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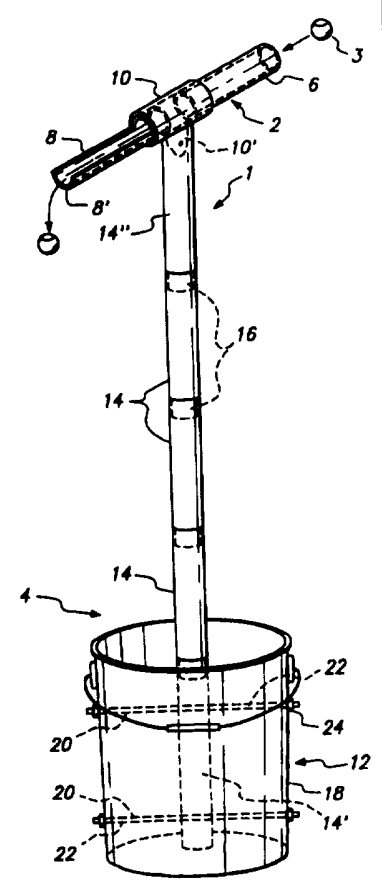
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(54) Title: COLLAPSIBLE HITTING PRACTICE APPARATUS AND CONNECTABLE PLASTIC TUBING USED IN SAME

(57) Abstract

A collapsible hitting practice apparatus (1, 101) comprises an inclined ball delivery chute (2, 102) for delivering a ball to a hitting area under gravitational forces, a support stand (4, 104) for supporting the inclined ball delivery chute at an elevated position, the support stand including a base (12) and an elongate column (14, 14', 14'') connecting the inclined ball delivery chute and the base, and the chute and the elongate column being selectively collapsible into sections storable within the base. The base preferably comprises a large bucket (12), the elongate column is formed from a plurality of tubular sections (14, 14', 14'') formed of a rigid plastic such as PVC and compressible rigid connectors (16) also formed of PVC or the like which fit within the sections of tubing so as to be completely concealed thereby. Additionally, the apparatus also preferably includes a net (206) for restricting movements of batted balls (3), a collapsible support frame (202) for supporting the net in a substantially vertical orientation, and a base (204) which dually functions to support the collapsible frame in an operative position thereof and to store the components of the collapsible frame and the net when disassembled.



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**COLLAPSIBLE HITTING PRACTICE APPARATUS
AND CONNECTABLE PLASTIC TUBING USED IN SAME**

Background Of The Invention

5 The present invention pertains to a collapsible hitting or batting practice apparatus, and to a plastic tubing structure for use in same. More particularly, the invention pertains to such a batting practice device which is adjustable in multiple dimensions so that it may be effectively used by anyone, and to a collapsible plastic tubing structure which is easy and economical to produce, and yet results in the batting practice device being very durable and rigid.

10 There are many known batting practice devices. For example, U.S. Patents 4,955,606; 5,042,802; 5,066,010; 5,097,985; 5,232,218 and 5,292,119 each disclose a type of batting practice device in which balls are delivered one-by-one along an inclined channel to a batting area where the balls are dropped or "soft tossed" from the delivery channel so that a batter may swing at the balls. Although all of such known batting practice devices are effective for their intended purpose, they all have disadvantages and limitations associated therewith, whereby they do not sufficiently challenge a hitter to improve his or her swing to a high skill level, and whereby they are excessively cumbersome and expensive, liable to breakage, and difficult to adjust.

20 The present invention has been developed to overcome the disadvantages and limitations of known batting practice devices, including those discussed above, and to generally provide a need in the art for a hitting practice device which is adjustable in multiple dimensions such that it is challenging for substantially anybody regardless of size or skill level, which is sturdy and reliable in structure, economical to produce, and easy to assemble, disassemble, store and transport.

Brief Description Of The Drawings

FIG. 1 is a front elevational view of a preferred embodiment of the invention in an assembled state, with some internal structure of the apparatus detailed in broken lines.

5 FIG. 2 is a front elevational view of the embodiment of FIG. 1 in a disassembled state, again with some internal structure revealed in broken lines.

FIG. 3 is a front elevational view of one section of the embodiment shown in FIG. 1, with portions of a connector shown in dotted lines to reveal the structure thereof.

FIG. 4 is a front elevational view of a modification of the embodiment of FIG. 1.

10 FIG. 5 is a front elevational view of a hitting practice net according to a second preferred embodiment of the invention.

