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Inventor(s)	MAY; Randall L.

TRI-COLUMN AIRLIFT BASS STAND

Abstract

A percussion instrument stand includes a plurality of support columns. Each support column is associated with a respective support leg that supports the support column off of a standing surface. The percussion instrument stand also includes an instrument mount configured to support a percussion instrument thereon so as to be vertically supported by one or more of the support columns. At least one coupler is provided so as to engage each of the support columns and thereby resist a horizontal torque exerted on the percussion instrument.

Inventors:	MAY; Randall L. (Irvine, CA)
Applicant:	Randall May International Incorporated (Irvine, CA)
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Background/Summary

CROSS REFERENCE TO RELATED APPLICATION [0001] This application is a Continuation of U.S. application Ser. No. 17/985,503, filed Nov. 11, 2022, which claims priority to Provisional Application No. 63/278,798, filed Nov. 12, 2021, the entire contents of which are hereby expressly incorporated by reference herein.

BACKGROUND OF THE INVENTION

[0002] This disclosure relates to improvements in hardware for mounting percussion instruments, namely, drum suspension hardware.

[0003] Percussion instruments are known to be mechanically mounted on support structures, e.g., stands, kit frames, carriers, etc., so that they may be played. For example, U.S. Pat. No. 7,588,228, incorporated herein by reference in its entirety, describes stands for supporting marching bass drums. These marching bass drums are typically mounted on such stands so that their playing surfaces are vertically oriented.

[0004] In the case of marching bands, it is desirable for bass drums to be removed from personal carriers (i.e., carriers that allow the user to support the bass drum on the user's person in playing position while marching) and subsequently mounted on stands positioned on the ground or other playing surfaces (e.g., bleachers, etc.) so that the user may play the bass drum while it is mounted on the stand. In competitive (and even non-competitive) marching band performances, it is highly desirable to achieve a quick and seamless transition between carrier mounted and stand mounted playing. However, due to the large and heavy nature of the bass drum, and to the complexity of both carrier and stand mounting, such quick and seamless transitions are difficult to achieve.

[0005] Moreover, when the marching bass drum is carrier mounted (as described in U.S. Pat. No. 7,326,842, incorporated herein by reference in its entirety), the playing torque is absorbed by the user supporting the drum. The playing torque is the horizontal torque applied to the bass drum by the user hitting the playing surfaces (e.g., with a mallet). Because the playing torque is absorbed by the user when the bass drum is carrier mounted, both playing surfaces (i.e., drum heads) of the bass drum remain relatively stable. That playing surface stability is vital to retaining a player's existing technique or further developing greater technical skills with increasing difficulty.

[0006] By contrast, when the bass drum is stand mounted, the playing torque is no longer absorbed by the user. Thus, the movement/torque applied to the bass drum by the user while playing it results in the bass drum undesirably twisting or otherwise being displaced with the mallet impact. As a result, the desired stability is no longer achieved.

[0007] This resulting instability is generally tolerated by performers as a trade-off to reduce performer fatigue. However, it is understood that using bass drum stands (e.g., for rehearsal, for in-the-bleachers performance, etc.) can be disruptive to the musicianship of the user. In particular, the development of the user's muscle memory and technical refinement can suffer, due to users adjusting their playing technique to accommodate the less stable stand mounted bass drum. This in turn promotes variances in sound and ensemble uniformity, both within the marching band and between carrier mounted and stand mounted performances.

[0008] It is therefore desirable to provide advantages over such known systems and methods. Other features and advantages of the present invention will become apparent from the following more detailed description, taken in conjunction with the accompanying drawings, which illustrate, by way of example, the principles of the presently described embodiments.

Description

BRIEF DESCRIPTION OF THE DRAWING

[0009] FIG. **1** illustrates percussion instrument stand according to at least one embodiment.

[0010] FIG. **2** is a partially exploded view of the percussion instrument stand according to at least one embodiment.

[0011] FIG. **3** is a close-up of aspects of the percussion instrument stand according to at least one embodiment.

[0012] FIG. **4** schematically illustrates aspects of the percussion instrument stand according to at least one embodiment.

[0013] FIG. **5** schematically illustrates aspects of the percussion instrument stand according to at least one embodiment.

[0014] FIG. **6** illustrates percussion instrument hardware according to at least one embodiment.

