United States Patent [19]

Sanders

[11] **3,885,827**

[45] **May 27, 1975**

[54] **GRANDSTANDS**

[76] Inventor: **John Edward Sanders**, Ridgeway, The Moorings, Lower Heswall, Wirral, Cheshire, England

[22] Filed: **Dec. 21, 1972**

[21] Appl. No.: **317,230**

[30] **Foreign Application Priority Data**

Sept. 7, 1972 United Kingdom 41471/72

[52] **U.S. Cl.** **296/64**; 52/8; 182/127

[51] **Int. Cl.** **B60n 1/02**

[58] **Field of Search** ..... 296/1 R, 64; 52/8, 9, 10; 297/232; 182/127

[56] **References Cited**

UNITED STATES PATENTS

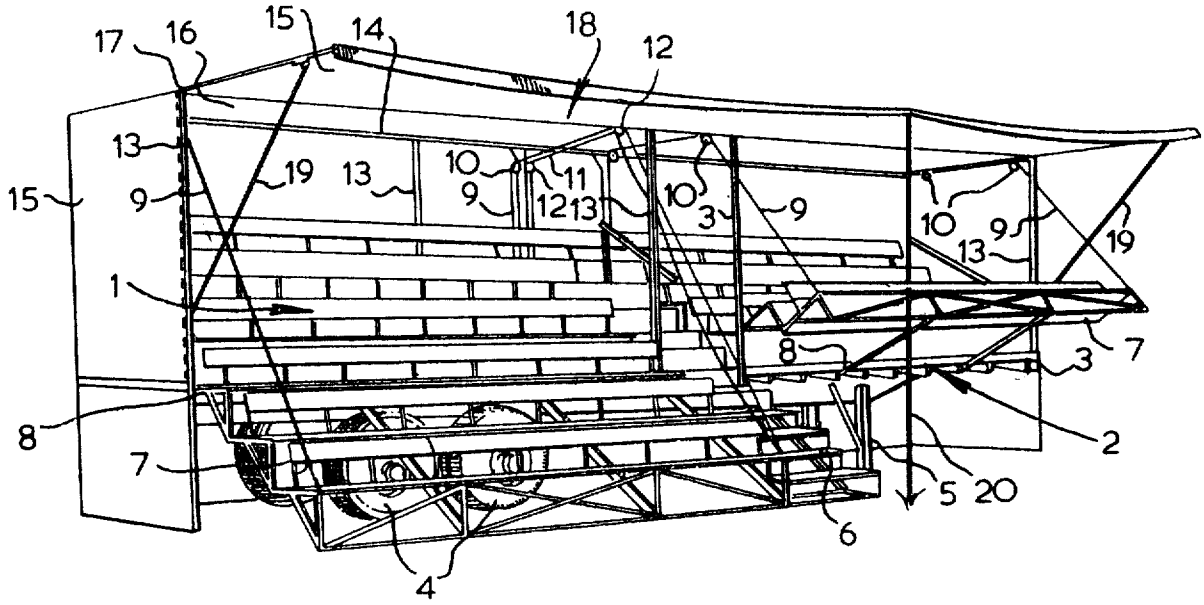
2,587,159	2/1952	Holmes	296/1 R
3,070,849	1/1963	Irwin	52/8
3,425,173	2/1969	Carlo	52/8
3,469,355	9/1969	McGann	296/64
3,752,531	8/1973	Jones	296/64

Primary Examiner—Philip Goodman
Assistant Examiner—John A. Carroll
Attorney, Agent, or Firm—Scrivener Parker Scrivener and Clarke

[57] **ABSTRACT**

The present invention discloses and claims a grandstand for use in providing seating capacity at various public functions, the grandstand being mobile and comprising a plurality of seats mounted on a substantially horizontal base, the base being adapted to be moved to any desired location as and when required.