Detailed Description Of The Preferred Embodiments

Referring to FIGS. 1 and 2, there is shown a preferred embodiment of a hitting practice device 1 according to a preferred embodiment of the invention. The hitting apparatus 1 generally includes an inclined ball delivery chute 2 and a support stand 4. The ball delivery chute 2 according to this embodiment includes three sections, a hollow tube section 6, an open channel section 8, and a connector section 10; while the support stand 4 comprises a base 12, a plurality of tubing sections 14, 14', 14'', and a plurality of connectors 16 used in joining the sections 14, 14', 14'' together. The base 12 includes a receptacle 18 and means 20 for securing the lowermost tubing section 14' centrally within the receptacle. The several components may be assembled together with the tubing sections and the ball delivery chute extending from and above the receptacle 18 as shown in FIG. 1 so that a ball 3 may be delivered through the chute 2, and may be disassembled and conveniently stored within the receptacle as shown in FIG. 2.

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Preferably each of the components 6, 8, 10, 14, 14', 14'', 16, 18 is formed of a rigid plastic material such as PVC tubing conventionally used in plumbing applications, polypropylene, polyethylene, polyethylene terephthalate, etc. and of an appropriate wall thickness such as 2-6 mm., while the receptacle 18 is preferably formed of polyethylene or other suitable plastics, and the securing means 20 preferably includes rods 22 with threaded ends and threaded nuts 24 which may be selectively fitted to the rods 22. The rods 22 extend through openings defined in the receptacle 18 and the lowermost tubing section 14'. A lid (not shown) is also provided for covering the open end of the receptacle 18.

With reference to FIG. 3, the preferred structure of a connector 16 according to the invention is more particularly shown. The connector 16 preferably comprises a length of tubing with a nominal, uncompressed outside diameter slightly larger than the inside diameter of the tubing section 14, and a narrow gap 26 is defined in the connector fully along a longitudinal length thereof. The gap 26 permits the connector 16 to be selectively compressed therealong for reducing the nominal diameter thereof, such that the connector may be fitted within the tubing sections 14. The gap 26 is sufficiently wide that when the connector 16 is fully compressed, the nominal outside diameter of the connector is smaller than the inner diameter of the tubing section 14 and the connector 16 may be easily fitted therein. Once the end of the connector 16 is within the end of the tubing section 14 the connector's structural tendency to flex or spring back to its uncompressed state imposes an expansive force against the inner surface of the tubing section 14, stably locking the connector and tubing section in their engaging relationship. The expansive force is sufficiently great that the connector and tubing section will not separate under the force of gravity if one or more tubing section is suspended from a

connector, although the tubing section and connector may be rotated relative to each other and tubing sections may be easily pulled apart by an individual.

To facilitate insertion of the connector 16 within a tubing section 14, end edges 28 of the connector are preferably beveled as shown, while one end of each connector 16 may be fixed within one end of a tubing section 14 using adhesive or the like or the sections 14, 14', 14'' may be formed or molded integrally with one of the connectors 16 as a single member.

The disclosed connector 16 provides a very rigid and stable connection even when several of the tubing sections 14, e.g., when 5-15 sections are joined together, the joined sections are nearly as sturdy as a single piece of tubing formed from the same material as the sections 14 and having the same length as the combined length of the joined sections; each connected pair of the sections 14 are rotatable relative to each other about the connector 16 for adjustment purposes; and the sections 14 may be readily disassembled for storage and transportation. The connector 16 is completely concealed within the sections 14 and the sections favorably appear to be a single length of tubing and the connector provides an excellent connection for the conventional plastic tubing because the gap 26 in the connector is compressed to varying degrees to accommodate discrepancies in the inner diameters of the tubing.

Referring again to FIG. 1, the connector section 10 of the inclined ball delivery chute 2 is preferably joined to the upper tubing section 14'' at an acute angle of approximately 40°-70°, such as being bonded together with adhesive or being molded integrally together as a single piece, so that the sections 10, 14'' are rotatable together relative to section 14, while the hollow tubing and open channel sections 6, 8 are selectively fittable to the opposite ends of the connector section 10 as shown.

Alternatively, the connector section may be pivotally connected to the upper end of tubing section 14", for example using a pivot bracket 10' such as shown in dotted lines in FIG. 1, which may be formed integrally with connector 10.

According to a preferred aspect of the invention, an end 8' of the open channel section 8 has the same outside diameter as the ends of the hollow tubing section 6 so that the section 6, 8 may be interchangeably fitted to the opposite ends of the connector section 10. The interchangeable nature of the section 6, 8 with respect to the connector section 10 is desirable for adjusting the difficulty of using same, i.e., when the open channel section 8 is connected to the lower end of the connector section 10 a batter can readily perceive and anticipate the ball approaching before it drops, whereas if the hollow tubular section 6 is connected to the lower end of the connector section 10 the batter cannot perceive the ball much before it reaches the free end of the section 6, and thus will have to react with greater skill to hit the ball after it is dropped.

