United States Patent

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[54] **COLLAPSIBLE AGILITY CLIMBER**
7 Claims, 5 Drawing Figs.

[52] **U.S. Cl.** **272/60**
[51] **Int. Cl.** **A63b 17/04**
[50] **Field of Search** 272/1, 57, 60; 182/152

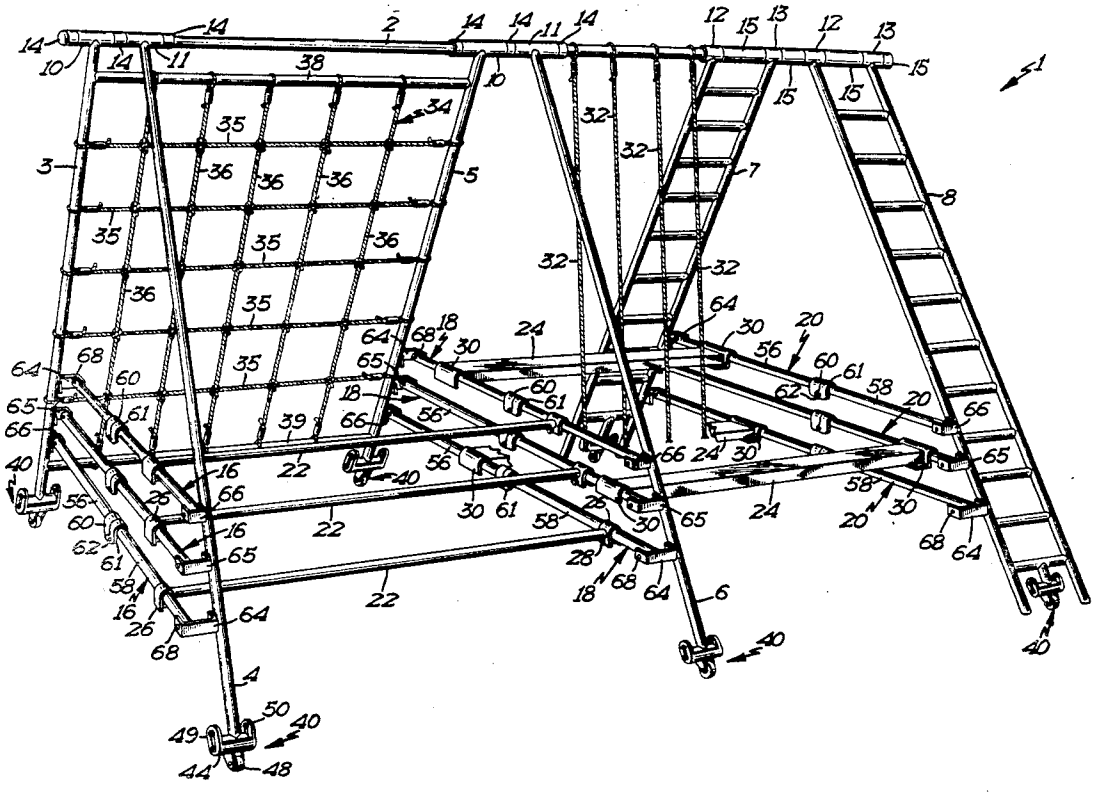
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ABSTRACT: Exercising and climbing apparatus comprising an elongated, horizontal beam supported at spaced points along its length by two or more pairs of downwardly and outwardly depending legs pivotally connected to said beam at horizontally offset positions with respect to each other. Hinged cross braces extend between each pair of legs and support removable parallel beams or bars adjustably positioned therebetween. Retractable rollers on the support legs render the unit completely mobile; and the entire assembly may be collapsed to a compact, vertical storage form by removing the parallel exercising bars or beams and then folding the cross braces and support legs inwardly to a substantially vertical position wherein all of the support legs and crossbraces are in alignment in a common vertical plane.