39 Claims, 10 Drawing Figures



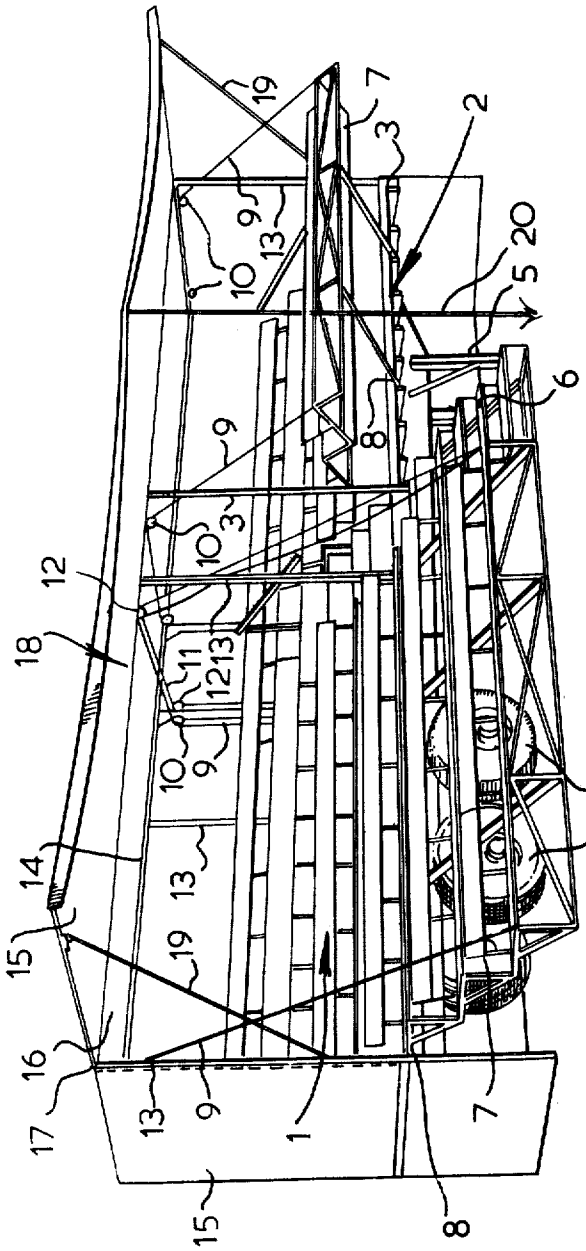

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FIG. 1.