[0015] FIG. **7** illustrates aspects of the percussion instrument hardware according to at least one embodiment.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0016] The above described drawing figures illustrate the disclosed invention in at least one embodiment, which is further defined in detail in the following description. Those having ordinary skill in the art may be able to make alterations and modifications to what is described herein without departing from its spirit and scope. While this invention is susceptible of embodiment in many different forms, there is shown in the drawings and will herein be described in detail a preferred embodiment of the invention with the understanding that the present disclosure is to be considered as an exemplification of the principles of the invention and is not intended to limit the broad aspects of the invention to any embodiment illustrated. Therefore, it should be understood that what is illustrated is set forth only for the purposes of example and should not be taken as a limitation on the scope of the disclosed invention.

[0017] FIGS. **1-5** illustrate exemplary percussion instrument stands according to at least one embodiment.

[0018] The percussion instrument stand **100** includes a plurality of support columns **102/102a, 104/104a, 106/106a**, each support column associated with a support leg **114/116** that supports the support column off of a standing surface (e.g., the ground, a stage, a bleacher surface, etc.). The percussion instrument stand **100** further includes an instrument mount **200/222** configured to support a percussion instrument thereon so as to be vertically supported by one or more of the support columns.

[0019] At least one coupler **110/112** is provided to engage each of the support columns so as to resist a horizontal torque exerted on a percussion instrument. Accordingly, the coupler **110/112** may comprise a body that substantially bridges the space between support columns so as to transfer horizontal force between columns. In some embodiments, the coupler body may be substantially planar in the horizontal direction.

[0020] The coupler **110/112** may further include one or more receptacles configured to receive respective support columns and thereby form a bridge, with the coupler body, between support columns. The receptacle may be substantially c-shaped. In some embodiments, the receptacle may be configured to engage one or more lineal grooves **119** of the support columns. The receptacles may further permit longitudinal adjustment of the coupler along the support columns.

[0021] In at least one embodiment, the support columns may be arranged in a parallel triangular orientation, as shown. That is, the support columns may be oriented vertically parallel to each other at horizontal positions corresponding to the vertices of a triangle. Accordingly, the coupler body may be substantially triangular and the receptacles may be located at each vertex of the triangular shaped body.

[0022] In at least one embodiment, the support columns may be arranged in a polygonal orientation, e.g., as four or five parallel columns. That is, the support columns may be oriented

vertically parallel to each other at horizontal positions corresponding to the vertices of a polygon. Accordingly, the coupler body may be substantially polygonal and the receptacles may be located at each vertex of the polygonal shaped body.

[0023] It will be understood, however, that the coupler may engage less than all of the support columns. In particular, the coupler may engage two or more of the support columns. In such embodiments, the receptacles may be located at any vertices of the body for which engagement with the corresponding support column is desired. It is preferable, however, that the arrangement of the coupler is such that the percussion instrument stand, via the coupler, resists resist horizontal torque exerted on the percussion instrument it supports.

[0024] In some embodiments, one or more of the support columns may be telescoping support columns, each having a base portion **102**, **104**, **106** that telescopically engages an upper portion **102a**, **104a**, **106a** such that the length of the telescoping support column is adjustable telescopically. In such embodiments, the coupler may engage the support columns at respective upper portions **102a**, **104a**, **106a** and/or base portions **102**, **104**, **106** thereof. In particular, a travel coupler **110** may engage the support columns at respective upper portions **102a**, **104a**, **106a**. The travel coupler **110** may have a body **110a** with receptacles **110b** for engaging the grooves **119** of respective upper portions **102a**, **104a**, **106a**. Additionally, or alternatively, a stationary coupler **112** may engage the support columns at respective base portions **102**, **104**, **106**. The stationary coupler **112** may have a body **112a** with receptacles **112b** for engaging the grooves **118**, **119a** of respective base portions **102**, **104**, **106**.

[0025] In some embodiments, one or more of the support columns may be mechanically assisted support columns having integrated gas springs **300a**. Such mechanical assists are described in U.S. Pat. No. 7,438,266, which is herein incorporated by reference in its entirety.

