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(54) **SPORTS TRAINING SYSTEM**

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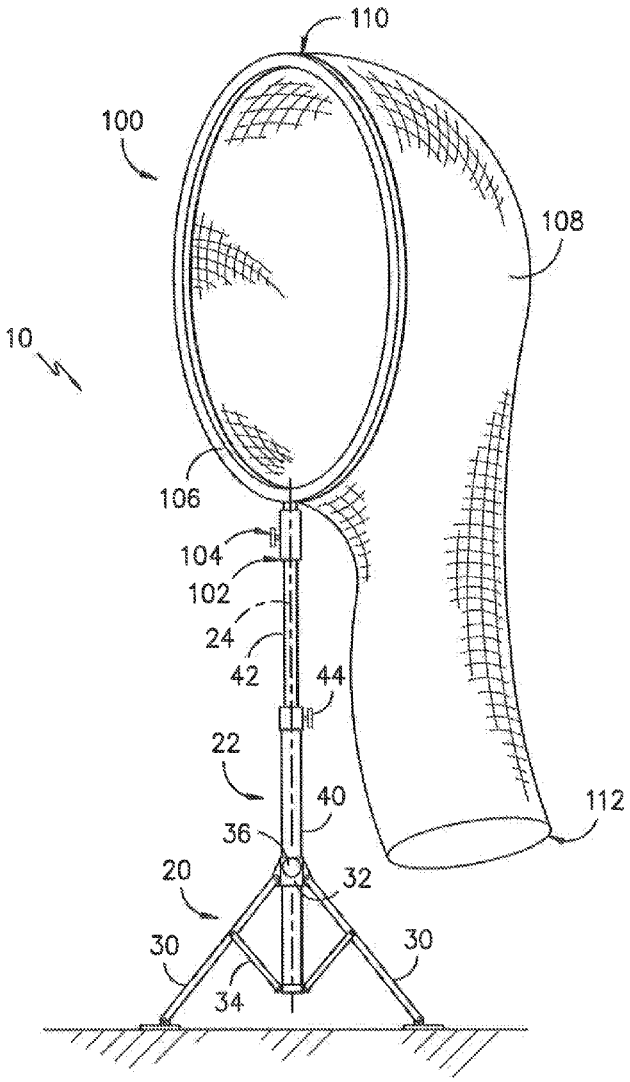
(57) **ABSTRACT**

Sports training systems are provided. A sports training system includes a plurality of support structures. Each of the plurality of support structures includes a base and a support member extending generally along a longitudinal axis from the base. The plurality of support structures includes a first support structure and a second support structure. The sports training system further includes a main training assembly removably connectable to the first support structure and the second support structure. The main training assembly includes a cross-member and an indicator assembly extending from the cross-member. The sports training system further includes at least one auxiliary training assembly removably connectable to one of the plurality of support structures.



