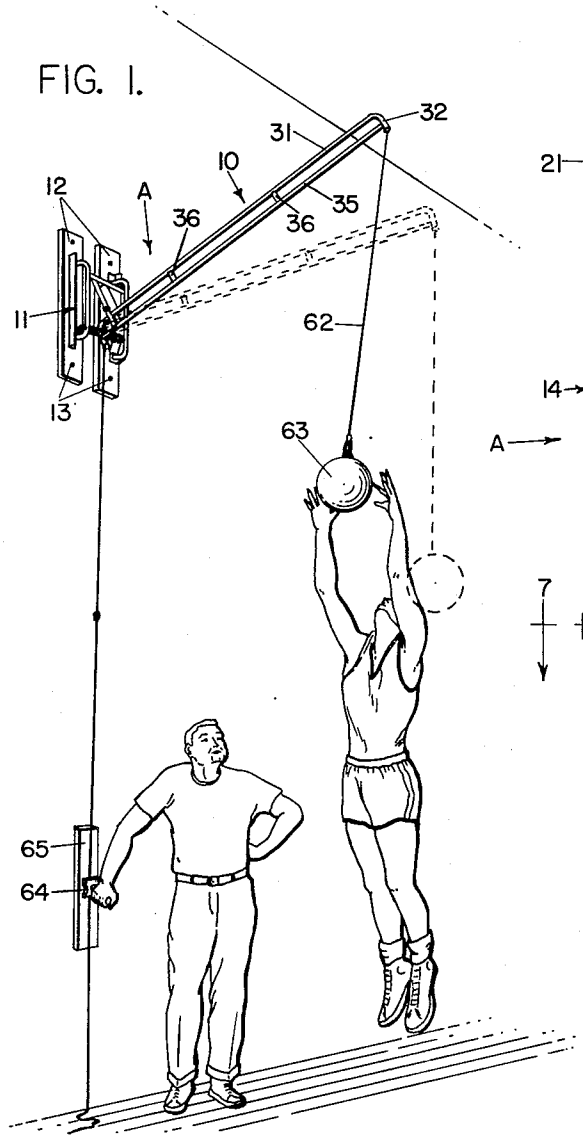
Dec. 12, 1961 C. L. NELSON 3,012,781

BASKETBALL TRAINING APPARATUS

Filed Oct. 1, 1959

2 Sheets-Sheet 1

FIG. 1.



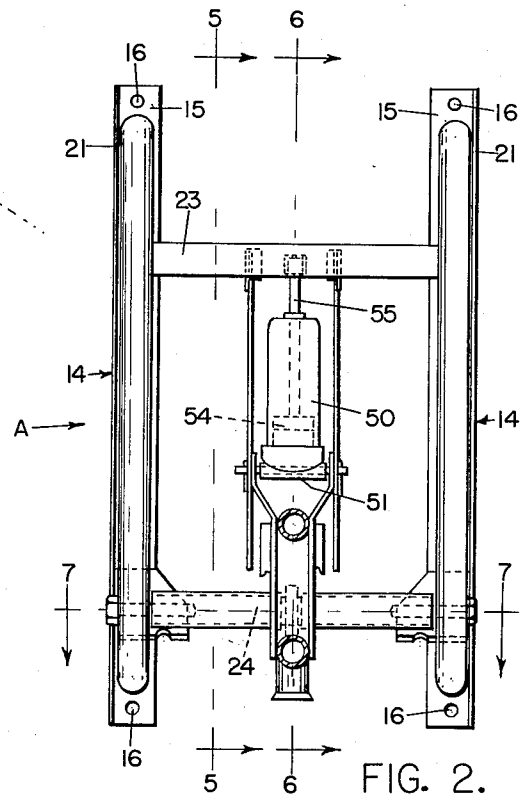


FIG. 2.

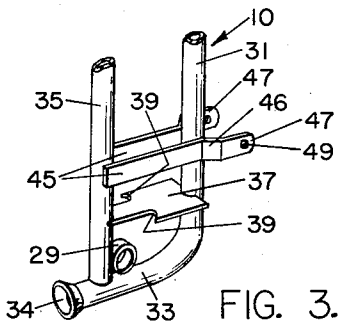


FIG. 3.