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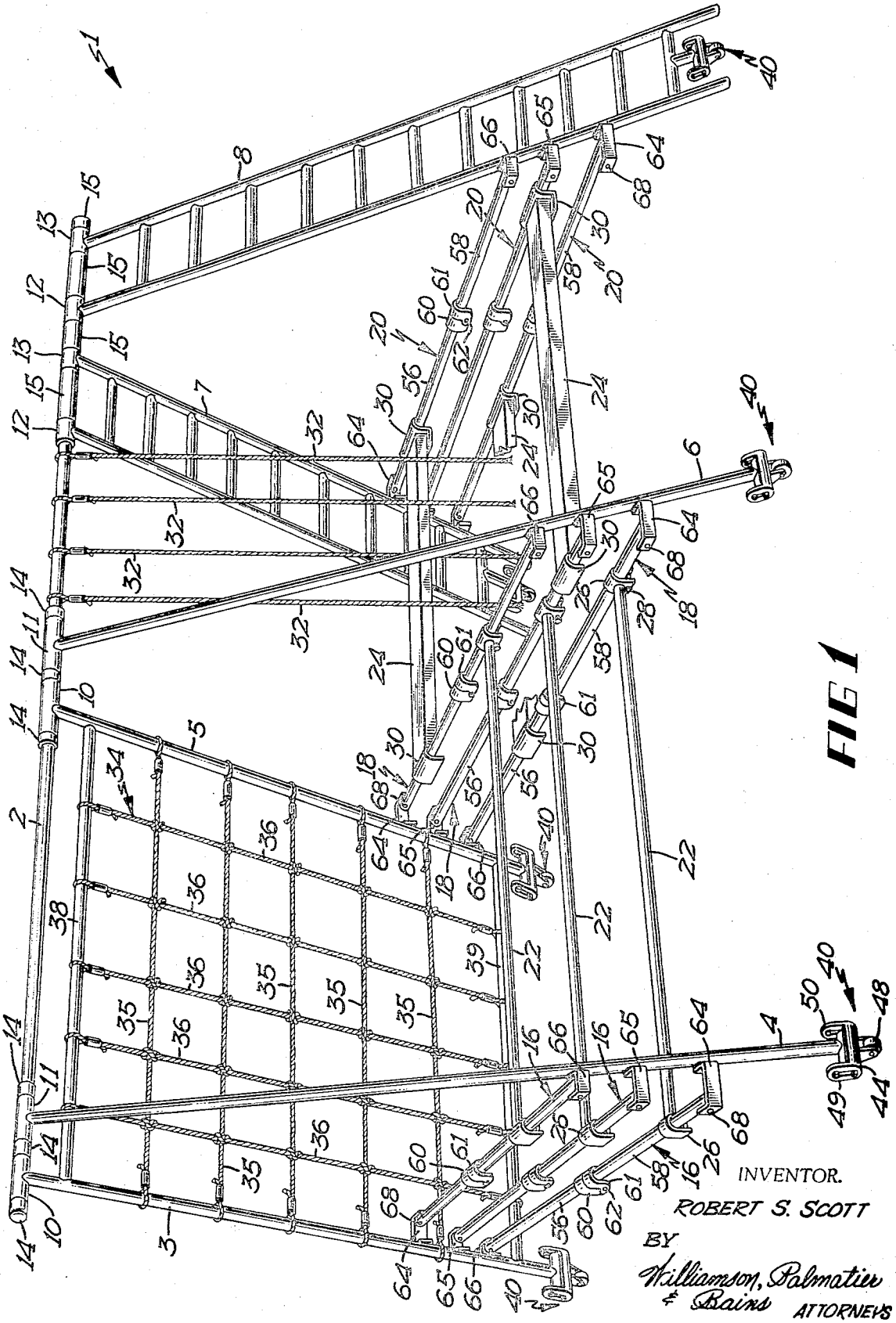


