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(54) **TEAM SHAPE TRAINING APPARATUS**

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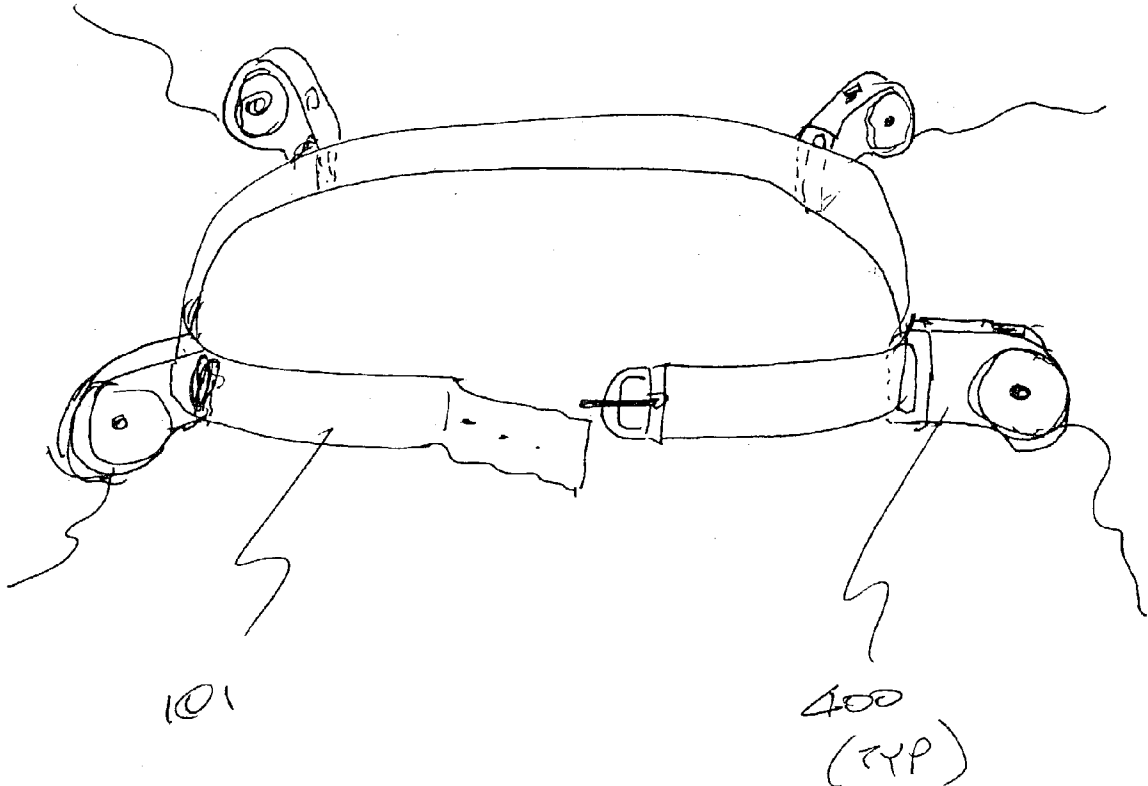
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(60) Provisional application No. 60/351,491, filed on Mar. 26, 2002.

(57)

ABSTRACT

An apparatus for use in training formations in team sports such as soccer or hockey. Players train while connected together by selectable lengths of cord attached to belts or harnesses worn by the players. This encourages the connected players to learn to maintain a desired team shape and distance. The connecting cords preferably have some elasticity, to prevent jerking as the cords tighten responsive to movement of the players. The belts or harnesses also preferably have some elasticity or "give" responsive to pulling on the cords.



