



July 5, 1966

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3,258,884

WIDE ANGLE PORTABLE STAGE AND SHELL

Filed Jan. 18, 1963

3 Sheets-Sheet 2

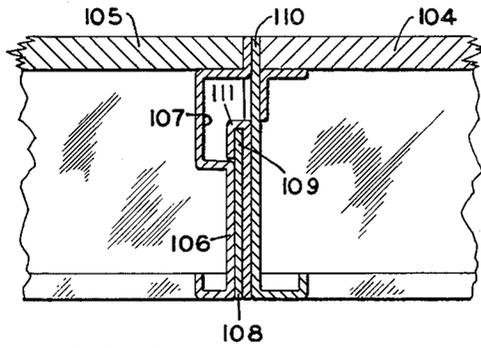


FIG. 2

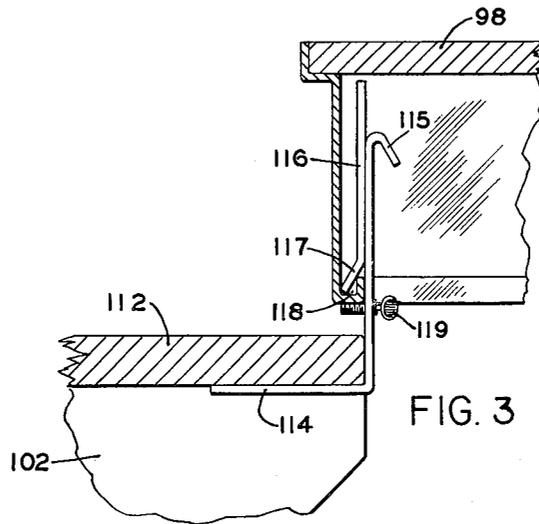


FIG. 3

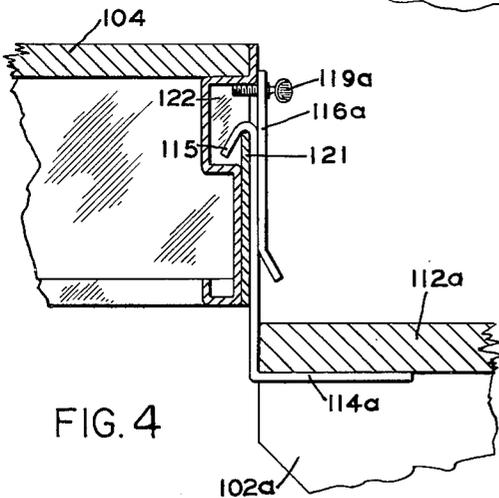


FIG. 4

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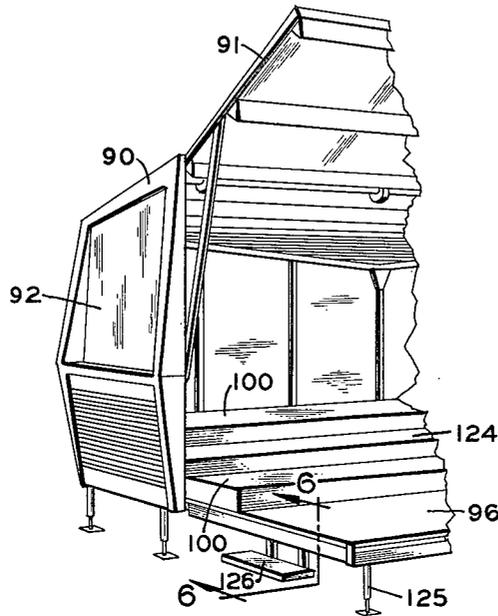


FIG. 5

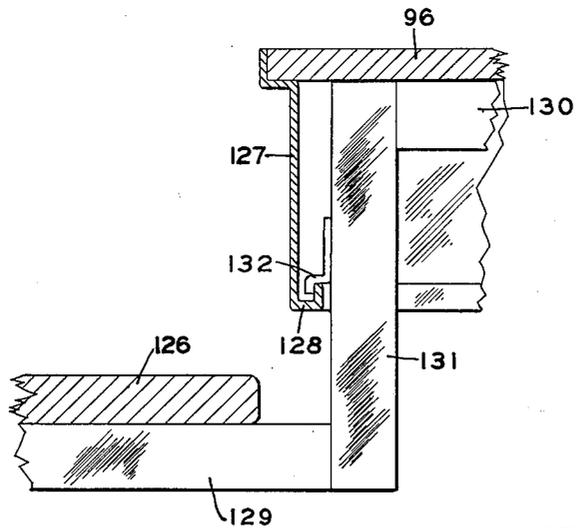


FIG. 6

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**WIDE ANGLE PORTABLE STAGE AND SHELL**

