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Bozarth(10) **Pub. No.: US 2010/0009783 A1**(43) **Pub. Date: Jan. 14, 2010**(54) **TENNIS BALL TREE****Publication Classification**(76) Inventor: **Bryant Ellis Bozarth**, Haddonfield,
NJ (US)(51) **Int. Cl.**
A63B 69/38 (2006.01)(52) **U.S. Cl.** **473/419; 473/459**Correspondence Address:
Bryant Ellis Bozarth
218 Warwick Road
Haddonfield, NJ 08033 (US)(57) **ABSTRACT**

A mobile tennis training device consisting of a light weight frame capable of easy assembly and disassembly from which a tennis ball can be suspended in mid air through use of a bungee cord and ball harness allowing for unencumbered release of said tennis ball upon impact with a tennis racket so as to simulating real court conditions.

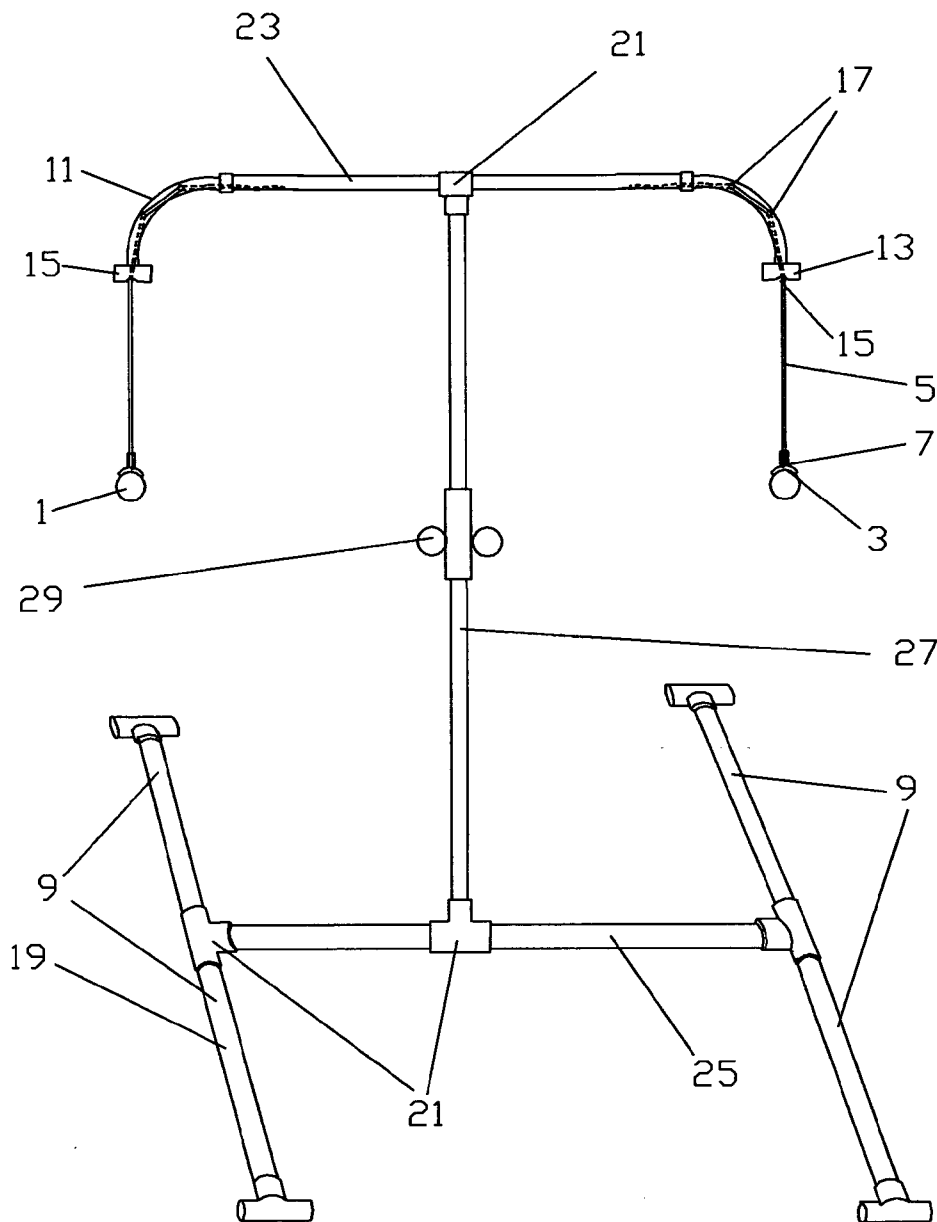
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Fig. 1