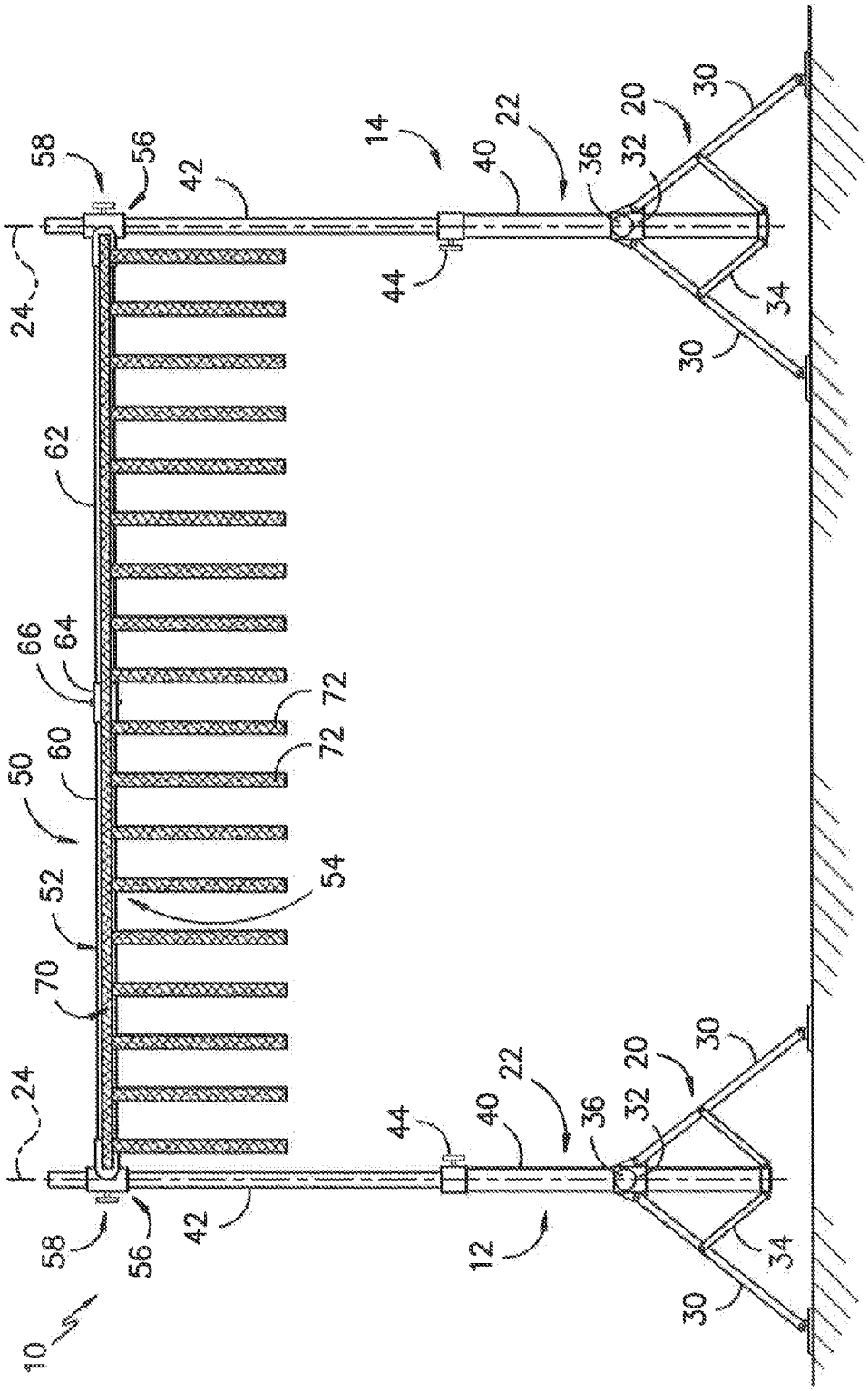


FIG. -1-

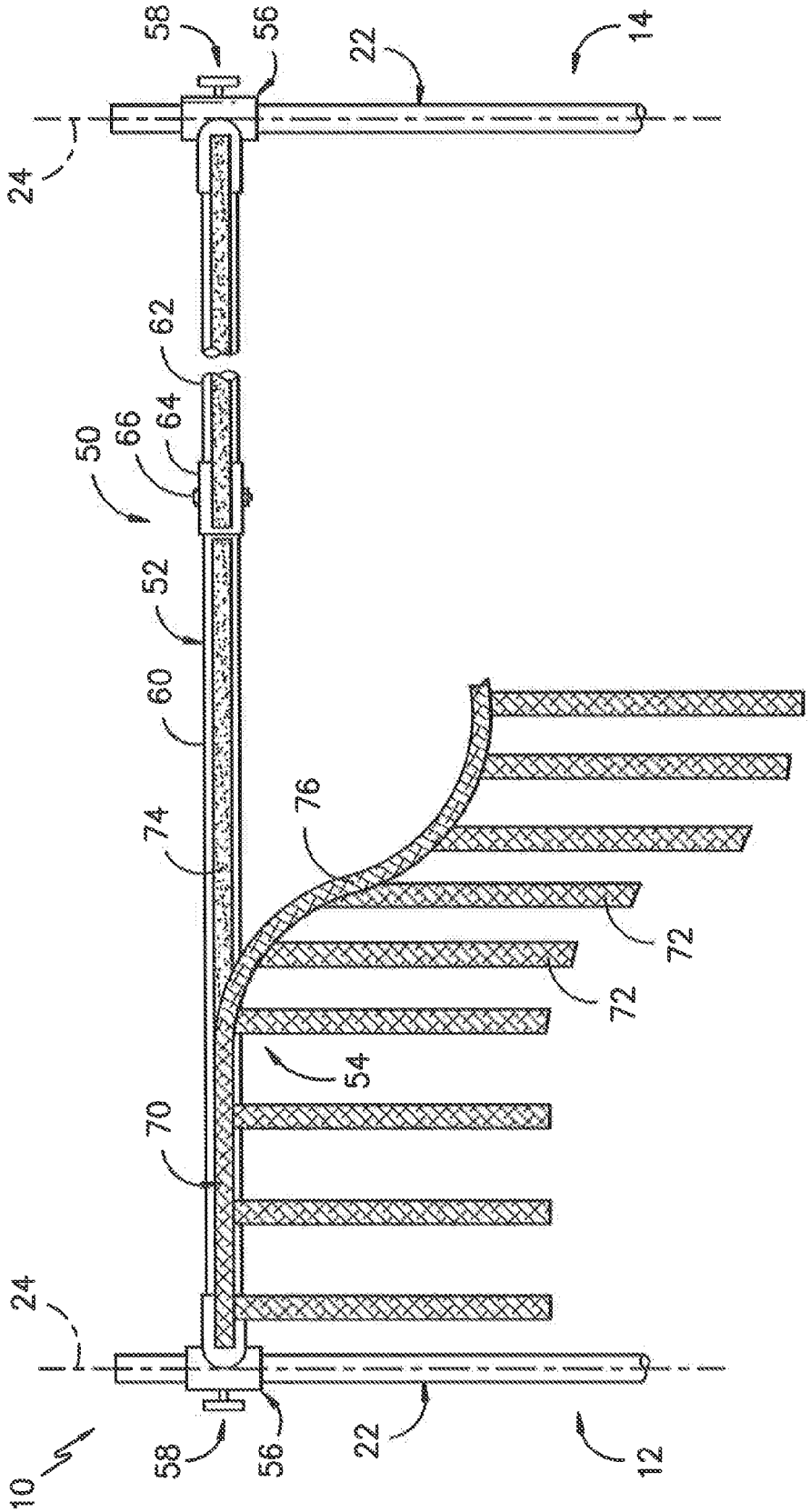


