SPORTS TRAINING APPARATUS AND METHOD OF USING THE SAME

Inventor: Gregory Remaklus, Littleton, CO (US)

Correspondence Address:
MARTIN & HENSON, P.C.
9250 W 5TH AVENUE
SUITE 200
LAKEWOOD, CO 80226 (US)

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ABSTRACT
An apparatus for practicing athletic skills for a sport that uses a net includes a support frame for mounting on the net and a pair of blocking assemblies supported by the frame. Each of the blocking assemblies includes a blocking paddle that extends upwardly from the frame above the top edge of the net. The blocking paddle may have the size and/or shape of an adult human hand, and it may be supported by an arm having the size and/or shape of an adult human forearm. Each blocking paddle may be secured relative to the support frame so that it may be selectively and independently oriented. The support frame may have top and bottom portions that engage the net, and it may be translatable alongside the net. A lobe may project upwardly from the frame and be sized similarly to an adult human head.
SPORTS TRAINING APPARATUS AND METHOD OF USING THE SAME

FIELD OF THE INVENTION

[0001] The present invention broadly concerns training equipment for sports and recreational activities. More particularly, the disclosed embodiments concern a sports apparatus useful for improving skills related to a particular sport, such as volleyball. Specifically, the embodiment of the present invention relates to a training apparatus useful for improving a volleyball player's skills for scoring points when presented with a variety of possible defensive techniques used by the opposing team. The present invention also relates to a method of using one or more training apparatuses to train skills useful for playing a particular sport such as volleyball.

BACKGROUND OF THE INVENTION

[0002] Many individuals strive toward becoming and staying healthy and physically fit. While many seek physical fitness individually, by jogging, swimming, biking, weightlifting, and the like, others choose to do so through group sports activities. Such activities include such varied sports as tennis, football, basketball, soccer, and volleyball, just to name a few. While many participate in these sports activities for the social interaction, others seek to play on a more competitive level. In either case, such sports activities offer an enjoyable way to achieve physical fitness.

[0003] Of the sports activities mentioned above, many such as basketball, football, and volleyball require skills of handling a ball so that it travels along a certain trajectory. In basketball, the player strives to aim the basketball into a basketball hoop to score points while in football, some players throw the football for their teammates to catch while others try to kick the football through the goal posts. In volleyball, players strategize ways to hit the volleyball in the opposing team’s court.

[0004] Many sports participants, particularly those who play on a more competitive level, train to improve these ball handling skills. For example, in basketball, players repeatedly stand at varying distances from the basketball hoops to practice their shots. Football players sometimes suspend tires and throw footballs through the opening in the tire to practice. However, during actual game time, the opposing team will try to deflect or otherwise keep the ball from reaching the destination intended by the thrower. Accordingly, it is also beneficial, during practice the practice of these skills, to imitate real game type situations.

[0005] One way in which players can practice game type situations is with scrimmage matches. However, there are a few techniques or apparatuses available that allow coaches to assist in the development of ball handling skills outside while still having the player benefit from defensive playing positions. Coaches and literature both can provide tips for making the practicing player aware of common defensive positions. However, there is still a need for an improved method of improving these techniques. Further, there is a need for a training device that enables the setter to improve ball handling skills for a desired sport while benefiting from an apparatus that mimics possible defensive positions that will likely arise during real game time situations. The present invention is directed to meeting these needs.

OBJECTS OF THE INVENTION

[0006] An aspect of the exemplary embodiments of the present invention is to provide a useful training apparatus and method for developing skills related to a particular sport;

[0007] Another aspect of the exemplary embodiments is to provide a volleyball training apparatus and useful method in developing the skills for spiking a volleyball into the opposing team's court or otherwise sending the volleyball over the net to increase scoring potential.

[0008] A further aspect of the exemplary embodiments of the present invention is to provide a training apparatus that is both portable and easy to assemble and disassemble;

[0009] Yet another aspect of the exemplary embodiments is to provide a training apparatus that is adjustable to accommodate various associated sporting equipment, such as volleyball nets;

[0010] A further aspect of the exemplary embodiments is to provide a training apparatus that can be oriented to imitate possible defensive techniques so as to improve the trainee’s offensive game;

[0011] Yet another aspect of the exemplary embodiments is to provide a training apparatus that is made of lightweight, durable material that can withstand repeated use;

[0012] Yet another aspect of the exemplary embodiments is to provide a method of developing sports related skills for achieving a competitive advantage.