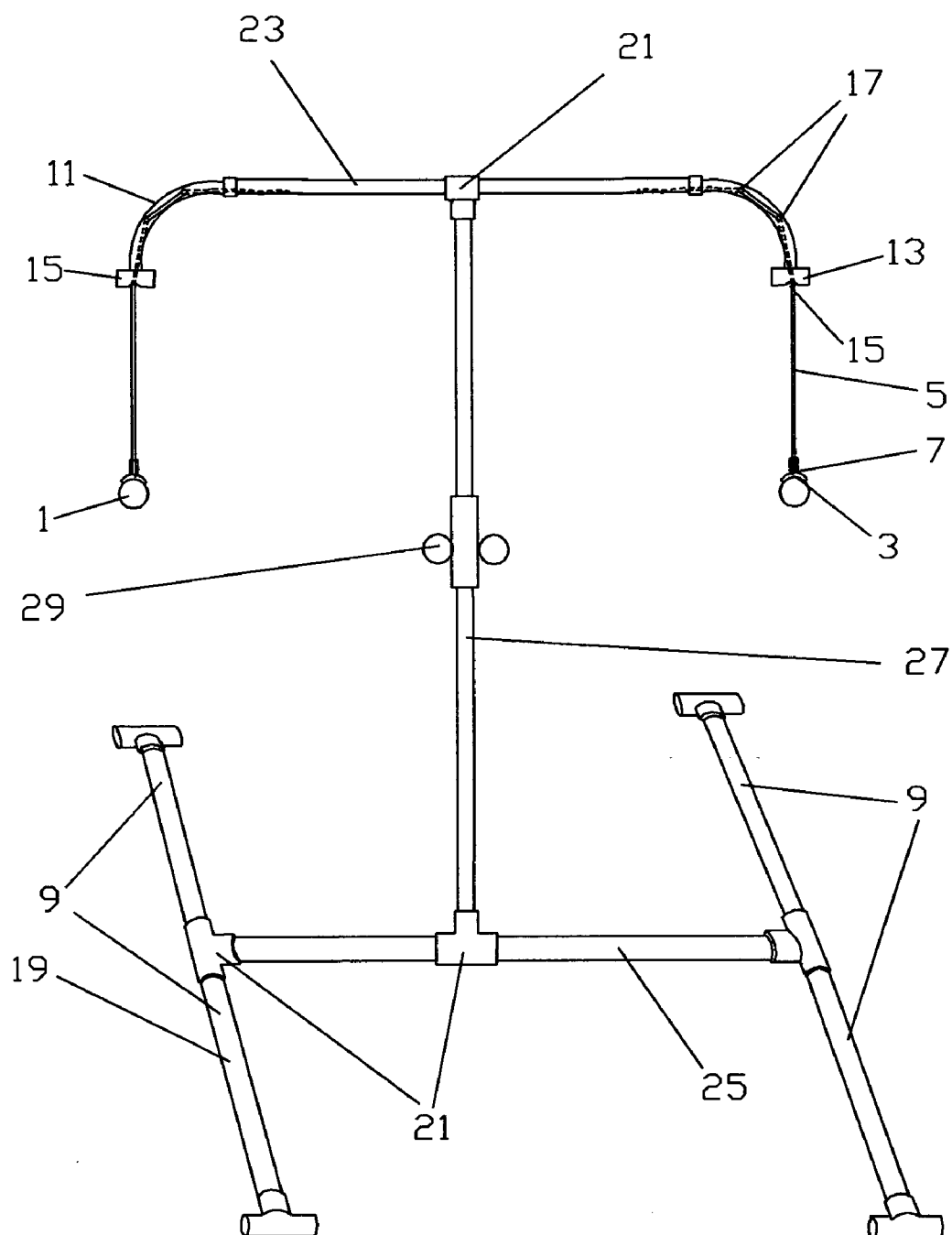


