

[54] **BASKETBALL TRAINING AID**
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[58] Field of Search**273/1.5 A; 272/79 C, 81**

[56] **References Cited**

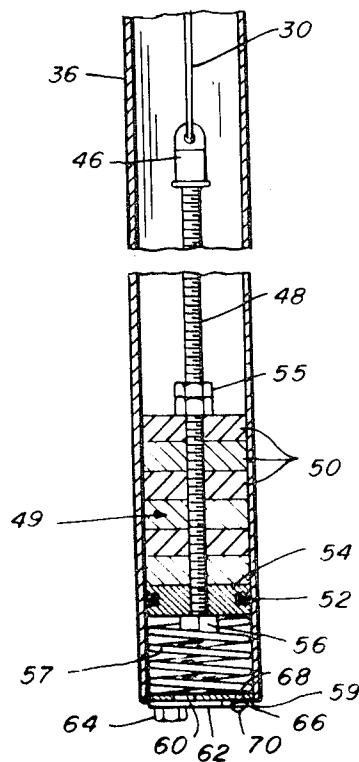
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[57] **ABSTRACT**

This invention describes a basketball training aid in which a basketball is hung by a flexible cord from an arm which juts out from a supporting wall, the other end of the cord hangs vertically along the wall and carries a cylindrical weight which fits, as a piston, inside of a tubular cylinder and is sealed by means of an O-ring, rubber washer, or wiper to the cylinder. The bottom of the cylinder is closed and there is an opening which is covered by a sliding cover so that an aperture of variable size is available to limit the inflow of air as the weighted piston moves up or down. Check valve means may be installed in addition. The cylinder can be raised or lowered which sets the basketball at any desired height above the floor. In operation the basketball player jumps and grasps the ball in both hands and pulls down. Because of the weight, which can be adjusted to any desired value, and the suction created by the seal, the pull can be adjusted to any desired value which forces the player to maintain a strong pressure on the ball. When the ball is released it returns to its regular position as the weight drops to the bottom of the cylinder.