[0013] According to the exemplary embodiments, an apparatus is disclosed for use by an athlete when practicing athletic skills for a sport that utilizes a horizontal net wherein the net is suspended above a support surface and wherein the net has a top edge and a bottom edge so as to define a vertical plane when so suspended. Broadly, the exemplary embodiments of the apparatus utilize a support frame that is adapted to be mounted on the net in a mounted state. A pair of blocking assemblies is then supported by the frame. Each of the blocking assemblies includes a blocking paddle that extends from the frame generally above the top edge of the net when the frame is in the mounted state.

[0014] Each blocking assembly may include an arm having a proximal portion secured to the frame with the blocking paddle secured to the arm at a distal end thereof. The arm, if desired can have the size and shape about that of an adult human forearm. While the blocking paddle can take any desired shape, in one embodiment, the blocking paddle is configured in the shape of a human hand and has a size about that of the adult human hand. These paddles are formed of a low density, break resistant plastic, such as polyvinyl chloride.

[0015] In any event, the exemplary embodiments disclose that the blocking paddle is secured to the support frame in a manner such that each blocking paddle may be placed in a selected orientation independently of one another. Such orientation may include pivoting the paddle relative to the support frame or, at least one embodiment rotatably positioning the paddle alone or in conjunction with a pivotingly orienting the blocking paddle. To accomplish the pivoting motion, the support frame is provided with a pair of locking pivot gear fasteners corresponding to each leg. The blocking
paddles are then respectively supported by each of the locking pivot gear fasteners whereby each blocking paddle may be placed and releasably locked in selected pivotally orientation with respect to the support frame. If desired, an auxiliary extension arm may be used with each locking pivot gear fastener. Here, the proximal end portion of the extension arm is secured to its respective locking pivot gear fastener. A respective blocking paddle is then secured to the distal end portion of each extension arm. This allows the blocking paddles to be positioned at higher or extended relationship with respect to the support frame.

In the exemplary embodiments, the support frame has a top portion that engages the top edge of the net and a bottom portion that engages the bottom edge of the net. Moreover, the support frame is structure so as to be translatable along side the net whereby the frame may be selectively positioned therealong. To this end, the top portion of the support frame may be provided with at least one roller that engages the top edge of the net whereby the frame may be rolled along the top edge of the net for translation therealong.

In the exemplary embodiments, the support frame is generally rectangular in shape and includes a pair of spaced apart legs each having a longitudinally extending central leg axis and each forming a respective one of the sides of the support. A lower crosspiece then extends between the legs and an upper crosspiece extends between the legs of the selected distance with respect to the lower crosspiece. Here, the blocking assemblies are respectively secured to extend upwardly from each of the legs. The upper crosspiece may have an upwardly projecting lobe located between the axis of the legs and thus between the blocking assemblies. This lobe may be configured to have a size and shape about that of an adult human head so as to more accurately simulate a imaginary defender. Further, the selected distance between the upper and lower cross pieces may be selectively adjusted so as to allow the support frame to mount on different nets.

The present invention also contemplates a method of training an athlete in the sport of volleyball. Here, the disclosed embodiments include a step of providing a training apparatus that includes a pair of independently movable blocking paddles. The method contemplates securing the training apparatus to a volleyball net in a manner that prevents translation of the training apparatus along the net. The orientation of the blocking paddles are selectively adjusted to desired locations. These steps can take place in any order. The method then includes having an athlete attempt to send a volleyball passed the training apparatus as if the training apparatus were a defender against the athlete. The method may also include an optional step of translating the training apparatus along the net while the athlete is attempting to send the volleyball passed the training apparatus.

These and other aspects of the exemplary embodiments of the present invention will become more readily appreciated and understood from a consideration of the following detailed description of the exemplary embodiments of the present invention when taken together with the accompanying drawings, in which:

FIG. 1 is a perspective view of a training apparatus as viewed from the front according to an exemplary embodiment of the present invention shown mounted to and supported by a conventional volleyball net;

FIG. 2 is a perspective view the training apparatus shown in FIG. 1 as viewed from the back;

FIG. 3 is an exploded perspective view of the frame portion of the training apparatus shown in FIGS. 1 and 2;

FIG. 4 is a perspective view of a clamp used to assemble the frame of the training apparatus;

FIG. 5 is a perspective view of a clamp used to assemble the frame of the training apparatus;

FIG. 6 is a right view in elevation of the top portion of the frame showing the clamp secured with the first fastener;

FIG. 7 is a cross sectional view of the top portion of the frame taken about lines 7-7 of FIG. 2;

FIG. 8 is a right view in elevation of the bottom portion of the frame showing the clamp secured with the first fastener;

FIG. 9 is a cross sectional view of the bottom portion of the frame taken about lines 9-9 of FIG. 2.