FIG 1

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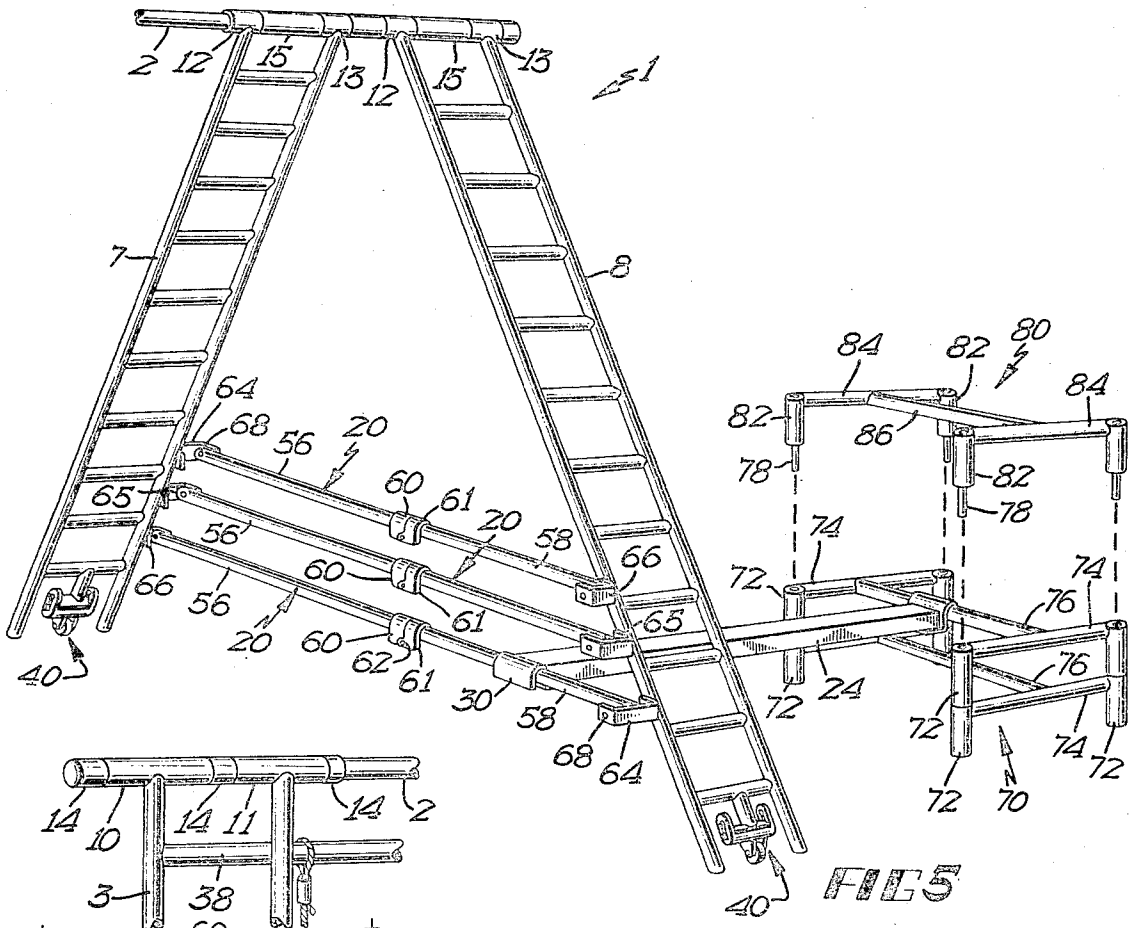