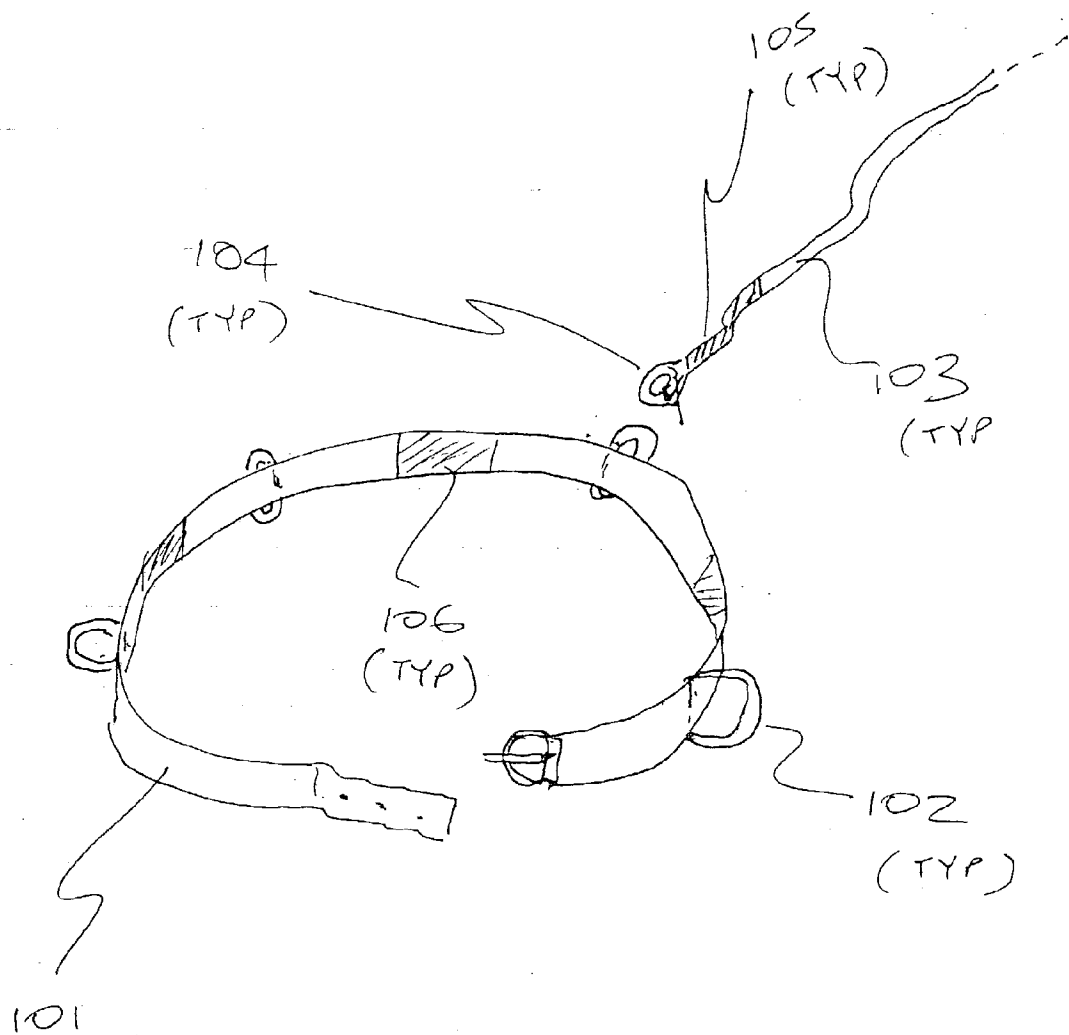


FIGURE 1

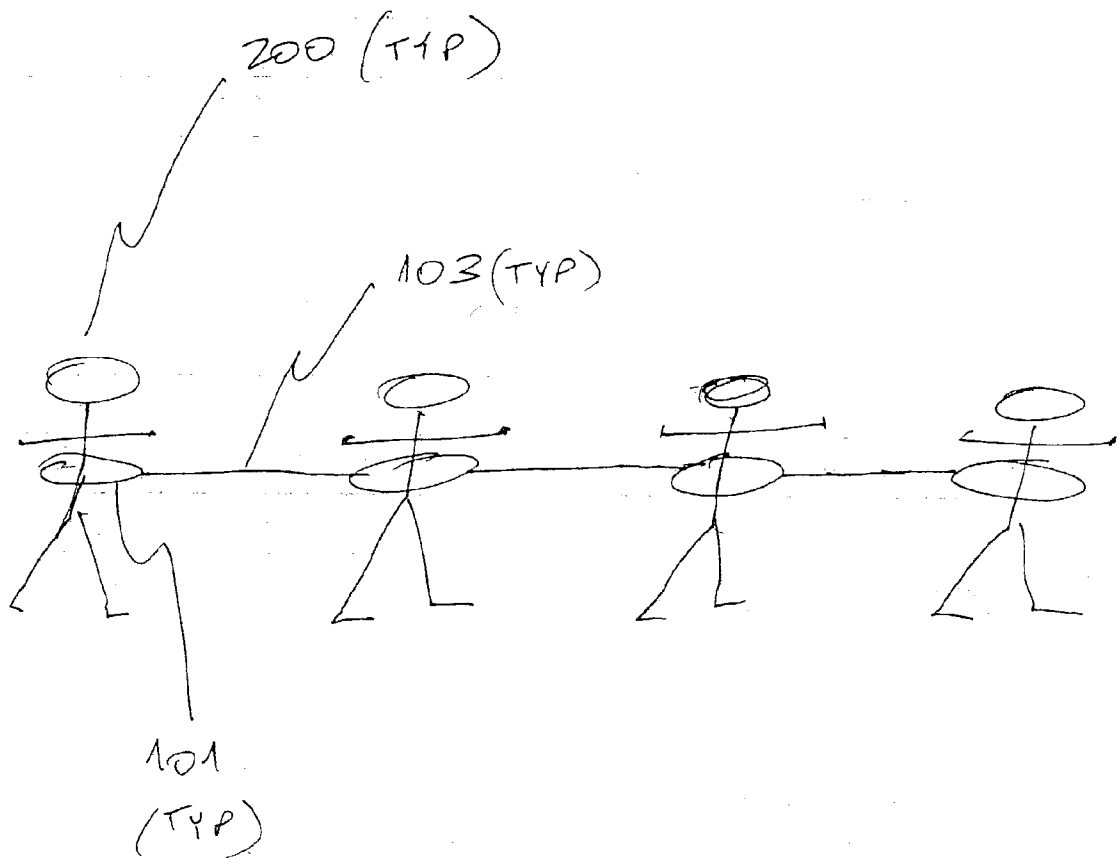


FIGURE 2A

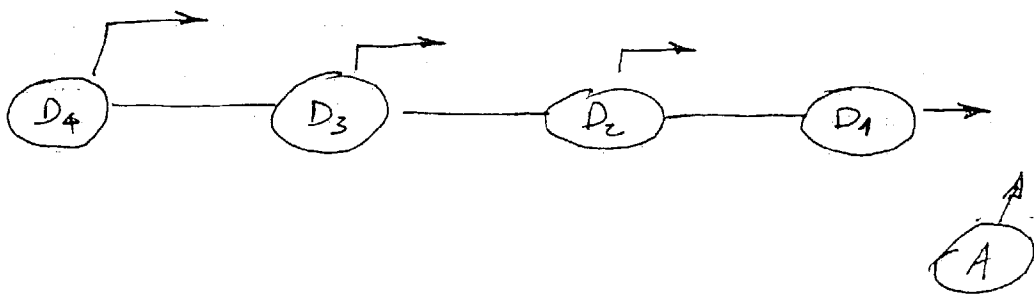


FIGURE 2B

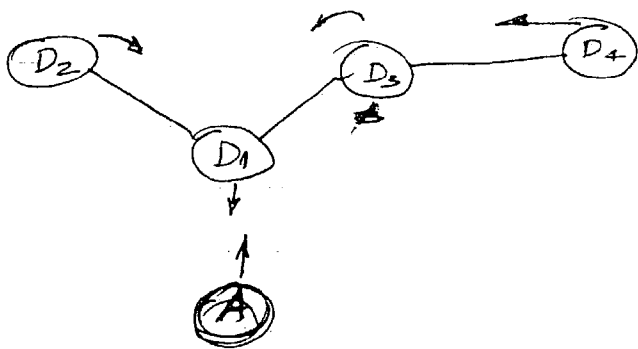


FIGURE 2C

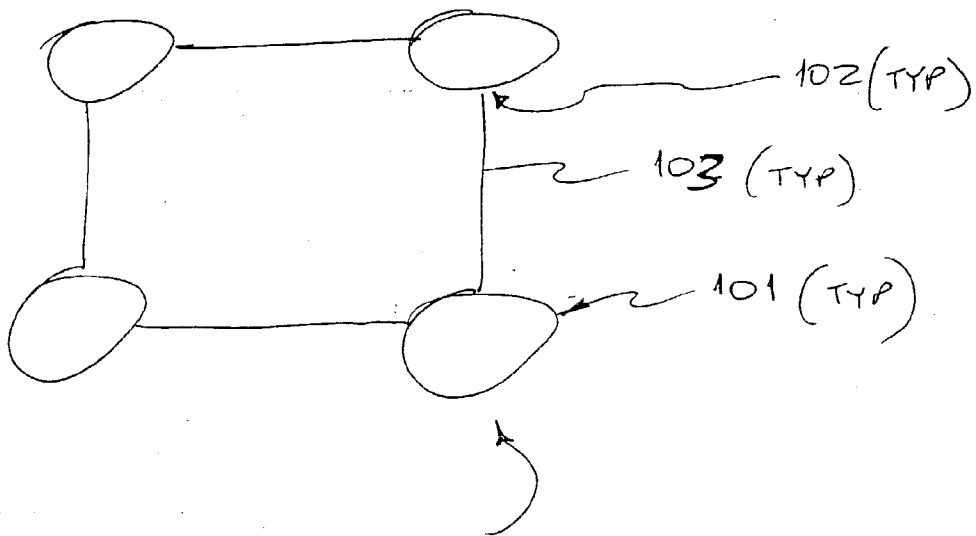


FIGURE 3A

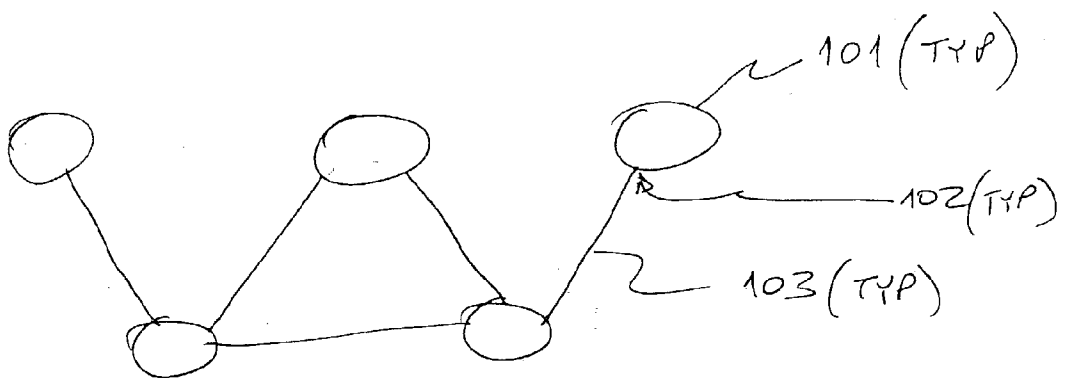


FIGURE 3B

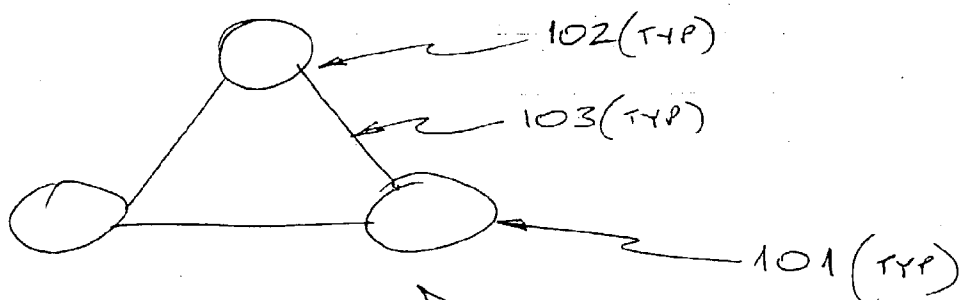


FIGURE 3C

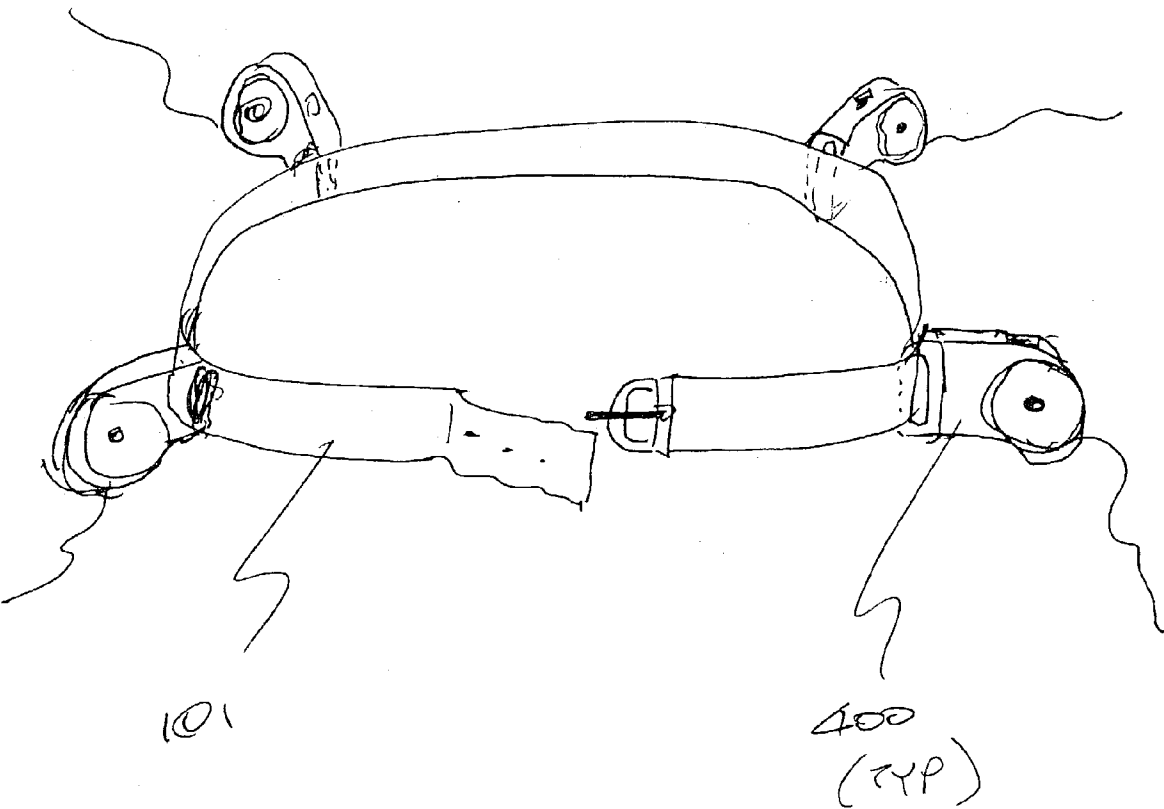


FIGURE 4

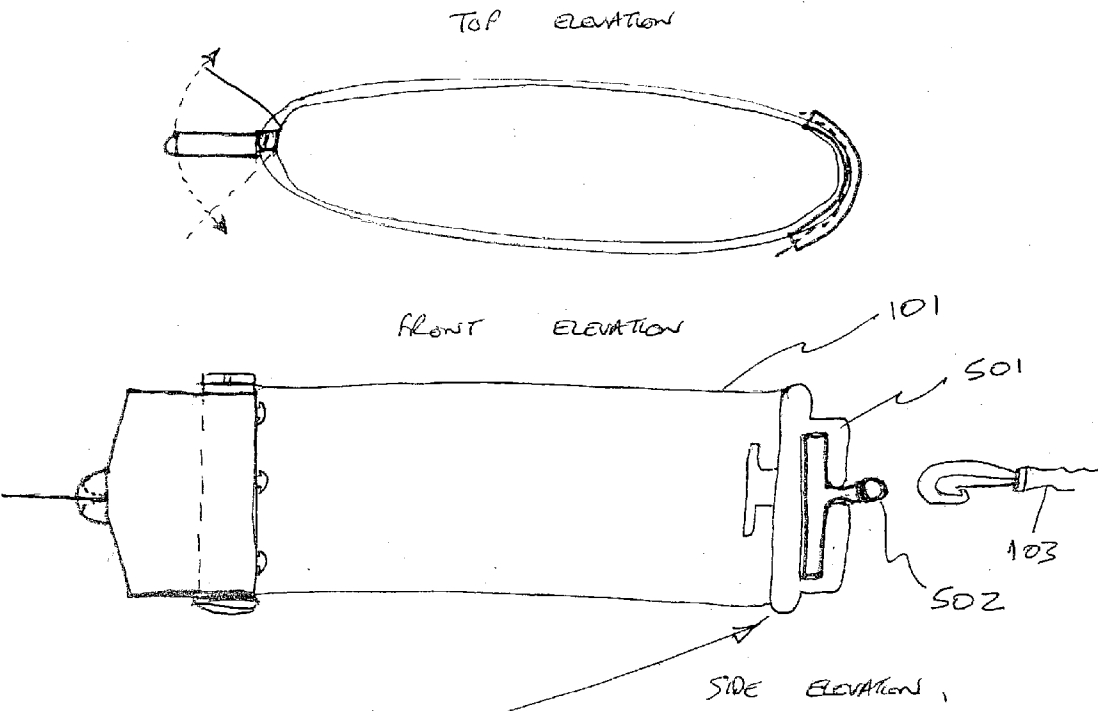


FIGURE 5A

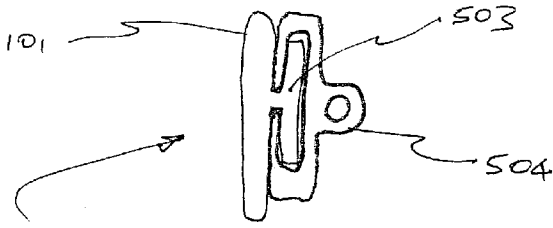
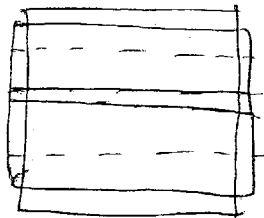


FIGURE 5B

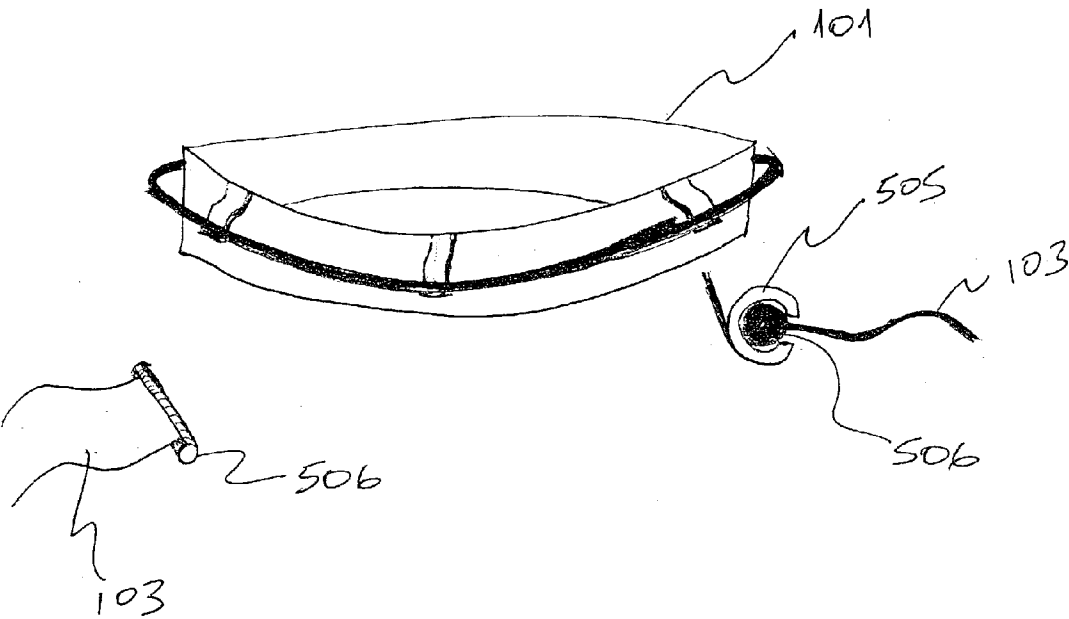


FIGURE 5C

TEAM SHAPE TRAINING APPARATUS

RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. provisional application Serial No. 60/351,491, filed Mar. 26, 2002.

TECHNICAL FIELD OF THE INVENTION