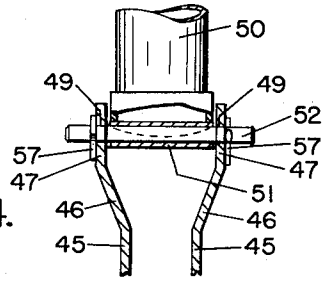


FIG. 4.

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Dec. 12, 1961 C. L. NELSON 3,012,781

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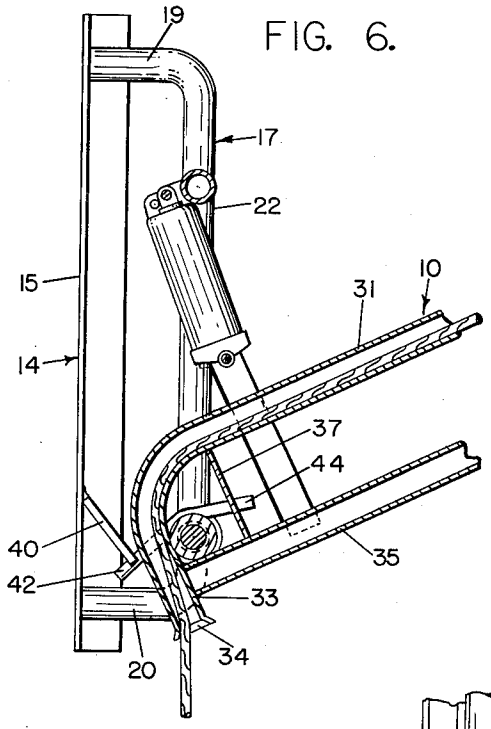
2 Sheets-Sheet 2

FIG. 6.



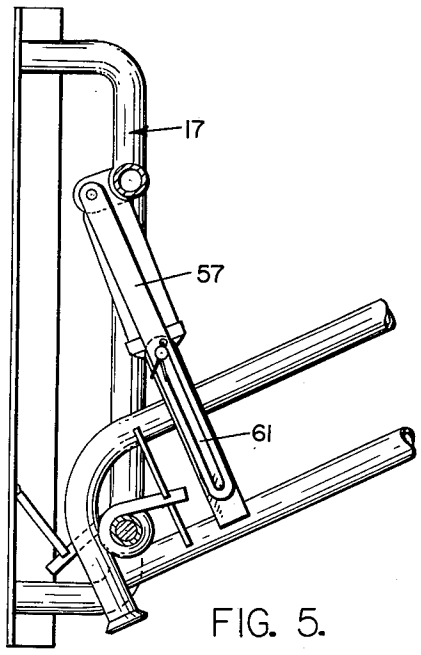


FIG. 5.

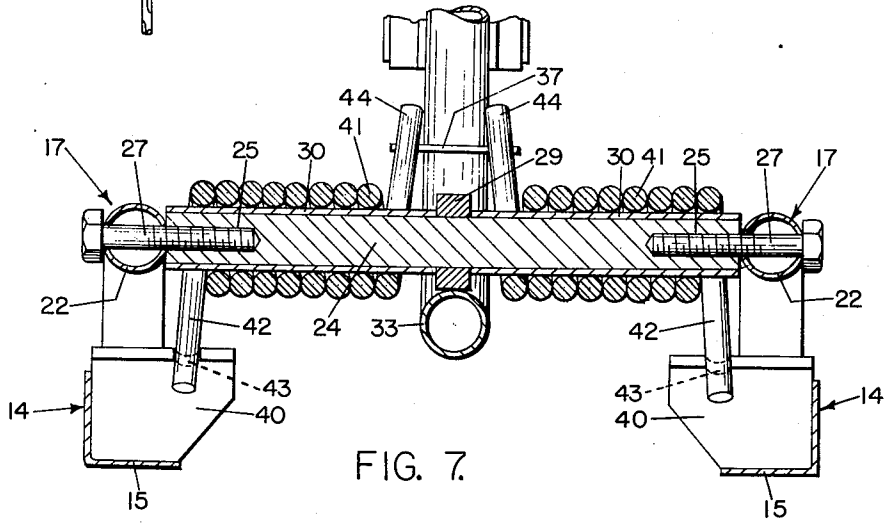
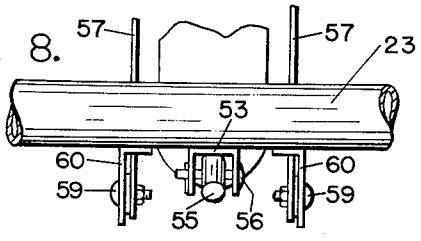