FIG 5

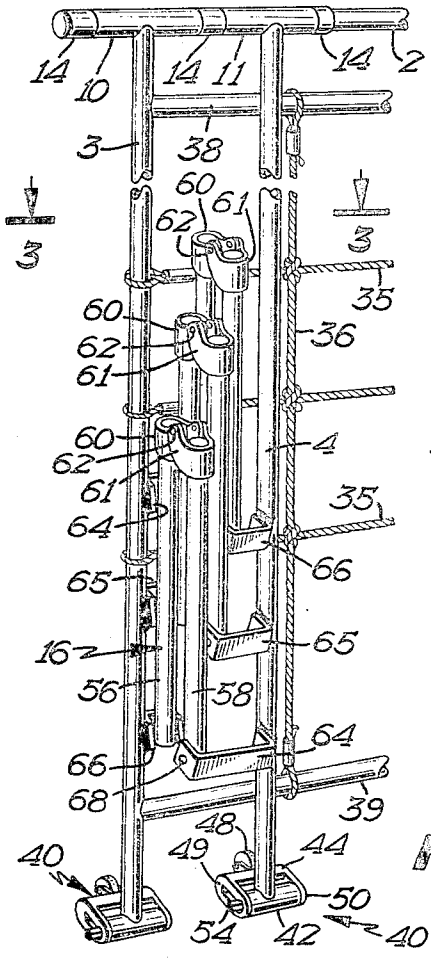


FIG 2

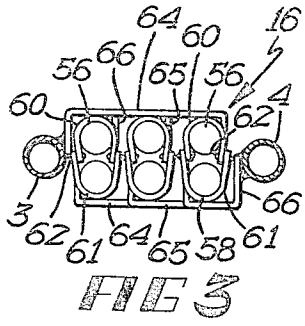


FIG 3

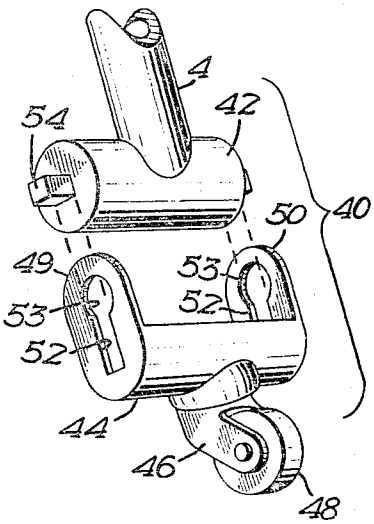


FIG 4

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COLLAPSIBLE AGILITY CLIMBER

BRIEF SUMMARY OF THE INVENTION

This invention is directed to an agility climber which advantageously incorporates in a relatively large, mobile assembly a variety of climbing, balancing and exercising devices which are assembled in such a way as to permit the entire apparatus to be collapsed to a compact form for convenient storage.

These basic objectives are realized by utilizing a supporting framework comprised of an elongated horizontal beam and several pairs of downwardly depending legs pivotally connected to the horizontal beam at spaced apart locations thereon and strengthened by inwardly foldable cross braces extending therebetween. Each pair of support legs are preferably horizontally offset with respect to each other at the points where they connect to the elongated beam, thereby permitting the legs to be swung inwardly into a common vertical plane in a space-saving arrangement when the aforesaid cross braces are folded inwardly.

A particularly advantageous feature of my improved exercising apparatus resides in the use of a plurality of vertically spaced, hinged cross braces supported in horizontally spaced relation to each other between each pair of support legs. When folded outwardly to their horizontal position of use the cross braces serve to support parallel bars or beams removably positioned at different levels therebetween. When folded inwardly the cross braces will assume a vertically oriented position adjacent each other in alignment between the pair of support legs to which they are pivotally connected.

As a further beneficial aspect of my invention, I provide friction feet at the base of each of the aforesaid support legs and pivotally attach a roller assembly to each of the foot members. The rollers may be pivoted out of the way to a retracted position to permit the friction feet to engage the floor when the exercising apparatus is in use, and the rollers may be pivoted to a floor-engaging position to permit the entire assembly to be easily rolled to a desired position of use or storage.

These and other objects and advantages of my invention will become readily apparent as the following description is read in conjunction with the accompanying drawings wherein like reference numerals have been used to designate like elements throughout the several views.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front, perspective view of the exercising apparatus of this invention;

FIG. 2 is a fragmentary, elevation view of a portion of the apparatus of FIG. 1 showing a pair of support legs and one set of cross braces in their collapsed positions;

FIG. 3 is a horizontal section view taken along lines 3-3 of FIG. 2;

FIG. 4 is an exploded, perspective view of the friction foot and roller assembly for the support legs of the exercising apparatus; and

FIG. 5 is a front, perspective view showing one end of the apparatus of FIG. 1 with a vaulting attachment assembled thereto.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The exercising apparatus of this invention has been particularly designed with a view towards providing a unitary assembly which is capable of supporting a variety of climbing, balancing and exercising devices for children and which can be easily collapsed for convenient and compact storage against a wall in an upright position. The apparatus is primarily intended for use in school playrooms where space is at a premium and where the collapsible storage feature permits the conservation of floor space when the exercising apparatus is not in use. The assembly of climbing and balancing devices is constructed and arranged in such a way as to develop the agility and climbing skills of children, and the apparatus will be referred to hereinafter as an agility climber.

In FIG. 1, I have shown a preferred embodiment of my agility climber which is designated generally by reference numeral 1. The frame structure is comprised of a main, elongated horizontal beam 2 which is supported at spaced points along its length by downwardly depending pairs of legs designated 3—4, 5—6, and 7—8 respectively. Each of these legs is pivotally mounted on horizontal beam 2 by means of swivel collars 10, 11, 12, and 13, which are held apart and restrained against horizontal movement by spacers 14 and 15. One pair of support legs 7 and 8 preferably are in the form of ladders which serve an exercising and climbing function as well as supporting crossbeam 2. The opposed pairs of support legs 3—4, 5—6, and 7—8 are laterally offset with respect to each other in the manner shown for the two-fold purpose of adding strength and stability to the exercising assembly and conserving space when the unit is folded up against a wall. The offset positioning of legs 3—4, 5—6, and 7—8 permits them to be swung into alignment adjacent each other in a common vertical plane, rather than being folded in on top of each other, as is explained hereinafter with respect to FIG. 2.