FIG. -2-

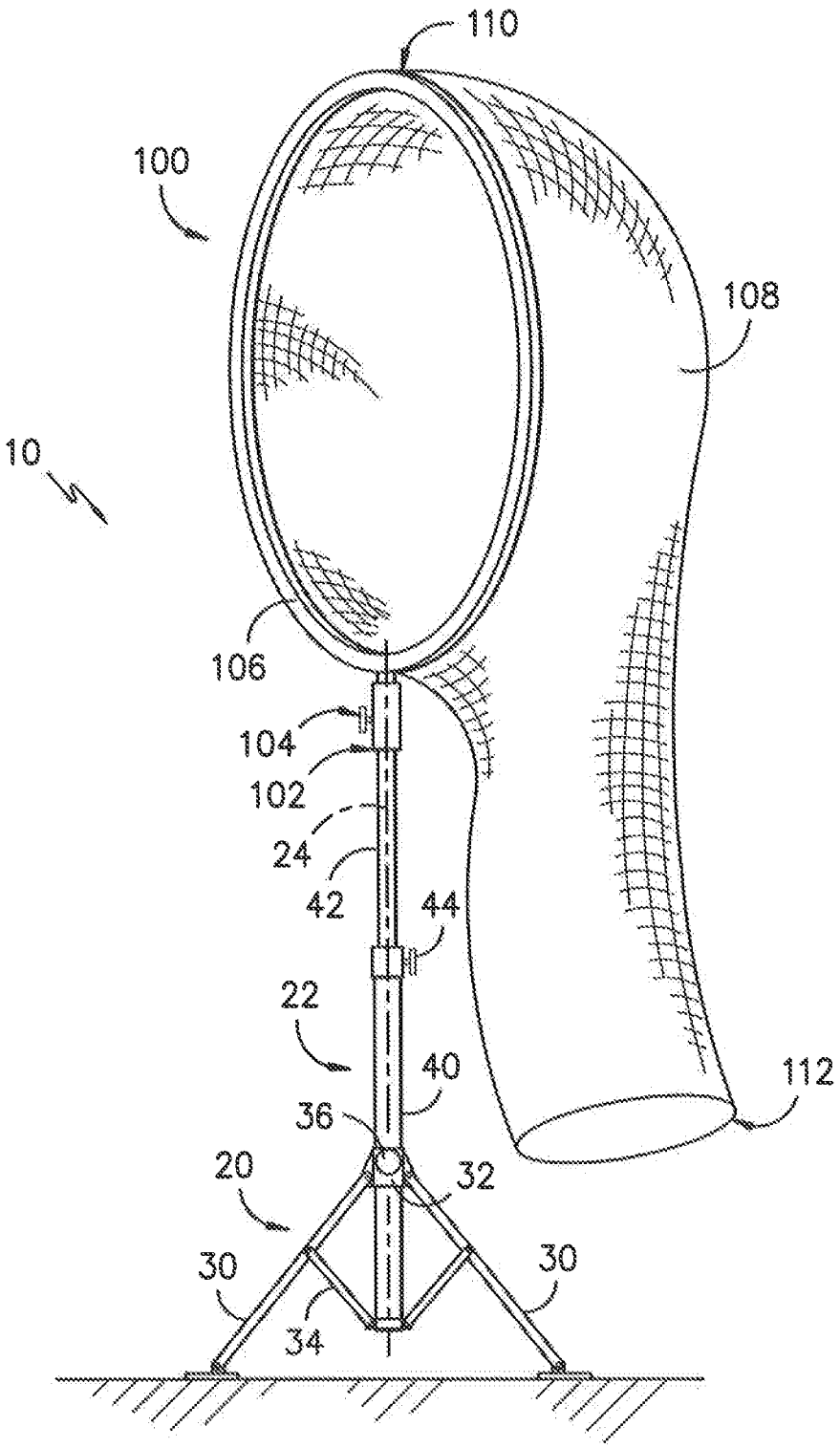
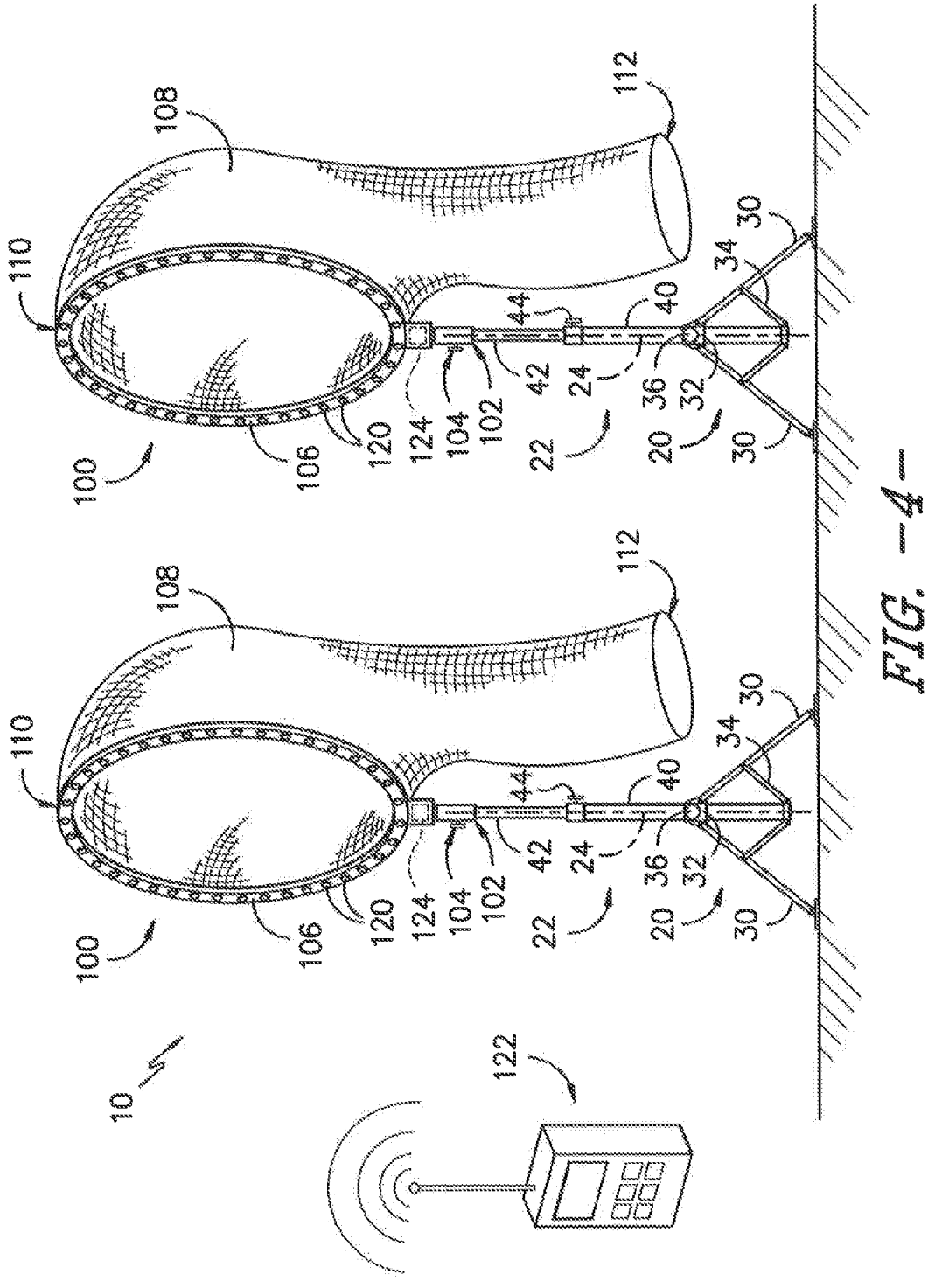


