



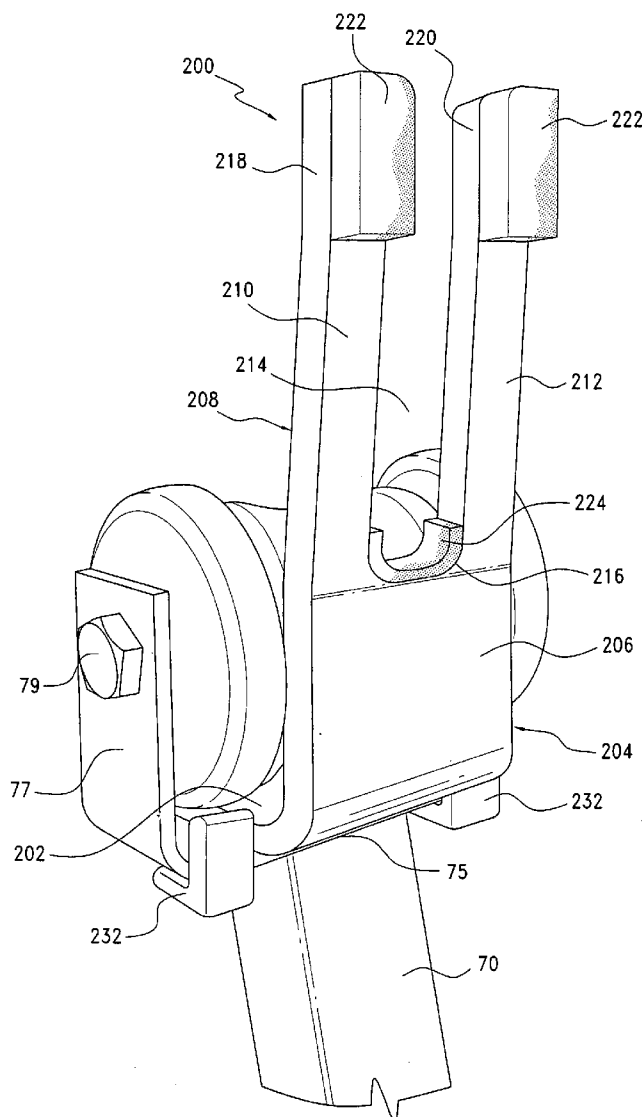
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(19) **United States**(12) **Patent Application Publication**
Marsh et al.(10) **Pub. No.: US 2009/0056688 A1**(43) **Pub. Date: Mar. 5, 2009**(54) **ADAPTER FOR BOW PRESS****Publication Classification**(75) Inventors: **Len Marsh**, Pasadena, MD (US);
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PA (US)(51) **Int. Cl.**
F41B 5/14 (2006.01)(52) **U.S. Cl.** **124/1; 124/86**(57) **ABSTRACT**

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Manchester, PA (US)(21) Appl. No.: **11/895,682**(22) Filed: **Aug. 27, 2007**

An adapter for removable mounting on the limb roller assemblies of an adjustable bow press to allow the bow press to be used with parallel limb short limb bows includes a base panel for mounting between the base and the limb roller of such assemblies. A generally upright front panel is joined to, desirably unitary with, and extends generally perpendicularly from the base panel, the front panel having an upper portion and a lower portion, the upper portion having first and second upwardly extending legs defining therebetween an upwardly opening U-shaped slot having a U-shaped trough. The upper end portions of the first and second legs include padding attached to the surfaces thereof facing the bow limbs for contacting, without damaging, the axels of the bow limbs. The base panel includes L-shaped brackets for stabilizing the adapter on the limb roller assemblies.



