Jan. 18, 1966 W. BERG 3,229,430

UNITARY FOLDABLE CHOIR RISER

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FIG. 1.

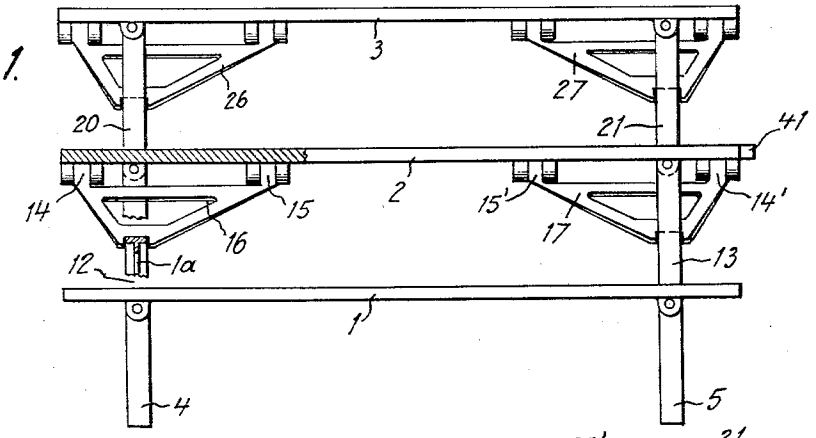
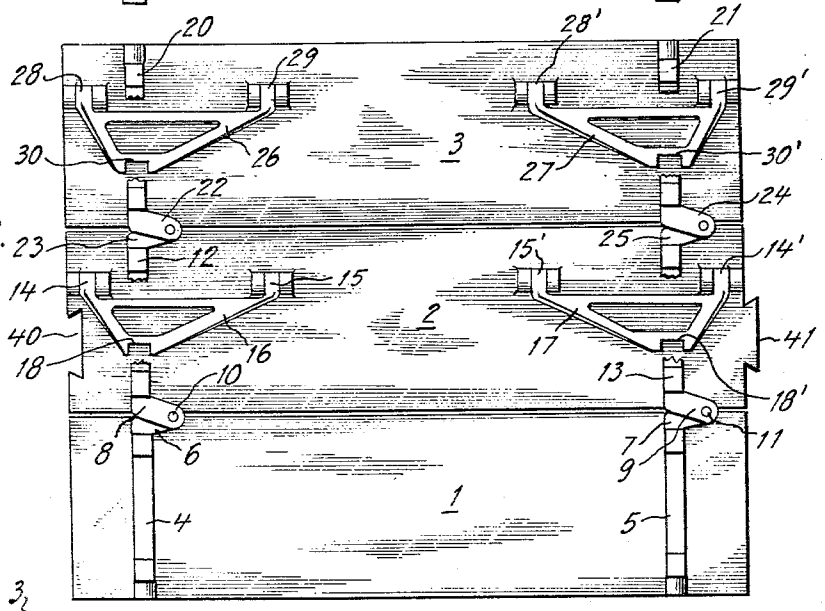


FIG. 2.



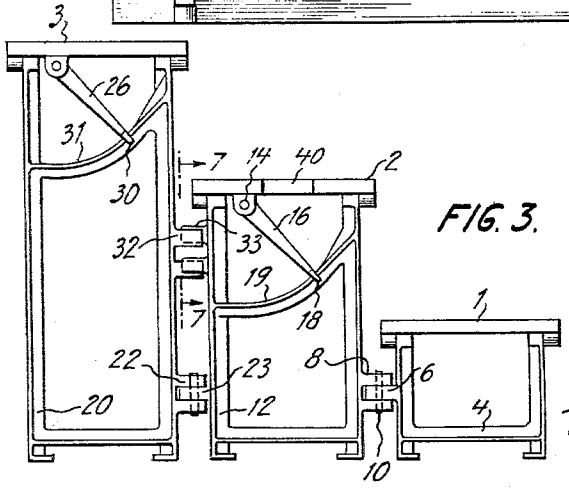


FIG. 3.