Many modifications and variations to the disclosed preferred structure are possible. The sections 6, 8 could be sized to fit over ends of connector 10, or sections 6, 8 or connector 10 could be formed with slits similar to slits 26 of connectors 16 to give a more compressive fitting between parts. The plastic tubing section 14' could be formed or molded integrally with the receptacle 18 as a unitary member, the lowermost section 14' could be otherwise permanently fixed to the bottom surface of the receptacle 18 using adhesive, a connector 16 could be molded integrally with or otherwise fixed to the bottom surface of the receptacle 18 so that the section 14' could be simply fitted thereover when the device is assembled, etc.

Further, the ball delivery chute 2 may be connected to the upper section of tubing 14" by a spring which extends within the tubing 14" and normally holds the ball delivery

chute 2 in engagement with the tubing 14". With such structure, the relative orientation of the open channel section 8 and the hollow tubular section 6 at higher and lower levels, respectively, can be quickly reversed by simply lifting the ball delivery means from its engagement with the section 14" (against the force of the spring), rotating the ball
5 delivery means 180°, and again returning it into engagement with the section 14". With such spring biased structure the connector section 10 may be omitted, and instead having the sections 6, 8 join directly together with one of the sections 6, 8 joined to the section 14". Still further two or more of the ball delivery chutes 2 may be provided in a vertically stacked manner at the upper end of the support stand 4, with another section
10 of tubing extending vertically between adjacent ones of the chutes 2 such that they are separately rotatably relative to the stand 4 or each other, whereby balls 3 may selectively be dropped at different vertical levels through any of the chutes 2.

It is preferred that when fully assembled the apparatus will be approximately 1-3 meters tall (which height may be adjusted by adding and removing lengths of the tubing sections 14, 14', 14") from the bottom of the receptacle 18 to the upper end of the ball
15 delivery chute 2, ball delivery chute will be approximately 0.5-1.2 meters long from tip to tip, the stand 4 will preferably include at least one of each of the tubing sections 14, 14', 14", there will preferably be tubing sections 14 of different lengths such as 15 cm, 30 cm, 45 cm, and the receptacle 18 will be of a standard size such as 15, 20 or 25 litres.
20 As shown in FIG. 1, tubing sections 6, 8, 10 are preferably of a larger diameter than the tubing sections 14, 14', 14", for example twice as large.

In use, water, sand or other types of weighty filler may be placed in the receptacle 18 for giving the assembled device added stability, and if water is to be used for giving the device added stability, the openings through which the rods 22 project will be made

leakproof by utilizing an appropriate packing or a gasket therein.

In use of the batting practice device the several components may be assembled from the completely disassembled state as shown in FIG. 2 to that shown in FIG. 1 in approximately five minutes or less. Further, the lowermost tubing section 14' may remain
5 fixed to the receptacle 18 through the securing means 20 after it is assembled for the first time, in which case the entire device can be rapidly assembled or disassembled in approximately 1-2 minutes.

Referring to FIG. 4, there is shown a modification of the embodiment in FIG. 1. Structurally, the modification is in the ball delivery chute 102, whereas the support stand
10 104 is identical to the support stand means 4 of the first embodiment. The ball delivery chute 102 according to the modified embodiment includes a connector section 110 connected to the uppermost tubular section of the support stand, a hollow tubular section 106 and an open channel section 108 similar to the first embodiment, and also includes a curved intermediate portion 112. As depicted the curved intermediate portion 112 will
15 preferably comprise a pair of 90° elbows 114, a plurality of straight connecting sections 116, and an extension section 118, all of which connect together with sections 106, 108, 110 such that the ball delivery chute 102 is substantially U-shaped when viewed in plan, although it is inclined from one end (the free end of section 106) to the other end (the free end of section 108). With such structure, the free ends of the sections 106, 108 face
20 in substantially the same direction such that a batter may place a ball in the free end of section 106, pick up his or her bat, and swing at the ball after it travels through the ball delivery chute and drops from the free end of section 108. Such arrangement is very advantageous because a batter may conveniently practice using the device by himself, whereas with the embodiment of FIG. 1 it would be practically necessary to have another

person place the balls in the free end of section 6 or 8.

