United States Patent

Rubin

[15] **3,672,672**

[45] **June 27, 1972**

[54] BALL REBOUND DEVICE

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[22] Filed: **Jan. 20, 1971**

[21] Appl. No.: **107,924**

[52] **U.S. Cl.** .....**273/26 A,** 273/55 R, 273/102.1 B

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

[58] **Field of Search** .....273/26 A, 26 R, 127, 102.1 B, 273/102.2 R, 181, 102.2 B, 102.2 A, 102.2 R, 102.2 S, 102.1 C

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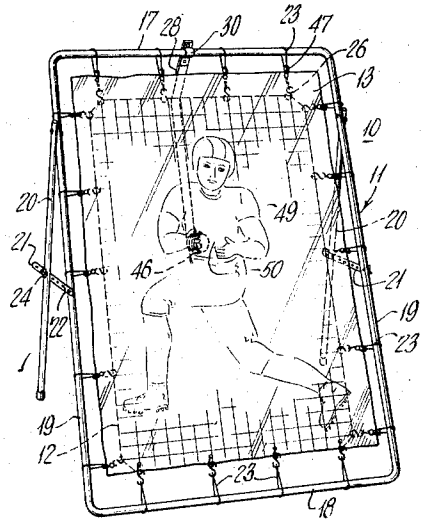
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[57] **ABSTRACT**

A missile rebound recreational device includes a rectangular frame adjustably supported in an inclined position and supporting a registering rebound net by peripherally spaced elastic bands interconnecting the frame legs and rebound net. A support arm depends from the frame top leg behind the rebound web and is adjustable in length, along the frame leg and angularly about the frame leg axis and an impact actuated bell is mounted on the arm free end and includes an actuating member facing the rebound web. A thin flexible web having a target representation is superimposed on the rebound web front face.

7 Claims, 3 Drawing Figures



PATENTED JUN 27 1972

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Fig. 1.

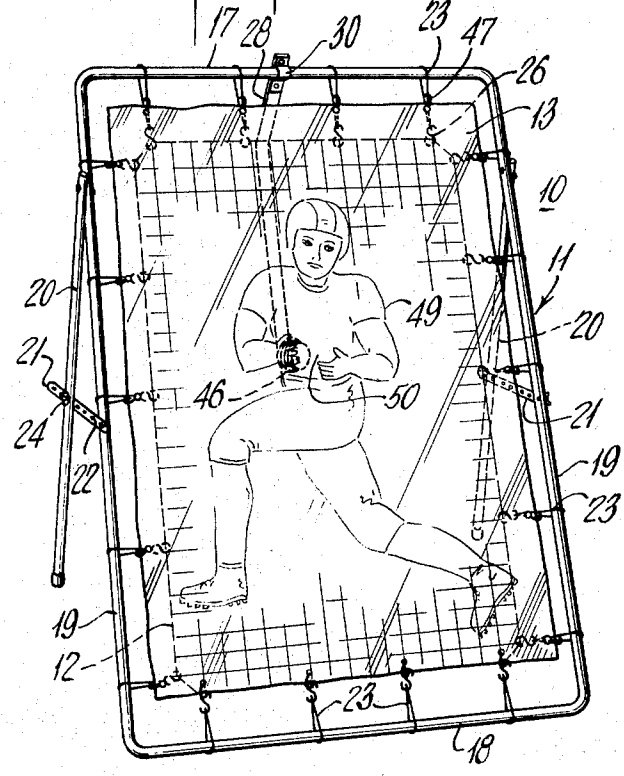


Fig. 2.