[0026] In some embodiments, the percussion instrument stand **100** may include lateral support legs **116**. The lateral support legs **116** may be longitudinally slidable independently from each other on respective base portions **102**, **104** via connected c-shaped travel collars **121** that may engage grooves **118** on the base portions **102**, **104** so as to permit repositioning of the lateral support legs **116** via the longitudinal sliding. The lateral support legs may be secured in position via a locking component **123**, as shown. The c-shaped collars **121** may also be of o-shaped circumstantial construction, while still allowing for the lateral support legs to be longitudinally slidable independently on the respective base portion. The lateral support legs **116** may further have slidably adjustable c-shaped collars **122** connected to a leg brace **126** so as to alter an extension of the lateral support legs **116**. The lateral support legs may be secured in position with locking component **122a**.

[0027] In some embodiments, the percussion instrument stand **100** may include a front support leg **114**. The front support leg may be longitudinally slidable independently on base portion **106** via connected c-shaped travel collar **120** that may engage grooves **119a** on base portion **106** so as to permit repositioning of the front support leg **114** via the longitudinal sliding. The front support leg may be secured in position with locking component **123a**, as shown. The c-shaped collar **120** may also be of o-shaped circumstantial construction, while still allowing for the front support leg to be longitudinally slidable independently on the base portion **106**. The front support leg **114** may further have slideably adjustable c-shaped collars **128** connected to a leg brace **124** so as to alter the extension of front support leg **114**. The front support leg may be secured in position with locking component **123b**.

[0028] Exemplary slideably adjustable support legs are described in U.S. Pat. No. 7,703,725, which is incorporated herein by reference in its entirety.

[0029] The instrument mount **200/222** may comprise a saddle receiver **200** with a catch-lock (or snap-lock) cam mechanism **222**. As shown in FIG. 3, the saddle receiver **200** may comprise one or more j-shaped components configured to receive a tube bridge **440A** (or tube lug) of the percussion instrument **400**. The catch-lock cam mechanism **222** may be rotatable about a horizontal axis so as

to secure the tube bridge **440A** (or tube lug) within the saddle receiver **200**. In operation, the tube bridge **440A** (or tube lug) of the percussion instrument is gravity assisted to drop into the saddle receiver **200** so as to seat to the bottom of saddle and thereby actuate the catch-lock cam mechanism **222** to close and thereby secure the tube bridge (or tube lug) within the saddle receiver **200**. The catch-lock cam mechanism **222** may be configured to be manually rotatable about the horizontal axis to engage and disengage the tube bridge **440A** without the necessity of external tools. In some embodiments, the catch-lock may be omitted.

[0030] As shown in FIGS. **6** and **7**, in some embodiments, the tube bridge **440A** may be a retrofit tube bridge configured to be retrofit to the percussion instrument in an after-market modification. The tube bridge **440A** may include a bridge tube **440b** suspended between opposing mounts **400c**, which may be mountable on the percussion instrument. In operation, the bridge tube may be dropped-and-locked into the instrument mount **200/222** as described above.

[0031] In some embodiments, the mounts **400-c** include respective eye loops. The eye loops may be oriented perpendicular to the tube bridge so as to accept respective j-hooks of an instrument carrier that support the percussion instrument on a user's body (e.g., the carriers of U.S. Pat. No. 7,326,842), as shown in FIG. **7**.

[0032] The percussion instrument stand **100** may further include a bass drum support **224**, particularly in embodiments where the percussion instrument **400** is a bass drum. The bass drum support **224** may be longitudinally adjustable on one of the support columns so as to enable the bass drum to rest thereon. In combination with the tube bridge **440A** and the instrument mount **200/222**, the longitudinal adjustment of the bass drum support **224** allows for the rotational repositioning of the bass drum **400** to a preferred playing zone.

[0033] The features described above are considered novel over the prior art of record and are considered critical to the operation of at least one aspect of the invention and to the achievement of the objectives of the invention. The words used in this specification to describe the exemplary embodiments are to be understood not only in the sense of their commonly defined meanings, but also to include any special definition with regard to structure, material or acts that would be understood by one of ordinary skill in the art to apply in the context of the entire disclosure.

[0034] The definitions of the words or drawing elements described herein are meant to include not only the combination of elements which are literally set forth, but all equivalent structures, materials or acts for performing substantially the same function in substantially the same way to obtain substantially the same result. In this sense it is therefore contemplated that an equivalent substitution of two or more elements may be made for any one of the elements described and its various embodiments or that a single element may be substituted for two or more elements in a claim without departing from the scope of the invention.