FIG. -3-


10
100
102
104
106
108
110
112
120
122
124
20
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44

FIG. -4-

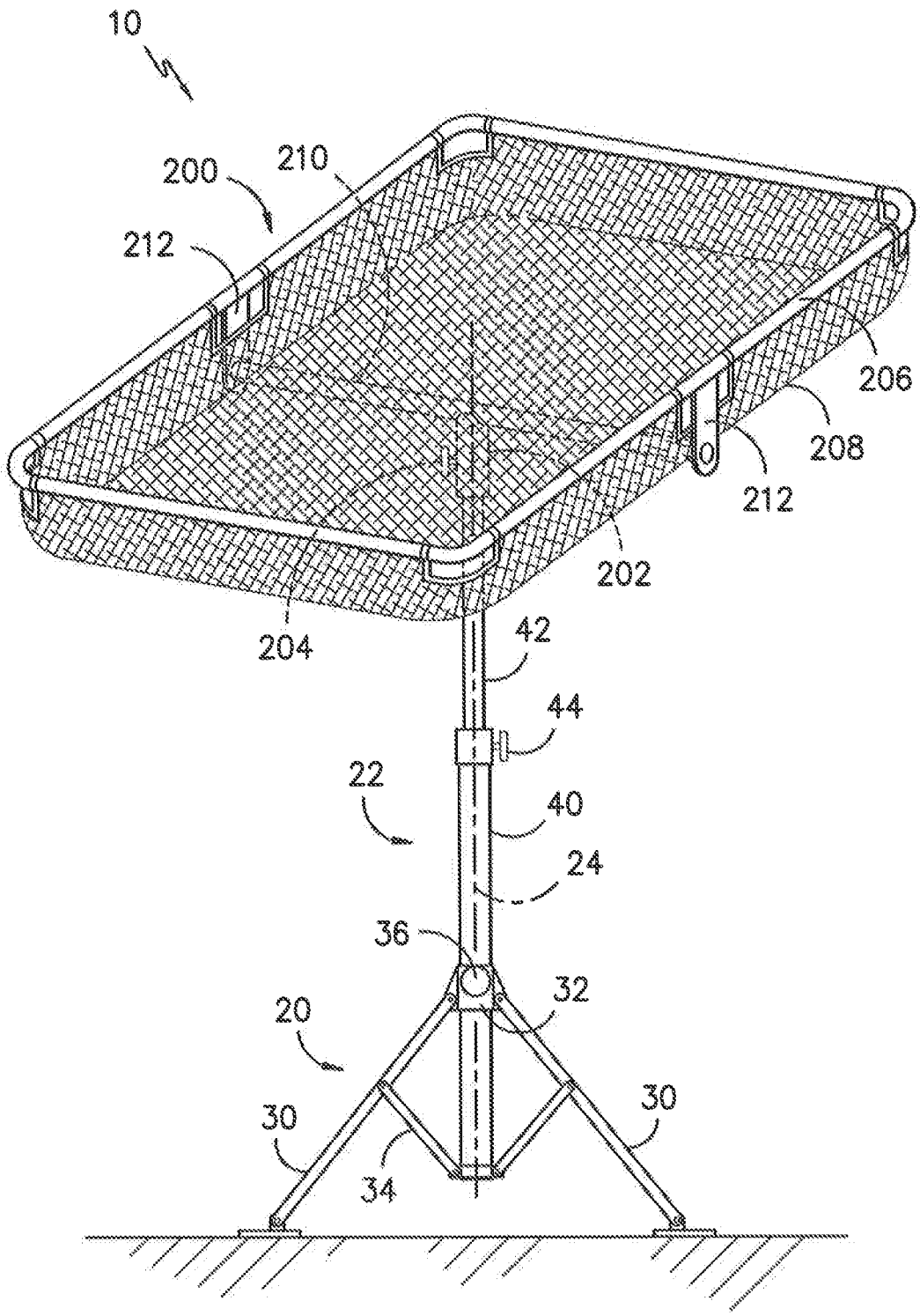

FIG. -5-

SPORTS TRAINING SYSTEM

FIELD OF THE INVENTION

[0001] The present disclosure relates generally to sports training systems, and in particular to systems for training football quarterbacks.