FIG. 10 is an exploded perspective view of a representative paddle, which is supported by the frame piece of the training apparatus;

FIG. 11 is a front view in elevation of a representative blocking paddle according to a first exemplary embodiment of the present invention shown connected to the leg of the frame with a rotatable fastener;

FIG. 12 is an end view in elevation of the rotatable locking fastener shown in FIG. 11;

FIG. 13 is a perspective view of the training apparatus in a selected orientation;

FIG. 14 is a perspective view of the training apparatus shown in an alternative selected orientation;

FIG. 15 is a perspective view of the training apparatus in yet another selected orientation;

FIG. 16 is a front view in elevation of an alternative training apparatus according to the present invention;

FIG. 17 is a front view in elevation showing a third exemplary embodiment of the present invention;

FIG. 18 is a front view in elevation of a blocking paddle according to the third exemplary embodiment of the present invention;

FIG. 19 is a side view in partial cross-section showing the upper portion of the support frame and the mounting of a blocking paddle thereto according to the third exemplary embodiment of the present invention;

FIG. 20 is a front view in elevation showing a portion of the upper crosspiece and a rotatable locking fastener according to the third exemplary embodiment of the present invention; and
FIG. 21 is a side view in partial cross-section showing an optional extension arm according to the third exemplary embodiment of the present invention.

DETAILED DESCRIPTION OF THE EXEMPLARY EMBODIMENTS

The present invention broadly relates to training equipment for sports and recreational activities. More particularly, the present invention relates to a multi-purpose training apparatus useful for improving skills associated with many different sports. The present invention has specific usefulness in training a volleyball player to aim the volleyball into the opposing team’s court while avoiding the opposing team’s blocking tactics. Among other things, simulating the opposing team’s blocking tactics help to hone the skills of anticipation, decision-making, movement speed and jumping ability.

Generally, the training apparatus of the present invention comprises a support frame including a pair of spaced-apart parallel legs joined together by a pair of spaced-apart generally parallel crosspieces. The frame is constructed of lightweight material so that it can be mounted on to a volleyball net and be supported thereby. The frame is adjustable to accommodate a nets of varying sizes and is further capable of traveling along the length of the net once supported thereby.

Each leg supports a blocking paddle which may be mounted on a support arm. Preferably, each arm is about the length of the average forearm for a human while the paddle is about the size of an outstretched hand. Similar to the movement of the human forearm, each arm of the training apparatus is joined to a respective leg with a rotatable locking fastener device that permits a greater than 180° movement. As such, each arm can be placed in a desired orientation to mimic a desired blocking tactic.

The construction of the training apparatus of the present invention is useful for simulating blocking or defensive tactics of a variety of sports and particularly football and basketball. The components of the training apparatus and method of using the same will be discussed herein with particular reference to volleyball, but it is not intended as a limitation to its applicability as a training apparatus in other sports.

To better appreciate the structure of the sports training apparatus of the present invention, reference is first made to FIG. 1, which shows training apparatus 10 mounted onto a volleyball net 12, partially shown, and supported on support surface 14, which could be the ground, paved surface area, or floor of a gymnasium or volleyball court. Generally, training apparatus 10 includes frame 20 mounted to and supported by net 12 and extending upwardly therefrom, a pair of arms 70 and 72 and paddles 80 and 82.

With reference now to both FIGS. 1 and 2, support frame 20 includes a pair of spaced-apart legs 22 and 24 interconnected by a lower crosspiece 26 and an upper crosspiece 28, both shown here in the form of panels. A pair of rollers 30 are rotatably mounted to upper cross piece 28, and these rollers enable frame 20 to travel or translate across the length of net 12, either in direction “i” or “ii”. More particularly, once frame 20 is mounted on net 12 in a mounted state, net 12 is positioned in the gap between crosspiece 28 and legs 22, 24, and bottom edge 18 is interposed in the gap between lower crosspiece 26 and legs 22, 24. Rollers 30 are seated on the top edge 16 of net 12.

As perhaps best shown in FIG. 2, training apparatus 10 is essentially suspended by the contact that exists between net 12 and rollers 30. Training apparatus 10 is accordingly constructed of a lightweight material that is also sufficiently strong to survive the training. Legs 22, 24 and arms 70, 72 are hollow and may be formed of a lightweight durable plastic material such as polyvinyl chloride (PVC), as well as metal, or other suitable materials known in the art. Upper and lower crosspieces, shown as flat panels, may be formed of plastic, such as acrylic plastic, or other suitable lightweight yet durable material.