The frame assembly further includes three sets of cross braces 16, 18 and 20 which are secured between each pair of legs 3—4, 5—6, and 7—8. In addition to holding the support legs in their outwardly angled position of use shown in FIG. 1, cross braces 16, 18 and 20 also function to support a plurality of parallel bars and beams 22 and 24 extending horizontally therebetween. Each of the parallel bars 22 is held at its opposite ends between opposed pairs of cross braces 16 and 18 by U-shaped brackets 26. Screws 28 fastened in place through the downwardly depending side walls of brackets 26 assist in securing parallel bars 22 against vertical displacement. Brackets 26 may be made of rubber or a synthetic material which will act as a friction surface to prevent bars 22 from shifting horizontally on cross braces 16 and 18. Any number of bars 22 may, of course, be used. Two of the bars 22 may be positioned at the same level, adjacent each other between the uppermost cross braces 16 and 18 for even parallel bar work; bars 22 may be positioned unevenly at different levels between cross braces 16 and 18 for uneven bar work and hanging and climbing exercises. For use between cross braces 18 and 20 I have provided a plurality of wooden beams 24 which are removably and adjustably supported at their opposite ends on horizontally opposed pairs of braces 18 and 20 by brackets 30. Children may simply walk back and forth on horizontal beams 24 to develop their balancing skills, or a number of beams 24 may be disposed at different levels in staggered relation to each other in the manner shown so that children may climb and step from one beam to another to improve their agility.

Suspended from main horizontal beam 2, and slidably tied thereon are a plurality of climbing ropes 32 which may be used when beams 24 are removed or are positioned at the outer extremities of cross braces 18 and 20. I have also provided a rope ladder generally indicated by reference numeral 34 which is suspended between support legs 3 and 5. Rope ladder 34 is comprised of a plurality of horizontal strands 35 and vertical strands 36 tied together at their points of intersection and forming a flexible gridwork upon which children may climb. Vertical rope strands 36 are tied at their opposite ends to support bars 38 and 39 mounted between support legs 3 and 5, and cross strands 35 are secured to legs 3 and 5 in the manner shown.

In order to insure that agility climber 1 does not shift when it is being subjected to the combined weight of a number of children and to render the exercising apparatus completely portable so that it may be easily moved to different positions of use, I have provided a combined friction foot and roller wheel assembly 40 at the base of each of the support legs 3—4, 5—6, and 7—8, assembly 40 being shown most clearly in exploded form in FIG. 4. Attached to the bottom of each of the support legs, one of which is indicated by reference numeral 4 in FIG. 4, is a generally cylindrically shaped friction foot 42. Foot 42 may be made of rubber or a synthetic material which firmly grips the floor and resists the sliding movement

of agility climber 1. Adapted to be shiftably mounted on foot member 42 is a bracket 44 having a bifurcated end portion 46 upon which roller wheel 48 is rotatably mounted. Bracket 44 is provided with a pair of upwardly extending ears 49 and 50 having keyhole slots 52 formed therein. Bracket 44 is attached to friction foot 42 by slidably engaging slots 52 upon lugs 54 projecting from the opposite ends of foot member 42. When it is desired to move exercising apparatus 1, roller wheels 48 are moved into engagement with the floor in the positions shown in FIG. 1 by shifting roller bracket 44 upwardly on lugs 54 so that lugs 54 will be securely engaged within the lower, rectangular portion of keyhole slots 52. After the entire agility climber 1 has been rolled along the floor to a position of use or storage, roller brackets 44 are shifted to the position shown in FIG. 2 wherein roller wheels 48 are not in engagement with the floor. This is accomplished by sliding roller brackets 44 downwardly on lugs 54 and then rotating circular portions 53 of keyhole slots 52 upon lugs 54 so as to swing rollers 48 upwardly and thereby permit friction feet 42 to engage the floor in the manner shown in FIG. 2. Rollers 48 will normally be shifted to their position of nonuse shown in FIG. 2 with friction members 42 in contact with the floor when the agility climber 1 is either being used or is stored against a wall.

