be carried on in front of the curtain must be provided. In either case substantially continuous use of a full stage is impossible, the length of time required to complete a stage performance is unnecessarily long and the handling of scenery must usually be done very rapidly instead of at a speed permitting convenient and methodical handling by a minimum number of stage hands.

It is an object of my invention to provide a stage whereon two sets of scenery may be accommodated in such manner that only one of the two sets is in view of the audience at a time and the remaining set is concealed from the audience for purposes of changing the same and wherein the respective sets may be alternately brought into view of the audience.

Another object is to provide such a stage adapted to accommodate two sets of scenery disposed in back to back relation to each other and to be rotated through successive half revolutions to alternately bring the respective ones of the sets into view of the audience.

Still another object is to provide such a stage which may be successively moved rectilinearly rearwardly from its normal position, rotated through a half revolution and moved rectilinearly forwardly to its normal position.

Yet another object is to provide such a stage which may be propelled through its various movements by suitably controlled mechanical power.

A further object is to provide such a stage having a vertical upstanding wall thereon and extending thereacross to serve as a common back wall for both sets accommodated by the stage and for substantially isolating one set from the other.

A still further object is to provide such a stage having means for firmly supporting the same and permitting and guiding the various movements of the same.

These and other objects and advantages of the invention will be more fully set forth in the following description made in connection with the accompanying drawings, in which like reference characters refer to similar parts throughout the several views, and in which:—

Fig. 1 is a partially broken away top view of my double set stage;

Fig. 2 is a vertical sectional view taken along the line 2—2 of Fig. 1 as indicated by the arrows;

Fig. 3 is a vertical sectional view taken along the line 3—3 of Fig. 1 as indicated by the arrows;

Fig. 4 is a detail top view of a switch in the supporting rails of the stage;

Fig. 5 is a vertical sectional view taken along the line 5—5 of Fig. 1 as indicated by the arrows, and

Fig. 6 is a vertical sectional view taken along the line 6—6 of Fig. 1 as indicated by the arrows.

Referring to the drawings, the wall in which the main arch between the stage and the auditorium of a theater is located is indicated by the numeral 7 and the rear wall of the portion of the theater in which the stage is located is indicated by the numeral 8. A floor located below and vertically spaced from stage level is indicated by the numeral 9. The proscenium is indicated by the numeral 10 and the curtain by the numeral 11.

The movable platform 12 of my stage is of generally rectangular shape except that the shorter sides thereof are curved to conform to the outline of a circle disposed concentric to the center of the platform 12. The platform 12 is so disposed normally that its longitudinal center line extends parallel to the curtain 11.

A vertical upstanding wall 13 is secured to the platform 12 and extends thereacross along the longitudinal center line thereof to form a division and a barrier between the two halves of the platform which are respectively intended to accommodate two sets of scenery.

At its center the platform 12 is mounted on a short vertically disposed shaft 14 located therebelow by means of a collar 14a mounted on the shaft 14 and having a flange 14b secured to the lower side of the platform 12. The shaft 14 is journaled adjacent its lower end in a wheeled frame or truck 15 having wheels 15a.

A pair of forwardly and rearwardly extending spaced parallel channel shaped members 16 having their flanges projecting upwardly are mounted on and secured to the floor 9 to form rails for supporting and guiding the wheels 15a of the truck 15.

A worm wheel 17 is mounted on the shaft 14 intermediate of the collar 14a and the truck 15. A worm 18 mounted on the shaft of an electric motor 19 is meshed with the worm wheel 17. The motor 19 is secured to the truck 15.

A rack 20 is mounted on the upper side of the truck 15 adjacent one of the longitudinal edges of the upper side thereof and extending longitudinally of the truck with its teeth facing upwardly. An electric motor 21 mounted on the floor 9 carries on its shaft a pinion 22 which is meshed with the rack 20.

At each of four points located at the respective intersections of a circle concentric with the axis of the shaft 14 and radii extending from said axis at angles of 45 degrees relative to the wall 13, the platform 12 is provided with a supporting wheel 23. At each of these points the platform 12 is provided with an aperture 24 and a block 25, somewhat larger in horizontal dimensions than the aperture 24, is secured to the lower side of the platform 12. The lower side of the block 25 is provided with a plate 25a. The wheel 23 is revolubly mounted in a yoke 26 having an upwardly extending shank 26a journaled in a vertically extending aperture through the block 25 and the plate 25a. A ball thrust bearing 27 is disposed between the yoke 26 and the plate 25a. A washer 28 is placed on the shank 26a just above the top of the block 25 and a pin 29 extends through a diametrical aperture in the shank 26a just above the washer 28. A plate 30, disposed flush with the upper side of the platform 12 covers the aperture 24. The wheel 23 is of a type having a flange at each of the respective sides thereof.

