United States Patent [19]

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[54] BALL PRACTICE DEVICE

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[52] **U.S. Cl.** .....**273/26 E,** 248/298

[51] **Int. Cl.** **A63b 69/40**

[58] **Field of Search** .....273/26 E, 95 A, 29 A, 58 C, 273/200 R; 272/77, 78, 62

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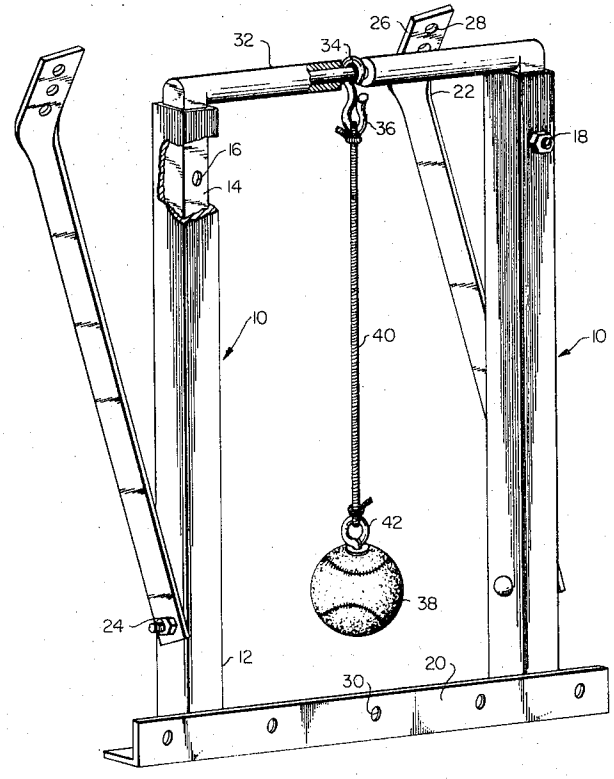
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[57] **ABSTRACT**

Ball practice support structure providing high strength, durability, and adjustable features while being collapsible for shipment and storage. This support structure is adaptable to either overhead, sidewall, or combination of overhead and sidewall mounting. Telescopic support arms permit adjustment of the position of a tethered ball in relation to overhead or sidewall.

2 Claims, 5 Drawing Figures



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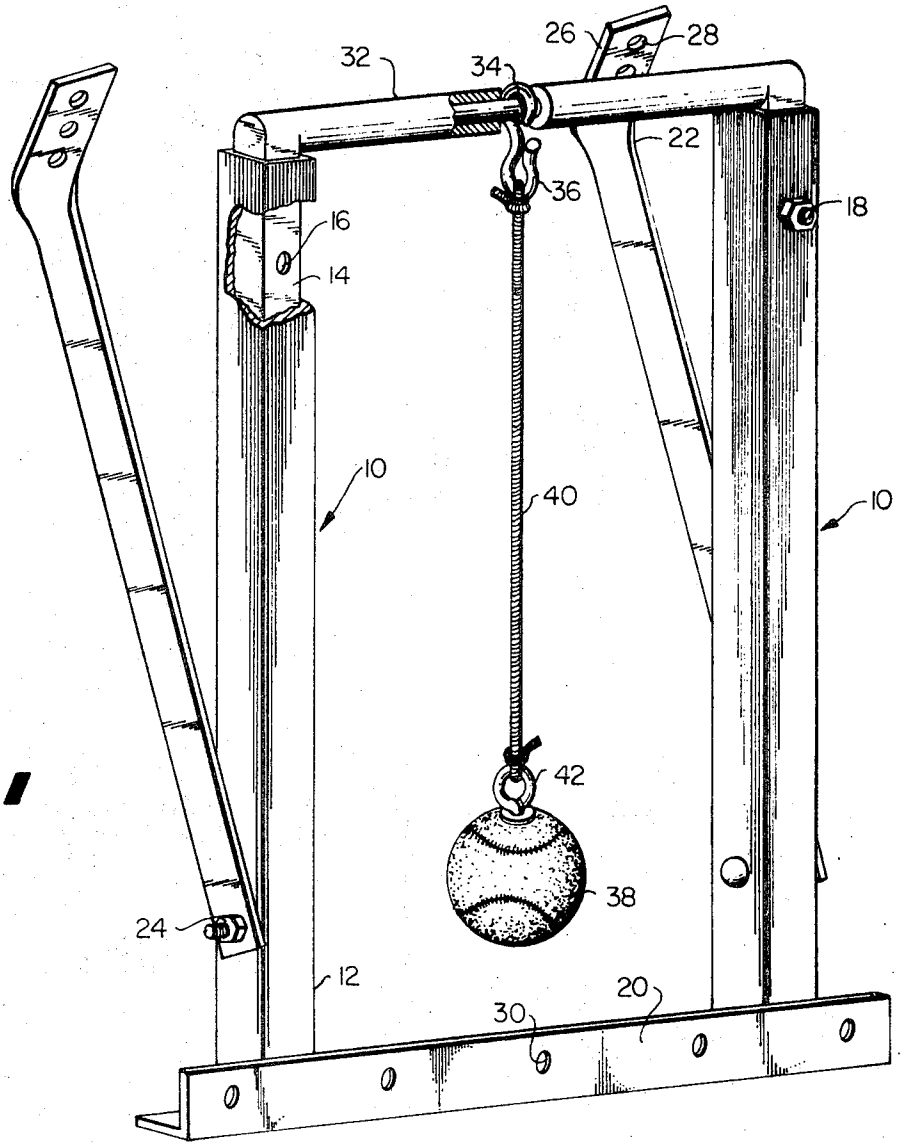


