

Feb. 8, 1966

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3,233,898

BASKETBALL BACKSTOP AND FOLDING MEANS THEREFOR

Filed Oct. 14, 1963

4 Sheets-Sheet 1

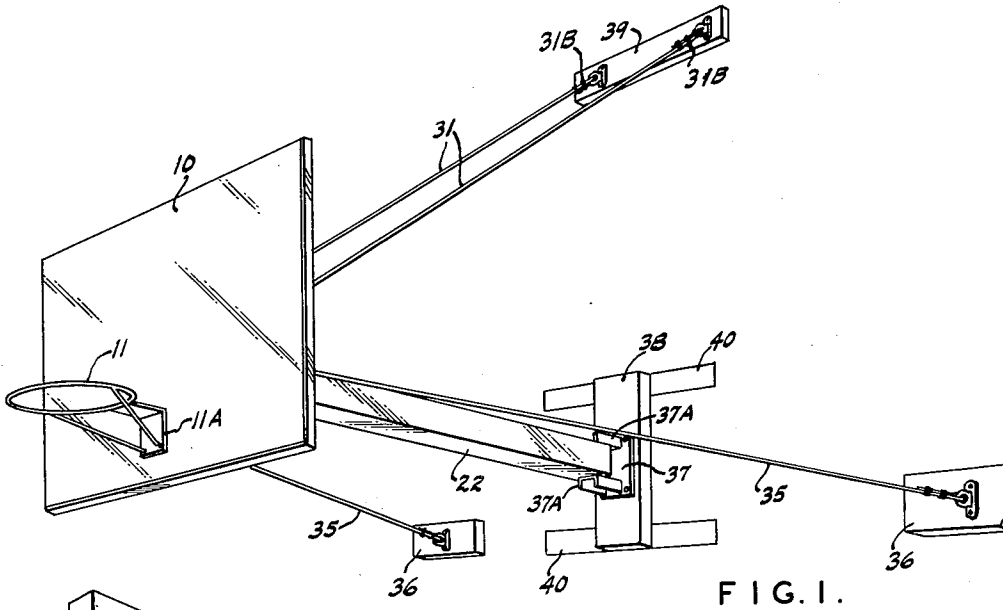


FIG. 1.

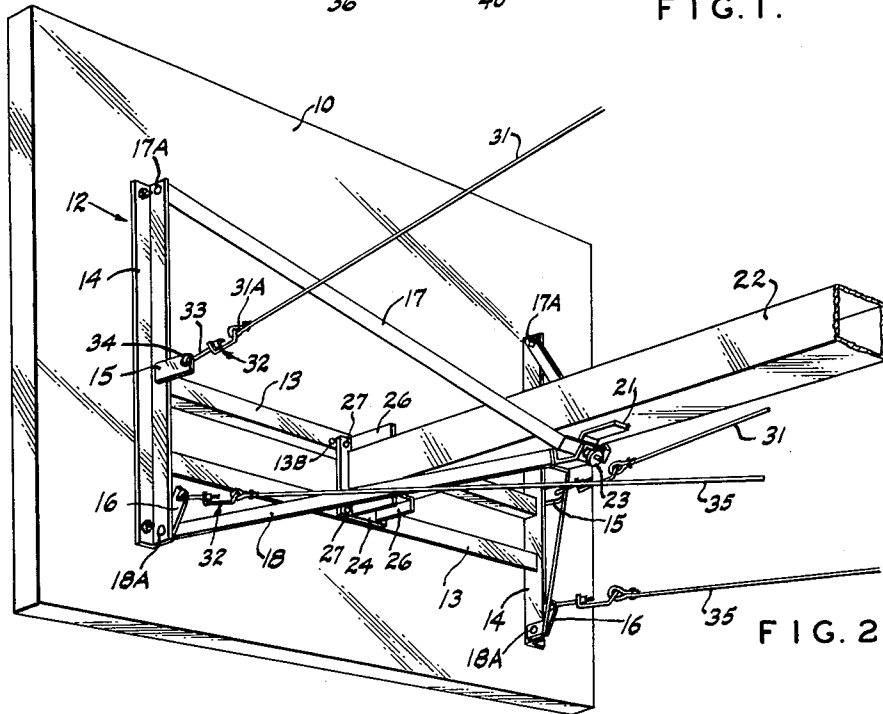


FIG. 2.