[0002] The present invention is related generally to team shape training devices, and more specifically to an apparatus in which players train while connected together by selectable lengths of cord attached to belts or harnesses worn by the players.

BACKGROUND OF THE INVENTION

[0003] Coaches of team sports invariably understand and teach the fundamentals of team shape. The concept of players playing and maintaining team shape is central to the ability of the players to interact with each other to execute defense, offense and transition.

[0004] Team shape is understood to be a fluid formation of the players as they play the ball (or puck, etc.) and/or support one another as their team plays the ball. Team shape requires, in particular, the players to continuously recognize and maintain proper angles and distances between themselves, their teammates and their opponents.

[0005] Coaching publications in the art discuss team shape concepts and drills at length. For example, the publication "Success in Soccer," on pages 10-17 of the 3/2000 edition, discusses an approach to a "flat 4" defense in soccer. The soccer coach is shown suggestions for drilling defenders to act as a unit to absorb pressure from attacking opponents, and to delay and dispossess individual attacking players, while still maintaining an effective offside trap.

[0006] Coaches will understand this article to be merely exemplary of one of many similar previously-written articles directed to teaching team shape, not only for soccer, but also for other team sports such as ice hockey, basketball, rugby, etc.

[0007] The well-renowned British soccer coach Don Howe was known to rope players together to assist in his coaching of team shape. Howe's methods comprised primarily roping players together round their waists with lengths of rope knotted together. While effective, this method had disadvantages. First, it jerked interconnected players rather violently as the rope reached its permitted length between players. Second, it was cumbersome and time consuming in trying and untying the players into a desired playing shape, or changing the shape/adding players during training.

[0008] U.S. Pat. No. 5,002,273, issued to Sela, discloses a device in which two players are interconnected for the purpose of the second player following the first. If the following player fails to "follow" (i.e. gets too far behind the leading player) a special connection breaks in the cord attaching the two players together. The special connection is designed to break quite easily, so as to induce the follower to follow the leader so close as to not allow the interconnecting cord to come into any meaningful tension.