FIG. 7.

FIG. 8.



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BASKETBALL TRAINING APPARATUS

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8 Claims. (Cl. 273—1.5)

This invention relates to an improvement in basketball training apparatus and deals particularly with a support for suspending a ball similar in size to a basketball to assist in the training of basketball players.

Difficulty is experienced in teaching basketball players to jump high in the air and to build coordination using both hands. In using the basketball for this practice, difficulty is experienced in throwing the ball into such a position that it is necessary for the player to jump high in the air to retrieve the ball. It is an object of the present invention to provide a ball corresponding in size to a basketball but suspended by a flexible cord or cable from a wall mounted arm. This arm is adjustable in position and accordingly may suspend the ball at an adjusted elevation so the players of different heights may be properly trained. The supporting arm is so suspended that it may be pulled down when properly grasped by the player, the arm returning to its original position when released.

A feature of the present invention resides in the provision of a ball supporting device which is scientifically designed to develop a basketball players ability in jumping and grabbing rebounds, to build cooperation in using both hands, as two hands are needed to pull the ball down, and to strengthen the forearms, wrists and hands. Through the use of the apparatus, coaches have reported that players have learned to jump 2 or 3 inches higher due to regular training with the apparatus.

A feature of the present invention resides in the provision of an apparatus including a pivotally supported arm which is mounted for pivotal movement in a substantially vertical plane and resilient means normally urging the arm to a predetermined elevation. A check valve is provided for cushioning the pivotal movement of the arm and to cushion the return movement of the arm to its starting position.

A further feature of the present invention resides in the provision of a device of the class described in which the ball simulating a basketball is mounted on one end of a flexible cord or cable and in which the cable extends through a hollow arm, the other end of the cable extending downwardly from the wall mounting for anchorage. By pulling on this end of the cable, the elevation of the ball may be increased so that the ball may be anchored at any height and still may be pulled downwardly by the player due to the spring support of the arms.

These and other objects and novel features of the present invention will be more clearly and fully set forth in the following specification and claims:

In the drawings forming a part of the specification:

FIGURE 1 is a perspective view of the apparatus mounted for use.

FIGURE 2 is a front elevational view of the wall mounting in one end of the arm, the arm being shown in section.

FIGURE 3 is a perspective detail of the pivoted end of the arm, the arm being supported vertically to better show the arrangement of parts.

FIGURE 4 is a sectional detail through a portion of the check cylinder.

FIGURE 5 is a vertical sectional view through a portion of the apparatus, the position of the section being indicated by the line 5—5 of FIGURE 2.

FIGURE 6 is a vertical sectional view through a portion of the apparatus, the position of the section being indicated by the line 6—6 of FIGURE 2.

FIGURE 7 is a horizontal sectional view through a portion of the apparatus, the position of the section being indicated by the line 7—7 of FIGURE 2.

FIGURE 8 is a detail view showing the manner in which the upper end of the check cylinder is attached.

The basketball training apparatus is illustrated in general by the numeral A. The apparatus includes an arm which is designated in general by the numeral 10 and a wall mounting which is indicated in general by the numeral 11.