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Filed Jan. 18, 1963, Ser. No. 252,336  
6 Claims. (Cl. 52-6)

The present invention represents an improvement over the structure of co-pending application Serial No. 89,520 filed Feb. 15, 1961, now U.S. Patent No. 3,181,203, in that it provides for greater versatility in use and specifically in providing a sound projecting shell that is adapted to larger audiences than the previously invented structure above identified. This portable stage and shell is novel particularly in having side panels adapted to being extended angularly sideways to broaden the path of projected sound from the shell. In addition this structure incorporates a novel interlocking platform and accessories that make it possible to extend the stage of the device beyond the frontal confines of the basic trailer itself and also to extend it indefinitely in a forward direction. The stair step accessory is adapted to be used either on the front or at the side of any of the platform units to provide great flexibility of use in access to the platform at its upper level.

Accordingly, it is the principal object of this invention to provide a novel wide angle portable stage and shell.

It is a further object of this invention to provide such a wide angle stage and shell that will project sound from a performance given on the stage more effectively to a greater audience than otherwise would be true.

A further object of this invention is to provide a wide angle stage and shell the performing platform for which may be ascended to or descended from safely and at nearly any selected location.

Still a further object of this invention is to provide a portable stage and shell of safe construction which is yet readily alterable in form for different uses.

Other and further objects of the invention are those inherent and apparent in the apparatus as described, pictured and claimed.

To the accomplishment of the foregoing and related ends, this invention then comprises the features herein-after fully described and particularly pointed out in the claims, the following description setting forth in detail certain illustrative embodiments of the invention, these being indicative, however, of but a few of the various ways in which the principles of the invention may be employed.

The invention will be described with reference to the drawings in which corresponding numerals refer to the same parts and in which:

FIGURE 1 is a perspective view of the portable stage and shell set up for use to project sound in a broad lateral pattern;

FIGURE 2 is an enlarged sectional view on a line in the direction of the arrows 2-2 of FIGURE 1;

FIGURE 3 is a view drawn to the same scale as FIGURE 2 and is a fragmentary sectional view taken on the line and in the direction of the arrows 3-3 of FIGURE 1;

FIGURE 4 is an enlarged fragmentary view drawn to the same scale as FIGURES 2 and 3 taken on the line and in the direction of the arrows 4-4 of FIGURE 1;

FIGURE 5 is a fragmentary view of the basic structure in which the stage members have been arranged to form a plurality of step-like platforms, or risers as they are called in the trade, that are drawn to the same scale as FIGURE 1; and

FIGURE 6 is a fragmentary view taken on the line and in the direction of the arrows 6-6 of FIGURE 5 and drawn to the same scale as FIGURES 2, 3 and 4.

Referring to FIGURE 1, the trailer body 90 with its hinged canopy 91 forming one side of the trailer body

structure is generally the same as that illustrated and described in the co-pending application Serial No. 89,520 filed Feb. 15, 1961.

One variation in the present disclosure as compared to the previous structure are the end closure panel members 92 and 94 which are hinged to the trailer ends at the back of the trailer that forms the back of the shell stage and are releasably secured near the front of the stage and shell adjacent to the canopy 91. An extendable brace 95 shown clearly for hinge panel 92 is duplicated with respect to panel 94. By means of these extendable braces the panels 92 and 94 may be hinged open any degree in order to allow for more lateral movement of sound generated within the shell and projected outwardly. These controllable baffles aid greatly in concentrating the projected sound directly in front of the shell when they are closed and allowing some lateral projection when opened without permitting undue dissipation of projected sound through the ends in a direction in which the audience is not positioned. In FIGURE 5 the end baffle 92 is shown in its closed position when a concentration of sound straightforwardly from the shell is desired.

