March 9, 1943. C. C. WOODBURN 2,313,188

ADJUSTABLE GOAL FOR BASKET BALL COURTS

Filed Aug. 26, 1940

Fig. 1

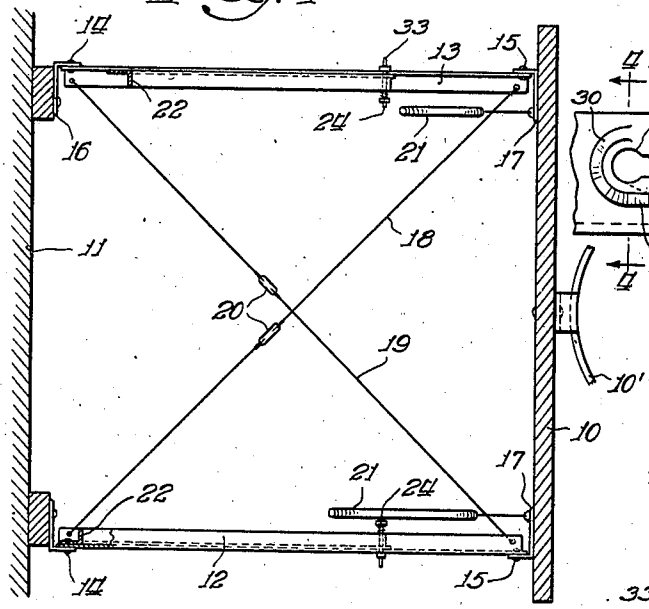


Fig. 3

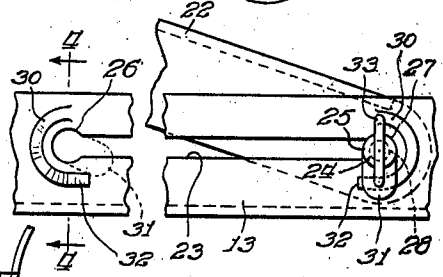


Fig. 4

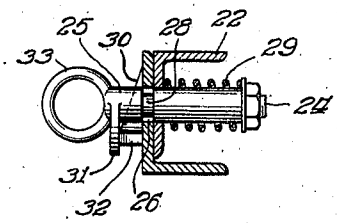
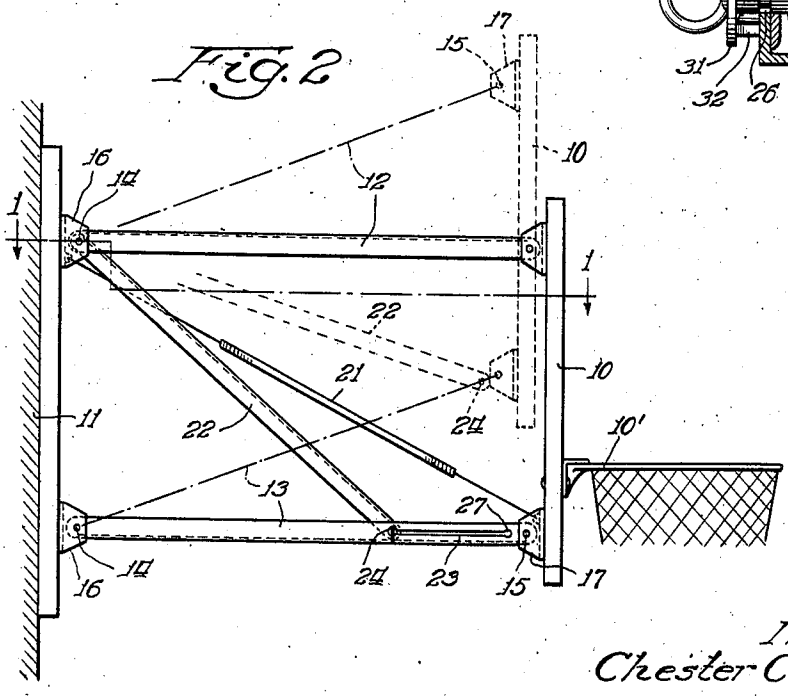


Fig. 2



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ADJUSTABLE GOAL FOR BASKETBALL COURTS

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8 Claims. (Cl. 273—1.5)

This invention relates to adjustable goals or baskets for basket ball courts and, among other objects, aims to provide a goal which can be vertically adjusted approximately to the height of the players.

The nature of the invention may be readily understood by reference to one illustrative construction embodying the invention and shown in the accompanying drawing.

In said drawing:

Fig. 1 is a plan section (taken approximately on the plane 1—1 of Fig. 2) of an apparatus for adjustably supporting a bank board and the basket mounted thereon;

Fig. 2 is a side elevation of said apparatus;

Fig. 3 is a side elevation of a detail of the device for holding the basket in adjusted position;

Fig. 4 is a detail section taken on the plane 4—4 of Fig. 3.