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UNITARY FOLDABLE CHOIR RISER

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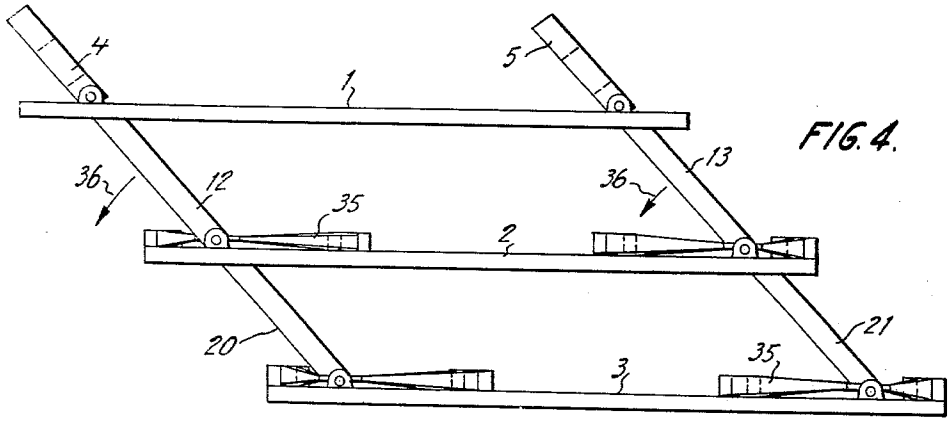


FIG. 4.

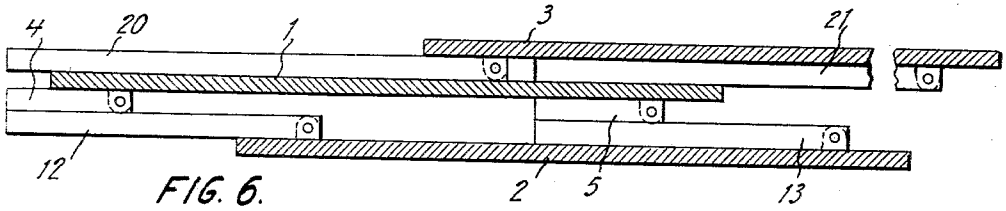


FIG. 6.

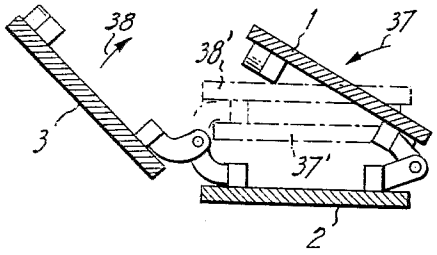


FIG. 5.

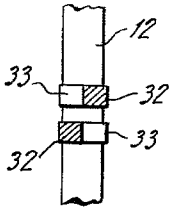


FIG. 7.

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UNITARY FOLDABLE CHOIR RISER

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2 Claims. (Cl. 52—183)

The present invention is directed to a choir riser, and more particularly to a device which is foldable and may be made into a compact package for transportation and storage.

It is among the objects of the present invention to provide a structure of the type described in which it lends itself to the provision of a plurality of steps which are joined together to give a rigid structure when in use.

It is also among the objects of the present invention to provide a structure which is light in weight, which may be readily folded in a simple manner to provide a compact package and yet which is sufficiently rigid when in use so as to safely hold a substantial number of individuals.

It is further among the objects of the present invention to provide a structure wherein a plurality of choir risers may be jointed together side by side in order to accommodate a relatively large number of individuals.

The invention is more fully described in connection with the accompanying drawing constituting a part hereof, in which like reference characters indicate like parts, and in which—

FIG. 1 is a front elevational view of a single unit constituting the choir riser of the present invention;

FIG. 2 is a bottom view of the riser shown in FIG. 1;

FIG. 3 is a side elevational view thereof;

FIG. 4 is a front elevational view, the riser being in the upside down position and in the process of being folded;

FIG. 5 is an end elevational view thereof showing a further step in the folding of the riser;

FIG. 6 is a vertical longitudinal cross-sectional view thereof in the completely folded position, and

FIG. 7 is a fragmentary view taken along line 7—7 of FIG. 3 and illustrating a stop member for proper retaining of the structure in its operative position.

The choir riser consists essentially of two or more steps, here shown three in number and designated respectively by numerals **1**, **2** and **3**.

Lowest step **1** has pairs of legs **4** and **5** located adjacent to the ends thereof, the legs of each pair being joined together in a unitary structure. Brackets **6** and **7** of legs **4** and **5** are connected with brackets **8** and **9** by hinge members **10** and **11**.

Step **2** is provided with similar pairs of legs **12** and **13** which contain brackets **8** and **9**. Step **2** is provided with pairs of hinges **14–15** and **14'–15'** on opposite sides of the respective legs **12** and **13**. They are provided with pivoted latch members **16** and **17** having notches **18** and **18'**. Said notches or froks straddle arcuate memstructure rigidly in an open position. When they are are in the position shown in FIGS. 2 and 3, they hold the structure rigidly in an open position. When they are moved against the under side of the step, then the structure may be folded.