FIG. 1

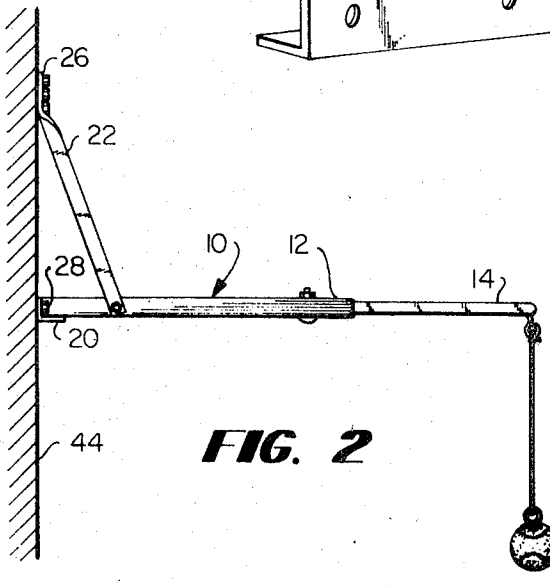


FIG. 2

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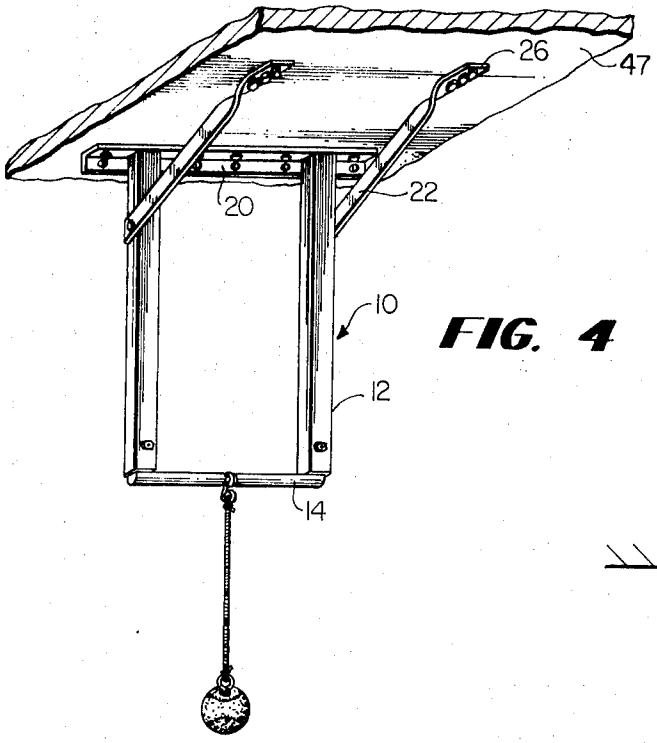