In regulation basket ball courts, the goal or basket rim is ten feet above the floor. This height is much too great for small children; and because it is generally not possible to provide a second court specially designed for small children, they cannot play effectively and it has been difficult to develop playing skill which is useful when they reach mature height. In grade schools, particularly where children of a wide range of heights desire to play basket ball, it is important for effective play and instruction, as well as the development of fundamental skill, that the height of the basket be roughly adjusted to the average height of the individual playing.

In the illustrative embodiment of the invention the height of the basket is adjusted by varying the height of the bank board on which the basket is mounted. This permits the use of a regulation size of bank board. It is important that the mechanism for effecting adjustment be designed to avoid any play or lack of rigidity in the bank board, since this would seriously interfere with playing. The illustrative apparatus combines rigidity, equal to that of the conventional non-adjustable basket, with ease of adjustment. As here shown, the bank board 10 on which the basket (in the form of a regulation ring 10' is mounted) is supported on frame work which advantageously holds it substantially forward of the supporting wall 11 or other supporting structure. The frame work comprises upper and lower pairs of bars 12 and 13 hinged at 14 and 15 respectively to the supporting wall and the bank board 10. The bars may advantageously comprise angle irons whose webs are pivoted to brackets 16 and 17 on the supporting wall and bank board respectively. The pivot points on the supporting wall and bank board respectively are preferably spaced equal distances so as to maintain bars 12 and 13 parallel in all positions and, therefore, to maintain the face of the bank board vertical in all positions of adjustment.

Diagonal ties 18 and 19 provided with turn buckles 20 connected to the resepctive angle bars serve to eliminate any side sway in the supporting structure.

The weight of the bank board and the hinged weight of the frame work are advantageously counterbalanced either by a counterweight or, as in this case, springs 21, to any extent desired. As here shown a pair of springs 21 extending on each side of the frame work from the upper brackets 16 to the lower brackets 17 are utilized to counterbalance the major portion of the hinged weight. If a counterweight be employed, it is advantageously connected by a cable, passing over overhead pulleys, to the bank board or to the upper brackets 17.

The basket and bank board are held in adjusted position, in this instance, by braces pivoted at one end and slidably adjustable at the other end to hold the members 12 and 13 in their angularly adjusted position. In the present case the braces are in the form of links 22 pivoted at their inner ends to the respective upper brackets 17 and adjustably connected at their outer ends to the lower angle bars 13. The present adjustable connection is of the pin and slot type, represented by a slot 23 in each of the bars 13 and a pin in the form of a bolt 24 carried by the respective links 22 and slidable in the slot 23 (see Figs. 2 and 4. At any point where it is desired to lock the bank board in position, the slot 23 is provided with an enlargement into which a large portion 25 of the bolt is adapted to slide. In the present instance only two such enlargements are employed. These occur at the ends 26 and 27 of the slot, thereby providing two adjustments for the bank board, represented by the full line and dotted line positions in Fig. 2. Where more than two adjustments are desired, an appropriate number of enlargements are provided in the slot 23, or in lieu thereof a different means of adjustably connecting the links 22 with the bars 13 is employed.

As shown in Fig. 4, the bolt 24 is preferably normally of the diameter of the larger portion 25 and the portion of smaller diameter capable of sliding in the slot 23 is provided by reducing the

diameter of the bolt as shown at 28. A light spring 29 serves to draw the larger portion 25 into an enlargement in the slot upon registry therewith. To effect adjustment the bolt is drawn outwardly against the tension of its spring until the portion 28 registers with the slot. The bank board may then be raised or lowered to bring portion 25 of the bolt into registry with another enlargement into which the portion 25 is drawn by the action of spring 29, thereby holding the structure against further movement.

Means for thus sliding the bolt are here shown in the form of cams 30 located adjacent each enlargement. The bolt is provided with a projection 31 adapted when rotated to ride up the inclined surface of the cam member 30 to bring the portion 26 of the bolt into registry with slot 23. As soon as the bolt leaves the enlargement, the shoulder adjacent the smaller portion 29 serves to hold the bolt against the tension of its spring. Preferably the high ends 32 of the cams extend slightly beyond the center line of the enlargement in the slot to hold the bolt in its outer position until the shoulder adjacent the smaller portion 28 is moved beyond the enlargement and rides on the margins of the slot. The bolts on each of the braces are advantageously provided with a ring 33 or other appropriate handle by means of which they may be rotated for the aforesaid purposes. When each of the bolts have thus been rotated by the attendant, the bank board is unlocked and may be raised or lowered to the desired position. As the bolt approaches another enlargement the projection 31 will engage the high end 32 of a cam (which will normally lie in its path) but the latter will simply rotate the bolt until the projection clears it, thereby permitting the bolt to advance into registry with the enlargement.

In Fig. 2 the bars 12 and 13 are shown horizontal in their lower position. This involves a slight increase in court length when the board is in its upper position. Ordinarily this is not objectionable but increase in court length can be avoided by downwardly inclining the bars 12 and 13 in the lower position at the same angle as the upward inclination of the bars in their upper position.