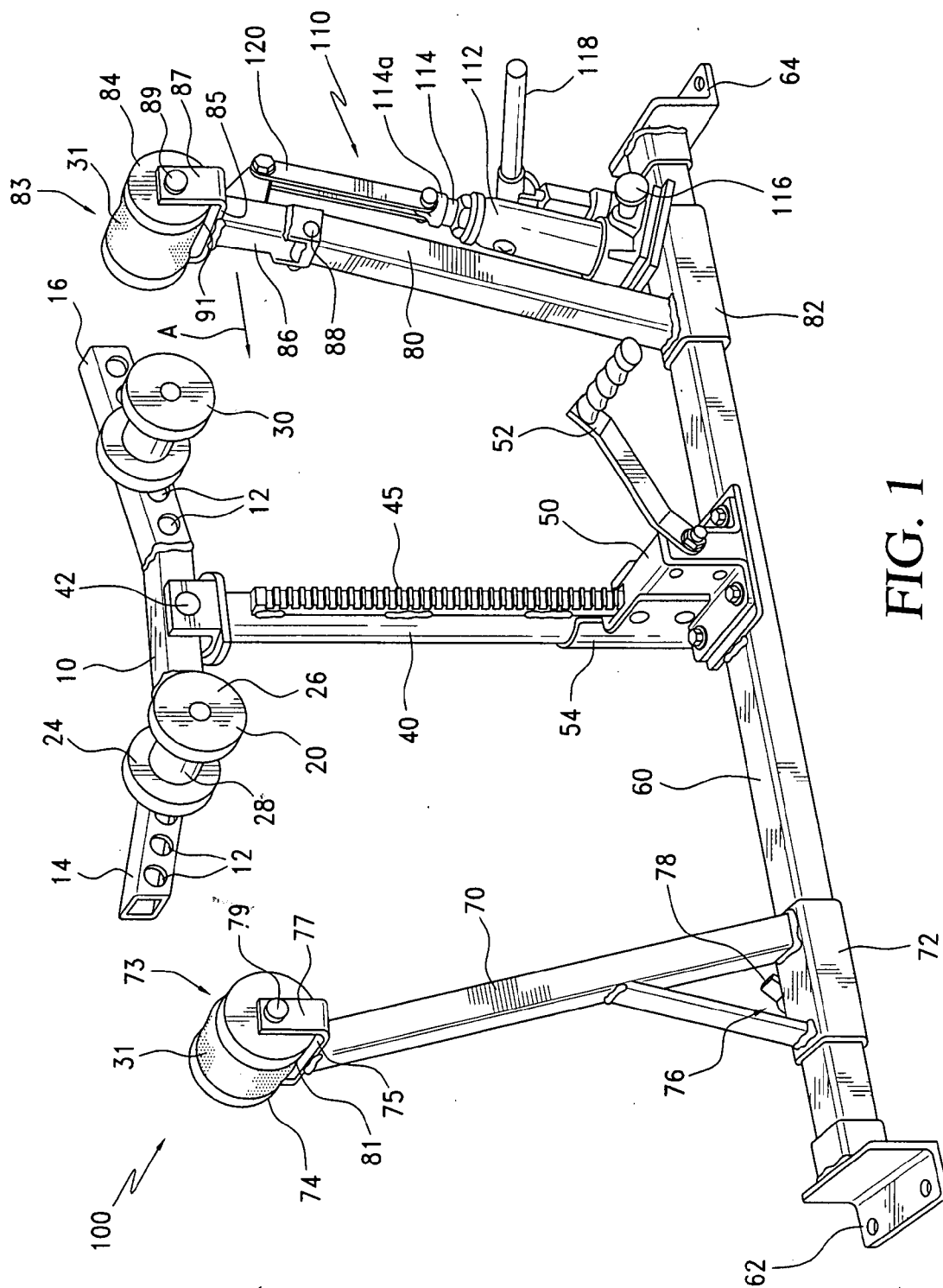


FIG. 1

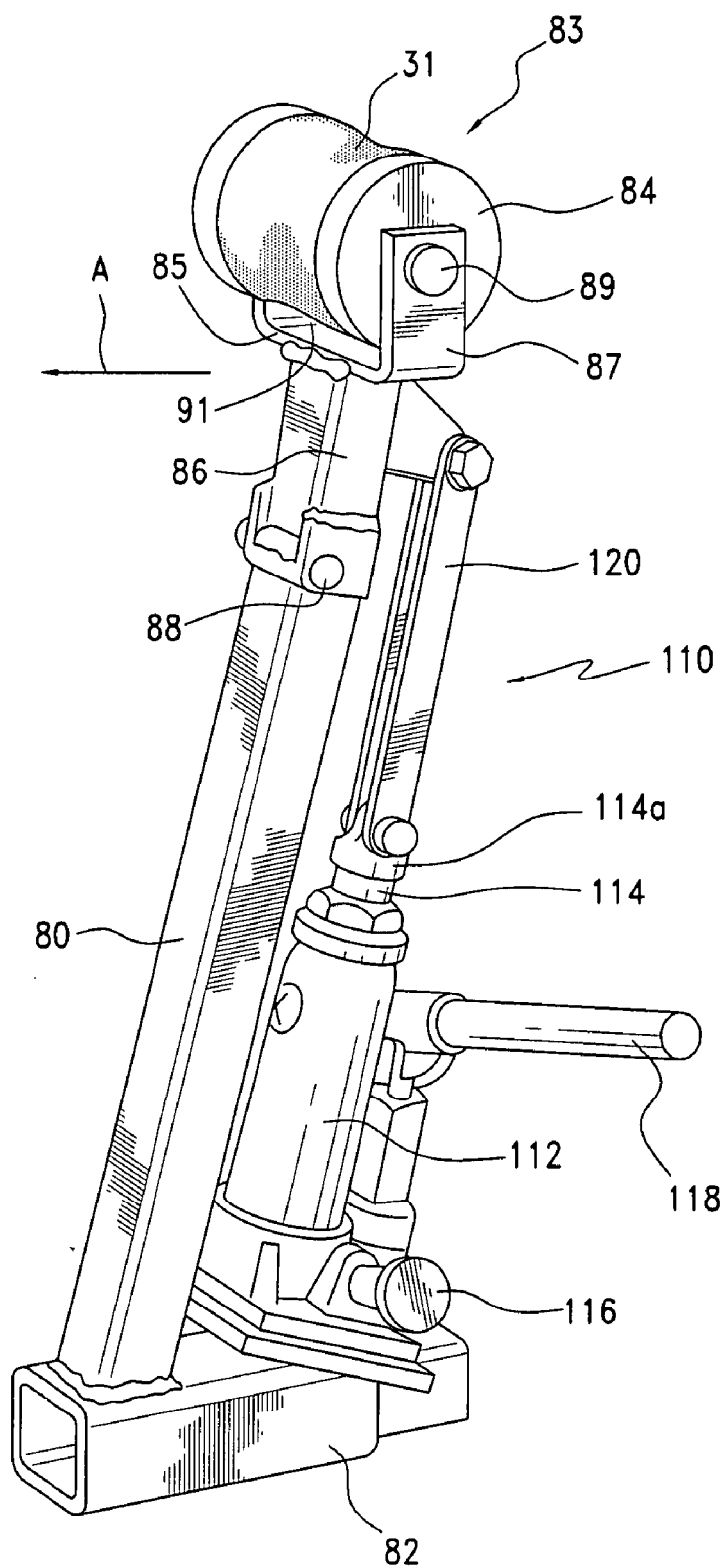


FIG. 2