BACKGROUND OF THE INVENTION

[0002] Physical activities are an important and popular aspect of life in bath the United States and world-wide. Organized sports are particularly popular, and due to such popularity, various training apparatus have been utilized to train participants and improve their skill levels.

[0003] Football, for example, is one of the most popular sports in the United States. One of the most important skills required for playing football is precise, coordinated throwing. This is particularly important for participants playing the quarterback position. Good throwing skills allow a player to complete passes to other player, which can in turn be essential to winning a game. Because of the importance of throwing skills, players, especially young players, try to develop and hone their football throwing skills through practice. This practice helps develop the player's throwing skills as well as an understanding of the value of training, discipline, perseverance and hard work through practice.

[0004] Various apparatus exist for providing training in throwing a football. Presently known training apparatus, however, have a variety of drawbacks. For example, in many cases, training apparatus are large and bulky. Transport of such training apparatus is difficult, and any potential disassembly of such training apparatus requires specific tools and substantial time and effort. Further, in many cases, training apparatus only allow for training of a single participant and in a single limited skill, such as in a single aspect of throwing.

[0005] Accordingly, improved training apparatus, and specifically training apparatus for training quarterbacks to throw properly, are desired. In particular, training apparatus that is easily disassembled for transport would be advantageous. Further, training apparatus that allows for the training of multiple participants and/or multiple skills would particularly desirable.

BRIEF DESCRIPTION OF THE INVENTION

[0006] Aspects and advantages of the invention will be set forth in part in the following description, or may be obvious from the description, or may be learned through practice of the invention.

[0007] In one embodiment, a sports training system is disclosed. The sports training system includes a plurality of support structures. Each of the plurality of support structures includes a base and a support member extending generally along a longitudinal axis from the base. The plurality of support structures includes a first support structure and a second support structure. The sports training system further includes a main training assembly removably connectable to the first support structure and the second support structure. The main training assembly includes a cross member and an indicator assembly extending from the cross-member. The sports training system further includes at least one auxiliary training assembly removably connectable to one of the plurality of support structures.

[0008] In another embodiment, a sports training system is disclosed. The sports training system includes a first support structure, the first support structure including a base and a support member extending generally along a longitudinal axis from the base, the support member having an adjustable length. The sports training system further includes a second support structure, the second support structure comprising a base and a support member extending generally along a longitudinal axis from the base, the support member having an adjustable length. The sports training system further includes a main training assembly removably connectable to the first support structure and the second support structure. The main training assembly includes a cross-member and an indicator assembly extending from the cross-member. The indicator assembly includes an attachment strip and a plurality of indicator strips suspended from the attachment strip.

[0009] These and other features, aspects and advantages of the present invention will become better understood with reference to the following description and appended claims. The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate embodiments of the invention and, together with the description, serve to explain the principles of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] A full and enabling disclosure of the present invention, including the best mode thereof, directed to one of ordinary skill in the art, is set forth in the specification, which makes reference to the appended figures, in which:

[0011] FIG. **1** is a front view of components of a sports training system, including support structures and a main training assembly, in accordance with one embodiment of the present disclosure;

[0012] FIG. **2** is a front close-up view of a main training assembly in accordance with one embodiment of the present disclosure;

[0013] FIG. **3** is a perspective view of components of a sports training system, including a support structure and an auxiliary training assembly, in accordance with one embodiment of the present disclosure;

[0014] FIG. **4** is a perspective view of components of a sports training system, including a support structure and an auxiliary training assembly, in accordance with another embodiment of the present disclosure; and

[0015] FIG. **5** is a perspective view of components of a sports training system, including a support structure and an auxiliary training assembly, in accordance with another embodiment of the present disclosure.

DETAILED DESCRIPTION OF THE INVENTION

[0016] Reference now will be made in detail to embodiments of the invention, one or more examples of which are illustrated in the drawings. Each example is provided by way of explanation of the invention, not limitation of the invention. In fact, it will be apparent to those skilled in the art that various modifications and variations can be made in the present invention without departing from the scope or spirit of the invention. For instance, features illustrated or described as part of one embodiment can be used with another embodiment to yield a still further embodiment. Thus, it is intended that the present invention covers such modifications and variations as come within the scope of the appended claims and their equivalents.

[0017] Referring now to FIGS. **1** through **5**, sports training systems ("systems") **10** are disclosed. A system **10** in accor-

dance with the present disclosure is particularly intended for use in training participants in the skills of a football quarterback. Advantageously, a system **10** can be used to train multiple participants in multiple skills. Further, a system **10** can advantageously be easily assembled and disassembled, and easily transported when disassembled.

[0018] As show, a system **10** includes a plurality of support structures. The plurality of sports structures may include a first support structure **12** and a second support structure **14**. Further, three, four, five or more support structures may be utilized in a system **10**. Each support structure may include, for example a base **20** and a support member **22**. The support member **22** may extend generally along a longitudinal axis **24** from the base **20**, such as along the longitudinal axis **24** or within approximately 10 degrees, such as approximately 5 degrees, such as approximately 2 degrees from the longitudinal axis **24**.