In order that agility climber 1 may be collapsed into compact form for storage when it is not being used, cross braces 16, 18 and 20 are each comprised of two hingedly connected sections 56 and 58 pivotally joined together by hinge brackets 60 and 61. Pivot points 62 at which bracket ears 60 and 61 are joined together permit cross brace sections 56 and 58 to be folded inwardly towards each other to the upright, collapsed position shown in FIG. 2. Cross brace sections 56 and 58 are attached to support legs 3—4, 5—6, 7—8, by brackets 64, 65 and 66 of different widths. Pivotal movement between cross brace sections 56, 58 and mounting brackets 64, 65, and 66 occurs at pivot point connection 68 therebetween. For the purpose of accommodating the inward collapsing of vertically spaced sets of cross braces 16, 18 and 20, brackets 64, 65 and 66 vary progressively in width in a uniform pattern in a vertical direction. With reference to FIG. 1, it can be seen that the widest bracket 64 connects the lowermost one of cross braces 16, 18 and 20 to support legs 4, 6 and 8, and that the narrowest bracket 66 supports the highest one of the cross braces 16, 18, and 20. Intermediate with bracket 65 is positioned on legs 4, 6 and 8 between brackets 64 and 66. Brackets 64, 65 and 66 are arranged in the inverse vertical order on support legs 3, 5 and 7 with the widest bracket 64 at the top opposite narrow bracket 66 and the narrowest bracket 66 at the bottom opposite wide bracket 64. It will be readily apparent that this arrangement serves to stagger the vertically spaced sets of cross braces 16, 18 and 20 in horizontally spaced relation to each other. Thus, when cross brace sections 56 and 58 are folded inwardly, they will assume upright positions in horizontally spaced relation to each other and will be aligned between their respective support legs in the manner shown with respect to legs 3 and 4 in FIGS. 2 and 3. The collapsing of cross braces 16, 18 and 20 permits support legs 3—4, 5—6, and 7—8, to be swung inwardly towards each other to a position wherein the respective pairs of legs 3—4, 5—6, and 7—8 will be disposed horizontally apart from each other in a common vertical plane with cross braces 16, 18 and 20 collapsed therebetween, as appears most clearly in FIGS. 2 and 3. By arranging pivotal legs 3—4, 5—6, and 7—8, as well as collapsible cross braces 16, 18 and 20 in the particular manner shown I am thus able to collapse these structural components inwardly so that they will assume a compact position of substantial alignment in a single vertical plane for space-saving storage in an upright position against a wall. When it is desired to store agility climber 1 after a period of use, the entire climber assembly may be rolled into position adjacent the storage wall on wheels 48. After removing parallel bars and beams 22 and 24, agility climber 1 may be collapsed into the compact, vertical storage position of FIG. 2 by folding pivotal cross braces 16, 18 and 20 and support legs 3—4, 5—6, and 7—8, inwardly. Roller wheels 48 will then be swung upwardly on shiftable brackets 44 to the position of nonuse shown in FIG. 2.

In FIG. 5, I have shown an auxiliary attachment comprising a base stand generally indicated by reference numeral 70 and having upright legs 72 and end braces 74. Extending between upper end braces 74 is a cross support 76. Stand 70 may be used to support one or more outwardly extending wooden balance beams 24 in the manner shown in FIG. 5 wherein brackets 30 at the opposite ends of beam 24 are hooked over cross support 76 and one of the crossbraces 20 of exercising apparatus 1 on the same level with support 76. With one or more balance beams 24 supported between one of the crossbraces 20 and outwardly positioned accessory stand 70, the space between supports 5—6, and 7—8 will be left open for free and unobstructive use of climbing ropes 32. Stand 70 is preferably constructed from tubular steel, hollow, tubular legs 72 being adapted to receive complementary tubular extensions 78 on a second frame assembly 80. Frame assembly 80 is of substantially the same configuration of base stand 70 and includes end braces 84 and a cross support 86. Any number of frame assemblies 70, 80, etc., can be stacked on top of each other by telescoping the succeeding leg extensions as shown at 78 into the hollow leg portions 72, 82, etc., of the next lower stand. In this manner an accessory stand of the desired height can be assembled. A number of balanced beams 24 or parallel bars 22 could then be placed between cross braces 20 and the corresponding, oppositely disposed cross supports 76, 86, etc. A plurality of frame assemblies 70, 80, etc., may be assembled in the aforesaid manner and used independently of agility climber 1 as a vaulting and tumbling stand.