In front of the stand and secured thereto are a plurality of platform elements 96 all of which are substantially identical. Identical to the elements 96 are the platform members 98, but they are supported principally by the adjacent element 96 and supporting legs secured thereto such as the ones shown at 99. The supporting legs are used throughout to support platform ends that are otherwise unsupported.

In front of the row of platform members 96 is a row designated 100 which are identical to the ones 96 and are given a separate designation merely for the sake of convenience in describing their location. The units 100 are supported at their rear at the portion thereof nearest to the basic trailer unit 90 by an arrangement to be described in detail in connection with FIGURE 2 and at their fronts by supporting legs 99 comparable to those previously referred to in connection with the elements 96.

The legs 99 are similar in many respects to those illustrated in the application Serial No. 89,520 referred to above and are provided with additional fine thread screws for adjustment at the bottom which is indicated at 101 in connection with several of the stands 99.

At 102 and 102A are shown two pairs of step members to provide easy access to the top of the platform made from the elements 96 and 100 which in fact are identical but secured in a slightly different manner depending on the point of application to the platform members. Actually the steps 102 are secured to an element 104 which is identical to the units 96 and 100 as is a second linking unit 105. The manner in which these units are connected to each other will be discussed in more detail in connection with FIGURE 2.

As shown in FIGURE 1 the stand has been set up in a manner to make it adaptable to an award program, fashion show or the like where models may ascend the steps 102 and parade across the platform and out the runway being formed by the units 105 and 104 and down the steps 102A for closer inspection by an audience if desired. On the other hand award winners may ascend the steps 102 and receive their awards and descend the steps 102 after the award presentation has been completed.

A railing arrangement such as that illustrated in the copending application Serial No. 89,520 referred to above may be used in conjunction with the structure illustrated here, if desired.

Turning now to FIGURE 2, the method of securing the back of one of the stand units 96, 100, 104, 105 to the front of another one of these units is shown clearly.

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As shown here the unit 105 and all similar units has provided at its front a channel member of sheet metal or similar material 106 which has a channel 107 formed therein that runs across the front of the device parallel to its top. Secured to the plate member 106 is a second plate member 108 which extends up past the lower edge of channel 107 and forms a hook or rib 109. The rear of element 104 is formed by a plate 110 which in turn has welded to it a second plate the upper of which is formed in a reverse channel 111 that engages and hooks over the top edge of plate 109 thereby interconnecting the rear of the unit 104 with the front unit 105. Similar construction will be found between the rears of the units 100 and the fronts of elements 96 and also between the rears of the elements 96 and a channel formed in the lower side of the wagon box portion 90 below canopy 91.

It will be observed that the flanking units 98 are not, at their rears, in position to engage the groove in the side of the trailer which is closed by canopy side 91. They are supported instead by being clamped adjacent to the corners of the trailer to the element 96 adjacent to them with an ordinary C-clamp. The C-clamp is well and commonly known and it is not thought necessary to describe or show it here. The outboard corner of the elements 98 at the rear are supported by one of the legs 99, a foot 101 showing just below the steps 102 in FIGURE 1. The connection between the element 98 and the element 100, however, is identical to that shown in FIGURE 2.

In FIGURE 3 there is illustrated how the upper end of stair steps 102 are secured to a marginal side portion of a platform unit, in this case the one designated 98 but which would be identical in the case of those numbered 96, 100, 104 or 105. In FIGURE 3 appears in section the top step panel 112 to which is shown secured at least one bracket of which a pair are provided. This bracket has a generally L-shaped member 114, the longer portion of which may be called a leg and the shorter a foot, with a hook 115 formed at its upper end which will be employed in a manner to be described hereinafter. Secured or otherwise formed with the L-shaped member 114 and extending above hook 115 is a separate bracket means 116 which is bent outwardly slightly or obtusely at the bottom to form a hook 117 which faces in a reverse direction from the hook 115. The side panel of unit 98 has its bottom bent into a channel as appears at 118 into which the hook 117 fits. Hook 117 and bracket member 114 therefor support the weight of the upper end of the stairs. A suitable safety device such as thumb screw 119 extends through the bracket 114 and engages the underside of the channel member 118. Once hook 117 has been engaged in channel 118 and the thumb screw 119 placed in position, there is no possibility of unhooking the stair step 102 from platform member 98 short of destruction of one or the other of the two members. The bottom of unit 102 is suitably supported by adjustable legs such as the ones shown at 120 in FIGURE 1.