[0009] While technically a "team shape" training device, the device disclosed in U.S. Pat. No. 5,002,273 has numer-

ous disadvantages. First, a goal of inducing players to simply follow one another is contrary to most modern team shape concepts. It would be more advantageous to teach players support one another while covering opponents or exploring vacant space. Second, the attainment and maintenance of proper team shape depends on players being encouraged to continually adjust and maintain the correct angle and distance from other players of either team. This objective would be lost if cords interconnecting the players broke every time they came into tension. In fact, tension in the interconnecting cords is advantageous in that the "pull" encourages the players to make an immediate distance and/or angle adjustment while play continues.

[0010] There is therefore a need for a team shape training device that assists coaches in teaching the principles of team shape. The inventive device should, at a minimum, overcome the disadvantages seen in currently known devices and discussed above.

SUMMARY OF THE INVENTION

[0011] These and other objects are achieved by the present invention, in which players train while connected together by selectable lengths of cord attached to belts or harnesses worn by the players. The inventive apparatus encourages the connected players to learn to maintain a desired team shape and distance. In one embodiment, the connecting cords have some elasticity, to prevent jerking as the cords tighten responsive to movement of the players. The belts or harnesses also have some elasticity or "give" responsive to pulling on the cords. However, contrary to prior art training devices noted above (in which player connections are designed to become disconnected should interconnecting cords become taut because players fail to follow each other), player connections on the inventive training apparatus are connected rigidly so as not to become disconnected during use. In this way, the players can be trained to play continuously while maintaining the team shape dictated by the selected configuration of cords and belts or harnesses.

[0012] The connection points on the belts may be vertically disposed loops or rings that allow a wide range of horizontal cord angles between players. In another embodiment, the connection points on the belts are slidable around the belts within adjustable limits of motion.

[0013] To facilitate rapid deployment, the belts or harnesses may be secured upon a player using velcro or quick release buckles. The cords are preferably connected to the belts using conventional snap hook mechanisms. The snap hooks connect to the cord ends using a rotatable joint to deter the cords from twisting between players. In one embodiment, the cords are adjustable in length by adding or removing separable lengths of cord. In another embodiment, each cord has on one end, at the point of attachment to a player, a retractable device not unlike a retractable dog leash. The retracting mechanism in the device can be locked at the desired length of cord payed out. The device attaches to the player's harness so as to provide a vertically disposed hinged arrangement so as to allow the wide range of horizontal cord angles described above.

[0014] Padding on the belt or harness in the areas of the connecting hardware is advantageous to minimize discomfort during use, or minor injury in the event of a fall.

[0015] A technical advantage of the invention is that it is scalable and modular. Any number of players can be connected together into a desired configuration. Each player can be connected to any number of other players within the limits of the connection points provided on a belt.

[0016] A further technical advantage of the invention is that it enhances the comfort of the players during use. In an embodiment where the lengths of cord have some elasticity, and in which the belts and harnesses also have some elasticity, it will be appreciated that the players will be encouraged to retain a team shape during play without having to undergo excessive jerking on the belts and cords when interconnected players move about.

[0017] A further technical advantage of the invention is that the connections between the belts/harnesses and the cords are substantially rigid. In this way, an object of the invention is achieved, namely forcing players to maintain correct relative spacing and configuration (i.e. team shape) during play. The rigid connections between belts/harnesses and cords do not allow the players the option of moving outside the shape dictated by the interconnection of belts/harnesses and cords. This is directly contrary to the teachings of the prior art such as in U.S. Pat. No. 5,002,273, in which connections between players are fragile and the training object is for connected players to learn to follow each other closely to avoid severing the connection.

[0018] The foregoing has outlined rather broadly the features and technical advantages of the present invention in order that the detailed description of the invention that follows maybe better understood. Additional features and advantages of the invention will be described hereinafter which form the subject of the claims of the invention. It should be appreciated by those skilled in the art that the conception and the specific embodiment disclosed may be readily utilized as a basis for modifying or designing other structures for carrying out the same purposes of the present invention. It should also be realized by those skilled in the art that such equivalent constructions do not depart from the spirit and scope of the invention as set forth in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019] For a more complete understanding of the present invention, and the advantages thereof, reference is now made to the following descriptions taken in conjunction with the accompanying drawings, in which:

[0020] FIG. 1 is a general arrangement of a belt embodiment of the invention;

[0021] FIG. 2A is a functional diagram of a belt embodiment of the invention in use;

[0022] FIGS. 2B and 2C are functional diagrams of the invention in use during team shape training;

[0023] FIGS. 3A, 3B and 3C are further functional diagrams of the invention in use during team shape training;

[0024] FIG. 4 illustrates an embodiment of the invention using retractable devices 400; and

[0025] FIGS. 5A, 5B and 5C illustrate embodiments of the invention with slideable attachments between cords 103 and belts 101.

DETAILED DESCRIPTION OF THE INVENTION

[0026] FIG. 1 illustrates an exemplary embodiment of the present invention. In FIG. 1, belt 101 is disposed to fasten around individuals playing a team sport. Belts 101 may be fastened around the individuals using any convenient method known in the art, such as buckles, ties or velcro. It will be understood that harnesses and similar types of "around the body" attachments may also be used instead of belts 101 on FIG. 1.

[0027] With further reference to FIG. 1, belt 101 provides belt connectors 102. The details of belt connectors 102 in exemplary embodiments will be discussed below. Functionally, however, belt connectors 102 serve as convenient points of attachment of cords 103, as shown on FIG. 1.