According to this modification, the components 106, 108, 110, 114, 116, 118 are again preferably constructed of a rigid plastic material such as PVC tubing; and the sections 106, 108 may be interchangeably connected to the section 110 and to the end of the extension 116. Further, the components 106, 108, 110 preferably have the identical structure as those of the components 6, 8, 10 in the first embodiment, while the straight pieces 116 will preferably have an outside diameter slightly larger than the inside diameters of connector 110, elbows 114 and extension section 118, while gaps will be defined longitudinally along end portions of the pieces 116 so that they may be compressively fitted within ends of the connector 110, elbows 114 and section 118 similar to the structure discussed above in relation to FIG. 3. Alternatively, the straight pieces 116 may be formed as small connectors which are disposed entirely within the connector 110, elbows 114 and section 118 similar to the connectors 16 which are disposed entirely within tubing sections 14, 14', 14'' according to the first embodiment as discussed above. Advantageously, the elbows 114 are rotatable about straight pieces 116 so that the relative degrees of inclination of the extension section 118 and of the piece 116 between the elbows may be adjusted to have a greater or lesser pitch, for thereby adjusting the speed at which the ball is delivered through the chute 102. Alternatively, intermediate portion 112 could be formed with fewer sections than that depicted in FIG. 4. For example, one of the elbows 114 could also be the section connected to the support stand 104, thereby eliminating section 110, the extension section 118 could be formed integrally with an elbow 114, and such two modified sections could be joined together by a single straight piece 116, which could be disposed entirely within the two modified sections. With such alternative structure, the two modified sections would still be rotatable relative

to each other about a straight piece 116 between same. Further, the entire intermediate section 112 could be formed as a single member, of either rigid tubing of flexible, corrugated tubing, and could again be the section connected to the support stand.

Dimensionally, the chute 102 according to the modified embodiment is preferably
5 0.6-1.2 meters feet long from the tip of section 106 or 108 to the rear face of the intermediate section 112, and approximately 25-60 cm wide from elbow 114 to elbow 114.

Referring to FIG. 5, there is shown a collapsible ball net device 201 according to a second embodiment of the invention which includes a support frame 202, a base 204, and a net 206. The support frame 202 is preferably constructed of a plurality of straight
10 tubular sections 208, corner sections 210 and T connector sections 212, as well as a plurality of connectors (not shown) but having the same shape as the connectors 16 of the first embodiment, the tubing sections 208 being selectively connectable together with the connectors, the corner sections 210 and the T sections 212. A lowermost tubing section 208' is fixed to a receptacle of the base 204 as in the first embodiment, while
15 another section of the tubing 208'' is secured to an auxiliary support base 214. Preferably the tubing section 208'' is molded integrally with the auxiliary support base 214 as a unitary member, but may otherwise be secured thereto, such as by using adhesive. The overall support frame 202 may be of any appropriate size, such as 2 meters high and 1.5 meters wide, and may be assembled together with the base 204 in five minutes or less
20 from a completely disassembled state, and is very rigid and stable.

As with the first embodiment, the frame 202, as well as the auxiliary support base 214, may be conveniently stored and transported in the receptacle of the base 204 when disassembled. The auxiliary support base 214 may optionally function as the lid for the receptacle of the base 204.

The net 206 preferably has a width slightly wider than the width of the support frame 202 when assembled and a length somewhat longer than the height of the assembled support frame 202, while one end of the net is folded over and sewed together to define a pocket 206' which may be easily slipped over the upper end of the support frame 202 such that the net then hangs downwardly therefrom. The net 206 is preferably constructed of a durable polymeric material such as nylon, polyester, etc., and preferably has a reinforced edge 206".

Optionally, the apparatus of FIG. 5 may include additional means for securing lower portions of the net 206 to the support frame 202, such as fabric strips with hook-and-loop fasteners on the ends thereof which would be fastened around a section of tubing 208 and the reinforced edge 206" of the net, or hook members projecting from the tubular sections 208 or 212 for engaging the reinforced edge 206" of the net. Also optionally, means are provided at the upper end of the support frame 202 for causing the upper end of the net (corresponding to the pocket 206') to project away from the support frame means (project from the plane of the paper) such that the upper end of the net forms a projecting ledge which effectively restricts upward movement of the ball against the net 206.

As an alternative structure to the substantially rectangular frame 202 shown in FIG. 5, a support frame according to the invention could be substantially T-shaped with a single vertical support post of tubing sections 208 extending upwardly from a single receptacle of the support base 204 and a horizontal length of the sections 208 connected at a central section thereof to the vertical post. The net 206 would have the same structure as described above and would be supported exclusively by the upper horizontal length of tubing sections 208. Preferably a connecting section of tubing between the

vertical post and the upper horizontal length of tubing sections 208 will be angled forwardly so that the upper end of the net, again, forms a projecting ledge for restricting upward movement of balls.

Numerous variations to the disclosed embodiments are possible and within the scope of the invention. A ball release mechanism, a mechanism for locking the connector section 10 into a plurality of specific angular orientations relative to the upper tubular section 14" or for locking portions of the intermediate portion 112 into specific angular orientations relative to each other could be added to the delivery chute. Other cross sectional shapes and other materials, such as aluminum, other metals and flexible materials, could be used for the tubing sections. The several sections of tubing could have threaded end for being joined together. A plurality of the open channel members could be used in the ball delivery chute. The support stand could be formed of two or more telescoping sections, rather than of the interfitting sections 14, 14', 14" and connectors 16, etc.