For supporting and guiding the wheels 23 an annularly arranged rail 31 is provided. The rail 31 is secured to the floor 9 and is disposed along a circle which is concentric with the axis of the shaft 14 when the truck 15 is at its rearward limit of movement. The diameter of this circle is such that all four of the wheels 23 may be engaged therewith simultaneously.

Rails 32 respectively extend forwardly from points on the annular rail 31 at which the wheels 23 are disposed when the wall 13 is disposed parallel to the walls 7 and 8.

At the junction of each of the rails 32 with the annular rail 31, switching means is provided for transferring the wheels 23 from the rails 32 to the annular rail 31 and vice versa. At each of the junctions a gap is provided in the annular rail 31 and the rail 32 is terminated short of the point at which it would intersect the circle along which the annular rail extends. At each junction a recess 33 is formed in the floor 9. A centrally apertured disk 34 is placed in the recess 33 to be supported by portions of the floor 9 immediately underlying the recess 33. A second disk 35 is placed in the recess 33 above and spaced from the disk 34 and with its upper side flush with the surface of the floor 9. A centrally located, downwardly projecting pin 35a formed on the upper disk 35 is journaled in the central aperture of the lower disk 34. An annular series of radially disposed rollers are placed in the space between the upper disk 35 and the lower disk 34 to form a roller bearing whereby the upper disk 35 is freely revoluble. A short rail 37 having a length only slightly less than the length of the gap in the annular rail 31 is placed upon and secured to the upper side of the revoluble upper disk 35 in a diametrical position relative thereto so that the rail 37 may be revolved about a vertical axis through its center.

The disk 35 and the rail 31 are so situated relative to the rails 31 and 32 that when the rail 37 is rotated to one position it is aligned with portions of the annular rail 31 to fill the gap therein and in effect make the annular rail 31 continuous. In another position of the rail 37 it is aligned with the rail 32 and in effect forms an extension thereof.

Means is provided for insuring that all four of the rails 37 will be simultaneously disposed in corresponding positions and operating the rails 37 to shift the same in unison from one to the other of the two aligned positions previously described. A pair of rods 38 are mounted respectively in guides 39 attached to the outer sides of the respective tracks 16 for longitudinal sliding movement. The rear end of each of the rods 38 carries a rack 40. Pinions 41, mounted on the respective ends of the shaft 42a of an electric motor 42, are meshed with the respective ones of the racks 40. Each of the revoluble rails 37 carries a pair of lugs 37a on a side thereof. A link 43 is pivotally connected at one of its ends to the lugs 37a and at the other of its ends to a member 44 secured to one of the longitudinally slidable rods 38. The locations of the lugs 37a on the rails 37 and the members 44 on the rods 38 are such that rearward movement of the rods 38 will swing the rails 37 into alignment with the annular rail 31 and forward movement will swing the rails 37 into alignment with the rails 32.

All three of the motors 19, 21 and 42 are of a reversible type and, of course, may be controlled by any conventional type of electric motor control equipment adapted for starting, stopping and reversing operations.

At the sides of the movable platform 12 a permanent, immovable partial stage flooring 45 is provided, the upper surface of the flooring 45 being flush with the upper surface of the movable platform 12. The edges of the flooring 45 facing toward the platform 12 are so shaped that the forward halves of the respective curved ends of the platform 12 will nest firmly thereagainst when the platform 12 is in its normal or forwardmost position, that the rearward halves of the respective curved ends of the platform 12 will be disposed close thereto but free thereof when the platform 12 is in its rearmost position, and that no portion of the flooring 45 will block rotation of the platform 12 when the platform is in its rearmost position.

Operation

The normal position of the platform 12 is that shown in dotted lines in Fig. 1. The platform is in its forwardmost position with the forwardly facing straight edge thereof aligned with the forward edge of the proscenium 10 and the forward halves of the curved edges thereof nested against the edges of the flooring 45. The truck 15 is positioned on the forward portions of the tracks 16 and the wheels 23 are positioned on the forward portions of respective rails 32.

The scenery in use at a given time is disposed on the forward half of the platform 12 with the wall 13 serving as a back wall therefor. While the scenery on the forward half of the platform is in use in connection with one part of a performance, scenery on the rear half of the platform 12 and which has been used in connection with a previous part of the performance may be removed and replaced by scenery for a part of the performance to follow.