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4 Sheets-Sheet 2

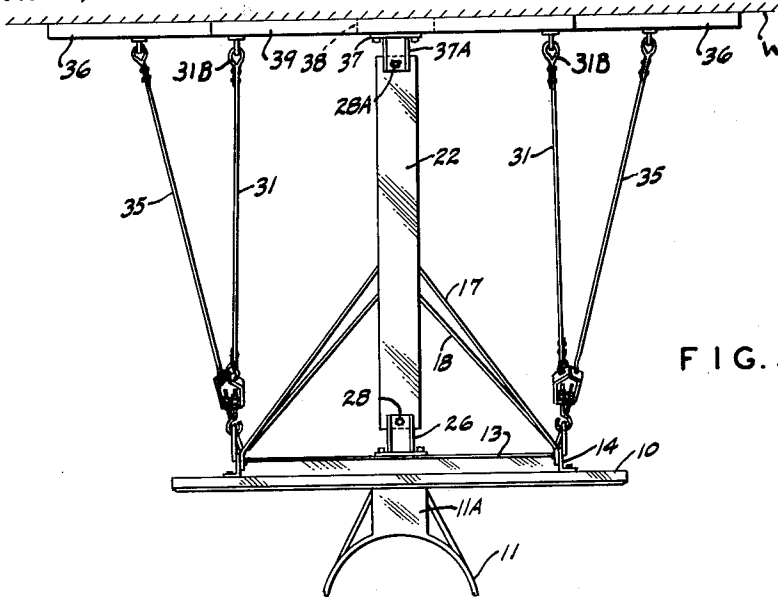


FIG. 3.

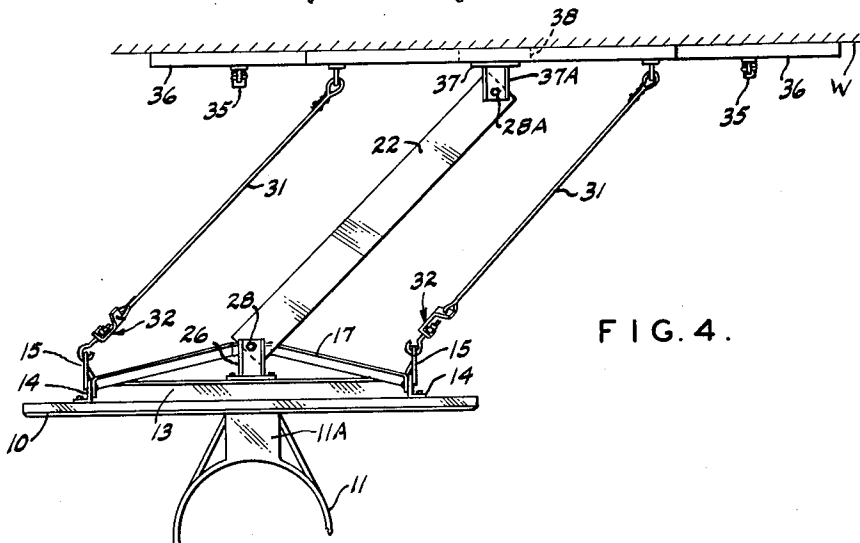


FIG. 4.

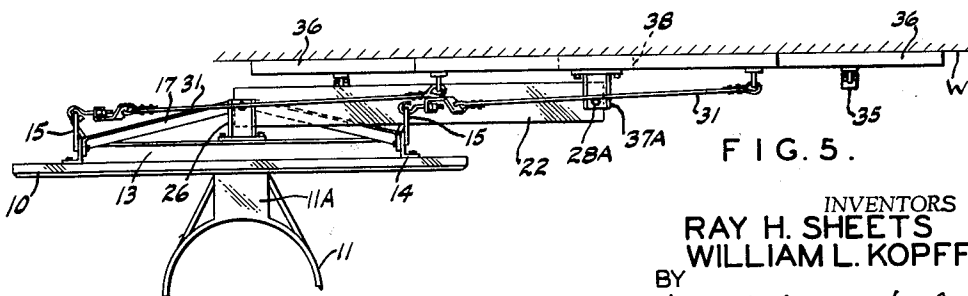


FIG. 5.