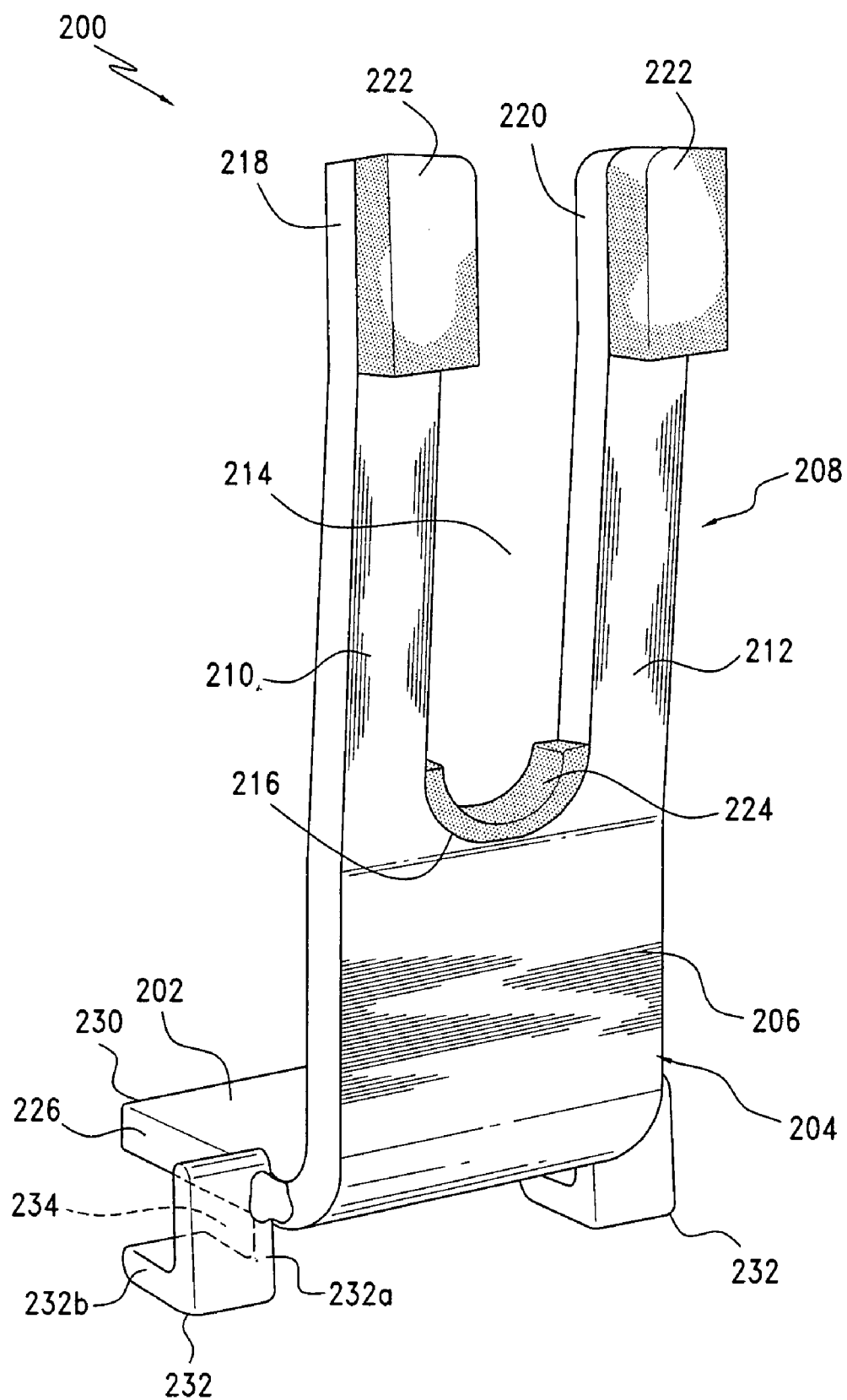


FIG. 3

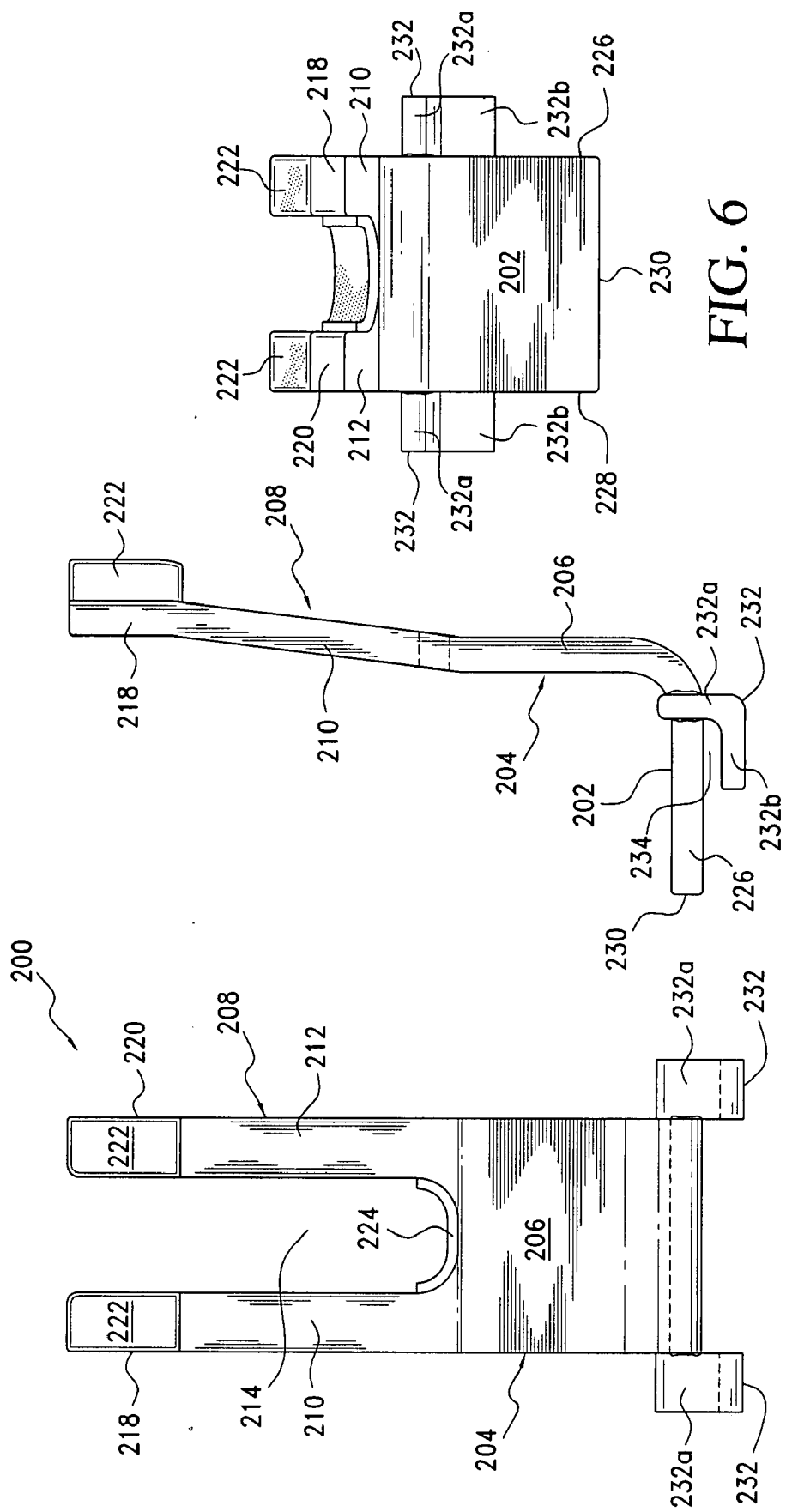
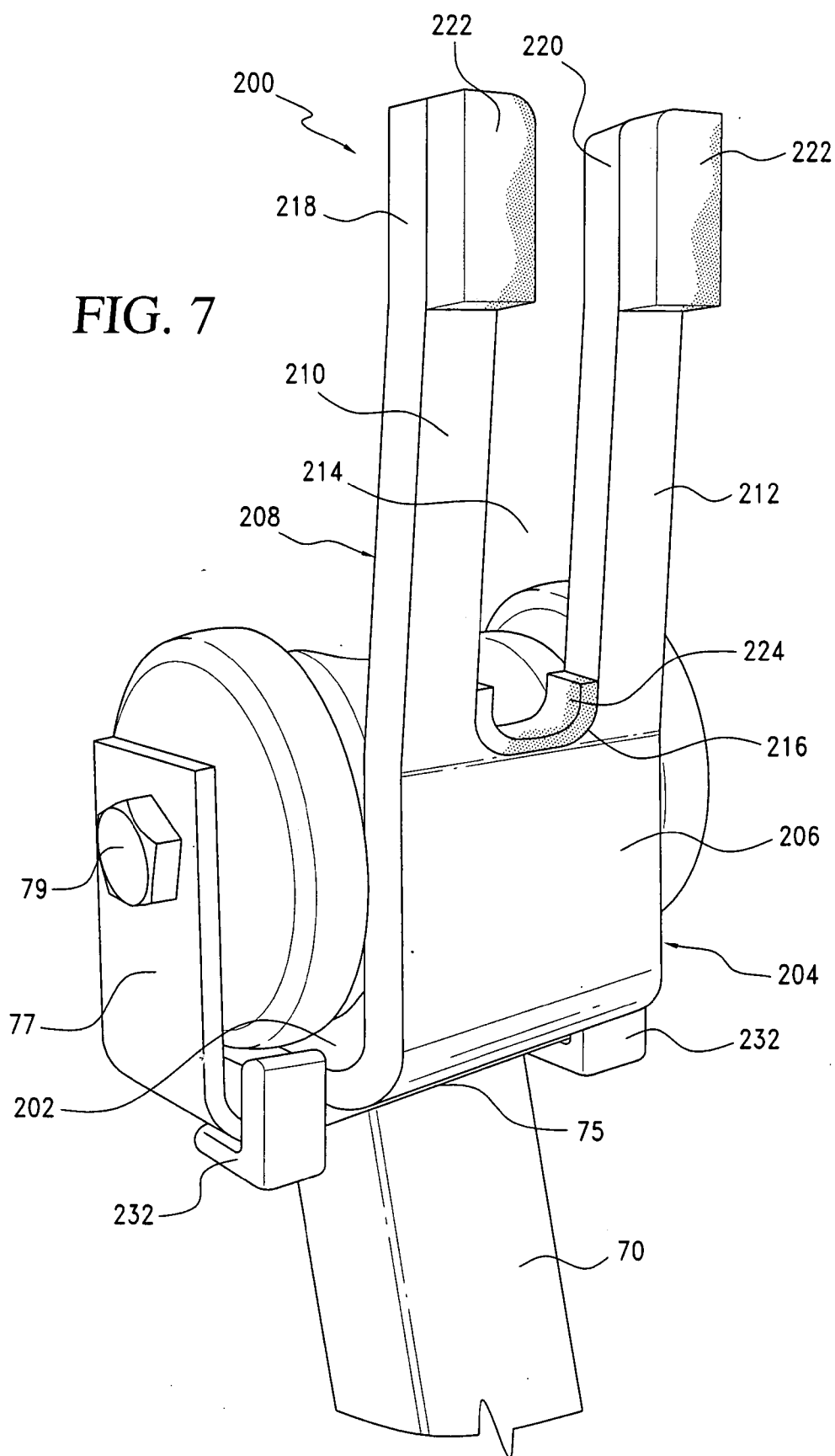