When a change of scenery is desired at the end of one part of a performance, the motor 21 is operated to apply power through the pinion 22 and rack 20 to propel the truck 15 and the platform 12 rearwardly to their rearmost positions. The wheels 23 will, of course, follow the rails 32 and at the end of the rearward movement will rest upon the rotatable switch rails 37. The motor 42 is then operated to apply power through the pinions 41 and the racks 40 to shift the rods 38 rearward. Movement of the rods 38 will be

transmitted through the links **43** to swing the switch rails **37** into alignment with the annular rail **31** and the wheels **23** will be rotated with the switch rails **37**. Motor **19** will then be operated to apply power to the platform **12** through the worm **18** and worm gear **17** to rotate the platform **12** through an angle of 180 degrees. During such rotation the wheels **23** will follow the annular rail **31** and at the end of such rotation will rest upon the switch rails **37**. The motor **42** is then operated to swing the switch rails **37** and the wheels **23** resting thereon back into alignment with the rails **32** after which the motor **21** is operated to propel the truck **15** and the platform **12** to their forwardmost or normal position.

The above described operation has obviously interchanged the positions of the portions of the platform respectively situated at opposite sides of the wall **13** and in so doing has quickly brought into operative position a previously prepared set of scenery and has brought the set which has just been used into a position concealed from the audience whereby the same may be removed and replaced by still another set of scenery. It is apparent that successive changes in scenery may be carried out as described above throughout an entire performance.

Because of the rapidity with which new scenery may be brought into operative position it is obvious that a complete performance may be presented without appreciable breaks in its continuity and in a minimum period of time. Also, it is possible to present a longer performance in a specified period of time than heretofore and the necessity of providing entertainment adapted for presentation in front of the curtain during changes of scenery is obviated.

It is apparent that I have invented a novel, effective and quickly and easily operated movable double set stage.

It will, of course, be understood that various changes may be made in the form, details, proportions and arrangement of the parts, without departing from the scope of my invention, which, generally stated, consists in a device capable of carrying out the objects above set forth, and in the novel parts and combinations of parts disclosed and defined in the appended claims.

What is claimed is:—

1. A movable theater stage comprising a platform, wheeled supporting means for said platform, guides for said supporting means, said guides being arranged to guide the wheels of said supporting means rectilinearly for forward and rearward movement of said platform and in a circular path for rotary movement of said platform in a horizontal plane when said platform is in its rearward position, means for moving said platform forwardly and rearwardly and means for rotating said platform when the same is in its rearward position.

2. A movable theater stage comprising a platform, a wheeled support, said platform being mounted on said wheeled support for rotation with respect thereto about a vertical axis, a series of supporting wheels each located at a distance from said axis, means connecting each of said supporting wheels to said platform and arranged to turn about a vertical axis to permit facing of said wheels in various directions, means for guiding said wheeled support in forward and rearward movement thereof, means for guiding said supporting wheels in forward and rearward movement, means for guiding said supporting wheels around a circular path concentric with the axis of rotation of said platform when said platform is in its rearward position, means for moving said platform forwardly and rearwardly and means for rotating said platform relative to said wheeled support.

3. A movable theater stage comprising a platform, a wheeled support for said platform, said platform being mounted on said support for rotation relative thereto about a vertical axis, said wheeled support being forwardly and rearwardly movable, supporting wheels for said platform each arranged for rotation about a horizontal axis and so mounted on said platform as to be revoluble about a vertical axis to face in various directions, said supporting wheels being respectively radially spaced from the axis of rotation of said platform by equal distances, several forwardly and rearwardly extending rails for supporting and guiding said wheeled support, an annularly extending rail for supporting and guiding said supporting wheels and disposed on a circle concentric with the axis of rotation of said platform when said wheeled support is in its rearward position, a plurality of forwardly and rearwardly extending rails for supporting and guiding said supporting wheels and disposed on lines intersecting said circle, and means for shifting said supporting wheels from said plurality of rails to said annular rail when said platform is in its rearward position.

4. The structure defined in claim 3, and means for moving said platform forwardly and rearwardly and means for rotating said platform relative to said wheeled support.

5. A movable theater stage comprising a platform, a wheeled support for said platform, said platform being mounted on said support for rotation with respect thereto about a vertical axis, said wheeled support being forwardly and rearwardly movable, supporting wheels for said platform each arranged for rotation about a horizontal axis and so mounted on said platform as to be revoluble about a vertical axis to face in various directions, said supporting wheels being respectively radially spaced from the axis of rotation of said platform by equal distances, several forwardly and rearwardly extending rails for supporting and guiding the wheels of said wheeled support, an annularly extending rail for supporting and guiding said supporting wheels and disposed on a circle concentric with the axis of rotation of said platform when said wheeled support is in its rearward position, a plurality of forwardly and rearwardly extending rails for supporting and guiding said supporting wheels and disposed on lines intersecting said circle, said annular rail having a gap therein at the intersection of each of said lines with said circle and the rearward portion of each of said plurality of rails terminating short of said circle, and a short section of rail at each intersection of said circle with one of said lines swingable between positions wherein it will respectively align with said annular rail to close the gap therein and align with the corresponding one of said plurality of rails to form in effect an extension thereof.

6. The structure defined in claim 5 and means for moving said platform forwardly and rearwardly and means for rotating said platform relative to said wheeled support.

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