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FIG. 6.

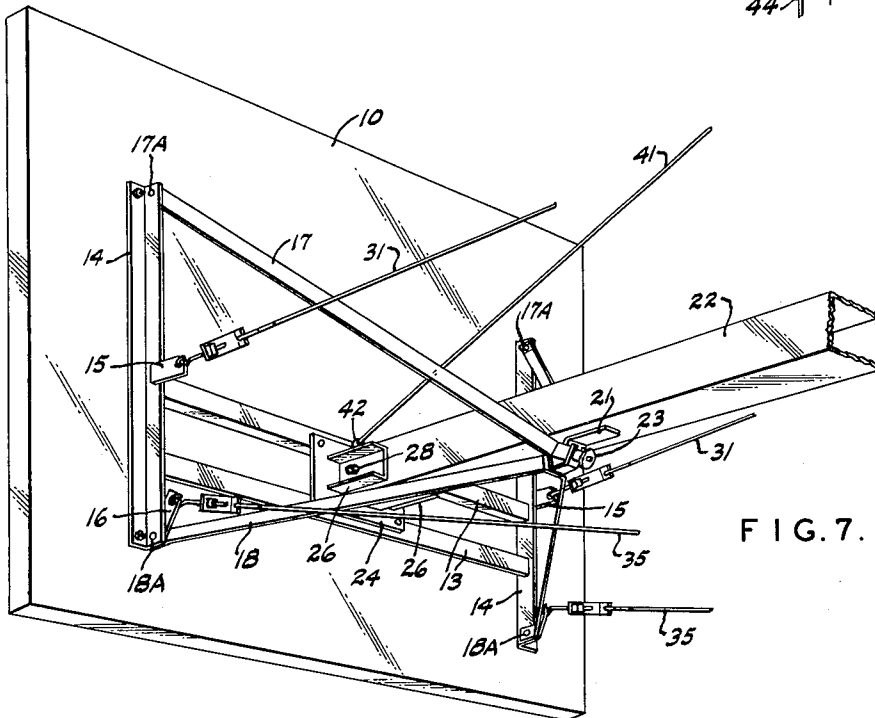
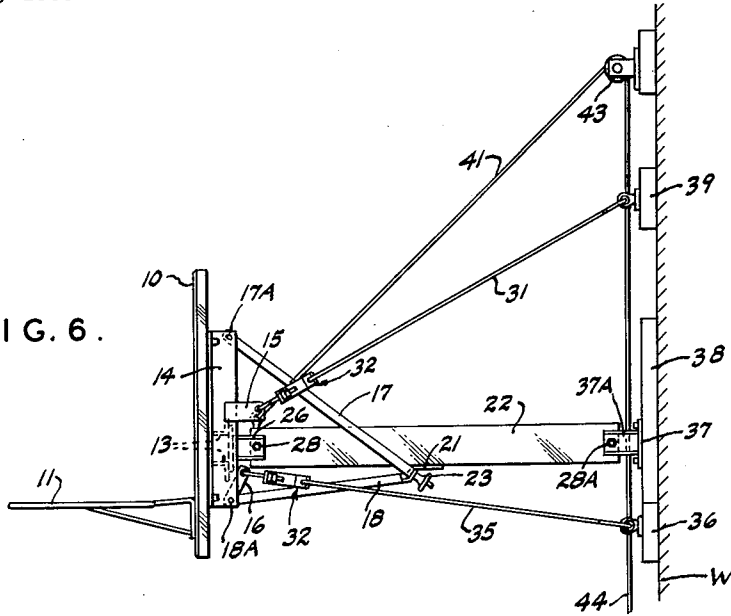


FIG. 7.