If the angle of inclination of bars 12 and 13 be sufficiently great (as when the bars are short relative to the vertical adjustment of the basket) the spring 21 may be utilized to hold the basket and bank board in upper position and the links 22 and latch may be dispensed with. In that event the outer ends of the springs are preferably connected to the middle of the bank board and their tension (in the manner of a toggle) is sufficient to prevent the board from falling. This results because the inner ends of the springs lie below their points of attachment to the board and their tendency to shorten holds the board up. A single heavy spring may be used in place of a pair of springs. In lower position of adjustment the spring similarly tends to hold the board in its lower position. To effect adjustment it is necessary simply to move the board past the dead center of the spring, i. e. its position of greatest elongation.

Obviously the invention is not limited to the details of the illustrative apparatus since these may be variously modified. Moreover it is not indispensable that all features of the invention be used conjointly since various features may be used to advantage in different combinations and sub-combinations.

Having described my invention, I claim:

1. An adjustable basket for a basket ball court comprising in combination, a bank board on which such basket is mounted, upper and lower arms hinged to a supporting structure and connected with said board to support the same forward of the supporting structure and movable vertically relative thereto, a brace having a pivot pin slidable in a slot in one of said arms and hinged to said supporting structure at a point remote from the hinge of the latter arm, said slot having enlargements therein, said pin having an enlarged portion adapted to enter an enlargement in said slot when in register therewith to lock the bank board against further movement, and means for locking said brace on said arm in a position of vertical adjustment of said board.

2. An adjustable basket for a basket ball court comprising in combination, a bank board on which such basket is mounted, upper and lower arms hinged to a supporting structure and connected with said board to support the same forward of the supporting structure and movable vertically relative thereto, a brace having a pivot pin slidable in a slot in one of said arms and hinged to said supporting structure at a point remote from the hinge of the latter arm, said slot having enlargements therein, said pin having an enlarged portion adapted to enter an enlargement in said slot when in register therewith to lock the bank board against further movement, and means for counterbalancing the weight of said bank board.

3. An adjustable basket for a basket ball court comprising in combination, a bank board on which such basket is mounted, upper and lower arms hinged to a supporting structure and connected with said board to support the same forward of the supporting structure and movable vertically relative thereto, a brace extending from one of said arms to said supporting structure at a point remote from the hinge point of the said arm, said arm being hinged at one end and provided at its other end with a pin slidable in a slot to permit movement for adjusting the height of the basket, said slot having enlargements thereon and said pin having a reduced portion running in said slot and being slidable into an enlargement to prevent further movement, and means for sliding said pin to bring the reduced portion into the slot to permit adjustment of said basket.

4. A game back board comprising upper and lower pairs of parallel arms pivotally mounted for swinging movement in a vertical plane on a support, a back board mounted vertically on the free ends of said arms, coil springs connected to the lower portion of the back board for assisting in raising and lowering same, and means on the support adjustably connected to certain of the arms for releasably locking the back board in raised or lowered position.

5. A vertically adjustable basket for a basket ball court comprising in combination, a bank board on which the basket is mounted, upper and lower arms hinged to a supporting structure, said arms extending forwardly of the supporting structure and being hinged to and carrying said board at playing height above the floor of the court and spaced substantially forwardly of the supporting structure, said arms being operable to permit said board to be moved vertically to adjust the playing height of the basket to the height of the players, said arms holding the

front face of the board vertical in all positions of the board and in substantially constant relation to the basket ball court, and a brace including adjustable connecting means for rigidly holding the board and basket in vertically adjusted position.

6. An adjustable basket for a basket ball court comprising in combination, a bank board on which such basket is mounted, upper and lower arms hinged to a supporting structure and connected with said board to support the same forward of the supporting structure and movable vertically relative thereto, said arms holding said board vertical in all positions, and means for releasably locking said arms and board in its vertically adjusted position.

7. A game back board comprising a plurality of arms pivotally mounted for swinging movement in a vertical plane, a back board mounted on said arms, the arms having longitudinal slots therein provided with enlarged end portions, braces pivotally mounted on the support for swinging movement in a vertical plane, bolts rotatably and slidably mounted on the braces, said bolts being engageable in the enlarged end portions of the slots and including reduced portions operable in said slots, said bolts constituting means for slidably connecting the braces to the arms and for locking said braces to said arms, and springs operatively connected to the bolts for actuating said bolts for moving the reduced portions thereof out of registry with the slots.

8. A game back board comprising a plurality of swinging arms having longitudinal slots therein, said slots terminating in enlarged end portions, a vertically adjustable board mounted on the arms, substantially U-shaped cams on the arms enclosing the end portions of the slots, a pair of pivotally mounted braces, bearings on one end portion of said braces, bolts rotatably and slidably mounted in said bearings and engageable in the enlarged end portions of the slots for securing the braces to the arms against sliding movement, said bolts including reduced portions operable in the slots for slidably connecting the braces to the arms, springs operatively connected to the bolts for shifting said bolts for moving the reduced portions thereof out of alignment with the slots, and arms on the bolts engageable with the cams for shifting the bolts for aligning the reduced portions thereof with the slots.

CHESTER C. WOODBURN.