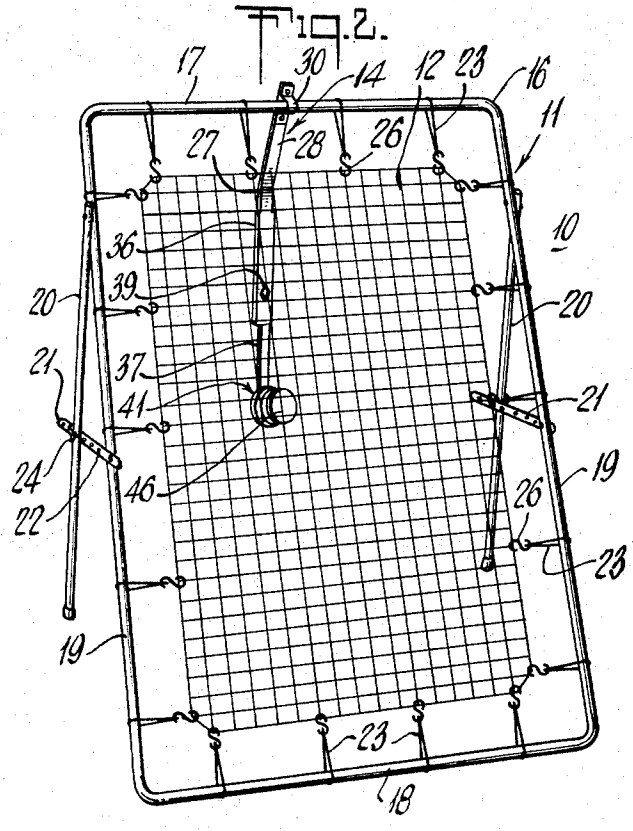
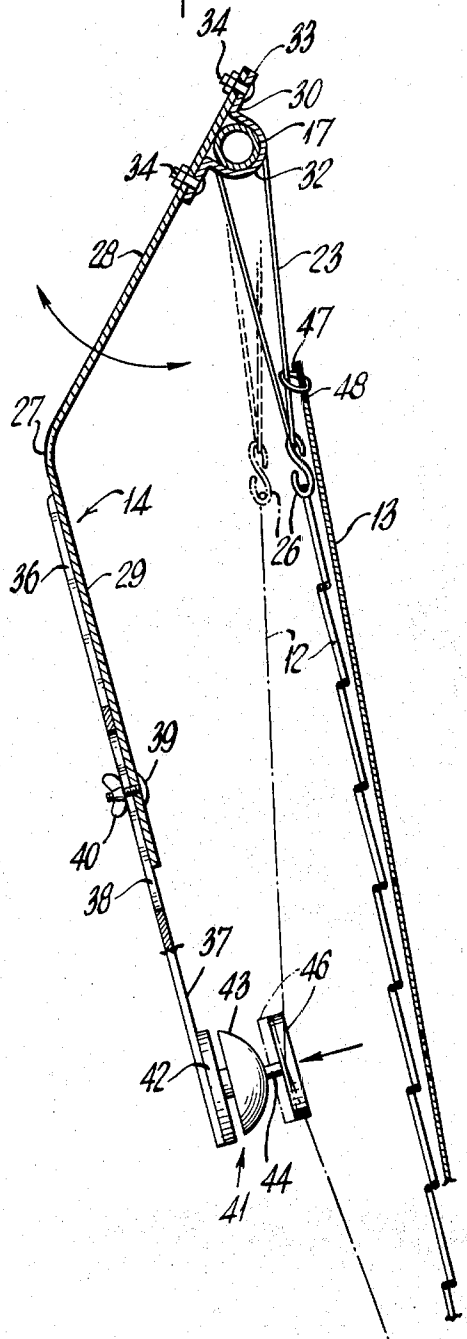


Fig. 3.



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BALL REBOUND DEVICE

BACKGROUND OF THE INVENTION

The present invention relates generally to improvements in recreational devices and it relates particularly to an improved device for returning a missile, such as a ball, which is thrown at the device, an which provides an audible signal when the missile properly strikes the rebound device in a predetermined area.

In the exercise of throwing missiles such as baseballs and footballs it is often desirable to practice such exercise alone. It is accordingly necessary, or at least highly convenient, that the thrown ball be returned to the thrower so that he is not required to retrieve the ball each time he throws it. A device which has been conventionally employed for returning a thrown ball includes a rebound net elastically supported along its edges by an inclined frame mount. While such device satisfactorily returns the properly thrown ball it possesses numerous drawbacks and disadvantages. It does not present a suitable target for the ball, it does not suitably provide an indication of a properly thrown ball and otherwise leaves much to be desired.

SUMMARY OF THE INVENTION

It is a principal object of the present invention to provide an improved recreational device.

Another object of the present invention is to provide an improved recreational device of the ball return type.

Still another object of the present invention is to provide an improved device which returns a ball thrown at the device and provides an audible signal of the ball properly striking the device within a predetermined area.

A further object of the present invention is to provide an improved ball return target.

Still a further object of the present invention is to provide a device of the above nature characterized by its ruggedness, reliability, versatility and adaptability.

The above and other objects of the present invention will become apparent from a reading of the following description taken in conjunction with the accompanying drawing which illustrates a preferred embodiment thereof.