Fig. 2

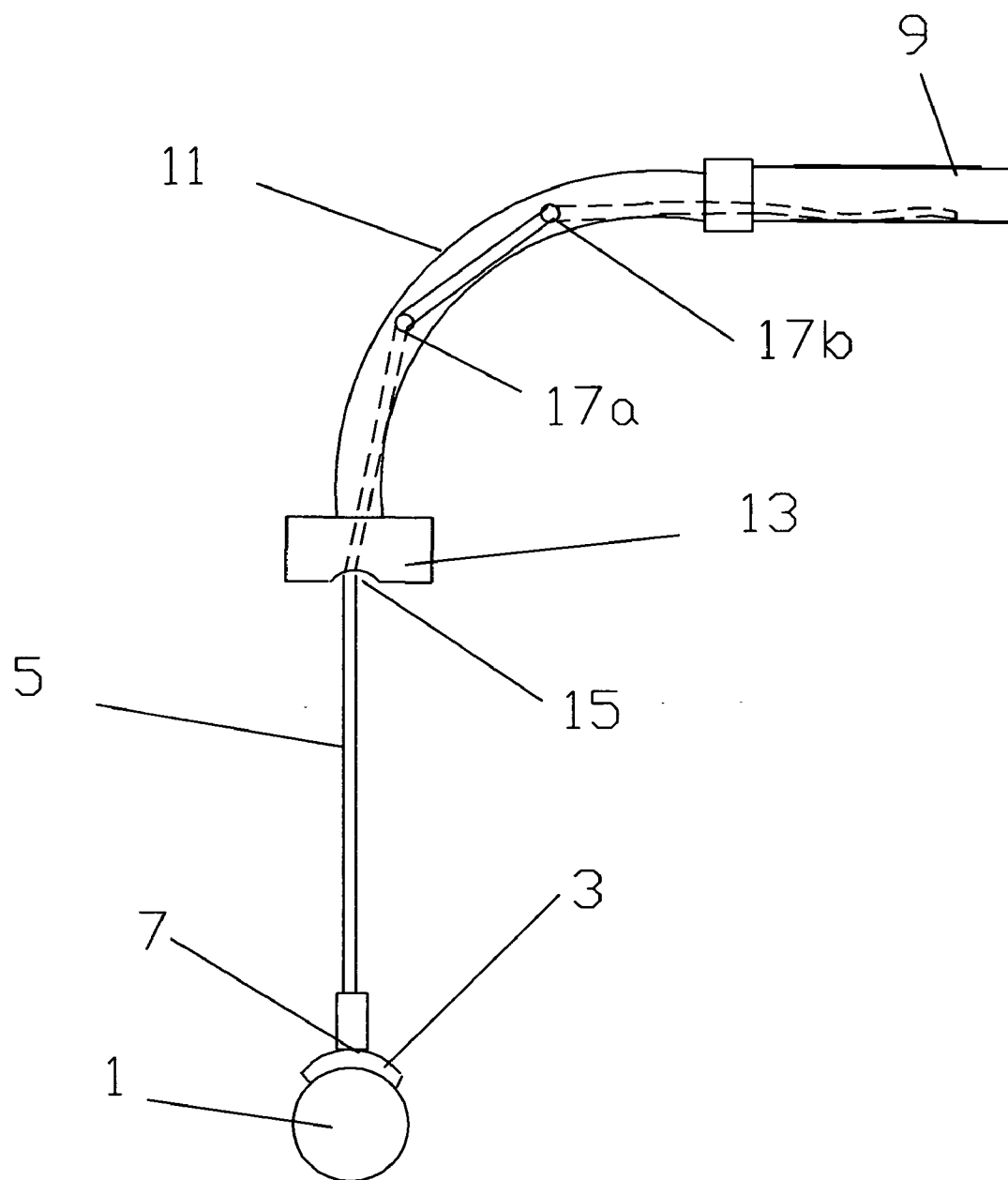