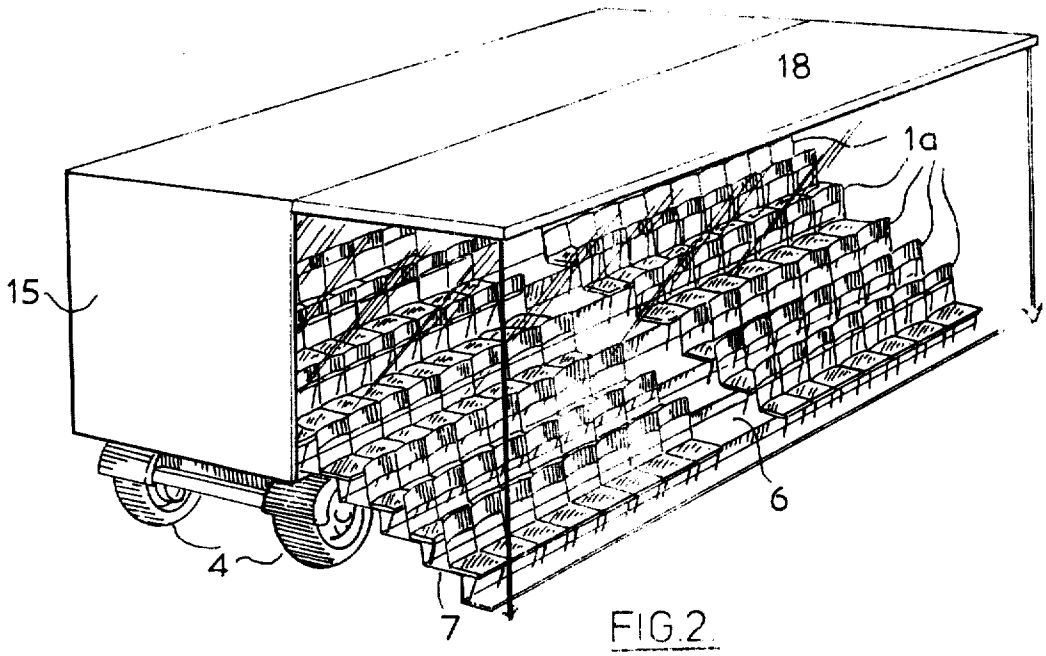


FIG. 2

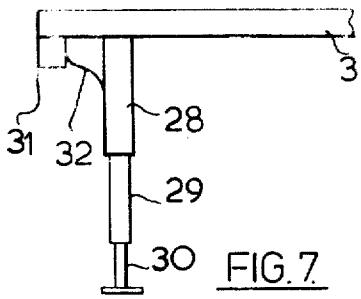


FIG. 7

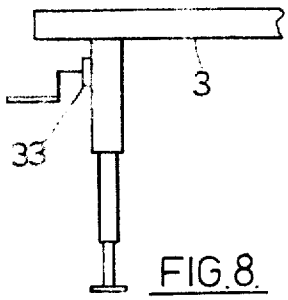


FIG. 8

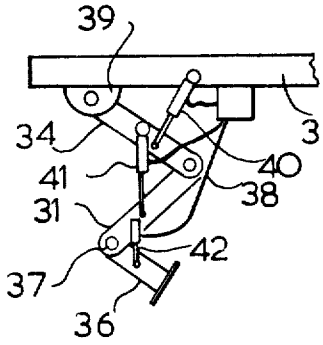


FIG. 9

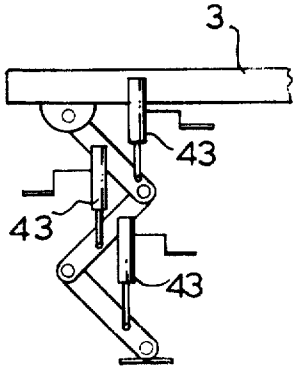


FIG. 10

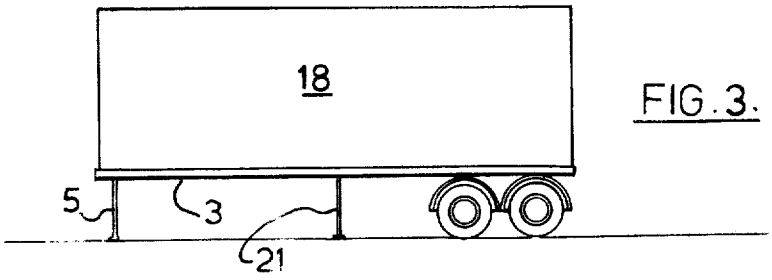
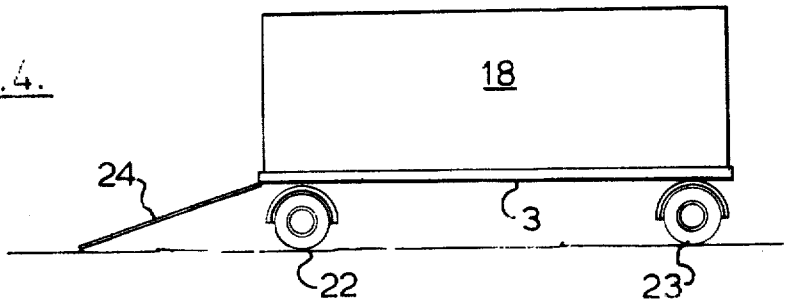


FIG. 3.

FIG. 4.



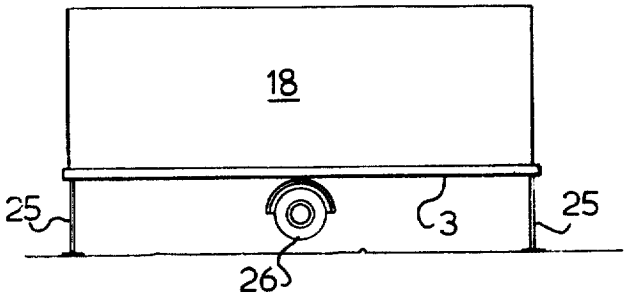


FIG. 5.

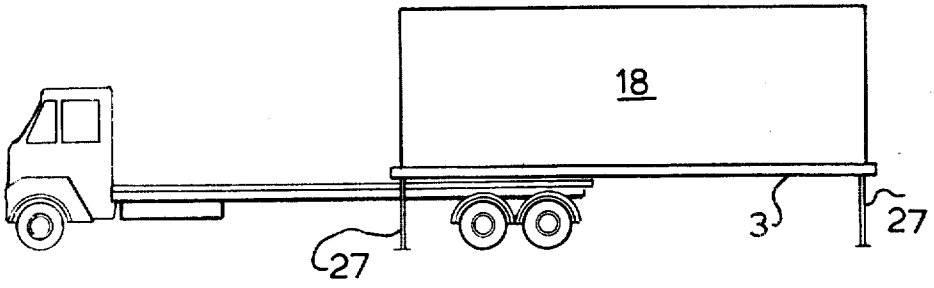


FIG. 6.