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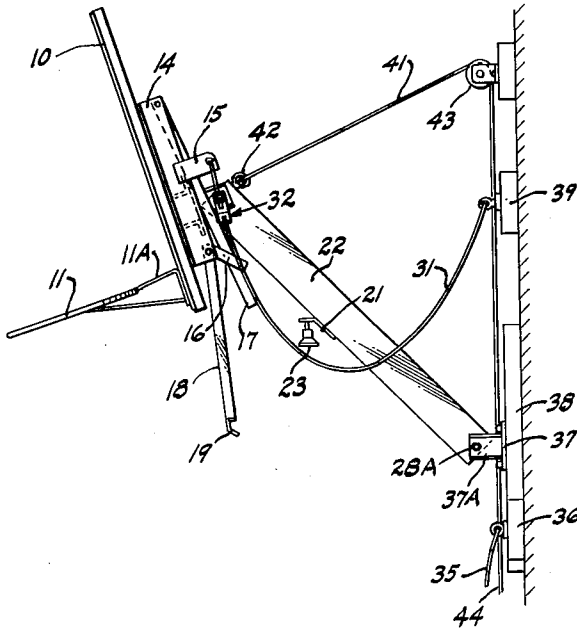


FIG. 8.

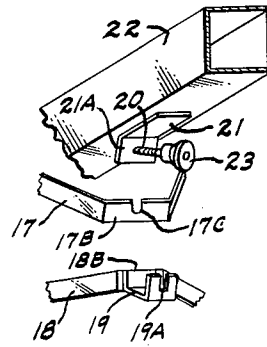


FIG. 9.

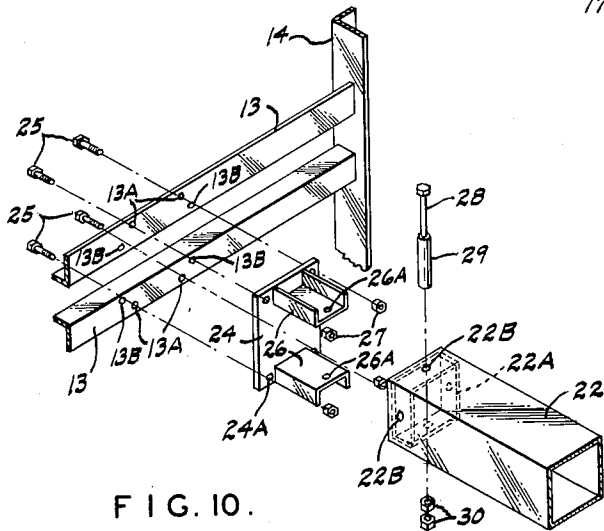


FIG. 10.

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3,233,898
**BASKETBALL BACKSTOP AND FOLDING
 MEANS THEREFOR**

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 10 Claims. (Cl. 273-1.5)

This invention relates to basketball backstops and to improvements therein permitting the same to be folded without sacrifice of stability when in playing position.

A serious problem in arranging a gymnasium for many uses is that in certain sports or games a variety of items of equipment are needed, and the disposal or removal of one variety thereof to make way for another variety is not easily accomplished. Sometimes the equipment cannot be moved and the activity or game is hampered, or a larger gymnasium area must be provided for at great expense. It is especially true that basketball is a game requiring the goal and backstop equipment to be located at some distance from the supporting structure, at least to the greatest extent possible so that the playing area can be free of stationary obstructions. This requirement is partly satisfied by providing a large supporting structure of cantilever type, by making the support foldable or swingable to an out-of-the way position or by providing portable structures which can be rolled off to one side.

The usual types of folding or swinging backstops are expensive to install, are complicated, require extra bracing for holding the backstop rigid, and are quite heavy. In certain of the swinging type backstops the gymnasium must be originally built to accommodate the weight and anchorage requirements. In other cases the gymnasium must also accommodate many other items of equipment so that a swinging structure in one case would be forced to swing to the side and in another case the swing must be in a vertical direction. Thus it has been difficult to provide a single backstop with enough versatility to handle all of the installation problems and remain simple and economical.