The assembly of frame 20 according to the first embodiment of this invention is perhaps best understood with reference to FIG. 3. As shown, both upper and lower crosspieces 26 and 28 are coupled to legs 22, 24 with clamps 40. Rollers 30 are rotatably disposed on upper crosspiece 28 by ordinary means known in the art. Rollers 30 are able to rotate 360° in either direction, as shown by arrows “a”. In addition, frame 20 includes support strut 32, which is coupled to upper crosspiece 28. Since upper crosspiece 28 is most likely to come into contact with the ball or its trainer, upper crosspiece 28 is preferably reinforced with support strut 32, which can be made of a sturdy plastic material, metal, a combination thereof, or other suitable material for this purpose. Additionally, if desired, legs 22, 24 may be provided with foot caps 34, which may be formed of a skid resistant material, such as rubber. Foot caps 34 are sized and adapted slide over legs 22, 24 and are maintained thereon by friction.

Each clamp 40 has two oppositely extending places of securement to its respective crosspiece. Accordingly, each clamp 40 has a first fastener and a second fastener that releasably secure it to a respective crosspiece. However, before describing the fasteners, and their securement, reference is now made to FIGS. 4 and 5, which show a representative clamp 40. Clamp 40 includes band member 42 with a lengthwise slit 44, which partitions the band thereby keeping it from being completely enclosed. Partitioning band member 42 permits the adjustment of its diameter. Clamp 40 further includes a pair of nubs 46 located on either side of slit 42 and tab 48. Nubs 46 and tab 48 extend outwardly from band member 42 in opposite directions thereof. Nuts 46 include aligned holes 50 that are sized and adapted for receiving a component of the first fasteners. The tightening and loosening of the first fasteners varies the diameter of band member 42. Tab 48 has a hole 52 that is sized and adapted to receive a component of the second fasteners.

Returning then to FIG. 3, a representative first fastener 54 is shown to include bolt 56, washer 57, and knob 58. Bolt 56 extends through hole 53 formed in the upper or lower crosspiece, through nubs 46 of clamp 40 where it is then received by knob 58. As described above, the diameter of band member 42 is adjustable by tightening or loosening first fastener 54. As such, knob 58 is provided with an enlarged head to facilitate this adjustment.

Adjusting the diameter of band member 42 permits both upper and lower crosspieces 26, 28 to be selectively positioned on the length of legs 22, 24, thus allowing frame
Moreover, the ability to adjust clamp 40 in this way permits legs 22 and 24 to rotate on their central axis. More particularly, as represented by leg 24 in FIG. 2, leg 24 has a central axis "Y". When clamps 40 are loosened, leg 24 rotates on axis "Y" in the direction of arrow "c", for example, which effectively rotates paddle 82. Examples of this rotation are also shown in FIGS. 13-15.

A representative second fastener 60 is shown to include bolt 62 and nut 64. Bolt 62 extends through holes 61 formed in the crosspieces and then through hole 52 in tab 48 where it is then received by nut 64.

As mentioned above, when the training apparatus is mounted on the volleyball net so as to be supported thereby, the rollers associated with the upper crosspiece are seated on the top edge of the volleyball net. The volleyball net extends downwardly between both the upper and lower crosspieces and each of the legs. The upper crosspiece and each of the legs are preferably spaced apart enough to both accommodate rollers and the positioning of the net engagement of the net therewith. Accordingly, the frame may further be provided with insert pieces in the form of spacers that assist in the appropriate spacing of the upper crosspiece and the legs.

Again, with respect to FIG. 3, a representative first insert piece 66 and a representative second insert piece 68 are shown associated with the coupling of leg 22 and upper crosspiece 28. As shown in FIGS. 6 and 7, roller 30 is seated upon top edge 16 of net 12. With particular reference to FIG. 6, then, insert piece 66 is interposed between mub 46 and upper crosspiece 28 and is maintained in place by means of bolt 56, a component of first fastener 54. Insert piece 66 can be in the form of a sleeve for bolt 56, which extends therethrough, and may be formed of any durable material such as plastic, metal, and the like. However, insert piece 66 is not limited to this configuration.