5 Claims, 3 Drawing Figures



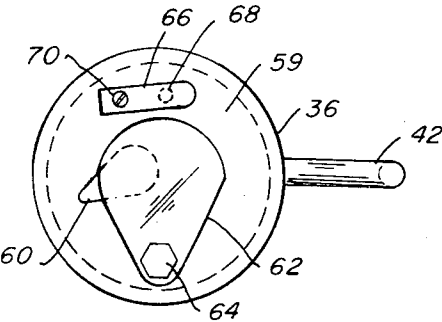


FIG. 3

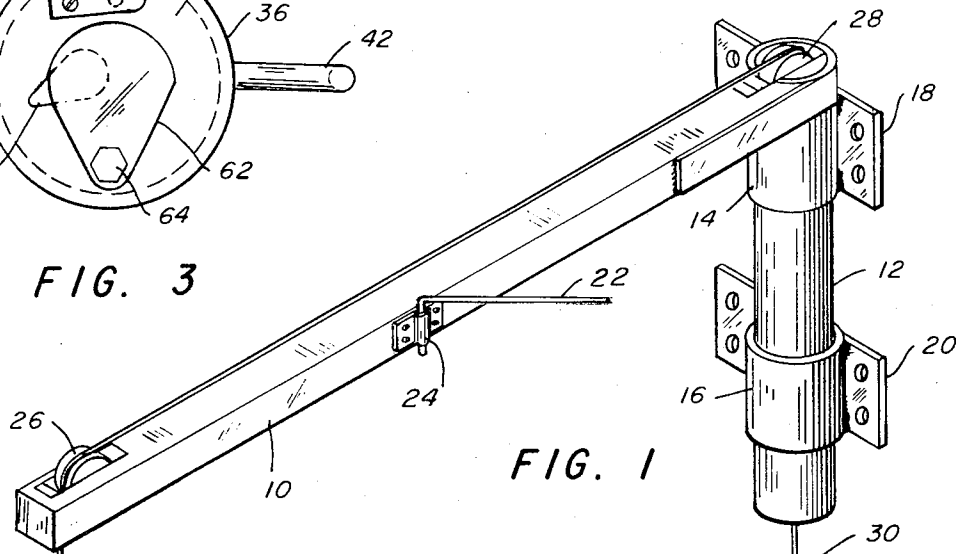


FIG. 1

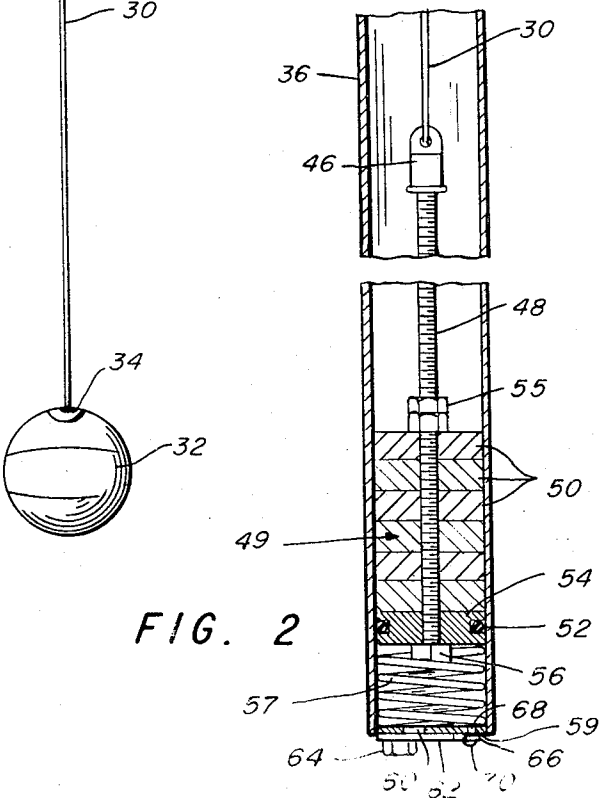
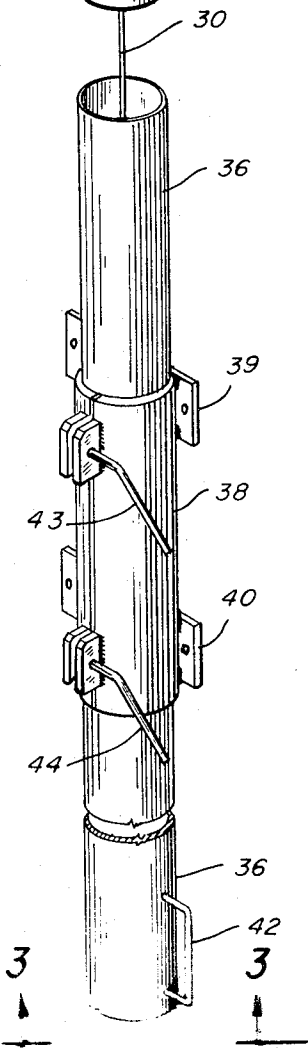


FIG. 2



BASKETBALL TRAINING AID

BACKGROUND OF THE INVENTION

This invention is in the field of athletic training devices, more specifically it is in the field of basketball training aids. Still more particularly it concerns the training in jumping and grasping of a ball suspended in space at any desired height for training in jumping and grasping rebounds from the backboard or passes from other players.

SUMMARY OF THE INVENTION

It is an object of this invention to provide a simple, inexpensive and useful device for training basketball players to jump and grasp rebounds from the backboard.