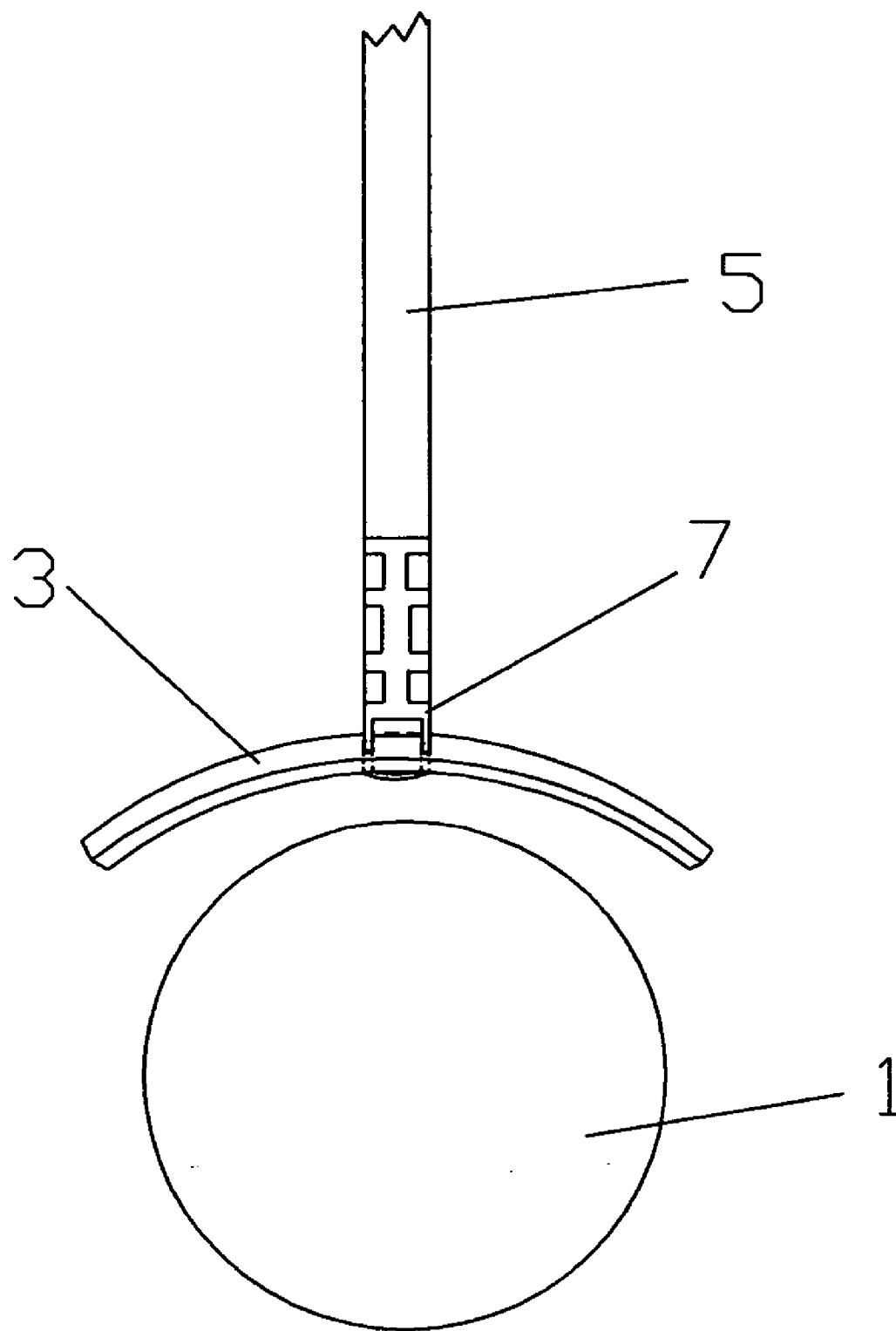