I CLAIM:

1 1. A collapsible hitting practice apparatus comprising:
2 an inclined ball delivery chute for delivering a ball to a hitting area;
3 a support stand for supporting said inclined ball delivery chute at an elevated
4 position, said support stand including a base and an elongate column connecting said
5 inclined ball delivery chute and said base; and
6 said inclined ball delivery chute and said elongate column being selectively
7 collapsible into sections storable within said base.

1 2. Hitting practice apparatus according to claim 1, wherein said inclined ball
2 delivery chute includes a hollow tubular section and an open channel section, and said
3 inclined ball delivery chute is selectively adjustable such that each of said hollow tubular
4 section and said open channel section may be disposed at a lower level and a higher level
5 relative to the other said section.

1 3. Hitting practice apparatus according to claim 2, wherein said inclined ball
2 delivery chute further includes a connector section connected to an upper end of said
3 elongate column, said hollow tubular section and said open channel section, respectively,
4 each of said tubular section and said channel section being selectively connectable to
5 different portions of said connector section corresponding to said higher and lower levels,
6 and said connector section is rotatable about a longitudinal axis of said elongate column.

1 4. Hitting practice apparatus according to claim 1, wherein said base includes a
2 receptacle with an open end, a lower section of said elongate column is mountable

3 centrally within said receptacle such that said column extends upwardly through said open
4 end of said receptacle, said receptacle including a handle and a lid for closing said open
5 end of the receptacle.

1 5. Hitting practice apparatus according to claim 1, wherein said elongate column
2 includes a plurality of rigid tubing sections and connectors fittable with ends of said
3 tubing sections for connecting the sections together in an end-to-end manner.

1 6. Hitting practice apparatus according to claim 5, wherein said sections and said
2 connectors are constructed of plastic, each said connector comprising tubing with an
3 uncompressed outside diameter slightly larger than an inside diameter of said column
4 sections and with a narrow gap defined along a longitudinal length thereof so that the
5 connector may be selectively compressed along said gap for reducing said uncompressed
6 diameter.

1 7. Hitting practice apparatus according to claim 6, wherein ends of said
2 connectors have beveled edges for facilitating insertion thereof into said column sections.

1 8. Hitting practice apparatus according to claim 1, wherein said inclined ball
2 delivery chute includes a ball feed section, a ball output section disposed at a level lower
3 than said ball feed section, and a curved intermediate section connecting said ball feed
4 and ball output sections such that free ends of said ball feed and ball output sections face
5 in substantially the same direction.

1 9. Hitting practice apparatus according to claim 8, wherein at least one of said
2 ball feed section and said ball output section is rotatable relative to said intermediate
3 section for adjusting an angular orientation thereof.

1 10. Hitting practice apparatus according to claim 1, includes a plurality of the
2 inclined ball delivery chutes disposed in a vertically spaced manner at an upper end of
3 the support stand.

1 11. A hitting practice device comprising:
2 a chute for delivering a ball to be hit along an inclined path, the chute including
3 a ball feed portion, a ball output portion, and a curved intermediate portion connecting
4 the ball feed and output portions so that free ends of said ball feed and output sections
5 face substantially in a same direction;

6 a mounting member fixed to said chute and projecting therefrom for mounting the
7 chute to a support such that the free end of the ball feed portion is disposed at a higher
8 level higher than the free end of said ball output portion; and

9 the free ends of said ball feed and output portions are disposed near each other.

1 12. A hitting practice device according to claim 11, wherein at least one of said
2 ball feed and ball output portions include an open channel member.

1 13. A hitting practice device according to claim 11, wherein said chute and said
2 mounting member are molded as an integral, unitary member.

1 14. A hitting practice device according to claim 11, wherein said ball feed and ball
2 output portions are rotatable relative to each other about said intermediate portion.

1 15. A collapsible support stand, comprising:
2 a base including a receptacle with an open end;
3 a stand which connects to said base for defining an elevated support surface above
4 said base;
5 said stand including a plurality of tubing sections and a plurality of connectors
6 fittable with said tubing sections for joining the sections together in an end-to-end
7 manner;
8 a lower tubing section of said stand is mountable within said receptacle such that
9 said stand extends upwardly through said open end of said receptacle; and
10 said tubing sections and said connectors of said stand being selectively collapsible
11 and storable within said receptacle.

1 16. A collapsible support stand according to claim 15, wherein said base includes
2 means for fixing said lower section of said elongate column centrally within said
3 receptacle, the receptacle includes a handle, and a lid for closing said open end, and the
4 stand includes a vertically extending portion extending from the base and a substantially
5 horizontal portion connected to an upper end of the vertical portion.