FIG. 6

FIG. 5

FIG. 4

FIG. 7



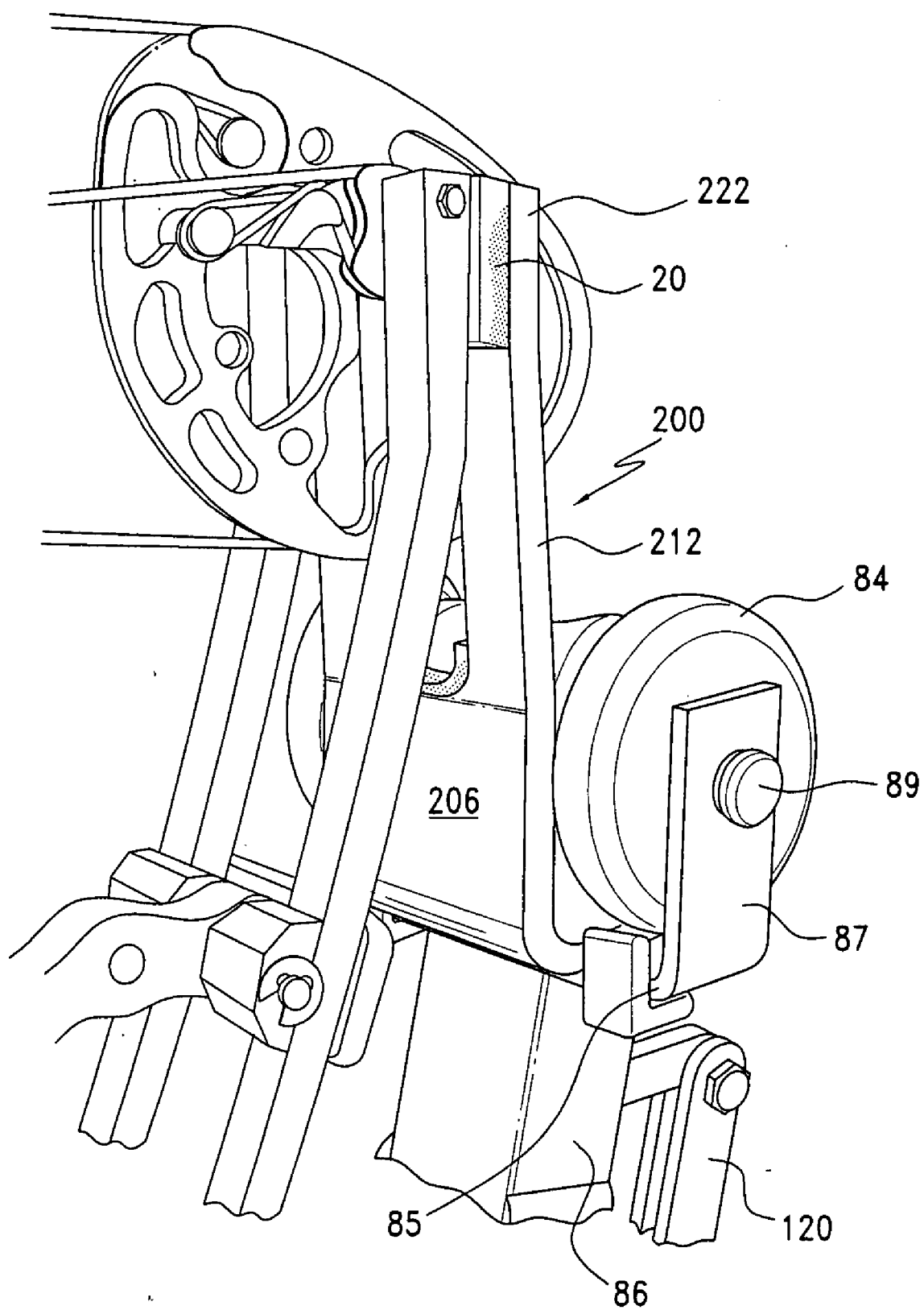


FIG. 8

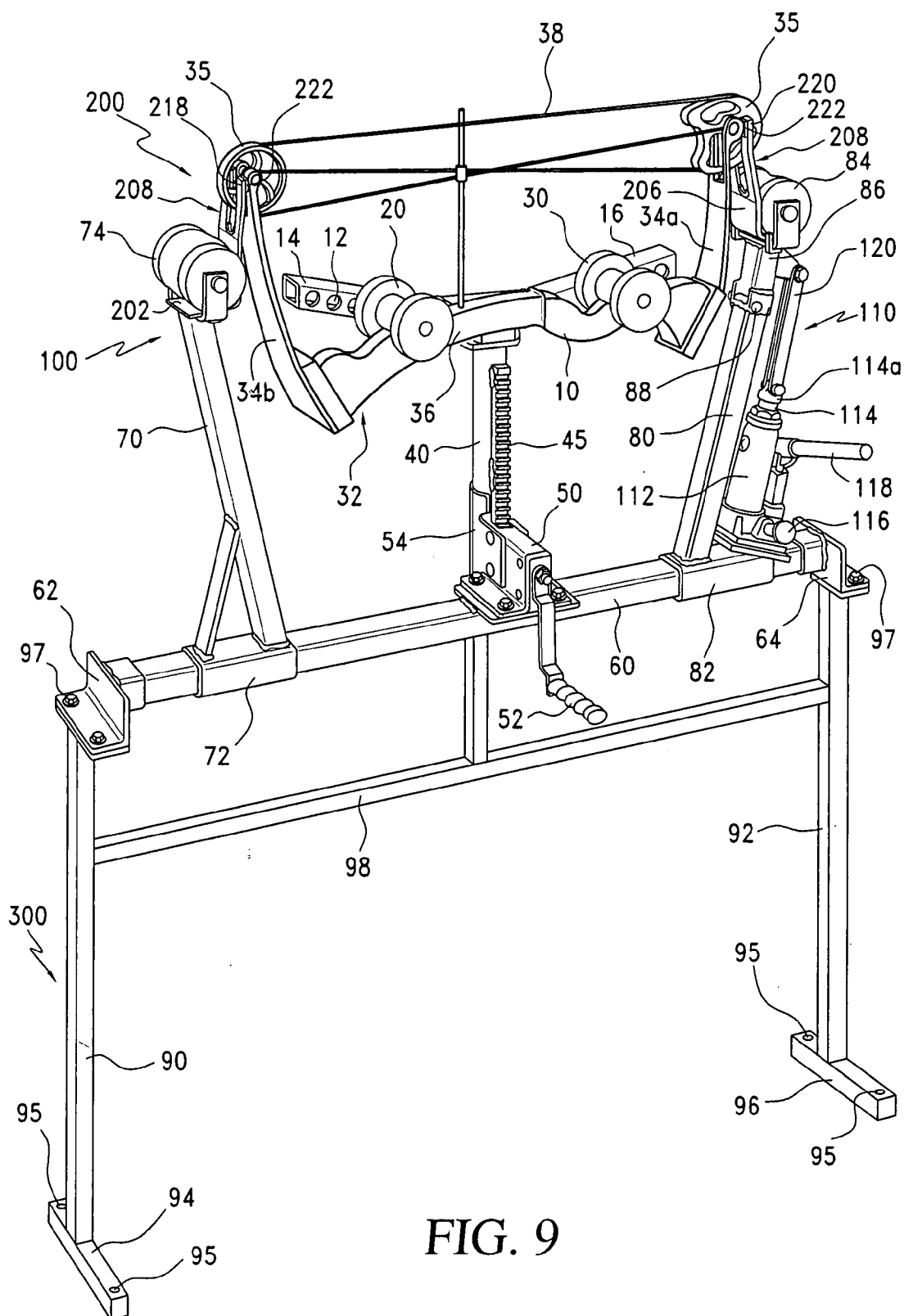


FIG. 9

ADAPTER FOR BOW PRESS

FIELD OF THE INVENTION

[0001] The present invention relates to bow presses for use in stringing or repairing bows and, more particularly, to a removably insertable adapter for such bow presses to enable the bow presses to be used with short limb parallel limb bows.

BACKGROUND OF THE INVENTION

[0002] Prior to about the 1990s, typical bow designs, whether for hunting or the target range, favored relatively short handles and relatively long limbs. These bows presented little problem for re-stringing or repair since it was a simple matter to apply light downward pressure to the handle, causing the ends of the limbs to move closer to each other for releasing the tension in the bowstring. More recently, bows with longer handles and shorter, more parallel limbs, known as parallel limb bows, have become popular. Due, in part, to the handle designs of many of these bows, and because the limbs approach parallel, it has become more difficult to release the tension in the bowstring by light downward pressure applied to the bow handle. As a result, in many cases, greater downward pressures are required than conventional bow presses are designed to safely apply. One of the problems encountered when increased pressure is applied to the inside of the handle with handle rollers, with the outside of the limbs supported in limb rollers, to cause the ends of the limbs to move closer to each other for slackening the bowstring, is that the bow may become wedged into the press in the limbs-bent position and will not come out of the press even when pressure from the handle rollers is released. This is a dangerous situation since upward pressure along the outside of the handle is needed to force the bow from the press. When this force is applied to urge the bow from the press the limbs can violently uncoil, causing severe injury to persons in the vicinity of the press.

[0003] Conventional bow presses, such as those disclosed in U.S. Pat. No. 5,370,103 to Deselle and U.S. Pat. No. 6,386,190 to Kurtz, Jr., are unable to safely and effectively press many parallel limb bows. More recently, the bow presses disclosed in U.S. Pat. No. 6,932,070 to Kurtz, Jr. and U.S. Pat. No. 7,185,644 to Kurtz, Jr., which include at least one pivoted bow limb support arm, have become available which allow most parallel limb bows to be safely and effectively pressed to relieve the tension in the bow string. However, still more recently, bow manufacturers offering bows with very short limbs have specified that these bows should be pressed only at the axel area, which is difficult or impossible with bow presses currently available.

[0004] Accordingly, there is a need for a bow press which is durable, easy to use and which can safely, simply and effectively press short limb parallel limb bows, which require pressing only at the axel area in order to release the tension in the bowstring for re-stringing and/or repairing the bow. Even more desirable would be an adapter for currently available bow presses which would allow these bow presses to press the very short limb bows at the axel area, thus avoiding the need to purchase an entirely new bow press for these bows.

SUMMARY OF THE INVENTION

[0005] It is, therefore, a primary object of the present invention to provide an adapter which allows use of currently

available pivoted bow limb support arm bow presses to press short limb parallel limb bows at their axels for maintaining and servicing the bows.

[0006] It is another object of the present invention to provide an adapter which is easily insertable on and removable from currently available pivoted bow limb support arm bow presses.

[0007] It is still another object of the present invention to provide an adapter which is easily insertable on and removable from the left and right limb roller assemblies at the upper ends of the left and right inclined spacer bars on currently available pivoted bow limb support arm bow presses for supporting the axel areas of the bow limbs.