In a sense the present invention contemplates the provision of a recreational device comprising a frame member, means for supporting said frame member in an inclined position, a flexible rebound web registering with said frame member and resiliently connected thereto, an impact actuated sounding device including an actuating member, and means supporting said sounding device behind said rebound web with said actuating member confronting said rebound web and adjustable relative to said rebound web.

Advantageously the frame member is of rectangular configuration, as is the rebound web which is formed of flexible yarn net of smaller dimensions than the frame and is attached to the frame by elastic members extending between the frame legs and the edges of the rebound net. The sounding device support includes an elongated arm mounted on the frame upper leg and adjustable along the leg and angularly about the leg, the length of the arm being adjustable and supporting the sounding device at its free end. A web containing a representation of a target is replaceably superimposed on the rebound web.

The improved recreational ball return device is rugged and reliable, and provides an indication of the striking of the target in a predetermined area and manner and these parameters are easily adjustable to contribute to high versatility and adaptability.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a front perspective view of a ball return device embodying the present invention and illustrated with the target member attached thereto;

FIG. 2 is a view similar to FIG. 1, illustrated with the target member removed; and

FIG. 3 is an enlarged medial vertical sectional view of the device illustrated in FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawing which illustrates a preferred embodiment of the present invention, the reference numeral **10** generally designates the improved ball return device which comprises a support assembly **11**, a rebound web **12**, a target web **13** and an adjustable sounding assembly **14**. The support assembly **11** includes an inclined rectangular frame **16** whose major or longitudinal axis advantages extends vertically. The frame **16** includes top and bottom horizontal legs **17** and **18** respectively and parallel side legs **13**, frame **16** preferably being formed of telescopically interfitting tubular sections to facilitate the collapse and assembly thereof.

In order to support the frame **16** in an inclined position at an adjustable angle there is provided a pair of elongated support legs **20** pivotally connected at their upper end for swinging about a transverse axis, to the frame side legs **19** proximate the upper ends thereof. A pair of bracket arms **21** are swingably pivoted to corresponding points on frame legs **19** intermediate the tops and bottoms thereof, each bracket arm **21** being provided with a plurality of longitudinally spaced apertures **22**. A bolt engages a selected aperture **20** in each bracket arm **21** and a registering aperture in leg **20** and is engaged by a wing nut **24** to releasably lock legs **20** at a predetermined angle to the frame **16** and thereby permitted the angular adjustment of frame **16**.

The rebound web **12** is a highly flexible, pliable, large mesh web of a rectangular configuration similar to but smaller than that of frame **16** and having openings smaller than the size of the ball being used, the web **12** being formed of yarns or monofilaments of natural or synthetic fibers. The web **12** centrally registers with frame **16** and is resiliently connected thereto by a plurality of elastic bands or loops **23** of natural or synthetic rubber, it being noted that other elastic members, for example high stretch helical springs may be employed. The elastic bands **23** are longitudinally spaced along and engage respective frame legs **17**, **18** and **19** and have their inner edges attached to the confronting edges of web **12** by S-shaped hooks **26** which engage the peripheral border of web **12** and the frame legs to resiliently draw the web borders toward the frame legs and hold the rebound web **12** in a taut condition with the elastic bands **23** being stretched and under some tension.

The sounding assembly **14** comprises a support arm **27** including a downwardly rearwardly inclined upper section **28** and a lower section **29** depending from the bottom of and inclined to the upper section **28**. The upper end of arm section **28** engages the medial upper rear face of upper frame leg **17** and is releasably adjustably fixed thereto by a clamp member **30** including a cylindrical section **32** encircling the portion of frame leg **17** opposite the face engaged by arm section **28** and terminating in outwardly directed arms **33** abutting the front face of arm section **28** and releasably secured thereto by nuts and bolts **34**.

Lower arm section **29** is provided along its side edges with rearwardly directed longitudinally extending flanges **36** which delineate a longitudinal channel slideably engaging an elongated arm **37** registering with the channel and projecting below the lower end of arm section **29**. A longitudinal slot **38** is formed in arm **37** and is slideably engaged by a bolt **39** projecting rearwardly from arm section **29** and engaged by a wing nut **40** to permit the releasable locking of arm **37** to arm section **29** at a predetermined position along the length thereof.

Mounted on the bottom front face of arm **37** is a sounding device **41** of conventional construction which includes a base **42** secured to arm **37** and a bell **43** supported by base **42**. Located within and associated with bell **43** in the known manner is a clapper member which is actuated by the rapid or sharp depression of a plunger **44** projecting forwardly of and coupled to the bell clapper. A circular strike plate **46** is mounted on the front free end of plunger **44** and confronts the rear face of rebound web **12**.