In the arrangement illustrated in FIGURE 1, the wall mounting 11 is shown as being attached to a pair of supporting members such as 2 x 4's or the like which are secured in vertical parallel relation to the wall surface by bolts such as 12 and 13 or other suitable anchoring means. The wall mounting includes a pair of spaced parallel angle irons 14 having coplanar flanges 15 which are apertured as indicated at 16 for the accommodation of mounting bolts which are not shown in the drawings. A pair of generally U-shaped supports 17 are secured to the flanges 15 of the angle irons 14 to project forwardly therefrom. The tubular member 17 includes parallel ends 19 and 20 which are welded or otherwise secured to the flanges 15 as well as to the right angular flanges 21 of the angle members. The vertical intermediate portions 22 of the U-shaped members 17 extend in parallel spaced relation forwardly of the angle irons. These intermediate portions 22 of the tubular supports are connected by a fixed cross brace 23 and a detachable cross brace 24, the member 23 of which is of tubular form. The cross brace 23 is secured to the portion 22 of the support 17 by welding or other suitable means. The lower cross brace 24 may comprise a solid rod having axial threaded sockets 25 and 26 in its opposite ends. Bolts 27 extend through the vertical portions 22 of the supports 17 and extend into the sockets 25 for securing the lower brace in place.

The cross brace 24 is preferably provided with a collar or sleeve 29 which is rotatably supported on the cross member intermediate its ends. The collar 29 is held in place by spacing sleeves 30 which encircle the cross member 24 between the sleeve 29 and the support members 22. The arm 10 of the apparatus is secured to this sleeve 29 as will be described.

The arm 10 includes an upper arm member 31 of tubular form which is bent at its ends to provide a forward downturned end 32 illustrated in FIGURE 1 of the drawings and a rear downturned end 33 indicated in FIGURE 6 of the drawings. The downturned ends of the arms 31 are preferably flared at their extremities as indicated at 34. The downturned ends 32 and 33 are connected by a connecting brace 35 which extends parallel to the intermediate portion 31 of the arm and is welded or otherwise secured at opposite ends thereto. The arm 31 and the brace 35 are held in proper parallel relation by cross braces such as 36 which, are shown in FIGURE 1 of the drawings.

As indicated in FIGURE 3 of the drawings, the collar 29 forms a bearing and is welded at the juncture between the brace 35 and the downturned end 33 of the arm 31. As indicated also in this figure, a plate 37 is welded or otherwise secured on a plane at right angles to the plane of the arm 31 and brace 35. The plate 37 is widened at its upper end to provide opposed shoulders 39 on opposite sides of the brace 10. As indicated in FIGURES 6 and 7 of the drawings, plates 40 are secured to the angle irons 14 to extend angularly with respect to the anchoring flanges 15, the plates 40 inclining forwardly and downwardly as shown in FIGURE 6. Torsion springs 41 encircle the sleeves 30 and are provided with ends extending in a tangential direction. One

end 42 of each spring 41 is engaged in a notch 43 in the free end of the corresponding plate 40 while the other end 44 of the springs are engaged with the shoulders 39 of the plate 37.

The springs 41 are so constructed as to normally hold the arm 10 at a forwardly and upwardly inclined angle. The wall mounting 11 is positioned high enough from the floor so that the free end of the arm 10 will never be drawn downwardly far enough to interfere with the players.

As is also indicated in FIGURE 3 of the drawings, a pair of straps 45 are welded in opposed relation to the arm 31 and brace 35, the straps 45 being provided with upwardly and outwardly diverging portions 46 connecting the body of the straps with parallel opposed ends 47 having aligned apertures 49 extending therethrough. An air check cylinder 50 is provided with a transverse bearing sleeve 51 at its end. A pin 52 extends through the apertures 49 in the ends 47 of the straps 45 and through the bearing sleeve 51 to pivotally connect the end of the cylinder 50 to the bracket straps.

As indicated in FIGURE 8 of the drawings, a U-shaped bracket 53 is welded or otherwise secured to the tubular cross member 23. A piston 54 within the cylinder 50 is provided with a piston rod 55 extending from the end of the cylinder 50 opposite that supporting the bearing sleeve 51. A pivot pin 56 is illustrated in FIGURE 8 extending through the parallel sides of the bracket 53 and through the piston rod 55 to secure the piston rod to this cross member.