[0028] Cords 103 on FIG. 1 are advantageously of selectable length. In a preferred embodiment, the lengths of cords 103 may be selected by choosing from a selection of different length cords, or by concatenating additional lengths of cord until a selected length is achieved.

[0029] As shown on FIG. 1, cords 103 attach to belt connectors 102 via cord connectors 104. In the embodiment shown in FIG. 1, belt connectors 102 are rings attached to belt 101 by sewing, and cord connectors 104 are spring operated snap rings, as are well known in the art. The snap rings preferably include rotatable joints near the points of attachment to cords 103. These rotatable joints discourage cords 103 from becoming twisted. Such rotatable joints included on snap rings are well known in the art.

[0030] These snap ring attachment devices are exemplary only. It will be appreciated that numerous other connection mechanisms will be available to attach cords 103 to belts 101 with equivalent enabling effect. The invention is not limited to any specific connection mechanism attaching cords 103 to belt 101.

[0031] Further examples of mechanisms enabling cord connectors 104 include "tails" attached to belts 101 by, for example, sewing, with push or twist connectors provided at the end of the tails. The ends of cords 103 are then provided with complementary push or twist connectors to attach to the tails on belts 101.

[0032] A wide variety of materials are available for belt 101 and cords 103. Examples for belt 101 include a sewn nylon, or leather, or a tough plastic. Examples for cords 103 include nylon, or plastic or fibrous materials, or even manila rope.

[0033] An advantageous but optional feature of the invention is also shown in FIG. 1. It will be seen on FIG. 1 that cords 103 provide resilient section 105, preferably near the point of attachment at cord connectors 104. Similarly, belt 101 provides at least one resilient insert 106. The function of resilient section 105 and resilient insert 106 is to reduce discomfort to players connected by belts 101 and cords 103 when cords 103 suddenly become tightened as the players move. Either of resilient sections 105 or resilient inserts 106 may be provided, or both. Resilient inserts 106 and resilient sections 105 may be made from an masticated or rubberized material as is known in the art.

[0034] Although not specifically illustrated, it will be appreciated that additional comfort may be provided to

players wearing belts **101** via padding on the inside of the belts **101**. Examples of such padding include fleece or foam. In particular, such padding may be placed on the belts **101** at points of contact with sensitive areas of the body, such as the lumbar area. In embodiment where harnesses are used as belts **101**, such padding may also be placed on the shoulders and other points of contact with sensitive areas of the body.

[0035] It will be further appreciated that in embodiment where the lengths of cords **103** connecting belts **101** are selected by concatenating sections of cord together, there may be multiple resilient sections **105** in the overall length of cords **103** (for example, if two or more concatenated cords each provide a resilient section **105**). In such an embodiment, additional comfort will be understood to be provided for players wearing interconnected belts **101** whenever cords **103** become suddenly taut as the players move.

[0036] Resilient sections **105** in cords **103**, and resilient inserts **106** in belts **101** may be enabled by mechanisms well known in the art. Numerous conventional elastic, elastomeric or rubber-like materials are available for such service.

[0037] FIG. 2A is a diagram illustrating functionally an arrangement of players **200** interconnected according to the present invention with belts **101** and cords **103**. In the example of FIG. 2, players **200** are interconnected in a line so that they may be trained according to the "flat back four" defensive system in association football (soccer).

[0038] An example of the training effect of the invention maybe seen in FIGS. 2B and 2C. In FIG. 2B, it will be seen that as attacker A advances, first defender D1 moves to attacker A and brings remaining defenders D2, D3 and D4 towards the play while still retaining team shape.

[0039] Similarly in FIG. 2C, it will be seen that defender D1 advances to meet attacker A, the interconnection with remaining defenders D2, D3 and D4 cause an advantageous adaptation of team shape to cover both the space in front of the formation and behind defender D1.

[0040] It will be appreciated that the invention is not limited to interconnecting players in a line as shown on FIGS. 2A, 2B and 2C. With reference again to FIG. 1, it will be seen that belt connectors **102** may be placed at numerous places around belt **101**. In this way, players may be interconnected in numerous configurations according to particular team shapes that may be desired to be trained. FIGS. 3A, 3B and 3C are examples of alternative team shapes that may be trained using the invention. It will be seen easily by reference to FIG. 1 how belts **101** and cords **103** may be interconnected to form the team shape training setups shown in FIGS. 3A, 3B and 3C.

[0041] A further optional feature that may be added to cords **103** (again, not illustrated) is to make the cords brightly colored in sections (or entirely) along their length. This is an advantageous feature to assist making cords **103** visible during use.

[0042] FIG. 4 illustrates an alternative embodiment where cords **103** are retractable. In FIG. 4, retractable devices **400** attach to belts **101**, and then cords **103** attach to retractable devices **400**. Alternatively, other belts **101** may be interconnected directly to retractable devices **400**. Attachment of retractable devices **400** to belts **101** may be by sewing or

other conventional methods. Attachment of cords **103** to retractable devices **400** may be snap fasteners or other conventional methods.

[0043] With further reference to FIG. 4, retractable devices **400** are preferably conventional mechanisms analogous to retractable dog leashes. An interior spring mechanism in retractable device **400** advantageously enables the retractability of a length of cord. In this way, it will be appreciated that, with exemplary reference to training shapes such as are illustrated on FIGS. 2A, 3A, 3B or 3C, retractable devices **400** may be used to quickly adjust the selected lengths of cords **103**. Alternatively, if left to be completely retractable during training, retractable devices **400** will be seen to take up "slack" on cords **103** as interconnected players move closer together. Note further that on FIG. 4, the retractable devices **400** are illustrated in a preferred vertical attachment, so as to allow "hinged" motion to facilitate horizontal cord angles between interconnected players.