[0008] It is yet another object of the present invention to provide the adapter of the present invention for removable mounting on each of the limb roller assemblies of a bow press which includes two bow limb roller support bars having a pivotal upper end adjacent the limb roller assembly on at least one of the support bars and means for causing the upper end of the at least one support bar to pivot inwardly toward the opposite support bar, whereby the axel areas of the bow limbs contact the adapters mounted on the bow limb roller assemblies to securely and safely support the bow on the bow press when the pivoted upper end is bent toward the opposite limb for releasing the tension in the bowstring.

[0009] The foregoing and other objects are achieved in accordance with the present invention by providing, in an adjustable bow press for use with a plurality of bows, each bow having an elongate handle, limbs extending from opposite ends of the handle and a bowstring extending in tension between the limbs, the bow press including:

[0010] an elongate base member;

[0011] outwardly and upwardly inclined left and right spacer bars adjustably positionable upon the base member and releasably secured thereto; and

[0012] first and second limb roller assemblies secured to the upper ends of the left and right spacer bars;

[0013] the improvement comprising adapter means mounted on each of the first and second limb roller assemblies for supporting the limbs of the bows at their axels, the adapters comprising mounting means for removably mounting the adapters on the first and second limb roller assemblies and bow limb contact means connected to the mounting means, the contact means facing the opposite limb roller assembly for contacting the axels of the bow limbs without damaging the bow limbs.

[0014] In another aspect of the present invention, the bow limb contact means of each the adapter means comprises a generally upright front panel joined to the mounting means, the front panel having an upper portion and a lower portion, the upper portion having a U-shaped configuration comprising first and second upwardly extending legs defining therebetween an upwardly opening U-shaped slot having a U-shaped trough, the upper end portions of the first and second legs including padding attached to the surfaces thereof facing the other spacer bar for contacting the axels of the bow limbs without damaging the bow limbs.

[0015] In still another aspect of the present invention, the first and second limb roller assemblies are generally U-shaped, each comprising a base, opposed upstanding arms at the ends of the base, a pivot pin extending between the upstanding arms and a limb roller mounted on the pivot pin above the base for defining a space between the limb roller and the base, and the mounting means of each adapter means

comprises a base panel joined to and extending generally perpendicularly from the front panel away from the other spacer bar and received in the space between the limb roller and the base, the base panel including opposite side edges and a rear edge.

[0016] In yet another aspect of the present invention, the base panel of each the adapter means includes means attached thereto and extending under the base of the first and second limb roller assemblies when the base panel is received in the space for stabilizing the adapter means on the limb roller assemblies. The means for stabilizing comprises a generally L-shaped bracket affixed to each side edge of the base panel, one leg of each L-shaped bracket extending generally parallel to the front panel and affixed to each side edge immediately rearward of the front panel such that the lower end of the one leg extends below the base panel, and the other leg of each L-shaped bracket extending generally rearwardly from the lower end of the one leg and generally parallel to the base panel, the other leg extending under the base of the first and second limb roller assemblies when the base panel is received in the space.

[0017] In still another aspect of the present invention, there is provided a removably insertable adapter for mounting on an adjustable bow press to allow the bow press to be used with parallel limb short limb bows having an elongate handle, limbs extending from opposite ends of the handle and a bowstring extending in tension between the limbs, the adjustable bow press including:

[0018] an elongate base member;

[0019] outwardly and upwardly inclined left and right spacer bars adjustably positionable upon the base member and releasably secured thereto; and

[0020] first and second limb roller assemblies secured to the upper ends of the left and right spacer bars;

[0021] the adapter comprising:

[0022] mounting means for removably mounting an adapter on each of the first and second limb roller assemblies and bow limb contact means connected to the mounting means, the contact means facing the bow limbs when the bow is mounted on the bow press for contacting the axels of the bow limbs without damaging the bow limbs.

[0023] In one more aspect of the invention, there is provided an adapter, wherein the first and second limb roller assemblies of the bow press are generally U-shaped, each comprising a base, opposed upstanding arms at the ends of the base, a pivot pin extending between the upstanding arms and a limb roller mounted on the pivot pin above the base for defining a space between the limb roller and the base,

[0024] the bow limb contact means of the adapter comprises a generally upright front panel joined to the mounting means, the front panel having an upper portion and a lower portion, the upper portion having a U-shaped configuration comprising first and second upwardly extending legs defining therebetween an upwardly opening U-shaped slot having a U-shaped trough, the upper end portions of the first and second legs including padding attached to the surfaces thereof facing the other spacer bar for contacting the axels of the bow limbs without damaging the bow limbs; and

[0025] the mounting means of the adapter comprises a base panel joined to and extending generally perpendicularly from the front panel, the base panel including opposite side edges and a rear edge and adapted to be received in the space defined

between the limb roller and the base with the front panel facing the bow limbs when the bow is mounted on the bow press.

[0026] In yet another aspect of the present invention, the base panel of each adapter means includes means attached thereto and extending under the base of the first and second limb roller assemblies when the base panel is received in the space for stabilizing the adapter means on the limb roller assemblies. The means for stabilizing comprises a generally L-shaped bracket affixed to each side edge of the base panel, one leg of each L-shaped bracket extending generally parallel to the front panel and affixed to each side edge immediately rearward of the front panel such that the lower end of the one leg extends below the base panel, and the other leg of each L-shaped bracket extending generally rearwardly from the lower end of the one leg and generally parallel to the base panel, the other leg extending under the base of the first and second limb roller assemblies when the base panel is received in the space.

BRIEF DESCRIPTION OF THE DRAWINGS

[0027] FIG. 1 is a perspective view of a conventional bow press, adapted to be mounted on a table or a stand, for pressing bows, including parallel limb bows.

[0028] FIG. 2 is a perspective view of the limb roller support bar of the bow press of FIG. 1, the support bar having a pivotal upper end adjacent the limb roller assembly and first means for causing the upper end of the support bar to pivot inwardly toward the opposite support bar for releasing the tension in the bowstring of a bow mounted in the limb roller.

[0029] FIG. 3 is a perspective view of the adapter of the present invention for removable mounting on the limb roller assembly of the bow press of FIG. 1 to enable the bow press to safely and effectively press all parallel limb bows, including short limb parallel limb bows.

[0030] FIG. 4 is a front elevational view of the adapter of FIG. 3.

[0031] FIG. 5 is a side elevational view of the adapter of FIG. 3.

[0032] FIG. 6 is a top plan view of the adapter of FIG. 3.

[0033] FIG. 7 is a perspective view of the adapter of the present invention installed on the limb roller assembly of the bow press of FIG. 1.

[0034] FIG. 8 is a perspective view of showing the axel area of one of the limbs of a bow supported by the adapter of the present invention.

[0035] FIG. 9 is a perspective view of the bow press of FIG. 1 mounted on a stand and showing adapters in accordance with the present invention installed on the limb roller assemblies of the bow press with a short limb parallel limb bow pressed in place and supported by the adapters.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0036] A conventional bow press **100** suitable for pressing several types of parallel limb bows, as well as conventional bows, such as the bow press disclosed in U.S. Pat. No. 7,185, 644 to Kurtz, Jr., the disclosure of which is incorporated herein by reference, is shown in FIGS. 1-2. The bow press provides a durable, simple, safe and effective means for maintaining and servicing a variety of types and configurations of bows, particularly several types of parallel limb bows. The bow press **100** is believed to represent the current state of the

art in bow presses. The bow press 100 includes an inclined riser beam 10 having spaced apertures 12 for receiving and adjustably positioning axles (not shown) of first and second handle rollers 20 and 30. Due to the various shapes of bow handles available today it is important that the handle rollers 20, 30 be adjustably positionable in multiple fixed positions with no possibility of the rollers sliding along riser beam 10 when subjected to the high pressures necessary to compress some bows. Inclined riser beam 10 desirably includes an inclined left end 14 and an inclined right end 16 to define an obtusely-angled V-shape which is important to eliminate interference with various types of attachments on some bows, such as bow sights, stabilizing bars, etc.

[0037] First press roller 20, in one form, comprises a pair of parallel wall portions 24, 26, defining a rectangular groove 28 therebetween. In other forms, first press roller 20 may include wall portions inclined toward the center for defining a V-shaped groove therebetween. In operation, the groove 28 receives a portion of a bow handle 36 for supporting the bow handle 36 during stringing, re-stringing and maintenance operations. Second press roller 30 is substantially identical to first press roller 20.