Fig. 3



TENNIS BALL TREE

BACKGROUND OF THE INVENTION

[0001] This invention relates to a tennis training device and more specifically to a mobile apparatus used for the purpose of training tennis enthusiasts in the finer aspects of striking a tennis ball with a racket. This device is unique in this endeavor through its mobile design, ease of assembly and disassembly, and economy of construction. The apparatus is able to support a tennis ball in mid air in an unencumbered way therein better simulating "real conditions," a benefit over existing training devices. Use of this tennis training device can instill in the practitioner a sense of instinctively knowing the contact point, where racket and ball are optimized for the ball striker. If the ball is struck correctly off the apparatus, on the center of the racquet's string bed, a student can gain a sense of the all important "sweet spot" which tennis instructors describe to all new students. Other advantageous features of this design are the capacity to accommodate two players at once or facilitate the training process by allowing the practitioner(s) to practice both forehand strokes as well as backhand strokes without significant adjustment of the apparatus and/or delay.

[0002] The correct fundamentals of the tennis stroke are first introduced to a person in a large or small group tennis lesson, at a tennis club or through a community recreation program. The apparatus with its two arms and simple height adjustment benefit a group of tennis students by allowing them to hit a tennis ball in a controlled manner. With the tennis training device used during a group lesson, an instructor can help correctly shape the complexities of a student's tennis stroke, before they begin to hit a moving tennis ball.

[0003] A teaching aid that offers the student an expedient way of learning specific tennis skills during a group tennis lesson is currently unavailable. Other inventions do exist, but are not designed in a way to help group learning in an effective and efficient manner. Many of these inventions utilize one arm from which the ball is held, and are difficult to make height adjustments to. This invention allows two people to hit tennis balls at the same time. Other inventions designed and described are for the primary purpose of practicing one's tennis serve. This training device was solely designed for learning a forehand and backhand groundstroke.

[0004] The bungee cord used for this apparatus is manufactured by a company to be sold in marina supply stores, the specifics of which are previously described in the provisional patent application. The bungee cords outer core is made of a polypropylene yarn which covers a natural rubber core. The cord has a breaking strength of approximately 175 pounds. This specific cord used as both an efficient holder of the harness for the attached ball and a means of effectively adjusting the height of the ball is an improvement over similar inventions. This dual function that the bungee cord serves the apparatus aids it in being inexpensively manufactured and sold. This apparatus is comprised of fewer parts than like inventions, which appear require more parts to necessitate their height adjustment.

SUMMARY OF THE INVENTION

[0005] The present invention utilizes PVC pipe press fit together along with a bungee cord and attaching apparatus to form a mobile support structure for suspending a tennis ball in mid air for tennis training purposes. Suspended from this

structure through use of a bungee cord and harness, a tennis ball is made to hang in mid air and is designed for unencumbered release upon being hit with a tennis racket.

[0006] The PVC support structure consists of a base laid out in an "H" pattern to which a vertical member extends upward some 60 inches from the center of this base. A horizontal member with downward curving end extends outward some 32 inches at the top of this vertical member.

[0007] A second horizontal member with the same downward curving end extends 32 inches outward on the other side of the structure; both are connected to the structure by a central support connector attached to the top of previously mentioned 60 inch vertical member. Both of these horizontal members are parallel to the central connecting base.

[0008] A bungee cord along with ball harness is suspended from this horizontal support structure by weaving the cord through holes in the downward curved section of this horizontal support. This arrangement allows for easy adjustment in the height of the suspended tennis ball by feeding more or less excess cord through two holes in the support structure. These holes in combination with each other and the tennis ball supporting bungee cord result in a frictional binding of the cord at the desired length. The harness includes as it holding surface a length of fabric hook fastener material, the specifics of which are described in the provisional patent application, the fastener is commonly referred to as Velcro. The fabric hook fastener is connected to the exposed end of the bungee cord with a combination of plastic loop straps that permanently attach the piece of hook fastener to the bungee cord. A small piece of polyolefin heat shrink tubing is used to protect the harness against the bungee, a tennis ball can then be attached to the Velcro piece and suspended in midair in a manner allowing for unencumbered release when hit by a racket. This simulates "real conditions" in helping to train tennis enthusiast in the proper swinging and ball hitting technique.

[0009] The support structure described in this disclosure has the advantage over other training devices in that it is light weight yet structurally stable. It can readily be assembled or disassembled by means of press fit male/female joint connections and can easily be adjusted to accommodate players of different heights or for practicing different strokes with minimal delay.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1 is an overall front view of the tennis ball tree

[0011] FIG. 2 is an enlarged view of the tree arm showing elastic bungee cord, bend in the horizontal support arm, cap and holes for elastic cord support and adjustment.

[0012] FIG. 3 is an enlarged view of the ball harness.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0013] This invention relates to a mobile apparatus used for the purpose of training tennis enthusiasts and more specifically in the finer aspects of striking a tennis ball with a racket. This device is unique in this endeavor through its mobile design, ease of assembly and disassembly and its ability to support a tennis ball in mid air in an unencumbered way so as to simulate "real conditions" and instill in the practitioner a sense of instinctively knowing the contact point where racket and ball are optimized. In addition, the design allows for quick adjustment in height of the suspended ball so as to aide

in the instruction of forehand and backhand strokes and accommodate players of different heights and ages. This height adjustment can be carried out quickly by the ball striker so as to enhance its usefulness in a large group tennis lesson.