As shown in FIG. 7, insert piece 68 is interposed between tab 48 and upper crosspiece 28 and is maintained in place by means of bolt 62, a component of second fastener 60. More particularly, bolt 62 extends through insert piece 68, through tab 48, through support strut 32 and received by nut 64. Similar to insert piece 66, insert piece 68 may be in the form of a sleeve but may be any suitable configuration that accomplishes the distance needed between upper crosspiece 28 and leg 22. In addition, insert pieces 66, 68, and 69 help to stabilize the respective bolts extending therethrough during adjustment of the training apparatus.

As shown, for example, in FIG. 2, rollers are not mounted to lower crosspiece 26. Accordingly, additional space between the lower crosspiece and the legs of the frame is not required. However, as shown in FIGS. 8 and 9, it may be seen that a slight gap 41 exists between one of the mubs 46 and lower crosspiece 26 when coupled to leg 22 that is not present between tab 48 and crosspiece 26. If desired, gap 41 can be filled with an insert piece of suitable size and configuration. With reference then to both FIGS. 3 and 8, insert piece 69 may be used to fill gap 41 in a similar way to that described above with reference to FIGS. 6 and 7. As shown, bolt 56 extends through lower crosspiece, through insert piece 69, and mubs 46 where it is received by knob 58. Rollers can optionally be provided on the lower crosspiece and the distance between the lower crosspiece and each leg of the frame can be accommodated by assembling insert piece similar to that described above with reference to FIGS. 6 and 7.

As shown, for example, in FIG. 12, arms 70 and 72 are supported by frame legs 22 and 24 respectively. Each arm 70 and 72 receive a respective blocking paddle 80, 82, which may be oriented to mimic a variety of blocking techniques. FIG. 10 shows a representative blocking paddle 80 and arm 70, which is identical in construction to that of paddle 82 and arm 72. As shown in FIG. 10, a paddle 80 includes blade 83, face 84, neck 86 and shank 88 having an aperture 89 formed therethrough. Shank 88 is received by arm 70 also having an aperture 89. When handle aperture 89 is aligned with arm aperture 79, bolt 72 may extend therethrough and secured with nut 74 to maintain paddle 80 therein.

It is preferably that a tight fit engagement exist between handle 88 and arm 70. Accordingly, space existing between the handle 88 and arm 70 can be filled with a filler material or an insulating member to accomplish a tight fit engagement. As shown in FIG. 10, sleeve 76, formed of high density plastic or other suitable material may first be received by handle 88 before it is inserted into arm 70. Sleeve 76 is provided with aperture 77 for receiving bolt 72 therethrough. Blocking paddles 80, 82 may be constructed of any suitable break resistant and durable material, such as low density PVC.

Turning now to FIG. 11, arm 70 is preferably coupled to leg 22 with a rotatable fastening device 90 operative to permit arm 70 to be selectively angled relative to the frame. Rotatable fastener 90 includes a first locking jaw 92 provided with first teeth 91, which is joined to a second locking jaw 94, provided with second teeth 95. Rotatable fastener 90 also includes a cooperating fastening member 96 operative to tighten or loosen jaws 92 and 94. Fastening member may be, as shown, a threaded bolt 96 that extends through first and second jaws 92 and 94 to mate with nut 98. Bolt 96 is preferably provided with knob 97 to facilitate the tightening and loosening of first and second jaws 92, 94.

With continued reference to FIG. 11, rotatable fastener 90 is shown in the locked position. When in the locked position, bolt 96 is tightened so that teeth 91 and 95 are fully meshed to restrain the rotational movement of arm 70. As bolt 96 is loosened, however, first and second jaws 92 and 94 move apart and teeth 91 and 95 are no longer meshed, thereby permit rotation of arm 70. It should be clearly understood that fastener 90 is used in the exemplary embodiments. However, other suitable fasteners that allow relative rotational or pivotal movement and the adjustment of the orientation of the blocking paddles, as would be apparent to one ordinarily skilled in this art would be suitable in constructing the apparatus according to the present invention.

With reference now to both FIGS. 11 and 12, rotatable fastener 90 is supported by leg 22. As shown in FIG. 12, first locking jaw 92 includes neck portion 93 extending therefrom and sized and adapted to be received by
arm 70. When inserted therein, aperture 73 formed in neck or shaft portion 93 aligns with aperture 71 formed in arm portion 70 whereby a fastening member, such as a rivet, may secure the two pieces together. Similarly, second locking jaw 94 includes a neck or shaft portion 99 that extends therefrom that is sized and adapted to be received by leg 20. Apertures 21 and 23, formed in leg 21 and shaft portion 93 respectively, align so that a fastening member such as a rivet or bolt set may secure the pieces together. Other suitable fastening members, such as threaded fasteners known in the art may also be used to secure rotatable fastener 90 to both leg 20 and arm 70.