[0044] Other embodiments are illustrated in FIGS. 5A, 5B and 5C, in which mechanisms are illustrated on belt **101** allowing points of attachment of cords **103** to be slideable around belts **101** (instead of being fixed, as shown on FIGS. 1 and 4). In FIG. 5C, belt **101** provides lengths of C-shaped attachments **501**. It will be seen that bars **502** slide around belt **101** within C-shaped attachments **501**. Loops or rings on bars **502** facilitate attachment to cords **103**. It will be understood that C-shaped attachments **501** may completely encircle belts **101**, or may alternatively allow lateral sliding of cords **103** over partial lengths of belts **101**.

[0045] Turning to FIG. 5B, an alternative embodiment of a slideable mechanism is illustrated. In FIG. 5B, belt **101** provides T-shaped attachments **503**, again optionally either completely encircling belt **101**, or being available over partial lengths thereof. C-shaped hooks **504** slide around belt **101** over T-shaped attachments **503**. As in FIG. 5A, it will be understood on FIG. 5B that loops or rings on C-shaped hooks **504** facilitate attachment to cords **103**.

[0046] With reference now to FIG. 5C, a yet further exemplary sliding mechanism is illustrated in which cords **103** provide rods **506** at the ends. Rods **106** engage into, and slide around C-shaped track **505** shown on FIG. 5C to completely encircle belt **101**. It will be appreciated that C-shaped track **505** may also be provided in partial sections around belt **101**.

[0047] With further reference to FIGS. 5A, 5B and 5C, it will be understood that embodiments including the exemplary sliding mechanisms illustrated allow greater freedom for interconnected players to rotate relative to one another, while still being constrained to maximum distances apart (as set by the preselected lengths of cords **103**). Materials that may be used to enable the components **501** through **506** shown on FIGS. 5A, 5B and 5C include conventional materials such as plastic, metal or fiberglass/composite materials.

[0048] Although the present invention and its advantages have been described in detail, it should be understood that various changes, substitutions and alterations can be made herein without departing from the spirit and scope of the invention as defined by the appended claims.

We claim:

1. A team shape training apparatus, comprising:
 - a plurality of belts each providing a plurality of belt connection points; and
 - at least one cord of selected length, each cord having connectors at each end, each connector securely connectable to one of the belt connection points.
2. The apparatus of claim 1, in which at least one belt includes an elasticated insert.
3. The apparatus of claim 1, in which at least one cord includes an elasticated insert.
4. The apparatus of claim 1, in which at least one cord includes multiple shorter cords concatenatable end-to-end to provide at least one extended cord of selected length, each extended cord providing connectors at each end thereof for connection to a belt connection point.
5. The apparatus of claim 1, in which at least one belt connection point includes a selectively extendable and retractable connection for cords.
6. The apparatus of claim 1, in which at least one cord includes a selectively extendable and retractable portion.
7. The apparatus of claim 1, in which the belt connection points are selected from the group consisting of:
 - (a) rings; and
 - (b) tails.
8. The apparatus of claim 1, in which at least one belt comprises padding at points of contact with a wearer.
9. The apparatus of claim 1, in which the belts are selected from the group consisting of:
 - (a) waist belts; and
 - (b) harnesses.
10. The apparatus of claim 1, in which portions of cords are brightly colored.
11. The apparatus of claim 1, in which at least one belt connection point comprises a track insert in its corresponding belt, the track insert being of substantially C-shaped profile and operable to receive substantially T-shaped cord connectors, the T-shaped cord connectors retained by the track insert and slideable along the track insert.
12. The apparatus of claim 1, in which at least one belt connection point comprises a track attached to its corresponding belt, the track being of substantially C-shaped profile and operable to receive substantially circular shaped cord connectors, the circular shaped cord connectors retained by the track and slideable along the track.

13. A team shape training apparatus, comprising:

- a plurality of belts each providing a plurality of belt connection points;
 - at least one cord of selected length, each cord having connectors at each end, each connector securely connectable to one of the belt connection points;
 - at least one of the cords including an elasticated insert; and
 - at least one cord including multiple shorter cords concatenatable end-to-end to provide at least one extended cord of selected length, each extended cord providing connectors at each end thereof for connection to a belt connection point.
14. The apparatus of claim 13, in which at least one belt includes an elasticated insert.
 15. The apparatus of claim 13, in which at least one belt comprises padding at points of contact with a wearer.
 16. The apparatus of claim 13, in which at least one belt connection point includes a selectively extendable and retractable connection for cords.
 17. The apparatus of claim 13, in which at least one cord includes a selectively extendable and retractable portion.
 18. A method for training team shape, comprising:
 - (a) providing a plurality of belts each providing a plurality of belt connection points;
 - (b) providing at least one cord of selected length, each cord having connectors at each end, each connector securely connectable to one of the belt connection points;
 - (c) causing a corresponding plurality of trainees each to wear one belt; and
 - (d) interconnecting trainees together via cords connected to belt connection points.
 19. The method of claim 18, in which at least one cord includes an elasticated insert.
 20. The method of claim 18, in which (b) includes concatenating multiple shorter cords end-to-end to provide at least one extended cord of selected length, each extended cord providing connectors at each end thereof for connection to a belt connection point.

* * * * *