[0038] A substantially vertical riser bar 40 movably and adjustably supports the inclined riser beam 10 via a pivot connector 42, such as a pivot pin extending perpendicularly to the longitudinal extent of riser beam 10 and vertical riser bar 40, to allow riser beam 10 to pivot about connector 42 in a vertical plane containing riser bar 40 and riser beam 10. Riser bar 40 is adjustably movable upwards and downwards by operation of a jack mechanism 50 having at least one gear (not shown). The jack mechanism 50 may be either manually actuated or electrically actuated with the aid of a reversible electric motor (not shown) and a control switch (not shown), preferably an ON/OFF switch, connected by insulated electric wire to a remote power source (not shown). The manual jack mechanism 50 preferably utilizes a worm gear (not shown) in jack housing 54 operable by jack handle 52. The riser bar 40 has a plurality of vertically aligned teeth 45 thereon for engagement with the gear in the jack housing 54. The worm gear allows jack mechanism 50 to maintain its position while under pressure without locking-up or slipping and, therefore, does not require the holding of the crank handle 52 during use.

[0039] The worm gear jack mechanism 50 is affixed to a base member 60, which supports vertical riser bar 40 for upward and downward movement relative to the base member 60. Base member 60 is, desirably, a relatively straight, flat beam, and includes a left mounting flange 62 and a right mounting flange 64. These mounting flanges 62, 64 are used to affix or mount the base member 60 to a table, stand or other raised work support surface. When a table is used, a table aperture (not shown) is preferably aligned in relation to the riser bar 40 to allow the riser bar 40 to extend below the work surface through the table aperture, as the inclined riser beam 10 is raised and lowered.

[0040] It will be appreciated that the purpose of the inclined riser beam 10, handle rollers 20, 30, riser bar 40 and jack mechanism 50 is to securely hold the bow 32 in position on the bow press 100. Other means are well known for accomplishing this purpose. For example, bow presses are known wherein a strap is looped over each of the limbs 34a, 34b of bow 32 and attached to a horizontal beam which may be

pulled downward by a winch means mounted on base member 60 to securely hold the bow 32 in position on the bow press 100.

[0041] Base member 60 slideably supports a left inclined spacer bar 70 and a right inclined spacer bar 80 on opposite sides of the riser bar 40. The left and right inclined spacer bars 70, 80 are secured to slideable base portions 72, 82, respectively, which surround the base member 60 and are adjustably secured to the base member 60 by tensioning members 76. For example, each tensioning member 76 can be a handle 78 with a threaded portion extending from the handle 78. The threaded portion is threadably received in complementary threads extending through a side of the base portions 72, 82. Handle 78 is turned to loosen and tighten the slideable base portions 72, 82 on the base member 60 so as to frictionally position the left and right spacer bars 70, 80 in position along the base member 60. Other types of fixing mechanisms can also be employed to adjustably position the spacer bars 70, 80 along the base member 60, such as a cam surface, a ratchet-and-notch engagement, a spring-loaded engagement, etc.

[0042] Left and right inclined spacer bars 70, 80 carry first and second limb roller assemblies 73, 83 at the upper or free end thereof. Each of the limb roller assemblies 73, 83 is generally U-shaped including a base 75, 85 and opposed upstanding arms 77, 87. A pivot pin 79, 89 extends between the upstanding arms 77, 87 for rotatably mounting first and second limb rollers 74, 84, respectively. The limb rollers 74, 84 are mounted above base 75, 85 so as to define a space 81, 91 between the limb rollers 74, 84 and the base 75, 85. The first and second limb rollers 74, 84 receive the limbs 34b, 34a of the bow and may be adjustably positioned along the limbs, preferably near the free ends thereof, by sliding movement of the slideable base portions 72, 82 of the left and right inclined spacer bars 70, 80 along base member 60. Limb rollers 74, 84 may be the same size as or smaller or larger than handle rollers 20, 30, depending upon the configuration of the bow and the relative thickness of the bow handle 36 and limbs 34a, 34b. If desired, roller boots 31 may be installed on the first and second limb rollers 74, 84 to cushion and protect the bow 32 from damage or discoloration during pressing in the bow press 100.

[0043] Right inclined spacer bar 80 includes an upper end portion 86 on which second limb roller assembly 83 and second limb roller 84 are mounted. Upper end portion 86 is pivotally connected to the remainder of spacer bar 80 via a spacer bar pivot pin 88 about which the upper end portion 86 can pivot toward and away from left inclined spacer bar 70 in a vertical plane containing the left and right inclined spacer bars 70, 80 and vertical riser bar 40. It will be appreciated that, in other forms of the bow press, the pivotal upper end portion may be a part of the left inclined spacer bar 70 instead of the right inclined spacer bar 80. In still another embodiment, both inclined spacer bars may include pivotal upper end portions.

[0044] A means 110 causes the upper end 86 of right inclined spacer bar 80 to pivot inwardly about spacer bar pivot pin 88 toward left inclined spacer bar 70, to cause right bow limb 34a to bend toward left bow limb 34b to release the tension in bowstring 38. This allows the bowstring to be easily removed and/or installed and to check for alignment. One effective means for accomplishing this purpose includes a hydraulic cylinder 112 mounted on the base member 60 on the side of right inclined spacer member 80 remote from vertical riser bar 40, including a piston 114 reciprocally operable within the hydraulic cylinder 112 in a direction substan-

tially parallel to inclined spacer bar 80, an intake/exhaust valve 116 on the cylinder 112 and a pumping handle 118 for operating the piston 114 within cylinder 112. The upper end 114a of piston 114 is attached to upper end portion 86 via an angled connector assembly 120. With the valve 116 on the cylinder 112 closed, the pumping handle 118 is operated until the piston moves upwardly, the angle of the connector assembly 120 causing the upward movement of the piston 114 to exert a force on upper end portion 86 in the direction of arrow "A" in FIG. 1, i.e., toward left inclined spacer bar 70, resulting in pivotal movement of upper end portion 86 about spacer bar pivot pin 88. This pivotal movement causes the right limb 34a of bow 32 to bend toward opposite limb 34b to release the tension in the bowstring. To return upper end portion 86 to its unpivoted position, valve 116 is opened, releasing the force on upper end portion 86 and allowing the bias in bow 32 to cause limb 34a to unbend and, in so doing, to force upper end portion 86 back to its unpivoted position and piston 114 back into cylinder 112. It will be appreciated that other means for accomplishing the purpose of causing the upper end portion 86 to pivot about spacer bar pivot pin 88 may be used, such as pneumatic means, electric motor operated means, and mechanical means, such as conventional turnbuckle means.

[0045] FIG. 9 shows bow press 100 mounted on a stand 300. Base member 60 is secured, via left and right mounting flanges 62, 64, to the first and second upstanding leg members 90, 92 with suitable fastening means 97. Each of the first and second upstanding leg members 90, 92 has first and second leg base portions 94, 96, respectively, at its lower end to stabilize stand 300 upon a floor or work area. A cross brace 98 may be secured to the first and second upstanding leg members 90, 92 to further stabilize stand 300. Cross brace 98 is preferably installed in spaced relation between the base member 60 and the first and second leg base portions 94, 96. Desirably, mounting apertures 95 are provided in the first and second leg base portions 94, 96 to secure the leg base portions to the floor with a suitable fastening means (not shown).

[0046] The conventional bow press 100, as illustrated in FIGS. 1-2, will be better understood from the following description of its manner of use.

[0047] The inclined left and right spacer bars 70, 80 are slideably positioned on the base member 60 to position limb rollers 74, 84 to suit the size and shape of the limbs 34a, 34b of the bow 32 to be inserted into the bow press 100. Once the limb rollers 74, 84 are positioned to avoid direct contact with wheels, cams, and other bow end apparatus 35, yet to receive the limbs 34a, 34b as close to their ends as possible, the left and right spacer bars 70, 80 are releasably secured to the base member 60 with tensioning member 76. Opposing bow limbs 34a, 34b are then placed within the groove 28 of the first and second limb rollers 74, 84 to support the bow 32 in preparation for pressing.