GRANDSTANDS

The present invention relates to grandstands for use in providing seating capacity at various public functions.

Although a grandstand is normally considered to be a permanent feature located adjacent a track or arena, a grandstand is sometimes required for only a short period. Such an occasion arises, for example, when a ship is being launched, when a public monument is being unveiled, or adjacent an open space to be used for horse jumping. Hitherto, such grandstands have been constructed specifically for the occasion and subsequently dismantled; this requiring time and hence incurring substantial expense.

The present invention seeks to provide a less costly and more convenient method of providing a grandstand for short periods.

According to the present invention there is provided a mobile grandstand comprising a plurality of seats and a base to which said seats are secured, which base is adapted to be moved to any desired location.

The base is preferably a flat rectangular member which is provided with legs and/or wheels. When solely provided with legs, the legs will preferably be of sufficient actual or extendible length and spacing, to enable a flat top lorry or trailer unit to be moved underneath the base when a grandstand is in an operative position, whence the legs may be removed, telescoped or folded dependent upon the construction, to rest the base i.e. grandstand, on the lorry or trailer ready for transportation.

According to a further feature of the present invention there is provided a mobile grandstand comprising a plurality of seats, a base to which said seats are secured, wheels fitted to said base, said base being adapted to be moved to any desired location.

In a preferred embodiment of the present invention, the base is the trailer portion of an articulated lorry unit, it being possible to tow the trailer to a desired location using a mechanical horse, the mechanical horse then being detached and possible used for any other suitable purpose e.g. locating a further stand, the grandstand remaining in position for as long as desired. Alternatively, the base may be the platform of an actual flat top lorry or in fact a four wheel-type trailer which may be towed into position by any suitably powered motor vehicle.

In a further embodiment of the present invention the platform is provided with wheels arranged on at least one axle, the axle and wheels being adjustable relative to the platform to enable the platform to be supported solely on legs when in an operative position, the wheels being lowered to engage the ground and the legs removed, telescoped or folded when the grandstand is to be moved. Alternatively, the wheels and axle may be non-adjustable relative to the platform and the legs may be extendible to a length sufficient to raise the base and to also lift the wheels off the ground.

The seats utilised in a grandstand constructed according to the present invention are preferably in the form of tiered benches arranged on the base, a central aisle dividing the seats and extending to ground level allowing people to gain entrance to the stand. Alternatively, individual seating may be provided. Also, seat extensions may be hinged to an edge of the base, which extensions may be hoisted into a substantially vertical

position by means of wires and pulleys when the stand is to be moved, and may be lowered to provide seats to ground level, when the stand is in position ready for use. Further, the stand is preferably covered in, for example by canvas or plastic sheeting covering a framework, or by some form of rigid panelling. Thus, in transit, the stand may be completely covered, presenting a merely rectangular box-like configuration to the outside, the outside surface of the stand possibly providing suitable areas for advertising. When in position prior to use, one side wall of the box-like configuration may be hinged outwardly and upwardly to provide cover for the seat extensions when hinged downwardly.

Thus, by virtue of the present invention, the grandstand need not be assembled and dismantled each time it is used but need only be towed or moved in an assembled condition to the required site and subsequently towed away. One person may both move the grandstand and adjust the seat extensions if provided, into an operative condition.

The present invention will now be further described, be way of example, with reference to the accompanying drawings, in which:

FIG. **1** is a perspective view of one preferred embodiment of the present invention illustrated in a partially operative state,

FIG. **2** is a schematic illustration of a perspective view of a further embodiment of the present invention.

FIG. **3** is a schematic illustration of a second embodiment of the present invention ready for transportation or ready to be opened and used,

FIG. **4** is a schematic illustration of a third embodiment of the present invention,

FIG. **5** is a schematic illustration of a fourth embodiment of the present invention,

FIG. **6** is a schematic illustration of a fifth embodiment of the present invention,

FIG. **7** is a diagrammatic illustration of a telescopic leg, hydraulically controlled,

FIG. **8** is a diagrammatic illustration of a telescopic leg, mechanically controlled,

FIG. **9** is a diagrammatic illustration of a foldable leg controlled by hydraulic rams, and

FIG. **10** is a diagrammatic illustration of a foldable leg controlled by mechanical jacks.