The target web **13** is formed of a highly flexible, pliable, soft material capable of withstanding the impact of a ball, for ex-

ample a thin woven, non-woven or knitted fabric or other web, and although illustrated as advantageously being of rectangular configuration of greater dimensions than rebound web **12** it may be of other configuration and size. Target web **13** is loosely superimposed on the front face of rebound web **12** and is supported thereon by a plurality of split rings **47** engaging spaced apertures **48** located in the peripheral border of target web **13** and corresponding elastic bands **23**. Imprinted on or otherwise applied to the front face of target web **13** is a target representation **49** which may be a representation of a football player, as illustrated, in a position and attitude for receiving a forward pass with the receiving position or target area **50** advantageously centrally located, or any other desirable target, for example a baseball catcher, or the like. A plurality of target webs **13** with different representations **49** may be provided and may be selectively attached to rebound web **12**.

In employing the improved ball return device **10** the inclination of the frame **16** and rebound web **12** is adjusted to the desired return trajectory by angularly adjusting legs **20** by way of bracket arms **21**, as described above. The sounding assembly **14** is then adjusted to locate the sounding device **41** in the desired position, advantageously in alignment with the target area **50** along the direction of the ball trajectory as it strikes the target and at a distance from the rear face of target web **13** depending on the desired minimum force of ball impact with the target to provide an audible signal. By loosening wing nut **40** and longitudinally sliding arm **37** along arm section **29** the longitudinal or vertical position of sounding device **41** along rebound web **12** may be adjusted and may be fixed by tightening wing nut **40**. To adjust the distance between sounding device **41** and rebound web **12** arm **27** is swung about frame leg **17**, such adjustment being facilitated by the loosening and tightening of clamp **30** by nuts and bolts **34**. The transverse adjustment may similarly be effected by loosening clamp **30** and sliding arm **27** along frame leg **17** and then tightening clamp **30**.

When a ball is thrown against the target web **13** it draws webs **12** and **13** rearwardly to stretch and load the rubber bands **23** which thereafter contract and catapult or fling the ball back in the direction of the thrower. If the ball strikes the target area with sufficient force and in the proper direction it deflects the rebound web **12** sufficiently in the direction strike plate **46** with sufficient force to move the strike plate rearwardly at a rate sufficient to actuate the clapper to strike the bell **43** and indicate a proper target strike. An excessive deviation in the direction or area of impact of the ball on the web or failure to strike with adequate force will result in a failure to actuate the sounding device. These parameter limits may be adjusted by adjusting the position of the sounding device **41** as earlier described.

While there has been described and illustrated a preferred embodiment of the present invention, it is apparent that numerous alterations omissions and additions may be made without departing from the spirit thereof.

What is claimed is:

1. A recreational device comprising a frame member, means for supporting said frame member in an inclined position, a flexible rebound web registering with said frame member and resiliently connected thereto, an impact actuated sounding device including an actuating member, and means supporting said sounding device behind said rebound web with said actuating member confronting said rebound web and adjustable relative to said rebound web, the flexibility of said rebound web and the distance between said rebound web and said actuating member being such that, in a plurality of adjusted positions of said actuating member, a projectile will deform said rebound web rearwardly to impact against said actuating member when said projectile strikes the front of said rebound web in the vicinity of said actuating member.

2. The recreational device of claim **1** wherein said sounding device is adjustable along and toward and away from said rebound web.

3. The recreational device of claim **1** wherein said frame is of rectangular configuration with top, bottom and side legs and, said sounding device supporting means comprises an arm mounted on one of said frame legs and swingably adjustable about the longitudinal axis of said leg and linearly adjustable along said leg, and said sounding device is longitudinally adjustably supported by said arm.

4. The recreational device of claim **3** including a flexible web having a target representation thereon and superimposed on said rebound web.

5. The recreational device of claim **1** wherein said frame member is of rectangular configuration with top, bottom and side legs and said rebound web comprises a net of rectangular shape and of lesser dimensions than said frame and comprising a plurality of elastic members spaced along the periphery of said rebound web and connected between said frame legs and corresponding edges of said rebound web.

6. The recreational device of claim **5** wherein said sounding device supporting means comprises a first arm mounted on and depending from said frame top leg and swingably adjustable about the longitudinal axis of said top leg, and a second arm depending from and adjustable along the length of said first arm, said sounding device being mounted at the lower end of said second arm.

7. The recreational device of claim **6** including a rectangular flexible target web superimposed on said rebound web and secured thereto.

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