It is, therefore, an important object of this invention to provide a substantially universally adaptable backstop assembly.

It is an object of this invention to provide a backstop assembly of simple components so that it may be adapted to installations for side-swing or up-swing, as well as to remain stationary.

It is another object of this invention to provide a backstop of the foregoing character with a simple structure so that single elongated swing beam can carry the backstop in a pivoted manner for folding easily, and to devise means to lock the backstop and beam in a substantially rigid manner.

It is also an object of this invention to provide a basketball backstop with a pivotally supported beam and to make use of the mounting accessories and parts in selective ways so that the beam and backstop may be folded to the side or vertically.

There are other objects and consequent advantages connected with the present invention which has been shown in a presently preferred embodiment which comprises a single beam for a backstop, pivot attachments for each end of the beam to permit swinging the beam sidewise or vertically and folding of the backstop relative to the beam, a simple system of guy lines, and means to secure and lock the backstop in playing position.

A preferred form of the present basketball backstop and supporting means has been shown in the accompanying drawings, wherein:

FIG. 1 is a front perspective view of the basketball backstop in playing position;

FIG. 2 is a greatly enlarged perspective view of the backstop from the rear to show details of its mounting and locking structure;

FIG. 3 is a top plan view of the backstop assembly in playing position as shown in FIG. 1;

FIG. 4 is a view similar to FIG. 3, but showing the assembly partially swung sideways;

FIG. 5 is a view similar to FIG. 4 with the assembly fully swung to one side;

FIG. 6 is a side view of the backstop assembly showing the beam arranged for vertical movement;

FIG. 7 is a greatly enlarged rear perspective view of the backstop similar to FIG. 2, but with the beam attachment means arranged for vertical pivoting movement;

FIG. 8 is a view similar to FIG. 6, but with the assembly partly vertically folded;

FIG. 9 is a fragmentary perspective detail of the backboard locking means shown in position prior to assembly as seen in FIG. 2; and

FIG. 10 is a fragmentary elevational view of the bearing plate and pivot for the main beam to illustrate its interchangeable positions.

In FIGS. 1, 2 and 3 the backstop assembly comprises a backboard 10 to which is attached the usual goal 11 by its bracket 11A. The backboard 10 may be of any approved construction such as the rectangular backboard shown. The rear surface of backboard 10 is provided with or has attached thereto a frame 12 composed of the principal members 14 and means 13 connecting the members 14 to a main beam 22 to be later described. The members 14 support a fixed anchor 15 and a lower cam anchor 16, and these members also support a pair of pivoted stabilizing brace members 17 and 18, the opposite inner free ends of which are pivotally connected to the members 14 at 17A and 18A respectively. The cam anchors 16 are fixed to the ends of brace member 18 at an angle so as to function as a cam, as will be described presently. The outer closed ends of the brace members 17 and 18 are suitably flattened (FIGS. 2 and 9) at 17B and 18B and fit together, with the flat end 17B adapted to seat in a bracket 19 fixed to the flat end 18B. The flat end 17B has an edge cutout 17C and the bracket 19 has a slot 19A to receive the anchor stud 20 fixed in an angle bracket 21 carried on the under side of beam 22. A cap nut 23 is applied to the stud 20 to clamp the bracket 19 and flattened portions 17B and 18B against the bracket flange 21a for latching and laterally bracing the backboard 10 rigidly relative to the beam 22.