Referring to FIG. **1**, it is seen that the grandstand is in the form of tiered rows or banks of bench seats generally designated **1**, arranged on a trailer unit generally designated **2**, of an articulated lorry. Alternatively, individual seating **1***a* may be provided as illustrated in FIG. **2**. The trailer **2** comprises a platform **3** which forms said base, the platform being supported when in an in-use position at one end on four wheels **4** and at its other end which is to be attached to a mechanical horse (not shown) for moving to any desired location, by vertical support legs **5** (only one of which is evident in the drawings), which are adjustable in length. The seats **1** which are in the form of tiered benches, are separated into two regions by a central aisle **6** which comprises a series of steps which lead to the back of the grandstand. Besides the benches actually mounted on the platform of the trailer, seat extensions **7** are provided which are formed by interconnected rows of seats arranged in tiered relationship, these seat extensions **7** being hinged to an edge **8** of the platform so that they may be lowered to provide seats to ground level as evident in the left-hand side of FIG. **1**, or raised as

evident in the right-hand side of FIG. **1**, to a substantially vertical position when the stand is to be moved. The seat extensions **7** are raised or lowered by wires **9** passing over pulleys **10** to manually operable winches (not shown). Alternatively electrical winches can be used. The steps of the aisle **6** are likewise arranged to be hinged upwardly and downwardly by means of wires **11** passing over pulleys **12**.

Extending upwardly from the edge of the platform of the trailer are vertical framework supports **13** which are interconnected at their upper ends by members **14**, forming a framework which is covered by a plastics sheeting material **15**. Rigid panelling may alternatively be used. The ceiling **16** on the stand and at least part of the rear wall **17** of the stand are covered in a translucent sheeting thus providing for natural lighting within the stand during the daytime. The front wall **18** of the stand has a rigid framework (not evident in the drawing) and is covered with opaque sheeting material. When the stand is in use, this front wall **18** is pivoted about its upper edge and supported in a substantially horizontal position by supports **19** and **20**, thus forming a canopy which affords at least some protection for people seated on the seating extensions **7**.

The embodiment of the present invention illustrated schematically in FIG. 2 merely differs from the embodiment in FIG. **1**, by the extra provision of the further vertical support legs **21** which provide for extra stability of the grandstand when in an operative position. A third embodiment of the present invention illustrated in FIG. **4**, has a base which is supported on two sets of wheels **22**, **23** mounted at either end thereof. The grandstand of FIG. **4** is thus effectively constructed as a four-wheel trailer, the brakes (not shown) of which may be locked on when the grandstand is in use, the stand being towable when not in use, by a suitable mechanical horse by means of connection **24**.

A fourth embodiment of the present invention illustrated in FIG. **5**, has a base **3** which is provided with telescopic legs **25**, a leg being arranged at each corner of the base. The base is also provided with a set of wheels **26** which can be adjusted relative to the base so that as illustrated in FIG. **4**, the base i.e. the grandstand, can be supported solely on legs **25**, the wheels having been raised out of contact with the ground. When the stand is to be moved, the wheels may be lowered, the legs telescoped and one end of the base can then be attached to a mechanical horse so that the stand can be towed away as per an articulated combination. As an alternative to adjusting the position of wheels relative to the base, the legs can be constructed so as to be extendible to a length sufficient to in fact raise the base plus wheels off the ground.

The embodiment illustrated in FIG. **5** can be modified to incorporate a further set of wheels also adjustable, the grandstand then effectively being a four-wheel type trailer, as per the embodiment in FIG. **3**, when the stand is to be moved, or alternatively the actual embodiment in FIG. **4** can be modified to incorporate telescopic, foldable or removable legs which have or can attain a length sufficient to lift the wheels off the ground.