FIG. 4

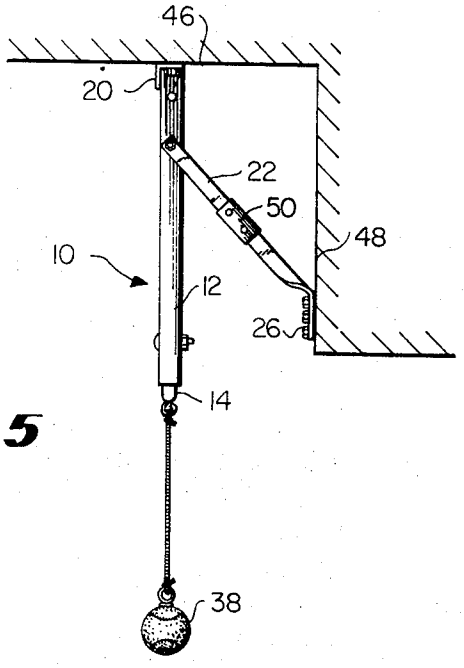


FIG. 5

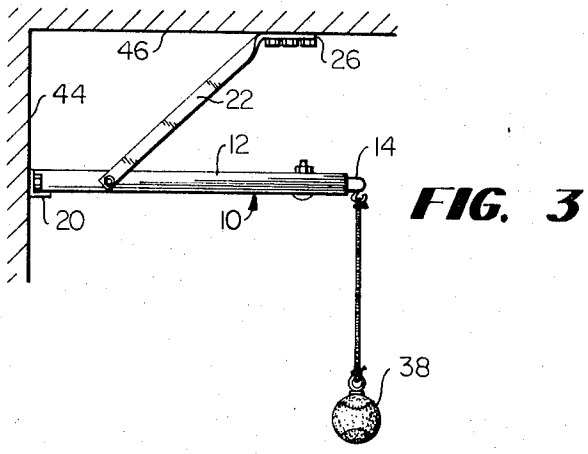


FIG. 3

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BALL PRACTICE DEVICE

This invention relates to a ball practice device supporting a tethered ball. In its more specific aspects, adjustable handling, mounting, and ball support features are provided in a ball practice device which make it universally applicable, i.e., for home use by youngsters or for professional use.

The principles of the invention provide an inexpensive game structure for use by young baseball enthusiasts to attain batting skill and, at the same time, a rugged structure which can be used by professional baseball players to maintain their batting proficiency. The invention provides a realistic form of batting practice without ball retrieval or ball delivery problems by presenting a conventional baseball which, may be hit within a confined space and which, is automatically presented for repeated hitting.

A structure is provided having suitable adaptability to satisfy all normal loading requirements including professional use. Yet, the invention makes a basic contribution by providing a rugged, simplified structure which is easy to manufacture, ship, mount, adjust, and use, making it ideal as a gift or a toy.

It is an object to provide tethered ball support structure which returns the practice ball, by swinging movement to practice position without the need for netting or padding to intercept the ball and absorb its impact.

The invention furnishes an integrally assembled support which consists of pivotally connecting components which can be simply folded when shipped, or when not in use, and readily unfolded for attachment to supporting structure when ready for use.

The invention furthermore furnishes a support structure which is simple in construction, of high strength, and providing great durability and freedom from maintenance.

The invention also furnishes a support which may be readily mounted to overhead and/or sidewalls and which is adaptable for installation in a wide variety of facilities indoor or outdoor, such as homes, garages. gyms, backstops, and the like.

The invention further provides a device for practice which avoids high reaction loadings by furnishing means to suspend a ball for a full 360° free swing upon hitting of the ball which is suitable for baseball, softball, volleyball, and the like.

Other objects and advantages of the invention will be better understood from a detailed description of the specific structure shown in the accompanying drawings:

FIG. **1** is a perspective view, partly in section, of a batting practice device in accordance with the invention;

FIG. **2** is a reduced side elevational view of the device of FIG. **1** in a sidewall support installation;

FIG. **3** is a view similar to FIG. **2** showing an overhead and sidewall installation;

FIG. **4** is a perspective view showing overhead installation; and

FIG. **5** is a view similar to FIG. **2** showing an overhead-beam installation.

Referring to FIG. **1**, elongated support structure includes a pair of parallel, co-planar support arm means indicated generally at **10**. The support arm means are identical and although only one is specifically described, it should be understood that such description applies equally to both. The support arm means **10** comprise a tubular sleeve **12** which slidably receives an extendable arm **14**. The extendable arm **14** includes a plurality of spaced holes **16** for adjustment of its length within sleeve **12**. Adjustment pin **18** is fitted through a hole in the arm **16** and in the sleeve **12** to fix the overall length of the elongated support arm means **10**.

Removal of pins **18** permits movement of the extendable arm **14** to realign adjustment holes. The length of the arms can be adjusted as desired and locked into position with pin **18** and locking nut. Other telescopic or similar slidable adjustment structures can be substituted for that shown, if of suitable strength, without departing from the spirit of the invention.

The support arm means **10** are provided at one end with means, for mounting the device and, providing a type of backbone strengthening of the structure. As shown, this means comprises an integral angle iron member **20** interconnecting ends **19** of sleeves **12**. Separate pieces of metal rather than an integral angle iron can also be used.

A brace **22**, pivotally connected to the side of sleeve **12** by a fastener **24**, serves to brace the elongated arm support means **10** once channel member **20** is connected to a support. The brace **22** can be formed from a flat, elongated, heavy-gage metal which is twisted 90° proximate its non-pivoted end forming structure securing means **26**. Fastener receiving holes **28** are provided at such end of the brace means.