Those interested in and familiar with the field of physical education will readily appreciate the particular value of the collapsing and mobility features of the exercising apparatus which I have described above with reference to FIGS. 1 through 4. The entire exercising apparatus, which may be from 25 to 30 feet in length, may be easily moved to a position of use or storage by means of my unique, retractable roller wheels 48 and securely held at the desired location against shifting movement by friction feet 42. My horizontally offset arrangement of the support legs and collapsible cross braces permits the exercising assembly to be easily collapsed without aid of wrenches or other mechanical devices and compactly stored against a wall. The diver's exercising devices including the parallel bars 22, balance beams 24, climbing ropes 32, rope ladder 34 and climbing ladders 7 and 8 lend themselves to a variety of free movements and may be used in the development of some formal gymnastic skills such as an uneven parallel bar work. For structural strength and safety the basic frame components including elongated overhead beam 2, support legs 3—4, 5—6, and 7—8, as well as cross braces 16, 18 and 20 are made from tubular steel. The exercising apparatus which I have shown and described could, of course, be modified in various ways without losing the basic advantages of mobility and collapsible frame structure. For example, cross braces 16, 18 and 20 could be removably mounted between support legs 3—4, 5—6, and 7—8 rather than being hinged and inwardly foldable. However, this would complicate and lengthen the procedure required for erecting the exercising apparatus and collapsing it for storage. Also, only one cross brace 16, 18 and 20 could be used between each pair of legs 3—4, 5—6, and 7—8 rather than using a plurality of vertically spaced cross braces between each pair of legs. Such a simplified structure would lose the benefit of having cross braces at different levels to support parallel bars or beams at several different elevations. The advantage of having a plurality of uneven parallel bars and beams on which particular gymnastic and agility skills can be developed would then be lost. I contemplate that various other modifications may be made in the preferred embodiment of exercising apparatus which I have shown and described without departing from the spirit and scope of my invention as defined by the following claims.

I claim:

1. Exercising apparatus comprising:

an elongated, horizontal beam;

a first pair of support legs depending downwardly and outwardly from said beam, said legs being horizontally offset with respect to each other at their points of connection to said beam;

a second pair of support legs depending downwardly and outwardly from said horizontal beam and connected thereto in horizontally offset relation to each other at a location spaced apart from said first pair of legs;

both said first and second pairs of legs being pivotally mounted on said horizontal beam for swinging movement from an outwardly angled position of use to an inwardly collapsed position in which said legs are coplanar for compact storage of said apparatus;

a plurality of vertically spaced, cross braces extending horizontally between each of said first and second pairs of legs; and

a plurality of horizontal, parallel bars extending between horizontally aligned pairs of said cross braces and removably and adjustably secured thereto.

2. Exercising apparatus as defined in claim 1 wherein: said support legs of at least one of said pairs are in the form of ladders which may be used for exercising and climbing as well as for supporting said horizontal beam.

3. Exercising apparatus as defined in claim 1 wherein: each of said cross braces is comprised of two hingedly connected sections foldable inwardly towards each other as said legs are swung to said inwardly collapsed position to thereby permit the collapsing and storing of said exercising apparatus.

4. Exercising apparatus as defined in claim 3 wherein: said cross braces of both said first and second sets are supported in horizontally spaced relation to each other by brackets which are attached to said support legs and which vary progressively in width in a vertical direction, said cross braces being pivotally attached at their opposite ends to opposed pairs of said brackets, whereby said cross braces of each of said first and second sets will be horizontally aligned in a substantially straight row between said first and second pairs of support legs when said legs are swung to said inwardly collapsed position.

5. Exercising apparatus as defined in claim 1 and further including:

a foot member having an extended friction surface thereon at the base of each of said support legs; and

a roller shiftably mounted on each of said foot members, said rollers being shiftable from a first position out of contact with the floor to a second, floor engaging position to permit the rolling movement of said exercising apparatus to a location of use or storage as desired.

6. Exercising apparatus as defined in claim 5 wherein: each of said foot members includes a pair of lugs projecting from the opposite ends thereof, and each of said rollers is rotatably supported by a bracket which is pivotally mounted on said lugs.

7. Exercising apparatus as defined in claim 1 and further including: a third pair of support legs pivotally connected to said horizontal beam at one end thereof in spaced apart relation to said second pair of support legs.