The embodiment of the present invention illustrated in FIG. **6** has a base provided with telescopic legs **27**, a leg being located at each corner region of the base, the stand in use being solely supported on these legs. When the stand is to be moved, the legs are adjusted to raise the base of the stand to a sufficient height, if not already at a sufficient height, to enable a flat top lorry or trailer to be reversed under the base between the legs, the legs then being retracted so that the stand rests on the lorry or trailer ready for transportation. Alternatively, the flat top lorry or trailer can be provided with a supporting surface which may be raised or lowered to take the weight of the stand whence the legs may be removed from the base telescoped or folded.

A single telescopic leg as used in the embodiments described hereabove is shown in more detail in FIG. **7**, the leg comprising three sections **28**, **29** and **30**, the sections being fed with hydraulic fluid from pump **31** via pipe **32**. By controlling the pump **31** the leg can be telescoped to any desired length. Alternative embodiments of an adjustable length leg suitable for use in the present invention, are illustrated in FIGS. **8** and **9**. The leg in FIG. **8** has three sections which can be telescoped, a screw jack or ratchet mechanism (not shown) controlling the extension of the leg, which mechanism is manually operable via crank handle **33**. The leg is FIG. **9** has three sections **34**, **35** and **36**, pivotally interconnected at points **37** and **38**, the free end **39** of section **34** being pivotally connected to the base **3**. Three hydraulic rams **40**, **41** and **42**, connected to hydraulic pump **43** enable the leg to be extended to an elongate position or folded, as required. An alternative to the hydraulic rams **40**, **41** and **43** is to replace each ram with a manually operable mechanical jack or ratchet mechanism **43**. Whilst the embodiments of leg suitable for the present invention and illustrated in FIGS. **7**, **8** and **9**, have three interconnected sections, a leg may be used having any desired number of telescopic or folding sections.

All the embodiments of the present invention schematically illustrated in FIGS. **3** to **6**, may or may not be provided with the seat extensions **7** and the central aisle **6** may alternatively be replaced by steps completely seperate from the stand of the present invention. Further, with regard to the embodiments illustrated in FIGS. **5** and **6**, three legs may be provided, if so desired, at suitable locations rather than the four leg arrangements described hereabove.

I claim:

1. A mobile grandstand comprising a substantially horizontal base which can be moved to any desired location, means supporting said base above the ground, a plurality of seats mounted on the base in tiered rows ready for use, an aisle of steps dividing the seats on the base and allowing access thereto, a seat extension formed by interconnected rows of seats hinged to an edge of the base and arranged to be hinged downwardly to provide seats from ground level to the base and to be hinged upwardly ready for transportation, and an aisle extension of steps hinged to said edge of the base for allowing access to the seat extension.

2. A mobile grandstand according to claim **1**, wherein a flat rectangular member forms said base, legs forming the base supporting means, said legs being adjustable in length.

3. A mobile grandstand according to claim **1**, wherein a flat rectangular member forms said base, four adjustable length legs forming the base supporting means, one leg being arranged at each corner region of said member.

4. A mobile grandstand according to claim **1**, wherein said seats are benches.

5. A mobile grandstand according to claim 4, wherein the aisle of steps and the aisle extension are in line and equally divide the seats available.

6. A mobile grandstand according to claim 1, wherein said seats are individual seats.

7. A mobile grandstand according to claim 6, wherein the aisle of steps and the aisle extension are in line and equally divide the seats available.

8. A mobile grandstand according to claim 3, wherein said adjustable length legs are telescopic in construction, hydraulic means being provided for adjusting the legs.

9. A mobile grandstand according to claim 2, wherein said adjustable length legs are telescopic in construction, mechanical means being provided for adjusting said legs.

10. A mobile grandstand according to claim 2, wherein said adjustable length legs arranged to be folded or unfolded to desired lengths, hydraulic menas controlling said legs.

11. A mobile grandstand according to claim 2, wherein said adjustable length legs are arranged to be folded or unfolded desired lengths, mechanical means controlling said legs.

12. A mobile grandstand according to claim 1, wherein winches are provided which, by means of wires passing over pulleys to the seat extension, can be used to raise or lower said seat extension.

13. A mobile grandstand according to claim 6, wherein winches are provided which, by means of wires passing over pulleys to the seat extension, can be used to raise or lower said seat extension.

14. A mobile grandstand according to claim 1, wherein vertical framework supports extend upwardly from at least the corner regions of the base, elongate members interconnecting the upper ends of said supports thus forming a box-like configuration framework, a sheeting of plastics material covering at least part of the framework.