In FIGURE 4 stair step 102A is shown in which the top step 112a is again supported by bracket 114a. In this use of the stair step, however, the hook 115 is employed to engage in the forward channel's hook over the forward member 121 of the outer end of platform unit 104. All of the platform units have a similar portion at their front into which the stair step can be engaged. Portion 116a extends up far enough that thumb screw 119a may be inserted under the top of the channel at the front channel 121 formed in the front of platform unit 104, similarly to the method used and illustrated in FIGURE 3. When the stair step is engaged with the front of a platform member, therefore, the thumb screw 119a now engages the underside of the top of channel 121 so that the hook 116a cannot be disengaged from the member on which it is hooked so long

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as the thumb screw is in place. As in the case of stair steps 102, the stair steps 102a are supported at their outer end by suitable adjustable leg 120a.

Turning now to FIGURE 5 panels 96 are shown engaged to the front of the trailer at a lower point than is shown in FIGURE 1 but the same technique is employed. Panels such as the others of the ones 100 are laid lengthwise at the back of the trailer unit 90 and on top and at the rear of the panels 96 thus forming a series of steps; first the outer end of platform member 96; then on the platform units 100; then on the inside floor 124 of the trailer and finally on the top of the other platform units 100 which are arranged lengthwise across the back and rest on the floor 124. This type of arrangement is often used for musical groups such as orchestras, choruses and the like, where a plurality of musicians are preferably placed in a position where they can all see the conductor. Legs comparable to the ones 99 but much shorter and therefore designated 125 are used to support the outer end of the platform elements 96 in this arrangement.

With the platform set up at this low level, access to the ground from the platform is conveniently and easily had with a single stair step. Such a step is shown at 126. The manner of securing this single stair step 126 to the side portion of the trailer platform is shown clearly in FIGURE 6.

In that figure the side panel 127 of unit 96 is shown having a channel 128. Channel 128 is identical to the channel 118 in FIGURE 3 shown on unit 98. A pair of brackets extend under the stair steps 126 and are shaped with a pair of parallel legs 129 and 130 which are interconnected by a vertical member 131 secured to each of the other two at right angles at its opposite ends. Intermediate thereof is a hook member 132. By tipping the stair step 126 upwardly at its outer end, hook 132 may be engaged or disengaged by the channel 128 and as the step comes down, the member 130 gradually engages along its length the underside of the floor of the platform member 96 and thereby supports the step approximately half way between the platform 96 and the ground surface, as shown in FIGURE 6.

It is apparent that many modifications and variations of this invention as hereinbefore set forth may be made without departing from the spirit and scope thereof. The specific embodiments described are given by way of example only and the invention is limited only by the terms of the appended claims.

What is claimed:

1. A stage and sound projecting shell of the general type comprising a trailer body having one side hinged at its top with means for raising it at the bottom whereby it forms a projecting canopy and opens one side of the trailer, combined with a plurality of platform means removably engaged with the trailer and each other to form an extending platform at the open side of said trailer, the improvement comprising, platform members removably secured to other platform members and projecting beyond each end of said trailer, leg members supporting the outboard portions of all platform members, said platform members having exposed front channels and cooperating plates at their outboard ends, stair means having first and second brackets having hook portions, corresponding first and second bracket means extending in both directions beyond said first and second bracket hook portions, at least one of said hook portions removably engaged with one of said cooperating plates and channels of a platform member and securing means secured to said bracket means in spaced relation to said hook portions and engaging said platform members to prevent unintentional disengagement of the hooked portion from a cooperating plate and channel of said platform member.

2. The structure of claim 1 in which said first and second brackets comprise: first bars having feet secured to the top stair step and legs extending substantially normal to the top surface of said top stair step above it, said

hook portions formed at the top of said first bar legs and extending away from said top stair step, and second bars secured to said first bars on the side of the latter nearer said stair step with the longer portions of said second bars lying flat against said first bar legs and their lower obtuse angled ends spaced above said top stair step, said longer portions extending a distance above said hook portions formed in said first bars, said first bars having a securing means receiving structure below the obtuse angled ends of said second bars, said second bars having securing means receiving structure in said second bars above said hook portions.