[0019] In exemplary embodiments as illustrated, base **20** includes a plurality of adjustable legs **30**. Each leg **30**, for example, may be rotatably connected to abase sleeve **32**. The base sleeve **32** may surround the support member **22** and be movable generally along longitudinal axis **24** relative to the support member **22**. Such movement may adjust the legs **30**. Linkage members **34** may additionally be included in the base **20**, and each linkage member **34** may be rotatably connected to a leg **30** and the support member **22**. Movement of the base sleeve **32** may cause rotation of the linkage members **34**, which may in turn cause adjustment of the legs **30**. Such adjustment may, for example, modify a distance between respective legs **30**. A fastener **36**, such as a threaded bolt with an exterior handle, may be manipulated by a user to removably fasten the base sleeve **32** in place at a suitable location, such that the legs **30** are also fixed in place. Manipulation of the fastener **36** to un-fasten the base sleeve **32** may allow further adjustment of the legs **30**.

[0020] In other embodiments, legs **30** need not be adjustable. For example, legs **30** may be fixidly and non-movably connected to the support member **22**. In still other embodiments, base **20** in general need not include legs, and may instead for example be a non-adjustable stand to which the support member **22** is connected. Support member **22** may, for example, be removably connected to base **20**, such that the base **20** and support member **22** can be separated and thus disassembled. Alternatively, base **20** and support member **22** may be un-seperable, such as integral components of a support structure.

[0021] As further illustrated, a length (along the longitudinal axis **24**) of a support member **22** may be adjustable, such as generally along the longitudinal axis **24**. For example, support member **22** may include a first section **40** and a second section **42**. The first section **40** may be connected to the base **20** (such as to components thereof as discussed herein), as shown. The second section **42** may be telescopic with respect to the first section **40**. For example, the second section **42** may fit within the first section **40** and be movable generally along the longitudinal axis **24** relative to the first section **40**. Such movement may adjust the length of the support member **22** generally and the overall height of the system **10**. A fastener **44** may be manipulated by a user to removably fasten the second section **42** in place at a suitable location relative to the first section **40**. Manipulation of the fastener **44** to un-fasten the second section **42** may allow further adjustment of the thereof.

[0022] Notably, each support structure may advantageously be adjusted between an assembled state for use in training and a disassembled state for transportation. For example, legs **30** can be adjusted to be relatively close in distance to one another, or the base **20** can be removed from the support member **22**. Second section **42** can be adjusted such that the length of the support member **22** is at a shortest point, or the second section **42** can be removed from the first section.

[0023] The support structures, such as the first and second support structures **12**, **14**, can advantageously be utilized to support multiple training assemblies which can be utilized for multiple training activities. In particular, multiple aspects of throwing a football can be taught using the various training assemblies supported by the first and second support structures **12**. Further, multiple participants can train in one or more of these aspects generally simultaneously.

[0024] FIGS. **1** and **2**, for example, illustrate a main training assembly **50**. The main training assembly **50** is removably connectable to the first support structure **12** and the second support structure **14**. Main training assembly **50** generally includes a cross-member **52** and an indicator assembly **54** extending from the cross-member **52**. The main training assembly **50** can generally be utilized by one or more participants to teach proper release point when throwing a football. For example, the assembly **50**, such as the cross-member **52** thereof, can be set at an appropriate height for a participant to throw a football over the cross-member **52** if using a proper release point. If the release point is too low, the football will, rather than travelling over the cross-member **52**, either hit the cross-member **52**, hit the indicator assembly **54**, or travel under the entire assembly **50**.

[0025] In exemplary embodiments as illustrated, main training assembly **50** may be removably connectable to the first and second support structures **12**, **14**, such as to the support members **22** thereof. For example, main training assembly **50** may include a plurality of sleeves **56** and a plurality of fasteners **58**. Sleeves **56** may, for example, be connected to the ends of the cross-member **52**, and may when assembled with the support structures **12**, **14** generally surround the support members **22** thereof. Further, the sleeves **56** may be movable generally along the longitudinal axis **24** relative to the support members **22** to adjust a height of the main training assembly **50**. A fastener **58** may be manipulated by a user to removably fasten a sleeve **56** in place at a suitable location along the support member **22**, such that the connected cross-member **52** is also fixed in place. Manipulation of the fastener **58** to un-fasten the sleeve **56** may allow further adjustment of the cross-member **52** and main training assembly **50** in general.

[0026] In some embodiments, cross-member **52** may be a single component. In other embodiments, cross-member **52** may include one or more sections, such as a first section **60** and a second section **62** as illustrated. The first section **60** may be removably connectable to the first support structure **12** (such as via a sleeve **56** and fastener **58**) and the second section **62** may be removably connectable to the second support structure **14** (such as via a sleeve **56** and fastener **58**). Further, the first section **60** and second section **62** may be removably connectable together. For example, the first section **60** may fit within the section section **62** or vice versa, or both the first section **60** and second section **62** may fit within a coupling sleeve **64** which couples the sections **60**, **62** together (as illustrated). Further, a removable pin **66** may be

insertable through bore holes defined in the first section **60** and second section **62** (as well as the coupling sleeve **64** in some embodiments) to removably connect the first section **60** and second section **62** together. In some embodiments, such as some embodiments wherein the first section **60** fits within the second section or vice versa, the first section **60** may further be telescopic relative to the second section **62** or vice versa. In other embodiments, the first section **60** and second section **62** may have a fixed relationship when connected, such as when connected via coupling sleeve **64**.

[0027] Indicator assembly **54** in exemplary embodiments includes an attachment strip **70** and a plurality of indicator strips **72** suspended from the attachment strip **70**. The indicator strips **72** in exemplary embodiments as illustrated may be formed from a suitable plastic, such as polypropylene. The strips may be generally flexible. Alternatively, any suitable materials may be utilized as indicator strips **72**. For example, strings, chains, rigid plates, etc. may be utilized. The attachment strip **70** may attach the indicator strips **72** and assembly **54** in general to the cross-member **52**.