15. A mobile grandstand according to claim 14 wherein translucent plastics material covers at least part of at least one wall of said box-like configuration framework.

16. A mobile grandstand according to claim 1, wherein a box-like structure of rigid panelling is mounted on said base providing protection for the seats, at least one wall of said structure being removable or hinged to open the stand.

17. A mobile grandstand comprising a substantially horizontal base, wheels at least partially supporting said base and enabling it to be moved to any desired location, a plurality of seats mounted on the base in tiered rows ready for use, an aisle of steps dividing the seats on the base and allowing access thereto, a seat extension formed by interconnected rows of seats hinged to an edge of the base and arranged to be hinged downwardly to a position in which seats are provided from ground level to the base and to be hinged upwardly to a position ready for transportation, and an aisle extension of steps hinged to said edge of the base for allowing access to the seat extension.

18. A mobile grandstand according to claim 17, wherein a rectangular flat articulated trailer unit forms the base, wheels being provided towards one end of the base, and vertical adjustable length legs being provided towards the other end thereof.

19. A mobile grandstand according to claim 17, wherein a flat rectangular member forms the base, at least four wheels being arranged to support said base, one wheel being located in the region of each corner of said member.

20. A mobile grandstand according to claim 17, wherein a flat rectangular member forms the base, legs being provided for supporting said member, said legs being adjustable in length.

21. A mobile grandstand according to claim 17, wherein a flat rectangular member forms said base, four adjustable length legs being provided for supporting said member, one leg being arranged at each corner region of said member.

22. A mobile grandstand according to claim 17 in combination with a flat top movable vehicle, wherein said base is provided with legs for supporting the stand, the legs being adjustable to a sufficient length to allow said vehicle to be moved underneath the base whence the legs can be adjusted to rest the stand on said vehicle.

23. A mobile grandstand according to claim 20, wherein the wheels are adjustable in position relative to said flat rectangular member to enable the stand to be supported solely on said legs.

24. A mobile grandstand according to claim 20 wherein said legs are adjustable to a sufficient length to lift the wheels off the ground.

25. A mobile grandstand according to claim 20, wherein said adjustable length legs are telescopic in construction, mechanical means being provided for adjusting said legs.

26. A mobile grandstand according to claim 20 wherein said adjustable length legs are telescopic in construction, hydraulic means controlling the adjustment of said legs.

27. A mobile grandstand according to claim 20, wherein the adjustable length legs are arranged to be folded or unfolded to desired lengths, mechanical means controlling the adjustment of said legs.

28. A mobile grandstand according to claim 20, wherein adjustable length legs are arranged to be folded or unfolded to desired lengths, hydraulic means controlling the adjustment of said legs.

29. A mobile grandstand according to claim 17, wherein benches are arranged in tiered rows on the base.

30. A mobile grandstand according to claim 29, wherein a central aisle of steps divides the seats on the stand and extends to ground level.

31. A mobile grandstand according to claim 30, wherein a seat extension formed by interconnected rows of seats is hinged to an edge of the base and can be hinged downwardly to provide seats from ground level to the base.

32. A mobile grandstand according to claim 31, wherein winches are provided which, by means of wires passing over pulleys to the seat extension, can be used to raise or lower said seat extension.

33. A mobile grandstand according to claim 17, wherein individual seats in tiered rows are secured to said base.

34. A mobile grandstand according to claim 33, wherein a central aisle of steps divides the seats and extends to ground level.

35. A mobile grandstand according to claim 34, wherein seat extension formed by interconnected rows

of seats is hinged to an edge of the base and can be hinged downwardly to provide seats from ground level to the base.

36. A mobile grandstand according to claim **35**, wherein winches are provided which, by means of wires passing over pulleys to the seat extension, can be used to raise or lower said seat extension.

37. A mobile grandstand according to claim **17**, wherein vertical framework supports extend upwardly from at least the corner regions of the base, elongate members interconnecting the upper ends of said supports, thus forming a box-like configuration framework, a sheeting of plastics material covering at least part of the framework.

38. A mobile grandstand according to claim **37**, wherein translucent plastics material covers at least part of at least one wall of said box-like configuration framework.

39. A mobile grandstand according to claim **17**, wherein a box-like structure of rigid panelling is mounted on said base providing protection for the seats, at least one wall of said structure being removable or hinged to open the stand.

* * * * *