[0035] Changes from the claimed subject matter as viewed by a person with ordinary skill in the art, now known or later devised, are expressly contemplated as being equivalents within the scope intended and its various embodiments. Therefore, obvious substitutions now or later known to one with ordinary skill in the art are defined to be within the scope of the defined elements. This disclosure is thus meant to be understood to include what is specifically illustrated and described above, what is conceptually equivalent, what can be obviously substituted, and also what incorporates the essential ideas.

[0036] The scope of this description is to be interpreted in conjunction with the appended claims.

Claims

1. A system, comprising: a bridge-mount, wherein the bridge-mount includes: a pair of mounts mountable to a shell of a percussion instrument, and a bridge suspended between the pair of mounts; and a percussion instrument stand, wherein the percussion instrument stand includes: one or more vertical support columns, and an instrument mount configured to receive the bridge-mount

- such that, during normal playing of the percussion instrument via a substantially horizontal impact force, the instrument mount supports the percussion instrument thereon.
2. The system of claim 1, wherein the bridge is a tube or a rod.
 3. The system of claim 1, wherein the bridge is suspended between the pair of mounts mounting the bridge to a shell of the percussion instrument so as to be parallel to the shell.
 4. The system of claim 1, wherein the instrument mount comprises a catch-lock configured to catch-and-lock the bridge therein.
 5. The system of claim 1, wherein the bridge-mount is configured to be retrofit to the shell of the percussion instrument via the pair of mounts.
 6. The system of claim 1, wherein the stand further comprises: a lower-support configured to support the percussion instrument thereon below the instrument mount.
 7. The system of claim 6, wherein the lower-support is vertically repositionable so as to adjust an angular position of the percussion instrument about the bridge-mount within the instrument mount.
 8. The system of claim 1, wherein the stand further comprises: a plurality of support columns, each support column associated with a respective support leg that supports the support column off of a standing surface; at least one coupler configured to engage each of the support columns so as to resist a horizontal torque exerted on the percussion instrument.
 9. The system of claim 1, wherein the coupler includes a plurality of receptacles configured to each engage a respective support column.
 10. The system of claim 1, wherein each receptacle comprises a c-clamp having at least one protrusion configured to fit within a corresponding vertical groove of the respective support column such that the coupler is vertically repositionable with respect to the support columns.
 11. The system of claim 1, wherein at least one of the receptacles comprises a continuous body circumferentially enclosing the respective support column such that the receptacle is vertically repositionable with respect to the support columns.
 12. The system of claim 1, wherein the coupler is substantially triangular in shape.
 13. The system of claim 1, wherein the coupler is a contiguous body.
 14. A bridge-mount, comprising: a pair of mounts mountable to a shell of a percussion instrument, and a bridge suspended between the pair of mounts and configured to be received by an instrument mount of a percussion instrument stand, such that, during normal playing of the percussion instrument via a substantially horizontal impact force, the instrument mount supports the percussion instrument thereon.
 15. The bridge-mount of claim 14, wherein the bridge is suspended between the pair of mounts mounting the bridge to a shell of the percussion instrument so as to be parallel to the shell.
 16. The bridge-mount of claim 14, wherein each mount of the pair of mounts includes an eye loop oriented perpendicular to the bridge so as to accept respective j-hooks of an instrument carrier configured to support the percussion instrument on a user's body.
 17. The bridge-mount of claim 14, wherein the bridge-mount is configured to be retrofit to the shell of the percussion instrument via the pair of mounts.
 18. A percussion instrument stand, comprising: a plurality of vertical support columns; and an instrument mount configured to support a percussion instrument thereon so as to be vertically supported by one or more of the support columns, wherein the instrument mount supports the percussion instrument substantially orthogonal to a playing surface of the percussion instrument during normal playing of the percussion instrument via a substantially horizontal impact force.
 19. The percussion instrument stand of claim 18, wherein the instrument mount is further configured to receive the percussion instrument from a user worn instrument carrier such that a playing position is maintained relative to the user during and after receipt by the instrument mount.
 20. The percussion instrument stand of claim 18, further comprising: a plurality of support columns, each support column associated with a respective support leg that supports the support

column off of a standing surface; at least one coupler configured to engage each of the support columns so as to resist a horizontal torque exerted on the percussion instrument.