1 17. A collapsible tubing structure comprising:
2 a plurality of rigid tubing sections; and
3 connectors fittable within ends of said tubing sections for connecting the sections

4 together in an end-to-end manner;

5 said sections and said connectors being formed of plastic, each said connector
6 comprising tubing with a nominal, uncompressed outside diameter slightly larger than an
7 inside diameter of said tubing sections and with a narrow gap defined along a longitudinal
8 length thereof such that the connector may be slightly compressed along said gap for
9 reducing said nominal diameter thereof.

1 18. Collapsible tubing structure according to claim 17, wherein ends of said
2 connectors have beveled edges for facilitating insertion into said column sections.

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FIG. 1

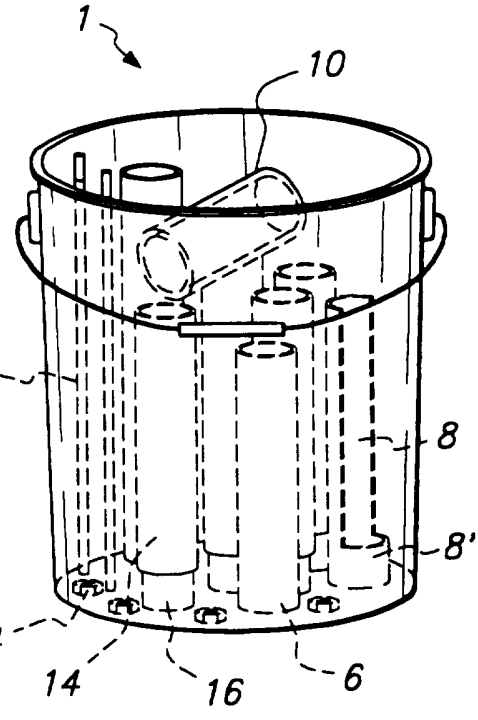
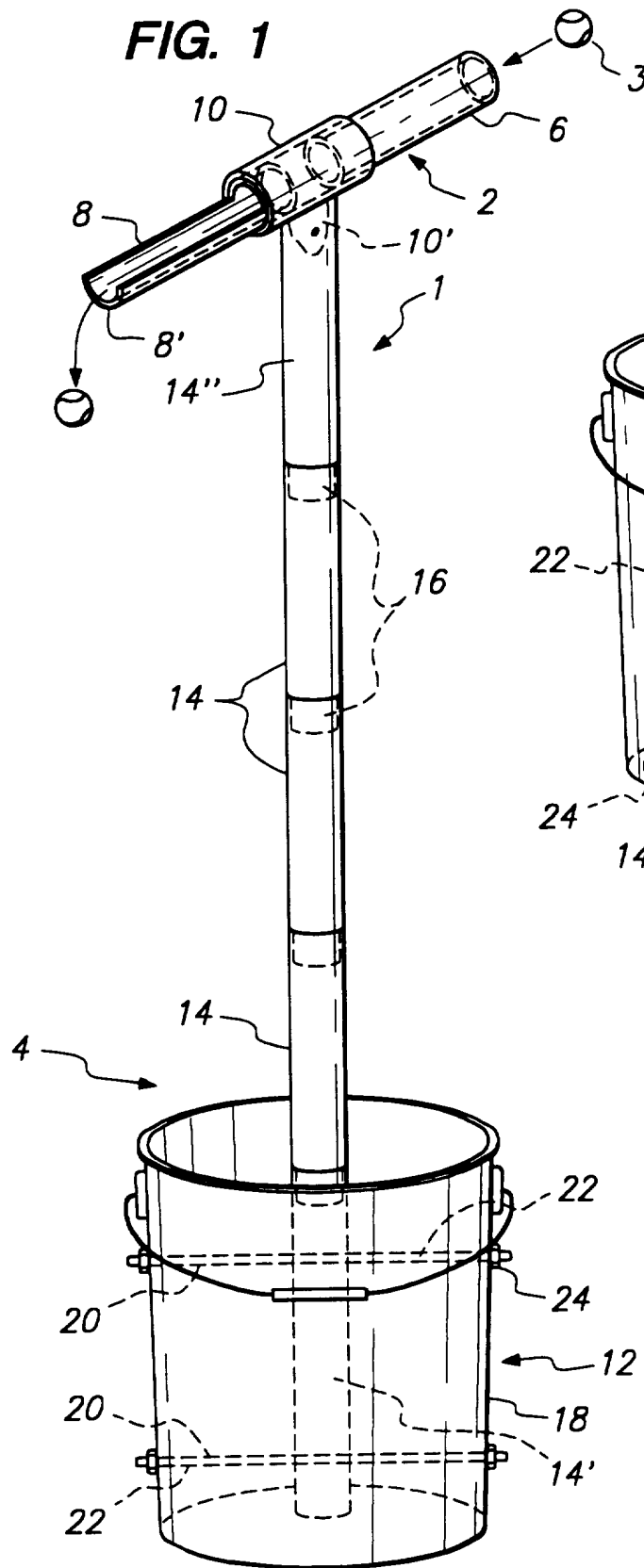
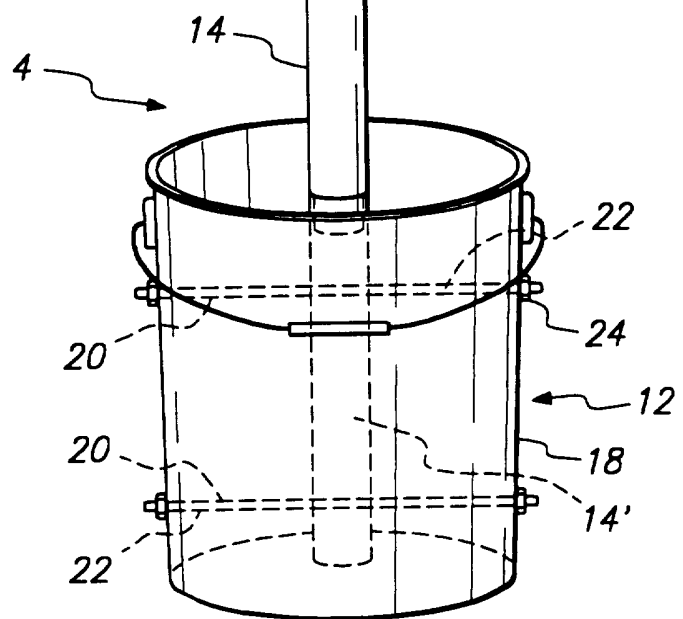