The connection between the beam 22 and the frame 12 of backboard 10 (FIGS. 2 and 10) includes a pivot bearing plate 24 bolted to the means 13 in one of two positions. As shown the bolts 25 are arranged to engage a first set of apertures 13A in the means 13 so as to locate the plate 24 with its extending pivot brackets 26 set in vertically spaced relation to locate the apertures 26A vertically (or parallel to the braces 14). The second set of apertures 13B are free. The bolts 25 are placed in position in the selected set of apertures 13A by slipping them under or behind the means 13 and pushing them through apertures 24A in the plate 24 to receive securing nuts 27. The adjacent end of beam 22 has suitable bearing plates 22A therein to reinforce the respective vertical and horizontal aligned holes 22B for receiving the pivot pin 28 and spacer sleeve 29 which bears in the brackets 26 of plate 24. A pair of nuts 30 secure the pin 28 in position. It is, of course, understood that the sleeve 29 is set inside the end of the beam 22 and the pin 28 then is slipped through the top hole 22B and into the sleeve before projecting through the bottom hole to receive the nuts 30 which when tightened lock the pin.

The backboard 10 is held rigidly stabilized on the end of beam 22 (FIGS. 2 and 9) by the braces 17 and 18 in conjunction with the latch stud 20 and cap nut 23, all as previously explained. The assembly thus described is steadied in its playing position by guy lines as shown in FIGS. 1 and 3. There are a pair of load carrying upper guy lines 31, one at each side of the beam 22. Each outer end 31A of the guy lines 31 (FIG. 2) is looped and fastened in the eye of a tension element 32. The opposite end of the tension element 32 engages the threaded shank 33 of a hook 34, so that the element can be adjusted to lengthen or shorten the guy lines 31. The hook 34 engages an eye in the fixed anchor 15. In a similar way the outer ends of a pair of stabilizing lower guy lines 35 are attached to another set of tension elements 32, and the hooks 34 engage in the eyes of the pivoted anchors 16. The inner ends of the guy lines 35 are attached to anchor blocks 36 on wall W.

The end of the beam 22 adjacent wall W (FIG. 3) is engaged in a bearing plate 37 on brackets 37A which is in all respects similar to the first described plate 24. The plate 37 is also detachably mounted on a vertical bracket 38 so that the plate may be turned to match the pivoting connection of beam 22 with plate 24. It does not appear necessary to repeat the description of how the plate 37 may be detached and turned 90° to its alternate position. It is understood that a pivot pin 28A and an associated spacer sleeve and nuts (like sleeve 29 and nuts 30) are employed at plate 37.

The upper guys 31 are suitably anchored at ends 31B to an attachment member 39 fixed to the wall W of the gymnasium. The bracket 38 for plate 37 may be fixed to spaced wall stringers 40 to distribute the force of the impact of a ball against the backboard and to carry the weight of the beam 22 and backboard.

With the side swinging backboard of FIGS. 1 and 2, the lower guy lines 35 are detached at hooks 34 and the lines allowed to hang adjacent the wall. The remaining upper guy lines 31, being fixed at the respective ends to the backboard and to the gymnasium wall, form a parallelogram relationship (FIGS. 3, 4 and 5) such that the backboard 10 will maintain a position substantially parallel with the gymnasium wall W as the beam 22 is swung horizontally to either of its side positions folded back toward the wall (FIGS. 4 and 5). To effect the folding of the beam 22 and folding of the backboard 10, it is necessary to release the latch nut 23 and drop the braces 17 and 18 so that the backboard 10 may pivot relative to beam 22.

Referring to FIG. 2, it can be seen that the cam anchors 16 are fixed at an angle to the brace 18. Thus, when the brace 18 is detached from the bracket 21 (FIG. 9) and allowed to pivot downwardly, the anchors 16 swing with it and tend to extend out away from the braces 14. This action of the anchors 16 produces a slackening in the guy lines 35 which is sufficient to permit loosening the hooks 34 on the tension elements 32 for easy disconnection in order to drop the guy lines 35 before effecting the side folding of the beam 22 (see FIGS. 4 and 5). It is at once appreciated that reattachment of the guy lines 35 to the anchors 16 is easily accomplished while the brace 18 is down, and upon raising the brace 18 (FIG. 2) the guy lines 35 are again tensioned to give the backboard 10 rigidity and stability of positionment relative to the beam 22 and the wall W.