[0063] With reference to FIGS. 11 and 12, when the teeth of the first and second locking jaws 92 and 94 are moved apart, arm 70 is able to rotate relative to the central longitudinal axis of leg 22 in the direction of arrows “b” and “c”. In each direction, “b” and “c”, arm 70 is able to rotate approximately 130° from starting position “x”. Once the desired angle of arm 70 has been selected, bolt 96 is tightened, whereby teeth 91 and 95 are meshed and movement of arm 70 is restrained.

[0064] The ability to rotate arm 70 increases the versatility of training apparatus 10 to imitate a large variety of blocking or defensive tactics that are encountered during the actual play of the game. This versatility is illustrated in three representative samples shown in FIGS. 13-15. As shown, lower crosspiece 26 is located in various selected places along the length of legs 22 and 24. Further, arms 70 and 72 have been rotated, relative legs 22 and 24, respectively, to be positioned in various blocking orientations. Further, legs 22 and 24 have been rotated about their respective central axes to orient paddles 80 and 82 as desired. Based upon the foregoing description, it should be apparent, further, that multiple training apparatuses 10 may be used on one volleyball net at a time.

[0065] FIG. 16 shows an alternative embodiment of the training apparatus according to the present invention. Training apparatus 110 is constructed as described above in reference to FIGS. 11-12, however the upper crosspiece in this embodiment includes a lobe in the form of a head piece 115 connected to upper crosspiece 128. Head piece 115 may be a separate piece that is secured to upper crosspiece 128, or may be an integral extension thereof. In addition, training apparatus 110 includes a foam strip 117 adhered to or otherwise secured to the top edge 127 of upper crosspiece 128. Foam strip 117 cushions the top edge of crosspiece 128 so as to reduce the risk of injury while training apparatus 110 is in use.

[0066] Another exemplary embodiment of the present invention is illustrated in FIGS. 17-20. In these figures, training apparatus 210 has a structure similar to that training apparatus 10, with some differences as set forth below. As is shown in FIG. 17, training apparatus 210 includes a support frame 220 that includes a pair of spaced apart legs 222 and 224 that are in generally parallel spaced apart relation. An upper crosspiece 228 interconnects a top end portion of legs 222 and 224 and a lower cross piece (not shown) connects the lower end portion of legs 222 and 224 in a manner similar to that described with respect to cross piece 26. Cross piece 228 is a flat panel of material that is generally rectangular in shape but has a lobe 215 projecting upwardly therefrom when training apparatus 210 is in a mounted state, as is shown in FIG. 17. Here, frame 220 is positioned on a net 12 with cross piece 228 engaging an upper edge of net 12. Frame 20 supports a pair of blocking assemblies 230 and 232 that include an arm portion 234, 236 respectively, and a pair of blocking paddles 240 and 242 respectively disposed thereon. Protective plastic sleeves 238 surround arm portions 234 and 236 as is illustrated in FIG. 17.

[0067] The structure of the blocking paddles 240, 242 is illustrated in FIG. 18 with respect to blocking paddle 240. Here, it should be understood that blocking paddle 242 is constructed identically to blocking paddle 240 and is merely an identical structure that is rotated 180° about a longitudinal axis. With reference, then to FIG. 18, it may be seen that blocking paddle 240 is configured in the shape of an adult human hand so that it includes a palm portion 244 supporting a plurality of fingers 246 and a thumb portion 248. A shank 250 extends longitudinally from palm 244 and has a mounting hole 252 formed therethrough. Paddle member 240 is also sized to be substantially the same as that of an adult human hand and is formed of a durable, break resistant plastic as an integral, one piece construction. One such plastic, as noted above, is low density polyvinyl chloride.

[0068] The construction of the upper portion of frame 220 is shown in greater detail in FIGS. 19 and 20. Here, it may be seen that a representative blocking paddle 240 is interconnected to a leg, such as leg 222, of frame 220 by means of a releasable rotatable locking fastener 250. Pivoting fastener 250 includes a first locking jaw 252 that are releasably secured together by means of a thumb bolt 256. In a manner similar to that described above, when bolt 256 is loosened, locking jaws 252 and 254 may pivot relative to one another about the axis of bolt 256. Locking jaws 252 and 254 are provided with cooperative, engaging teeth 258 such that, when bolt 256 is tightened, locking jaws 252 and 254 engage one another to prevent relative rotation of the locking jaws. A first shaft 262 extends from locking jaw 252 and a second shaft 264 extends from locking jaw 254. These shafts, then, respectively mount to the blocking paddle and to the support frame.