[0048] The first and second handle rollers 20, 30 are then positioned in selected apertures in the inclined riser beam 10, in alignment with the handle portion 36 of the bow 32. Care is taken to position the first and second handle rollers 20, 30 to avoid contact with sighting and stabilizing apparatus mounted in the handle region of the bow 32. The inclined riser beam 10 is then lowered by operating the jack mechanism 50 to lower the riser bar 40 until the inside of the handle 36 of the bow 32 is received within the grooves 28 of the first and second handle rollers 20, 30. This can be accomplished manually by rotating the handle 52 or electrically by operating the control switch of the electric motor. It will be noted that

because the inclined riser beam 10 is pivotally mounted on vertical riser bar 40 via pivot connector 42, the inclined riser beam 10 will pivotally adjust itself, depending upon the configuration of the inside of the handle 36, until a stable position for the inclined riser beam 10 is achieved with spaced portions of handle 36 received in grooves 28 of the first and second handle rollers 20, 30. Thus, one or the other of the handle rollers 20, 30 may be higher or lower than the other to achieve the desired stable position.

[0049] The bow 32 is then pressed by further lowering the riser bar 40 to lower the first and second handle rollers 20, 30 in relation to the first and second limb rollers 74, 84. However, for use with parallel limb bows, the pressure applied to the handle 36 by the handle rollers 20, 30 need only be sufficient to securely hold the bow 32 in position on the bow press 100 and need not be sufficient to cause the bow to bend. Unlike prior art bow presses, bow press 100 does not rely upon the downward pressure of the handle rollers 20, 30 on the handle 36 to compress the bow 32 sufficiently to release the tension in the bowstring 38. This reduced pressure of the handle rollers 20, 30 on the handle together with the adjustable positioning of the inclined riser beam 10 contributes to avoiding the shortcomings of prior art bow presses, particularly with parallel limb bows, in which high press roller pressures needed to press the bow and release the tension in the bowstring resulted in the bow wedging itself into the bow press and creating a dangerous circumstance.

[0050] To reduce the tension in the bowstring 38 with the bow 32 securely held in position on bow press 100 by the action of handle rollers 20, 30 and limb rollers 74, 84, means 110, for causing the upper end 86 of right inclined spacer bar 80 to pivot inwardly about spacer bar pivot pin 88 toward left inclined spacer bar 70, is operated to cause right bow limb 34a to bend toward left bow limb 34b to release the tension in bowstring 38. This allows the bowstring to be easily removed and/or installed and to check for alignment of the rollers and cams, which are positioned at the distal ends of bow 32.

[0051] Upon completion of work on the bow 32, means 110 is operated to cause the upper end 86 of right inclined spacer bar 80 to return to its unpivoted rest position, jack mechanism 50 is moved in the opposite direction to raise vertical riser bar 40 which, in turn, raises the inclined riser beam 10, releasing the pressure of handle rollers 20, 30 on the bow handle 36. Once the handle rollers 20, 30 have been removed from the bow handle 36, the bow 32 may be removed from bow press.

[0052] Over the past few years, the parallel limb bow has become the bow of choice in the compound bow market and variations on the general concept of the parallel limb bow are manufactured by virtually every bow manufacturer. Compared to standard bows with upright limbs, parallel limb bows have very little recoil and less noise. Therefore there has developed a large demand for the parallel limb style of bow and manufacturers offer these bows in varying degrees of parallel. Basically, a parallel limb bow is a bow that has a long riser and short swept back limbs which are oriented more or less horizontally at full draw. The limbs of a parallel limb bow angle back directly towards the shooter as the bow is drawn. More recently, the trend has been toward shorter limb length parallel limb bows having split limb ends to accommodate the cams and cabling used in modern bows. This has created additional problems for re-stringing, repair and maintenance of the bows. Not only do these bows not compress in response to downward pressure on the handle, but also even the application of lateral pressure, such as with bow presses having

pivoted bow limb support arms, as disclosed in U.S. Pat. No. 7,185,644, can cause limb damage or failure if the pressure is not applied at the proper location for these modern bows, which is at the axels of the limbs. Even the most cutting edge bow presses, using conventional bow limb support rollers are unable to accommodate these modern bows.

[0053] According to the present invention, there is provided an adapter for conventional bow presses, particularly for pivoted bow limb support arm bow presses originally intended for use with several types of parallel limb bows, such as the bow presses disclosed in U.S. Pat. Nos. 6,932,070 and 7,185,644. Referring to FIGS. 3-6, there is shown the adapter 200 of the present invention. Adapter 200 is desirably formed of metal, although strong and rugged hard plastics adapted to withstand the pressures experienced during bow compression, can also be used. Adapter 200 consists of a base panel 202 perpendicularly joined with a generally upright front panel 204. Front panel 204 includes a flat lower portion 206 and an upper portion 208 inclined forwardly a small angular amount, preferably about 4-6°, relative to lower portion 206. Upper portion 208 has a U-shaped configuration comprising first and second upwardly extending legs 210, 212 defining therebetween an upwardly opening U-shaped slot 214 having a trough 216. The upper end portions 218, 220 of first and second legs 210, 212, respectively, are desirably generally parallel to lower portion 206 and, thus, incline rearwardly relative to the lower portions of the legs about the same angular amount as the upper portion 208 of the front panel 204 inclines forwardly. Desirably, the lower portion 206 of front panel 204 and base 202 are unitary and the transition between them is gently arcuate. The upper end portions 218, 220 include rubber or similar padding 222 attached to the forward facing surfaces thereof, preferably via an adhesive, to avoid damage to or discoloration of the bow limbs. Likewise the U-shaped trough includes rubber or similar padding 224 attached thereto, preferably via an adhesive, to avoid damage to wheels, cams, and other bow end apparatus.

[0054] Base panel 202 includes side edges 226, 228 and end edge 230. Attached to each of the side edges, as by welding, immediately rearwardly of the lower portion 206 of front panel 204, are L-shaped brackets 232 for stabilizing adapters 200 when mounted on the bow press. The generally vertical leg 232a of each bracket is attached to the respective side edges 226, 228 such that the lower end of vertical leg 232a extends below base panel 202. The generally horizontal leg 232b of each bracket extends perpendicularly rearwardly from the generally vertical leg 232a and generally parallel to base panel 202 and defines a horizontally extending slot 234 between the underside of the base panel 202 and the upper faces of the horizontal legs 232b.

[0055] The manner of use of adapter 200 can be readily understood by referring to FIGS. 7-9 wherein it can be seen that adapters 200 are mounted to each of first and second limb roller assemblies 73, 83. Base panel 202 of adapter 200 is inserted from a point between the spacer bars 70, 80 into space 81, 91 between limb rollers 74, 84 and bases 75, 85 with the horizontal legs 232b of L-shaped brackets 232 extending under bases 75, 85 so that bases 75, 85 are received within horizontally extending slots 234. Base panel 202 is preferably sufficiently long that it extends beyond base 75, 85 of limb roller assemblies 73, 83 when received within space 81, 91. In this orientation, adapters 200 are frictionally held on the limb roller assemblies 73, 83 with the upwardly extending legs 210, 212 of each adapter, and the rubber padding 222 on the

upper end portions 218, 220 of the legs 210, 212, facing each other. It will be appreciated that adapters 200 can be readily removed from the first and second limb roller assemblies 73, 83 by withdrawing the respective base panels from spaces 81, 91.

[0056] Referring to FIG. 9, with the adapters 200 in place on the first and second limb roller assemblies 73, 83, a short limb parallel limb bow can be compressed on the bow press by slideably positioning inclined left and right spacer bars 70, 80 on the base member 60 to position limb rollers assemblies 73, 83 to suit the size and shape of the limbs 34a, 34b of the bow 32 to be inserted into the bow press 100. Once the limb roller assemblies 73, 83 are positioned to avoid direct contact with wheels, cams, and other bow end apparatus, yet to receive the limbs 34a, 34b at the axels of the limbs, the left and right spacer bars 70, 80 are releasably secured to the base member 60 with tensioning member 76. Opposing split bow limbs 34a, 34b are then placed in contact with the padding 222 on the upper end portions 218, 220 of adapter legs 210, 212 of adapters 200 to support the bow 32 in preparation for pressing. In this manner, the cams on the split limb ends are positioned in the U-shaped slot 214 between the upstanding legs 210, 212 of the adapter and are protected by the padding 224 in trough 216. It is noteworthy that limb rollers 74, 84 do not touch the limbs of the bow but provide support for the load on the adapters 200 during compression of the bow. Thereafter, the bow 32 is compressed in the same manner as has previously been described herein, i.e., the first and second handle rollers 20, 30 are positioned, the jack mechanism 50 is operated to lower the inclined riser beam 10 until the inside of the handle 36 of the bow 32 is received within the grooves 28 of the first and second handle rollers 20, 30 to securely hold the bow in place, means 110 is operated to cause the upper end 86 of right inclined spacer bar 80 to pivot inwardly about spacer bar pivot pin 88 toward left inclined spacer bar 70, and, in turn, to cause right bow limb 34a to bend toward left bow limb 34b to release the tension in bowstring 38. This allows the bowstring to be easily removed and/or installed and to check for alignment of the rollers and cams, which are positioned at the distal ends 32a and 32b of bow 32.