[0014] Another advantageous feature of this design is the capacity to accommodate two players at once or facilitate the training process by allowing the practitioner to practice both forehand strokes as well as backhand strokes without significant adjustment of the apparatus or delay.

[0015] Following is a detailed description of the preferred design by which this is achieved however it should be noted that variations on this basic design are possible while still remaining within the scope of the invention.

[0016] Referring to FIG. 1 the basic structure is seen consisting of 1.25 inch PVC pipe along with Tee slip connections (21), ninety degree pipe bends (11), PVC caps (13), quarter inch diameter bungee cord (5) and ball harness (best seen in FIG. 3). The base of this structure forms an "H" pattern for stability purposes and consists of four legs 34 "in length attached through tee slip connections to a central 30" common pipe. These tee slip connections are used through out the structure and allow for easy construction or dismantling for purposes of transportation. A vertical support column (27) extends upward from the middle of this central base (25) (through a slip tee connection) 60 inches in height and supports horizontal booms (23) measuring 32 inches. These horizontal booms are again connected through slip tee connections to the upright support (27) and are aligned parallel to the central base pipe (25). In addition to being a critical support member the central base pipe serves as a virtual base line or service line for the practitioner to familiarize one self with in relation to real court conditions. A tennis ball (29) is attached to the vertical support column for training purposes.

[0017] Referring to FIG. 2 the ninety degree downward bending section (11) of the boom is seen attached to the horizontal section of the boom (9) through a male/female slip connection. Holes (17a) and (17b) are aligned six inches apart from each other with the first hole (17a) being five inches away from the endpoint or the end cap (13). The end cap (13) has a hole drilled in the center which is slightly smaller than the diameter of a four foot piece of bungee cord which is threaded through this hole and holes 17a and 17b. This in combination with the downward curving support arm and placement of the hole (17a) five inches from the end of the cap (13) help stabilize the bungee cord and permit the cord to remain taut but flexible. Easy adjustment of ball height is made possible through this design by allowing slack to be pulled in the cord between points 17a and 17b so as to lengthen or shorten the placement of the ball in reference to

the ground. Friction between the cord in passing through holes 15, 17a and 17b act to suspend the ball at the chosen height with the excess cord being hidden within the frame structure.

[0018] The method of initially assembling the bungee cord to the apparatus is to feed one end of the bungee cord through the upper hole (17b) and the other end through hole (17a) with some of the excess being feed inside the horizontal boom (9) prior to having the bent support piece (11) being press fit on to the horizontal section. The other end of the cord is feed through the end cap (13) prior to its press fitting on to the bent support pipe (11) and prior to attachment of the harness

[0019] In referring to FIG. 3 the harness assembly is seen consisting of a 2.25 inch by 0.75 inch piece of hook fastener (3) in which a modified 4 inch piece of plastic loop strap (7) is inserted through two slits in the hook fastener (3), each slit being offset from the center of the Velcro (3) by roughly ¼ inch, the same diameter as the bungee cord (5). With the partially adjusted 4 inch piece of plastic loop strap centered in the hook fastener (3), such that its two ends extend equally distanced through the top of the hook fastener, the bungee cord is placed between them and then secured to each other by plastic loop straps (7). Which are then encapsulated by a ¾ inch diameter polyolefin heat shrink tubing (not shown in FIG. 3).

[0020] The result of this assembly is a light weight, mobile training device capable of quick assembly and disassembly having the ability to simulate real conditions of play through its unencumbered ball suspension and release mechanism thus helping to instill in the practitioner an instinctive understanding or "knowing" where contact between ball and racket are optimized.

I claim:

1. A device for teaching tennis fundamentals that allows for ease of height adjustment and comprise means for releasably attaching a tennis ball to a portable support structure in a manner such that when struck by a tennis racket simulates a ball in unencumbered free flight, and said structure being adapted to accommodate right or left handed hitters and individuals of varying heights and abilities at the same time

2. The device defined in claim 1 in which said means for releasably attaching the tennis ball to the support structure comprises a bungee cord attached to a harness attached to a piece of Velcro to which a tennis ball is attached by virtue of the adhesive qualities between the Velcro strip and the tennis ball

3. The device as made in claim 2 where the ball harness consists of a combination of plastic loop straps coordinated to secure the piece of Velcro against the bungee cord

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