[0069] Thus, as is shown in FIG. 19, shaft 262 is bifurcated to have opposed arms 266 defining a slot 268 that receives shank 250 of blocking paddle 240 (or 242). A bore 270 extends through arms 266 with this bore 270 registering with hole 252 in shank 250. Blocking member 240, along with protective sleeve 238, is then secured to shaft 262 by means of bolt 272 extending through the aligned bore and opening.

[0070] Shaft 264 may be solid and sized to be telescopically mated with the interior of leg 222 (or 224) and is provided with suitable openings to receive nut and bolt combinations 272 and 4 thereby to secure both shank 264 in leg 222 and to secure cross piece 288 at the upper end of legs 222 and 224. To this end, also, spacers 276 are provided so that a gap 278 exists between cross piece 286 and legs 222, 224. The upper edge of net 12, can then be received into this gap and be engaged by one or more rollers 280 that are rotatably disposed on cross piece 228. Rollers 280, of course, allow for the translation of frame 220 along the upper edge of net 12, as described above.

[0071] If desired, an optional extension arm may be used to interconnect each of the blocking paddles with the rotatable locking fastener 250, as is illustrated in FIG. 21. Here,
this optional arm 290 is in the form of a tubular extension of plastic or metal that receives shaft 262 and is bolted thereto by means of nut and bolt set 272. A fitting 292 is located at an end of tubular extension 290 opposite fastener 250 with fitting 292 having a shaft 294 that is telescopically received in tubular extension 290 is securely bolted therein by nut and bolt combination 296. Fitting 292 has a pair of arms 296 that form a slot 298 to which the blocking paddles 240, 242 may be respectively mounted in the manner described with respect to shank 262, above.

[0072] With respect to the sport of volleyball, one of the primary scoring techniques is called the bump, set, spike approach. Particularly, the bump-set-spike is an offensive strategy wherein a teammate “bumps” or passes the ball to another teammate called the setter. The setter then sets the ball so as to position it for another teammate to drive or “spike” the ball over the net and into the opposing team’s court. The setter’s placement of the ball for the hitter is important. The speed, location, and trajectory of the ball each factor into the ability of the spiker to successfully spike the ball with enough force and accuracy to win points.

[0073] One of the primary defensive strategies against the bump, set, spike, is blocking. Typically, volleyball players, anticipating the spike, will jump adjacent to the net in an attempt to block the spike. The spiker’s chance of hitting the ball into the opposing team’s court is improved if the spiker can anticipate the block and react to the blocker’s jump, movement, and location. One or more of the training apparatus of the present invention may be used to improve the spiker’s placement of the volleyball in the opposing team’s court. As such, the present invention contemplates a method of training an individual to improve their skills in placing the volleyball in their opponent’s court, whether by spiking the ball, or otherwise hitting the ball over the net.

[0074] The steps of this method include providing a volleyball net with at least one training apparatus mounted thereon having a construction as described above. This method may include any step specified or inherent in the above-described exemplary embodiments. A plurality of training apparatuses may also be provided, either close together or spaced apart from one another, according to this method. Both the arms and the paddles of the training apparatus are oriented in one of a variety of blocking type orientation. With the training apparatus in place, the trainee attempts to spike or otherwise send the volleyball into the opposing team’s court without having the ball blocked by the apparatus.

[0075] Accordingly, the present invention has been described with some degree of particularity directed to the exemplary embodiments of the present invention. It should be appreciated, though, that modifications or changes may be made to the exemplary embodiments of the present invention without departing from the inventive concepts contained herein.

I claim:

1. An apparatus for use by an athlete when practicing athletic skills for a sport utilizing a horizontal net that is suspended above a support surface and that has top edge and a bottom edge and that defines a vertical plane when suspended, comprising:

   (A) a support frame adapted to be mounted on the net in a mounted state; and

   (B) a pair of blocking assemblies supported by said frame, each said blocking assembly including a blocking paddle that extends from said frame generally above the top edge of the net when said frame is in the mounted state.

2. An apparatus according to claim 1 wherein each said blocking assembly includes an arm having a proximal portion secured to said frame, said blocking paddle secured to said arm at a distal end thereof.

3. An apparatus according to claim 3 wherein said arm has a size and shape about that of an adult human forearm.

4. An apparatus according to claim 1 wherein said blocking paddle is configured in the shape of a human hand and has a size about that of an adult human hand.