[0028] In some embodiments, indicator assembly **54** may be generally permanently attached to the cross-member **52**. In other embodiments as illustrated, however, the indicator assembly **54** may be removably attachable to the cross-member **52**. For example, as illustrated, attachment strip **70** may be formed from a first portion **74** connected to the cross-member **52** and a second portion **76** connected to the indicator strips **72**. First portion **74** and second portion **76** may be removably attachable to each other to removably attach the indicator strips **72** and indicator assembly **54** generally to the cross-member **52**. First portion **74** and second portion **76** may include hooks and loops, respectively, such as Velcro brand hooks and loops, to provide such removable attachment. Alternatively, suitable adhesives or other removably affixable apparatus may be utilized to facilitate the required removable attachment.

[0029] Notably, the main training assembly **50** may advantageously be adjusted between an assembled state for use in training and a disassembled state for transportation. For example, the main training assembly **50** can be disconnected from the associated support structures, the first and second sections **60**, **62** of the cross-member **52** can be disconnected, and the indicator assembly **54** can be detached from the cross-member **52**.

[0030] Further, the removability of the main training assembly **50** allows for interchange between the use of the main training assembly **50** and one or more auxiliary training assemblies. For example, the first support structure **12** and/or second support structure **14** may alternately be useable with main training assembly **50** and one or more auxiliary training assemblies. Additionally or alternatively, additional support structures may be utilized with auxiliary training assemblies, such that different aspects of throwing can be trained with multiple participants.

[0031] Accordingly, and referring now to FIGS. **3** through **5**, various embodiments of auxiliary training assemblies are illustrated. Each auxiliary training assembly is removably connectable to one of the plurality of support structures, such as to the first support structure **12**, second support structure **14** and/or any other suitable support structure of the system **10**.

[0032] FIGS. **3** and **4** illustrate embodiments of an auxiliary training assembly **100**. The auxiliary training assembly **100** is removably connectable to one of the plurality of support structures, such as to the support member **22** thereof. For example, auxiliary training assembly **100** may include a sleeve **102** and a fastener **104**. Sleeve **102** may be connected to other components of the auxiliary training assembly **100**, such as a frame **106** thereof and may when assembled with the support structure generally surround the support member **22** thereof. Fastener **104** may be manipulated by a user to removably fasten the sleeve **102**, and thus the auxiliary training assembly **100**, to the support member **22**. Manipulation of the fastener **104** to un-fasten the sleeve **102** may allow adjustment of the auxiliary training assembly **100** relative to the support member **22** and/or disassembly thereof.

[0033] As mentioned, auxiliary training assembly **100** includes a frame **106**. In exemplary embodiments as illustrated, frame **106** is generally ring shaped, although any suitable generally polygonal shape may be utilized. Assembly **100** may further include a net **108**, which may extend from the frame **106**. Net **108** may, for example, have a generally tubular shape, which a first end **110** connected to the frame **106** and a second end **112** spaced from and not connected to the frame **106**. Further, the first end **110** and second end **112** may each define an aperture, as illustrated. Alternatively, however, second end **112** may for example be generally closed. Accordingly, auxiliary training assembly **100** may be utilized to train accuracy when throwing a pass directly to a target. A participant may, for example, throw a football through the frame **106**. The net **108** may slow the rate of travel of the football as it travels therethrough, until the football drops out of the second end **112** of the net **108** (in the embodiments illustrated) or contacts the closed second end **112** and becomes trapped in the net **108**.

[0034] In the embodiment illustrated in FIG. **4**, the auxiliary training assembly **100** further includes a plurality of indicator lights **120**. Each indicator light **120** may be actuatable on and off, for example, to emit a light therefrom. In some embodiments, the lights **120** may be actuatable via, for example, a timer which may be disposed within the auxiliary training assembly **100** or included in the system **10** generally. In other embodiments, as illustrated the assembly **100** may further include a remote **122**. The remote **122** may be in communication with the plurality of indicator lights **120**, such as via a receiver **124**. For example, remote **122** may be in such connection through a suitable wired or wireless connection. The remote **122** may be operable to actuate the plurality of indicator lights **120**. For example, actuation of the remote **122** may send a signal to the receiver **124**, which may be in communication with and operable to control actuation of the lights **120**. Accordingly, remote **122** may be utilized to turn the lights **120** on and off, as desired. This allows for a participant to be trained in the quick and accurate release of a football. For example, two or more auxiliary training assemblies **100** can be set up using two or more support structures. FIG. **4** illustrates two auxiliary training assemblies **100**, along with a single remote **122** that actuates the lights **120** on both assemblies. The participant may be instructed to throw the football at whichever auxiliary training assembly **100** lights up. A coach or other participant may selectively operate the remote to actuate the lights **120** on one of the training assemblies **100**, and may monitor the quickness and accuracy of the participant in throwing the football to that assembly **100**.

[0035] FIG. **5** illustrates another embodiment of an auxiliary training assembly **200**. The auxiliary training assembly **200** is removably connectable to one of the plurality of support structures, such as to the support member **22** thereof. For example, auxiliary training assembly **200** may include a

sleeve **202** and a fastener **204**. Sleeve **202** may be connected to other components of the auxiliary training assembly **200**, such as a frame **206** or pivot rod **210** (as shown) thereof, and may when assembled with the support structure generally surround the support member **22** thereof. Fastener **204** may be manipulated by a user to removably fasten the sleeve **202**, and thus the auxiliary training assembly **200**, to the support member **22**. Manipulation of the fastener **204** to un-fasten the sleeve **202** may allow adjustment of the auxiliary training assembly **200** relative to the support member **22** and/or disassembly thereof.