When three steps are made part of the structure, the third and highest step **3** is provided with pairs of legs **20** and **21** which are in alinement with the corresponding legs of steps **2** and **1**. Brackets **22** and **23** on steps **3** and **2**, respectively, are connected by pins forming hinge joints. Similarly on the opposite side of the steps brackets **24** and **25** on steps **3** and **2**, respectively, are hinged together. Latches **26** and **27** of the same construction as latches **16** and **17** are pivoted on hinges **28–29** and **28'–29'** and have notches **30** and **30'** straddling arcuate members **31** on legs **20** and **21**. These latches operate in the same manner as latches **16** and **17** by the sliding of notches **30** and **30'** along the arcuate members.

As shown in FIGS. 3 and 7, stop members are provided wherein there extends from legs **20** a pair of stop members **32** in the direction of step **2**. Similarly there extends from legs **12** a pair of stop members **33** in the direction of step **3**, the two sets of stop members cooperating as more particularly shown in FIG. 7, to limit the position of the several steps so that they are in alinement when in operative position.

The structure as shown in FIGS. **1**, **2** and **3** is in the operative position and the folding thereof is illustrated in FIGS. 4, 5 and 6. As shown in FIG. 4, the riser is overturned so that the highest step **3** is on the floor. The several latches are shifted into the positions shown at **35**, being folded against the under sides of steps **2** and **3**. Then the entire structure is pivoted as shown by arrows **36**, to the left, whereby all of the steps fall into a single plane. As shown in FIG. 5, step **1** is folded in the direction of arrow **37** over step **2** and takes the position **37'**. Then step **3** is folded over in the direction shown by arrow **38** to cover step **1** and it takes the position **38'**.

In order to provide for a plurality of risers assembled as a single unit, there is provided on at least one of the steps, means for interlocking temporarily two or more risers. As shown in FIG. 2, there is provided a mortise **40** on the left of step **2** and a corresponding tenon **41** on the opposite side thereof. When two of the risers are to be joined, the tenon **41** of one riser will be inserted into the mortise **40** of an adjacent riser. In this manner, any number of risers may be rigidly secured together. If desired, such mortise and tenon joints may be provided on more than one step of a riser.

While the invention has been described as used for choir risers, it is not limited thereto. It is applicable for many other purposes such as a portable stairway, an access to a trailer, and in other applications requiring steps of a portable nature.

I claim:

1. A choir riser comprising, a plurality of substantially flat elongated steps of increasing elevation rearwardly, a spaced pair of front and rear legs at each end of each of the steps, each of said pairs being pivoted to the inside of one of said steps, the rear legs of one step being hinged to the front legs of an adjacent higher step for relative horizontal movement in one direction with a space between said legs, an arcuate rail constituting a brace member between the legs in each pair of front and rear legs, said arcuate rail extending from a point near the upper end of each front leg to a lower and intermediate point on the rear leg, a separate latch for each pair of legs, said latch being pivoted at the rear of the underside of the step, said latches each having an end in embracing contact with the arcuate rails, said latches when in extended leg-bracing positions extending diagonally forward from their hinges and have their free rail-embracing ends located forwardly of the said hinges, each latch being triangular in shape and having arms converging from its points of pivotal attachment to the step, with said arms meeting at said point of embracing contact with the rail, each rail being substantially T-shaped in cross section, the rear ends of each latch being pivoted at the opposite sides of the pairs of legs, and elements of the leg hinges on one of the steps being all located below the arcuate rails thereon and in engagement with co-operating leg elements on another of the steps, which latter elements are located below the arcuate rails on the latter step.

2. A choir riser comprising, a plurality of substantially flat elongated steps of increasing elevation rearward-

ly, a pair of spaced front and rear legs at each end of the steps, each of said pairs being pivoted to the inside of one of said steps, the front legs of the rear step being hingedly attached to the rear legs of the front step, an arcuate rail constituting a brace member between the legs in each pair, said rail having a forward end terminating at the upper end of the front leg and a rear end terminating substantially centrally of the height of the rear leg, the hinges consisting of hinge elements on the front legs of the rear step, which hinge elements are all located below the arcuate rails of said step and which hinge elements cooperate with complementary hinge elements provided on the rear legs of the forward step and which latter hinge elements are located below the arcuate rails on said front step, the rails on the forward step having their rear ends attached to their rear legs at a point between the hinge elements on said legs, and a substantially V-shaped latch having a notched forward end embracing each rail, said latches being pivoted at the rear

ends of the steps and when extended forwardly in leg-bracing position, the latches have their forward ends disposed forwardly of their pivotal connections to the steps.

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