This and other objects are satisfied and the limitations of the prior art devices are overcome in this invention in which a tethered basketball is supported on an arm which extends out from a wall, the cord which supports the basketball passes over pulleys on each end of the arm and at the second end, adjacent the wall, carries a weight of adjustable magnitude, which is cylindrical and which slides vertically as a piston inside of a tubular cylinder. The tubular cylinder is closed on the bottom except that it has at least one opening which can be covered by a sliding plate. The cylinder can be moved vertically and clamped in any desired position. This permits the ball to be placed at any desired height above the floor. The weight is sealed inside of the tube so that as it moves it forces air into and out of the space between the weight and the bottom of the cylinder at a controlled rate, which is adjustable. This provides a drag to the motion of the weight and therefore a drag to the motion of the ball. This drag, added to the physical weight which is attached to the cord, provides an adjustable load for the player so that he must grasp the ball with sufficient pressure to overcome this drag.

BRIEF DESCRIPTION OF THE DRAWINGS

This and other objects and an understanding of the principles of this invention will be evident from the following description taken in conjunction with the appended drawing, in which:

FIG. 1 represents a perspective view of the complete embodiment supported by a wall, not shown.

FIG. 2 is a diametrical section taken through the tubular cylinder and the weight therein.

FIG. 3 indicates a view taken along line 3—3 of FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In modern basketball playing there is great emphasis placed on the catching of the ball after rebound off the backboard or basket ring. The team that is best at retrieving the ball on rebound is undoubtedly the one that will have more chances to throw the ball into the basket. The secret of successful rebounding lies in the ability of the players to jump to great heights, to stretch their arms, and to grasp the ball with both hands with sufficient pressure so that anyone who attempts to knock it out of their grasp will be unable to do so. This device is intended for the purpose of training the players in this step of rebounding. It also strengthens

their legs and arms and hands to permit effective rebound recovering.

Referring now to the drawings and in particular to FIG. 1, there is a perspective view of the equipment which comprises a horizontal arm 10 which is fastened to a vertical cylinder 12 which is hinged in one or more support bearings 14 and 16, which may be attached to a supporting wall by plates 18 and 20. The arm while being maintained horizontal, can be swung parallel to the wall or at right angles, in which case it can be locked by means of a rod 22 fastened at one end to the wall, which hooks into a fixture on the arm 24, and holds it in a direction perpendicular to the wall. Mounted on the arm 10 are two pulleys 26 and 28, one 26 at the outer end of the arm and the other 28 over the axis. A flexible cord of suitable strength 30 is looped over the two pulleys and at its outer end is attached 34 to a basketball 32 or equivalent. At its inner end, the cord 30 passes over the pulley 28 and through the tube 12 and hangs down along the wall. It is housed inside of a vertical cylindrical tube 36 which is clamped in a split tube 38 and locked by means of one or more clamps 43 and/or 44. The tube 36 has a handle 42 by means of which when the clamps 43 and 44 are loosened, it can be raised and lowered and locked at any elevation desired. The clamp 38 is attached to the wall by plates 39 and 40.

FIG. 2 is a cross section of the lower part of the tubular cylinder 36. It is closed at the bottom by a plate 49 which has at least one opening 60 which is also shown in FIG. 3. A sliding plate 62 is hinged by means of screw 64 so as to adjustably cover part, or all, of the opening 60 in the plate 59. Additionally there may be a second opening 68 which is covered by a thin flat strip 66 which is held in place over the opening 68 by means of screw 70. When air tends to flow into the opening 68 the thin strip vane is attracted to the plate 59 and seals the opening 68. Therefore the vane 66 acts as a check valve, which permits air to flow out of the cylinder as the weight descends but restricts the air flow into the bottom of the cylinder 36 as the weight is lifted.

The weight 49 comprises a plurality of small discs 50 which have a central opening, and which can be slipped over a threaded rod 48, and held in place by means of nuts 55 and 56. Thus the amount of weight used is adjustable, by adding or removing the discs 50. At the bottom of the weight is a circular disc which may be of solid rubber, urethane or the like, or a metal piston 54 which carries an O-ring 52 in its periphery. The contact between the disc or O-ring 52 with the tubular cylinder is such that as the weight 49 moves up and down the cylinder, it is sealed to the cylinder wall. The weight is supported on the threaded rod 48 and is attached to the inner end of the cord 30 by conventional means 46.