[0057] While the present invention has been described in terms of specific embodiments thereof, it will be understood that no limitations are intended to the details of construction or design other than as defined in the appended claims.

1. In an adjustable bow press for use with parallel limb short limb bows, each bow having an elongate handle, limbs extending from opposite ends of said handle and a bowstring extending in tension between said limbs, said bow press including:

- an elongate base member;
- outwardly and upwardly inclined left and right spacer bars adjustably positionable upon said base member and releasably secured thereto; and
- first and second limb roller assemblies secured to the upper ends of said left and right spacer bars; and
- means for causing the upper end portion of at least one of said spacer bars to move inwardly toward the other spacer bar to release tension in said bowstring;
- the improvement comprising removably insertable adapter means mounted on each of said first and second limb roller assemblies for supporting the limbs of said bows at their axels, said adapters comprising mounting means for removably mounting said adapters on said first and second limb roller assemblies and bow limb contact

means connected to said mounting means, said contact means facing the opposite limb roller assembly for contacting the axels of said bow limbs without damaging said bow limbs.

2. An adjustable bow press, as claimed in claim 1, wherein said means for causing the upper end portion of at least one of said spacer bars to move inwardly toward said other spacer bar comprises at least one of said spacer bars having an upper end portion on which one of said limb roller assemblies is mounted, pivot means pivotally connecting said upper end portion to said one of said spacer bars for pivotal movement of said upper end portion toward and away from said other spacer bar and means for causing said upper end portion to pivot about said pivot means toward said other spacer bar, whereby the bow limb supported by the limb roller assembly mounted on said upper end portion is caused to bend toward the other bow limb to release the tension in said bowstring.

3. An adjustable bow press, as claimed in claim 2, wherein said means for causing said upper end portion to pivot about said pivot means toward said other spacer bar comprises hydraulic, pneumatic, electrical or mechanical means.

4. An adjustable bow press, as claimed in claim 1 wherein said bow limb contact means of each said adapter means comprises a generally upright front panel joined to said mounting means, said front panel having an upper portion and a lower portion, the upper portion having a U-shaped configuration comprising first and second upwardly extending legs defining therebetween an upwardly opening U-shaped slot having a U-shaped trough, the upper end portions of said first and second legs including padding attached to the surfaces thereof facing the other spacer bar for contacting the axels of the bow limbs without damaging the bow limbs.

5. An adjustable bow press, as claimed in claim 4, wherein said U-shaped trough includes padding attached thereto.

6. An adjustable bow press, as claimed in claim 4, wherein said upper portion of said front panel of each said adapter means inclines forwardly toward the other spacer bar relative to said lower portion of said front panel.

7. An adjustable bow press, as claimed in claim 6, wherein said upper portion of said front panel of each said adapter means inclines forwardly about 4° to 6° relative to said lower portion of said front panel.

8. An adjustable bow press, as claimed in claim 6, wherein said upper end portions of said first and second legs incline rearwardly away from the other spacer bar relative to the lower portions of said first and second legs about the same angular amount as the upper portion of said front panel inclines forwardly toward the other spacer bar relative to said lower portion of said front panel.

9. An adjustable bow press, as claimed in claim 8, wherein said lower portion of said front panel and said upper end portions of said first and second legs are generally parallel.

10. An adjustable bow press, as claimed in claim 4, wherein said first and second limb roller assemblies are generally U-shaped, each comprising a base, opposed upstanding arms at the ends of said base, a pivot pin extending between said upstanding arms and a limb roller mounted on said pivot pin above said base for defining a space between said limb roller and said base, and said mounting means of each said adapter means comprises a base panel joined to and extending generally perpendicularly from said front panel away from said other spacer bar and received in said space defined between said limb roller and said base, said base panel including opposite side edges and a rear edge.

11. An adjustable bow press, as claimed in claim 10, wherein said base panel of each said adapter means includes means attached thereto and extending under the base of said first and second limb roller assemblies when said base panel is received in said space for stabilizing said adapter means on said limb roller assemblies.

12. An adjustable bow press, as claimed in claim 11, wherein said means for stabilizing comprises a generally L-shaped bracket affixed to each side edge of said base panel, one leg of each L-shaped bracket extending generally parallel to the front panel and affixed to each side edge immediately rearward of said front panel such that the lower end of said one leg extends below said base panel, and the other leg of each L-shaped bracket extending generally rearwardly from the lower end of said one leg and generally parallel to said base panel, said other leg extending under the base of said first and second limb roller assemblies when said base panel is received in said space.

13. An adjustable bow press, as claimed in claim 4, wherein said front panel and said mounting means are unitary.

14. An adjustable bow press, as claimed in claim 10, wherein said front panel and said base panel are unitary.

15. An adapter for removable mounting on an adjustable bow press to allow said bow press to be used, with parallel limb short limb bows having an elongate handle, limbs extending from opposite ends of said handle and a bowstring extending in tension between said limbs, said adjustable bow press including:

an elongate base member;

outwardly and upwardly inclined left and right spacer bars adjustably positionable upon said base member and releasably secured thereto; and

first and second limb roller assemblies secured to the upper ends of said left and right spacer bars;

said adapter comprising:

mounting means for removably mounting an adapter on each of said first and second limb roller assemblies and bow limb contact means connected to said mounting means, said contact means facing the bow limbs when said bow is mounted on said bow press for contacting the axels of said bow limbs without damaging said bow limbs.

16. An adapter, as claimed in claim 15, wherein said first and second limb roller assemblies of said bow press are generally U-shaped, each comprising a base, opposed upstanding arms at the ends of said base, a pivot pin extending between said upstanding arms and a limb roller mounted on said pivot pin above said base for defining a space between said limb roller and said base,

said bow limb contact means of said adapter comprises a generally upright front panel joined to said mounting means, said front panel having an upper portion and a lower portion, the upper portion having a U-shaped configuration comprising first and second upwardly extending legs defining therebetween an upwardly opening U-shaped slot having a U-shaped trough, the upper end portions of said first and second legs including padding attached to the surfaces thereof facing the bow limbs when said bow is mounted on said bow press for contacting the axels of the bow limbs without damaging the bow limbs; and

said mounting means of said adapter comprises a base panel joined to and extending generally perpendicularly from said front panel, said base panel including opposite

side edges and a rear edge and adapted to be received in said space defined between said limb roller and said base with said front panel facing the bow limbs when said bow is mounted on said bow press.

17. An adapter, as claimed in claim **16**, wherein said U-shaped trough includes padding attached thereto.

18. An adapter, as claimed in claim **16**, wherein said upper portion of said front panel of each said adapter means inclines forwardly relative to said lower portion of said front panel.

19. An adapter, as claimed in claim **18**, wherein said upper portion of said front panel of each said adapter means inclines forwardly about 4° to 6° relative to said lower portion of said front panel.

20. An adapter, as claimed in claim **18**, wherein said upper end portions of said first and second legs incline rearwardly relative to the lower portions of said first and second legs about the same angular amount as the upper portion of said front panel inclines forwardly relative to said lower portion of said front panel.

21. An adapter, as claimed in claim **20**, wherein said lower portion of said front panel and said upper end portions of said first and second legs are generally parallel.

22. An adapter, as claimed in claim **16**, wherein said base panel of each said adapter means includes means attached thereto for extending under the base of said first and second limb roller assemblies when said base panel is received in said space for stabilizing said adapter on said limb roller assemblies.

23. An adapter, as claimed in claim **22**, wherein said means for stabilizing comprises a generally L-shaped bracket affixed to each side edge of said base panel, one leg of each L-shaped bracket extending generally parallel to the front panel and affixed to each side edge immediately rearward of said front panel such that the lower end of said one leg extends below said base panel, and the other leg of each L-shaped bracket extending generally rearwardly from the lower end of said one leg and generally parallel to said base panel, said other leg adapted to extend under the base of said first and second limb roller assemblies when said base panel is received in said space.

24. An adapter, as claimed in claim **16**, wherein said front panel and said base panel are unitary.

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