5. An apparatus according to claim 1 wherein said blocking paddles are formed of low density, break resistant plastic.

6. An apparatus according to claim 1 wherein each said blocking paddle is secured relative to said support frame whereby each blocking paddle may be placed in a selected orientation independently of one another.

7. An apparatus according to claim 6 including a pair of locking pivot gear fasteners mounted on said support frame, one of said blocking paddles being pivotally supported by each of said locking pivot gear fasteners whereby each said blocking paddle may be placed and releasably locked in a selected pivotal orientation with respect to said support frame.

8. An apparatus according to claim 7 including an auxiliary extension arm corresponding to each of said locking pivot gear fasteners, a proximal end portion of each extension arm being securable to its respective locking pivot gear fastener and a respective blocking paddle being securable to a distal end portion of each extension arm.

9. An apparatus according to claim 1 wherein said support frame has a top portion that engages the top edge of said net and a bottom portion that engages the bottom edge of the net, said support frame being translatable alongside the net whereby said frame may be selectively positioned therealong.

10. An apparatus according to claim 9 wherein the top portion of said support frame is provided with at least one roller that engages the top edge of said net whereby said frame may be rolled along the top edge of said net for translation therealong.

11. An apparatus according to claim 1 wherein said support frame is generally rectangular in shape including a pair of spaced-apart legs each having a longitudinally extending central leg axis and each forming a respective one of the sides of said support frame, a lower crosspiece extending between said legs and an upper crosspiece extending between said legs at a selected distance therefrom, said blocking assemblies respectively secured to and extending upwardly from each said leg.

12. An apparatus according to claim 11 including a locking pivot gear fastener mounted on each said leg, one of said blocking paddles being pivotally supported by each of said locking pivot gear fasteners whereby each said blocking paddle may be placed and releasably locked in a selected pivotal orientation with respect to the axis of the respective leg.
13. An apparatus according to claim 11 wherein said upper crosspiece has an upwardly projecting lobe located between said legs.

14. An apparatus according to claim 13 wherein said lobe is configured to have a size and shape about that of an adult human head.

15. An apparatus according to claim 11 wherein the selected distance between said upper and lower crosspieces may be selectively adjusted.

16. An apparatus for use by an athlete when practicing athletic skills for a sport utilizing a horizontal net that is suspended above a support surface and that has top edge and a bottom edge and that defines a vertical plane when suspended, comprising:

(A) a support frame adapted to be mounted on the net in a mounted state, said support frame being generally rectangular in shape including a pair of spaced-apart legs each having a longitudinally extending central leg axis and each forming a respective one of the sides of said support frame, a lower crosspiece extending between said legs and an upper crosspiece extending between said legs at a selected distance therefrom;

(B) at least one roller disposed on said upper crosspiece and operative to engage the top edge of the net when in the mounted state whereby said support frame may be rollably supported by the top edge of the net for translation therealong, said lower crosspiece engaging the lower edge of the net;

(C) a locking pivot gear fastener secured to each of said legs;

(D) a blocking assembly supported by each said locking pivot gear fastener in spaced-apart relation to one another, each said blocking assembly including a blocking paddle that extends generally above the top edge of the net when said support frame is in the mounted state.

17. An apparatus according to claim 16 wherein each said blocking assembly includes an arm having a proximal portion secured to said frame, said blocking paddle secured to said arm at a distal end thereof.

18. An apparatus according to claim 17 wherein said arm has a size and shape about that of an adult human forearm.

19. An apparatus according to claim 16 wherein each said blocking paddle is configured in the shape of a human hand and has a size about that of an adult human hand.

20. An apparatus according to claim 16 wherein each said blocking paddle is secured relative to said support frame whereby each blocking paddle may be placed in a selected orientation independently of one another.

21. An apparatus according to claim 16 wherein said upper crosspiece has an upwardly projecting lobe located between said legs.

22. A method of training an athlete in the sport of volleyball, comprising:

(A) providing a training apparatus the includes a pair of independently moveable blocking paddles;

(B) securing said training apparatus to a volleyball net in a manner that permits translation of said training apparatus along said net;

(C) adjustably orienting said blocking paddles to desired locations; and

(D) having the athlete attempt to send a volleyball past said training apparatus as if said training apparatus were a defender against the athlete.

23. A method according to claim 22 including a step of translating said training apparatus along the net while the athlete is attempting to send the volleyball past said training apparatus.