In FIGS. 6 and 7, the beam 22 for backboard 10 now has its pivot pins 28 and 28A turned to horizontal positions so that the beam may fold vertically, as shown in FIG. 8. The vertical folding action is provided for by installing the plates 24 and 37 turned 90° from FIGS. 1 and 2, such that the extending brackets 26 and 37A, respectively, are horizontally spaced. The arrangement of the other parts and components remains the same as before described and no further description is believed

necessary. The alternate position for plate 24 will be understood upon reference to FIG. 10 where the means 13 have holes 13B which match holes 24A when the plate 24 is rotated 90° from the position shown to locate the brackets 26 in horizontally spaced relation. The beam 22 does not need to be rotated as the adjacent end is formed with horizontally aligned holes 22B to receive the sleeve 29 and pivot pin 28. It can be appreciated that the plate 37 is similarly turned and fastened to the member 38 with the brackets 37A horizontally spaced (FIG. 6).

In order to effect vertical folding of the beam 22 it is necessary to provide a hoist cable 41 having its outer end connected to an anchor eye 42 on the beam adjacent plate 24 and passing over a pulley 43 supported from the wall W. The eye 42 has its usual threaded stem placed in the top pivot hole 22B (FIG. 10) of beam 22 and supported from within the beam by a reinforcing washer or plate under the threaded nut. The reinforcing plate and nut are not shown. The other end 44 of the cable is connected to any suitable winch device (not shown) for facilitating the lifting of the weight of the beam, backboard and associated parts. The guy lines 35 must first be disconnected from the cam anchors 16, as previously described, by disconnecting the braces 17 and 18. Since the mass of the backboard 10 and the parts carried thereby is located to the left (FIG. 6) of the pivot pin 28, by the length of the brackets 26 and width of braces 14, the backboard will tend to pivot downwardly (FIG. 8) to the extent allowed by the guy lines 31 when the beam 22 is yet horizontal.

Upon operating the winch to pull cable 41, the beam 22 will pivot upwardly and the guy lines 31 will slacken to allow the backboard to pivot further into a folded position (jack-knifed) toward the under side of the beam 22. As the beam 22 is lowered, the guy lines 31 will, near the end of the lowering swing, act to pull the backboard 10 into its vertical position, as the fixed anchors 15 are above the pivot 28, so that the braces 17 and 18 may be repositioned. The camming action of anchors 16 will again serve to tighten the guy lines 35 and place the backboard in proper stabilized condition for play. It is appreciated that the cam anchors 16 are brought into operation as the brace 18 is raised toward the bracket 21, and the tightening of the cap nut 23 serves to lock the braces 17 and 18 and hold the guy lines 35 in final position.

Each of the guy lines 31 and 35 is provided with its own tension element 32, in which the threaded shank of the hook 34 allows for the needed adjustment on the length of the guy lines when initially installing the assembly, or when needed to correct for guy line stretch.

The foregoing description relates to a preferred form of the present invention, and has set forth the structure thereof in connection with certain alternate operative positions of assembly. While the present form of the assembly will satisfy each object of the invention, it is understood that other forms of the same may come to mind after considering the present disclosure. Therefore, it is the aim of the appended claims to include all pertinent and relevant structures, components, subassemblies and operating means relating to foldable backstops and not included in prior art assemblies.

What is claimed is:

1. In a wall mounted folding basketball backstop assembly, a backboard, a beam having one end pivotally connected to said backboard and the opposite end pivotally supported by the wall, load supporting means connected to said backboard and to the wall above the said opposite end of said beam, a first set of stabilizing means connected to said backboard, a second set of stabilizing means releasably connected to said first set of stabilizing means adjacent said backboard and connected to the wall, and means releasably connecting said first set of stabilizing means to said beam.

2. The folding backstop assembly set forth in claim 1, wherein said pivotal connections for the ends of said beam

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have vertically directed pivot axes, and said load supporting means are substantially parallel to form a parallelogram for causing said backboard to pivot relative to said beam upon movement of said beam about its wall supported axis.

3. The folding backstop assembly set forth in claim 1, wherein said pivotal connections for the ends of said beam have horizontally directed pivot axes, and hoisting means is connected to said beam to lift said beam about its wall supported axis, said hoisting means being rendered effective upon release of said first set of stabilizing means from said beam.