METHOD OF OPERATION OF THE TRAINING AID

In use, the arm 10 is positioned away from the wall by rotation of the axis 14, 16 and is locked in a position perpendicular to the wall, by means of the rod 22 hooked into fixture 24. Decision is made as to the height of the ball 32 above the floor, and the tubular cylinder 36 is raised or lowered in its clamping fixture 38 so that as the weight is lowered the ball will rise, and vice versa, until the ball reaches the desired height. The opening 60 is covered to a partial degree by the sliding

plates 62 which is then locked by means of screw 64. If desired the vane 66 can be turned so as to open opening 68 and leave it uncovered. Or it can remain in position covering the opening 68 as a check valve. A suitable number of discs 50 of weight 49 is installed on the rod 48 and the use of the equipment is begun.

As the player reaches up to grasp the ball 32 and pull it down (as he falls back to the floor), he must hold tightly to the ball because as he moves downward with it, the weight must be correspondingly lifted. Also the suction of the weight seal drawing air into the unexposed uncovered portion of the opening 60 provides an adjustable drag of considerably magnitude. Thus he must exert considerably pressure on the ball. This strengthens his fingers and arms because the ball is grasped at the maximum extension of his arms and fingers. If a maximum of restraint, or drag, is desired the opening 60 can be made as small as desired and the vane 66 provided to cover the opening 68. Now in order to get the ball when it is released, to quickly go back to its upper position and the weight to drop to the bottom of the cylinder 36, the check valve is provided. This eliminates the drag to the movement of the weight that would otherwise take place because of the seal 52. Thus with the check valve, the ball will rebound quickly to its upper position and still have a strong restraining drag when it is pulled downward.

When the check valve is used the weight may tend to drop rapidly to the bottom of the cylinder 36 and some compliance, such as a spring 57 may be desirable.

One of the prime features of this invention is the drag which can be provided to the pulling of the ball. This comprises two resisting forces, one which is the dead mass of the weight itself, and the other is the pneumatic drag of the dashpot at the bottom end of the cylinder. The dashpot effect can be adjusted by means of the sliding cover 62. The drag of the dashpot can be eliminated, for the return of the ball to its upper position, by means of the check valve 66.

While the invention has been described with a certain degree of particularity, it is manifest that many

changes may be made in the details of construction and the arrangement of components. It is understood that the invention is not to be limited to the specific embodiments set forth herein by way of exemplifying the invention, but the invention is to be limited only by the scope of the attached claim or claims, including the full range of equivalency to each element or step thereof is entitled.

What is claimed:

1. In a basketball practice device which comprises: support means attachable to a vertical wall; arm means extending horizontally from said support means and hinged mounted thereto so as to be rotatable about a vertical axis, and means to lock said arm at a preselected angle to said wall; and flexible cord means supported by said arm, a first end of said cord at the outer end of said arm supporting a ball of selected size and shape, the second end of said cord near the support end of said arm supporting an adjustable weight means;
- the improvement comprising;
 - a. tubular cylindrical mean enclosing said weight means, said weight including seal means to seal the space below said weight as said weight moves vertically in said cylinder; said weight
 - b. the bottom of said cylinder closed, at least one opening in the bottom closure and means to adjustably cover at least part of said at least one opening.
2. The basketball practice device as in claim 1 including means to vertically adjust and lock the position of said cylinder.
3. The basketball practice device as in claim 1 including means to adjust the magnitude of said weight means.
4. The basketball practice device as in claim 1 including compliant bumper means in the bottom of said cylinder.
5. The basketball practice as in claim 1 including check valve means in the wall of the space below said weight means in said cylinder.

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