3. A stage and sound projecting shell of the general type comprising a trailer body having one side hinged at its top with means for raising it at the bottom whereby it forms a projecting canopy and opens one side of the trailer, combined with a plurality of platform means removably engaged with the trailer and each other to form an extending platform at the open side of said trailer, the improvement comprising, platform members removably secured to other platform members and projecting beyond each end of said trailer, leg members supporting the outboard portions of all platform members, openings at the ends of said trailer body, movable panels hinged on vertical axes to said trailer adjacent said openings, brace members secured to said movable panels and said trailer to hold said movable panels at selected angles relative to the end openings of said trailer.

4. An improved portable stage and sound projecting shell of the general type comprising a trailer having a body with a floor, one side hinged to the top of the body, means for raising said one side to form a canopy extending above an open side and a plurality of platform members removably engaged with the trailer body and each other to form an elevated performing area, larger than the trailer body, the improvement comprising; said platform members having a given vertical thickness, said trailer and platform members having cooperating interengaged means securing one end of said platform members to and supporting them with said trailer body with tops spaced a distance equal to twice said given vertical thickness of a platform member below the floor of said trailer, leg members secured to the outboard ends of said platform members supporting them at the same elevation as the ends supported by said trailer body, a step, brackets secured to said step, a portion of said brackets engaging the bottom of said step, vertical portions of said brackets extending normal to said first portion and above said step, hooks formed on the sides of said vertical portions facing said step and engaged in the side channel of a platform member, and horizontal portions secured to and extending from the tops of said vertical portions away from said step and engaged with the inside bottom of said platform member engaged by said hooks.

5. In combination with a portable stage and sound projecting shell of the general type comprising a trailer body having one side pivotally secured to the trailer near its top so as to form a canopy when in extended position, a plurality of platform members, means for removably securing said platform members to said trailer side at a level with the trailer floor and to each other at the same level to provide a platform extending beyond said trailer and beyond said canopy, each of said platform members having an outwardly facing channel formed along its front, a stair step accessory, means for securing said stair step accessory to said platform members comprising: a pair of bracket secured to said stair step accessory and extending above the top step thereof, said brackets comprising a generally L-shaped bracket member having a leg and a foot, a hook formed at the top of the leg and facing away from the foot of said L-shaped bracket mem-

ber, a second bracket member comprising a straight piece of material similar to the material of said L-shaped bracket leg member, said second bracket member secured to L-shaped bracket member with a portion of said second bracket member extending above the hook formed at the top of the leg, a threaded hole in said second bracket member above said hook in L-shaped member and threaded securing means removably engaged in said opening, whereby said stair step accessory is secured to the front of a platform member by engaging the hook portion of said leg in the outwardly facing channel of a platform member and said threaded securing means extending through said second bracket member to engage the inside top of said outwardly facing channel engaged by said hooks.

6. In combination with a portable stage and sound projecting shell of the general type comprising a trailer body having one side pivotally secured to the trailer near its top so as to form a canopy when in extended position, a plurality of platform members, means for removably securing said platform members to said trailer side at a level with the trailer floor and to each other at the same level to provide a platform extending beyond said trailer and beyond said canopy, said platform members having channels formed along their sides, a stair step accessory, means for securing said stair step accessory to said platform members comprising: a pair of brackets at the tops thereof, said brackets comprising a generally L-shaped bracket member having a leg and a foot, a second bracket member comprising a straight piece of material similar to the material of said L-shaped bracket leg member and having one end extending at an obtuse angle with respect to its remaining and greater portion, said second bracket member secured to the stair step side of said L-shaped bracket member with a portion of said first bracket member extending below said obtuse angle portion of said second bracket member, said first bracket member leg having a threaded opening therein below said obtuse angle portion of said second bracket member and threaded securing means removably engaged in said opening, whereby the obtuse angle portion of said second bracket member is engaged in the channel formed at the side of the platform member and secured therein by the threaded securing means extending through the opening in said first bracket member leg and engaging the bottom of a platform side channel.

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