A pair of elongated parallel cylinder slides 57 are illustrated in FIGURE 8 pivotally connected by pivot bolts 59 to angle brackets 60 which are also welded or otherwise secured to the cross member 23. These cylinder slides 57 extend on opposite sides of the piston 50 and, as is illustrated in FIGURE 5 of the drawings are provided with elongated slots 61 through which the ends of the pin 52 may extend.

The piston 54 and cylinder 50 form an air check which retards the upward pivoting of the arm 10 after it has been pulled downwardly. Due to the fact that the springs 41 require considerable force to flex, the springs would have a tendency to swing the arm 10 upwardly with considerable force after the ball was released. The check acts as a shock absorber or damper to reduce the speed of movement of the arm.

As is indicated in FIGURE 1 of the drawings, a flexible cord or cable 62 is anchored to a ball 63 which is usually made of metal and which is preferably approximately the weight of a basketball. The flexible cord extends upwardly through the downturned forward end 32 of the arm 31, through this arm 31 and its rear downturned end 33 to extend downwardly from the wall mounting. A clamp 64 is mounted on a wooden mounting 65 on the wall below the wall mounting 11. The cable 62 extends through the clamp 64 and may be held in any adjusted position thereby. Any other suitable means of anchoring the cable end may be employed, but it is desirable that the cable be readily adjustable so that the elevation of the ball may be varied to adapt to the height of various players. By pulling downwardly on the cable, the ball 63 may be raised and held in elevated position by the clamp. By releasing the clamp, the ball may be lowered to a desired extent. As a result, the elevation of the ball may be changed with little difficulty in a very small amount of time.

In accordance with the patent statutes, I have described the principles of construction and operation of my improvement in basketball training apparatus, and while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A basketball practice device including an arm, means pivotally supporting said arm at one end thereof for movement in a substantially vertical plane, resilient means holding said arm projecting generally laterally from said supporting means, said resilient means resisting downward movement of said arm, a flexible member slidably supported for movement longitudinally of said arm, the ends of said flexible member extending downwardly from the ends of said arm, a ball secured to the end of the flexible member depending from the other end of said arm, said ball being substantially equal in diameter to that of a basketball, and means for anchoring the other end of said flexible member.

2. The structure of claim 1 and in which the arm includes a hollow tubular member through which the flexible member extends.

3. A basketball practice device including an elongated tubular arm having parallel substantially right angularly extending ends, means pivotally supporting said arm adjacent one end thereof on a substantially horizontal axis for movement in a substantially vertical plane, the arm and its ends being in said plane with the arm ends extending downwardly, resilient means resisting downward movement of said arm, a flexible member extending through said arm and slidable relative thereto, a ball secured to the end of the flexible member depending from the other end of the arm, said ball being substantially equal in diameter to that of a basketball, and means for anchoring the other end of the flexible member.

4. The structure of claim 3 and including a brace connecting said right angularly extending arm ends.

5. The structure of claim 3 and in which said resilient means comprises a torsion spring encircling the means pivotally supporting said arm.

6. A basketball practice device including a bracket including a pair of laterally spaced bracket members, a pivot member connecting said bracket members, an elongated arm pivotally secured adjacent one end to said pivot member, resilient means connected to said bracket and said arm resisting pivotal movement of said arm in one direction, a flexible member extending longitudinally of said arm and slidably supported thereby, means on said arm guiding the ends of said flexible member downwardly, a ball connected to the end of said flexible member extending downwardly from the other end of said flexible member, said ball being substantially equal in diameter to that of a basketball.

7. The structure of claim 6 and in which said resilient means comprises torsion springs encircling said pivot on each side of said arm.

8. The structure of claim 6 and in which said arm is tubular, and in which said guiding means comprises downwardly turned ends on said arm, said flexible member extending through said arm and its downwardly turned ends.

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