4. The folding backstop assembly set forth in claim 1, wherein the pivotal supports for said ends of said beam comprise similar plate members and pivot forming brackets thereon in spaced relation, said plate members being attachable to said backboard and to the wall in selective positions with said pivot forming brackets vertically spaced for horizontal folding of said beam and horizontally spaced for vertical folding of said beam.

5. The folding backstop assembly set forth in claim 1, wherein said releasable connection between said second set of stabilizing means and said first set of stabilizing means comprise cam anchors fixed with respect to said first set of stabilizing means, and adjustable hook elements releasably engaged in said cam anchors and fixed to said second set of stabilizing means.

6. The folding backstop assembly set forth in claim 1, wherein said first set of stabilizing means includes a pair of braces having free ends pivotally connected to said backboard at spaced locations, said braces having closed ends movable into juxtaposition adjacent said beam, and said means releasably connecting said first set of stabilizing means to said beam comprising a bracket on said beam and clamp means to hold said closed ends in juxtaposition at said bracket.

7. A pivotally mounted basketball backstop comprising a backboard having a goal on one face thereof, a frame attached to the opposite face of said backboard, means in said frame provided with two sets of bolt apertures, a pivot bearing member having bolt holes therein selectively alignable with one set of bolt apertures at a time in said means, said bearing member providing a single pivot axis which is located by said sets of bolt apertures selectively in horizontal and vertical positions, a single supporting beam for said backboard, means pivotally connecting one end of said beam to said bearing member for movement of said backboard selectively in the horizontal and vertical positions of said pivot axis, brace means having first ends pivotally connected to said frame at spaced points and second ends movable into juxtaposition adjacent said beam in spaced relation from said one end of said beam, and means engaging said second ends of said braces and securing the same in fixed position on said beam, said brace means fixing said backboard on said beam against pivoting movement in either position of said single pivot axis.

8. A wall mounted basketball backstop assembly including a backboard having a goal thereon, a mounting frame on said backboard, a single horizontal beam hav-

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ing one end connected to said frame, the opposite end being connected to the wall, first means to interconnect said frame and beam comprising brace means connected to said frame at spaced points and connected to said beam at a substantially common point, and second means to stabilize the position of said backboard and beam against shock of playing a basketball against said backboard and goal, said second means comprising a first set of guy lines connected to said frame and extending angularly upwardly above said horizontal beam to connections on the wall, and a second set of guy lines connected to certain of said brace means and extending angularly outwardly at each side of said beam to connections on the wall.

9. A wall mounted basketball backstop assembly including a backboard having a goal thereon, a mounting frame on said backboard, a single horizontal beam having one end pivotally connected to said frame, the opposite end being pivotally connected to the wall, first means to interconnect said frame and beam comprising brace means pivotally connected to said frame at spaced points and detachably connected to said beam at a substantially common point, and second means to stabilize the position of said backboard and beam against shock of playing a basketball against said backboard and goal, said second means comprising a first set of guy lines connected to said frame and extending angularly upwardly above said horizontal beam to connections on the wall, and a second set of guy lines detachably connected to certain of said brace means and extending angularly outwardly at each side of said beam to connections on the wall.

10. A wall mounted basketball backstop assembly including a backboard having a goal thereon, a mounting frame on said backboard, a single horizontal beam having one end pivotally connected to said frame, the opposite end being pivotally connected to the wall, first means to interconnect said frame and beam comprising a pair of brace means pivotally connected to said frame at spaced points and detachably connected to said beam at a substantially common point, one of said brace means having cam means fixed thereon and movable between extended and retracted positions, and second means to stabilize the position of said backboard and beam against shock of playing a basketball against said backboard and goal, said second means comprising a first set of guy lines connected to said frame and extending angularly upwardly above said horizontal beam to connections on the wall, and a second set of guy lines detachably connected to said cam means and extending angularly outwardly at each side of said beam to connections on the wall, said cam means in the retracted position drawing said second set of guy lines tight and in the extended position loosening said second set of guy lines.

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