FIG. 2



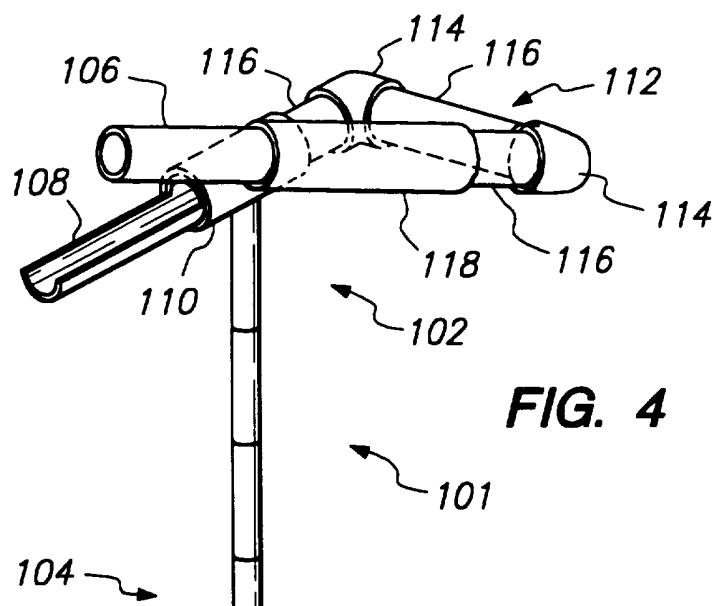


FIG. 4

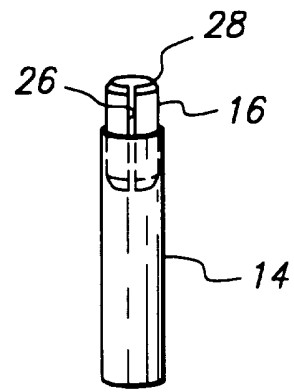


FIG. 3

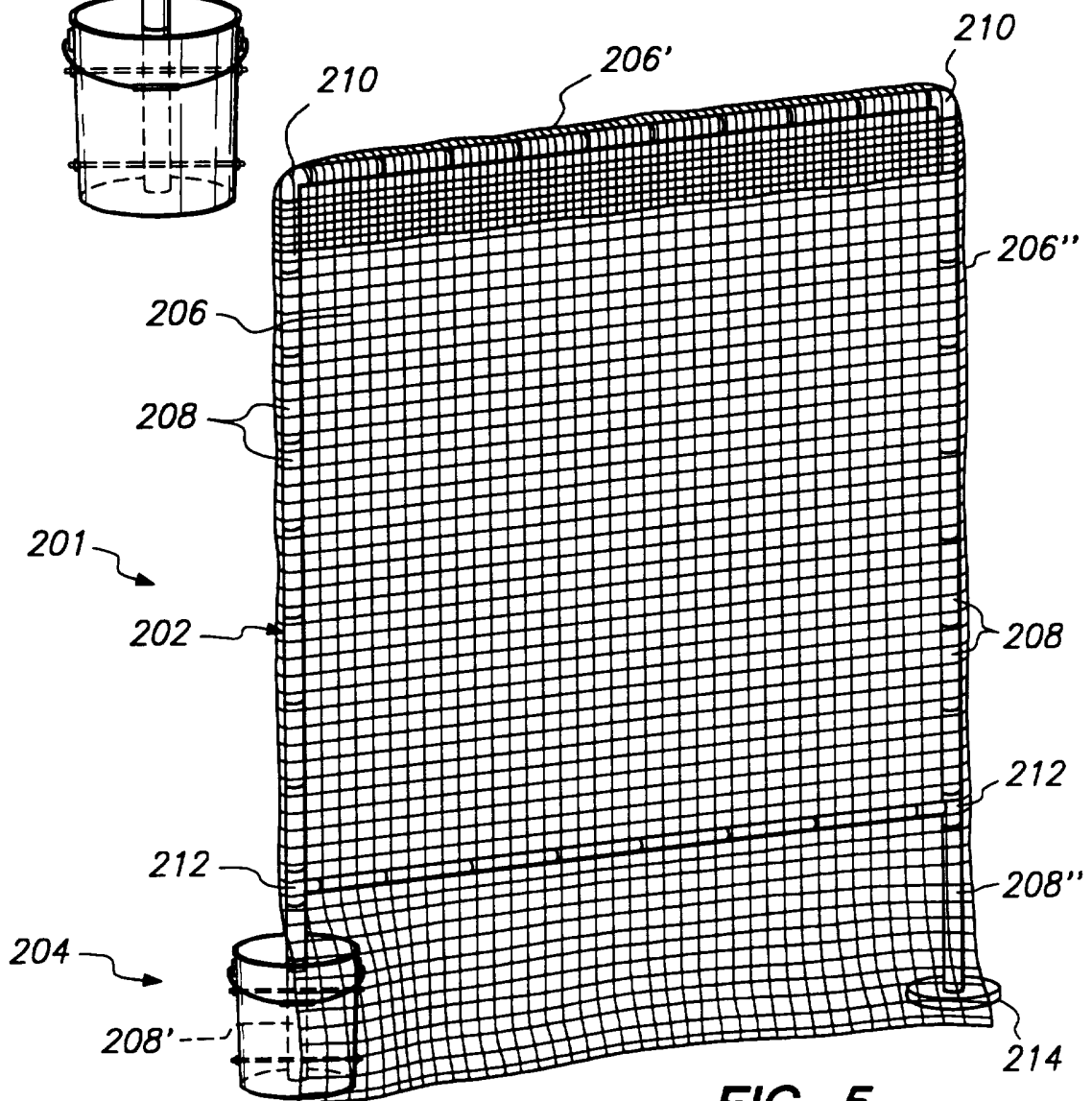


FIG. 5

SUBSTITUTE SHEET (RULE 26)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US96/01310

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :A63B 69/00
US CL :273/26D

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 273/26R, 29A, 29R, 201, 411; 285/15; 403/289, 313; 414/382

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
NONE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US, A, 5,042,802 (DEPIANTA) 27 August 1991, see entire document.	1, 5, 6, 9 ----- 2, 10-12
X --- Y	US, A, 4,955,606 (LEPS) 11 September 1990, see entire document.	1, 5 ----- 2
X, P	US, A, 5,421,313 (STRAYER) 06 June 1995, see entire document.	1, 5, 13
Y	US, A, 4,478,434 (LITTLE) 23 October 1984, see entire document.	10-12
X	US, A, 4,132,214 (SCHNURR ET AL.) 02 January 1979, see entire document.	1, 13

Further documents are listed in the continuation of Box C. See patent family annex.

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"A" document defining the general state of the art which is not considered to be part of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US96/01310

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US, A, 4,948,149 (LIN ET AL.) 14 August 1990, see entire document.	15-18

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US96/01310

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claims 1-14, drawn to a hitting practice device.

Group II, claims 15 and 16, drawn to a collapsible support stand.

Group III, claims 17 and 18, drawn to a collapsible tubing structure.

Groups I, II and III, the inventions listed in these groups do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: These groups are related as combination and subcombination. The combination of

Group I, the combination of this group as claimed does not require the particular collapsing structure of the subcombination of Group II or the particular tubing structure of the subcombination of Group III.

Group II, the invention of this group does not require the use of a ball detouring means as required in Group I and the connectors of Group III. The subcombination has separate utility such as the support stand of this group, and can be used to support a ball tee.

Group III, the connectors of this group can be used for connecting elongated objects such as lamp poles or stands.