[0036] As mentioned, auxiliary training assembly **200** includes a frame **206**, in exemplary embodiments as illustrated, frame **106** is generally rectangular, such as a rounded rectangle as illustrated, although any suitable generally polygonal shape may be utilized. Assembly **200** may further include a net **208**, which may extend from the frame **206**. As illustrated, for example, an outer perimeter of the net **208** may be connected to the frame **206** such that the net **208** generally forms a basket. Accordingly, auxiliary training assembly **200** may be utilized to train accuracy when throwing a fade pass to a target. A participant may, for example, throw a football in a high arc, in an attempt to land the football in the net **208**.

[0037] In some embodiments, auxiliary training assembly **200** may further include a pivot rod **210** which is connected to the frame **206**, such as by a plurality of brackets **212**. The frame **206** may be pivotable about the rod **210**, such as due to rotation of the brackets **212** about the rod **210**. Accordingly, the auxiliary training assembly **200** can be adjusted to various angles, which may for example increase the difficulty of landing a football in the net **208** or change the trajectory at which a participant has to throw the football to successfully land the football in the net **208**.

[0038] It should be understood that the sports training system of the present disclosure may include any suitable number of auxiliary training assemblies. Each auxiliary training assembly may be removably connectable to one or more support structures. For example, an exemplary system **10** may include a first support structure **12** and a second support structure **14**, along with a main training assembly **50**. Such system **10** in exemplary embodiments may further include one or more auxiliary training assemblies, such as auxiliary training assembly **100** and/or auxiliary training assembly **200**. Further, in some embodiments, additional support structures may be included. Advantageously, the various components of system **10** can be utilized to train multiple participants and/or multiple throwing skills. Further, the components of system **10** can be easily and efficiently assembled for use and disassembled for transport.

[0039] This written description uses examples to disclose the invention, including the best mode, and also to enable any person skilled in the art to practice the invention, including making and using any devices or systems and performing any incorporated methods. The patentable scope of the invention is defined by the claims, and may include other examples that occur to those skilled in the art. Such other examples are intended to be within the scope of the claims if they include structural elements that do not differ from the literal language of the claims, or if they include equivalent structural elements with insubstantial differences from the literal languages of the claims.

What is claimed is:

1. A sports training system, comprising:

a plurality of support structures, each of the plurality of support structures comprising a base and a support member extending generally along a longitudinal axis from the base, the plurality of support structures comprising a first support structure and a second support structure;

a main training assembly removably connectable to the first support structure and the second support structure, the main training assembly comprising a cross-member and an indicator assembly extending from the cross-member; and

at least one auxiliary training assembly removably connectable to one of the plurality of support structures.

2. The sports training system of claim **1**, wherein the base comprises a plurality of adjustable legs.

3. The sports training system of claim **1**, wherein a length of the support member is adjustable generally along the longitudinal axis.

4. The sports training system of claim **1**, wherein the main training assembly is removably connectable to the support members of the first support structure and the second support structure.

5. The sports training system of claim **1**, wherein the cross-member comprises a first section and a second section, the first section removably connectable to the first support structure, the second section removably connectable to the second support structure, the first section and the second section removably connectable together.

6. The sports training system of claim **1**, wherein the indicator assembly comprises an attachment strip and a plurality of indicator strips suspended from the attachment strip.

7. The sports training system of claim **6**, wherein each of the plurality of indicator strips is formed from a plastic.

8. The sports training system of claim **1**, wherein the indicator assembly is removably attachable to the cross-member.

9. The sports training system of claim **1**, wherein the auxiliary training assembly is removably connectable to the support member of the one of the plurality of support structures.

10. The sports training system of claim **1**, wherein the auxiliary training assembly comprises a frame and a net extending from the frame.

11. The sports training system of claim **10**, wherein the net comprises a first end connected to the frame and a second end spaced from the frame, the first end and the second end each defining an aperture.

12. The sports training system of claim **10**, wherein the frame is generally ring-shaped.

13. The sports training system of claim **10**, wherein the auxiliary training assembly further comprises a plurality of indicator lights connected to the frame.

14. The sports training system of claim **13**, wherein the auxiliary training assembly further comprises a remote in communication with the plurality of indicator lights, the remote operable to actuate the plurality of indicator lights.

15. The sports training system of claim **10**, wherein an outer perimeter of the net is connected to the frame.

16. The sports training system of claim **10**, wherein the frame is generally rectangular.

17. The sports training system of claim **10**, wherein the auxiliary training assembly further comprises a pivot rod and

a plurality of brackets, each of the plurality of brackets connecting the frame to the pivot rod such that the frame is pivotable about the pivot rod.

18. A sports training system, comprising:

a first support structure, the first support structure comprising a base and a support member extending generally along a longitudinal axis from the base, the support member having an adjustable length;

a second support structure, the second support structure comprising a base and a support member extending generally along a longitudinal axis from the base, the support member having an adjustable length; and

a main training assembly removably connectable to the first support structure and the second support structure, the main training assembly comprising a cross-member and an indicator assembly extending from the cross-member, the indicator assembly comprising an attachment strip and a plurality of indicator strips suspended from the attachment strip.

19. The sports training system of claim **18**, further comprising at least one auxiliary training assembly removably connectable to one of the first support structure or the second support structure.

20. The sports training system of claim **19**, wherein the at least one auxiliary training assembly is a plurality of auxiliary training assemblies.

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