As can be seen by reference to FIGS. **2** through **5**, the securing means **26** is also formed at an angle with brace **22**. Such braces **22** can be pivotally swung in a plane parallel to the sidewall portion of sleeve **12** to which they are attached. They thus can be folded into co-planar relationship with the elongated support arms **10** for shipment, or storage, providing a flat and compact structure when not in use.

At the secured end **21** of elongated arm support members **10**, sleeve **12** can be secured, such as by welding, or otherwise joined to backbone channel member **20**. For example, the elongated arm support means **10** can be joined to backbone channel **20** by hinge means by selection of bearing and pin means for the end **21** of sleeve **12** which provide the required strength and rigidity. Such bearing and pin support means are shown schematically at **28** in FIG. **2**.

While hinged type support for ends **21** of sleeves **12** increases the flexibility of the structure in that it can be readily demounted (by leaving angle iron member **20** in place) or the structure can be more readily folded out of the way, it is a refinement not considered essential for use of the basic invention.

As shown in FIG. **1**, angle iron member **20** is provided with holes **30** along both surfaces for mounting of the device. At the working end of elongated support arms **10**, cross arm **32** interconnects extendable arms **14**. Substantially midway of cross arm **32**, a bearing **34** having an arcuate track is provided. A double-ended hook **36**, having one end formed around bearing **34** to ride in the track is connected to a baseball **38** by tether **40**. The tether is preferably connected to the baseball **38** by means of an eyebolt **42** disposed through tubing, such as a copper tube (not shown) which is fitted in a hole drilled through the baseball **38**.

The device is used by suspending the ball for hitting with the usual substantially horizontal swing. The ball when struck will arc around the cross member **32** on the bearing **34** until the energy imparted to the ball is expended, or the ball player reverses his position to strike the ball while in movement.

In FIGS. **2** through **5** selected arrangements for installing the device are shown. In FIG. **2** a wall installation is shown in which member **20** is attached by means of screws, molly bolts, or other appropriate fastening devices to wall **44**. The brace securing means **26** are also fastened to wall **44**. Arms **14** are extended from sleeves **12** and the ball **38** depends at right angles to elongated support arms **10**.

In FIG. **3** the device is installed with the angle member **20** attached to the wall **44** with the securing means **26** of the braces **22** attached to ceiling beams **46**.

In FIG. **4** the device is installed totally on ceiling **47** with both the angle member and the braces connected to the ceiling.

FIG. **5** illustrates still another installation with the angle member **20** affixed to ceiling **46** and the braces attached to a beam **48** or other structure. Other arrangements will be available by inverting other portions of this structure to provide further flexibility so that the device may be used in numerous installation situations.

One of the advantages of the invention is the simplified fixed angle relationship between the securing end **26** and the remainder of the brace **22** in the embodiment shown and the adaptability of such arrangement to various installation situations. It is possible however to fabricate brace **22** to be extensible in length with overlapping portions and an interlocking arrangement as shown schematically at **50** in FIG. **4**. Movement of the pivotal connection **24** along the longitudinal axis is taught for this purpose and/or means (not shown) for changing the angled relationship of securing means **26** and the brace means **22**.

Such refinements, as with the bearing and pin support **28** of FIG. **2** described earlier, add to the adaptability of the device for various types of installation and increase the ease of folding away or stowing the device. However, one of the major contributions of the invention is the simplicity and adaptability of the basic structure shown in FIG. **1**. However, other refinements than those described can be made to the basic support structure without departing from the spirit of the invention which is indicated by the appended claims.

In one specific embodiment of the invention the members of the structure have been selected from ¼ inch steel plate stock. For example, brace **22** is ¼ inch thick steel, an inch and a ¼ in width, and approximately 23 inches in length. Sleeve **12** is approximately 30 inches in length and channel member **20** is approximately 24 inches in length. The dimensions of other portions of the structure can be estimated from such data.

Neither the selection of steel nor the dimensions given are meant to limit the scope of the invention. Other metals and alloys for example aluminum alloys, and certain plastic materials of sufficient strength, for example fiber-reinforced plastic, can be substituted for a portion or all of the structure.

What is claimed is:

1. Device for supporting a practice ball in free-swinging relationship to a positionally fixed support structure comprising

elongated arm means supporting a freely rotatable means for suspending a tethered practice ball in free-swinging relationship,

means for adjusting the length of the elongated arm means,

means at one longitudinal end of the elongated arm means for securing the elongated are means to positionally fixed support structure, and

brace means pivotally connected to the elongated arm means intermediate its longitudinal ends,

the pivotally connected brace means being pivotable from a position substantially parallel and co-planar to the elongated arm means to an angled position for bracing the elongated arm means to positionally fixed support structure.

2. The device of claim **1** including a cross member means at the opposite longitudinal end of the elongated arm means form its secured end, wherein said means for suspending

a tethered practice ball is on the cross member means.

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