

[54] **BENCH JIG FOR SKIS**

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[58] Field of Search **269/9-10, 37, 40, 269/43, 45, 56, 58, 79, 62; 280/11.35**

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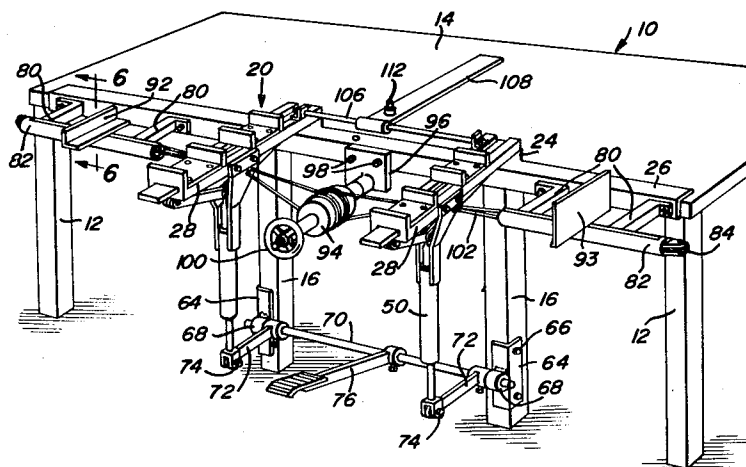
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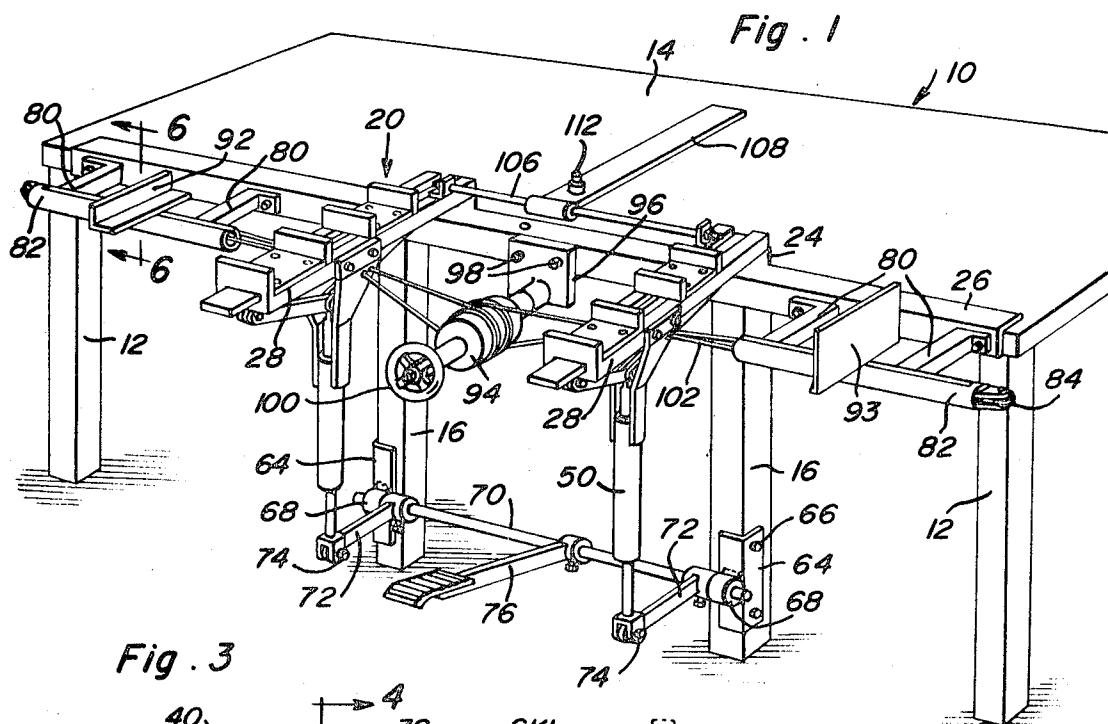
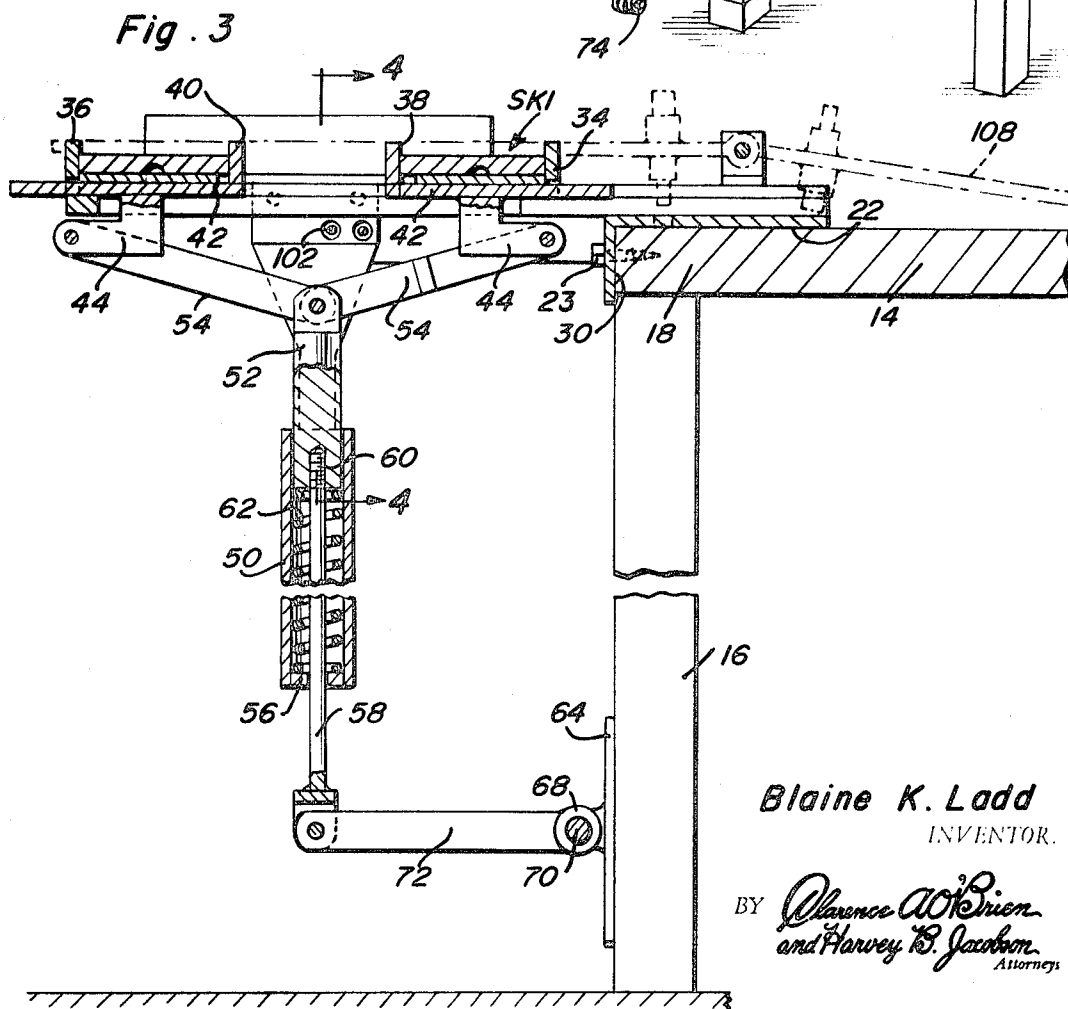
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ABSTRACT

A table- or bench-type clamp including laterally spaced pairs of longitudinally aligned and spaced upstanding abutment flanges each having associated therewith an opposing laterally shiftable flange. A pair of skis are positionable on the remote sides of the pairs of abutment flanges between the latter and the corresponding laterally shiftable flanges. The laterally shiftable flanges have actuating structure operatively associated therewith for simultaneously shifting those flanges toward and away from the abutment flanges whereby the opposite side marginal edge portions of each of the associated skis may be clamped between the corresponding pairs of abutment flanges and the opposing laterally shiftable flanges. A centering structure is provided for properly longitudinally shifting the associated skis to positions with their longitudinal centers in predetermined position spaced between the pairs of longitudinally spaced abutment flanges and associated laterally shiftable flanges and in this manner proper indexing and rigid stationary support of an associated pair of skis is afforded in order that bindings may be properly anchored in exact corresponding positions on each pair of skis supported from the clamp assembly.

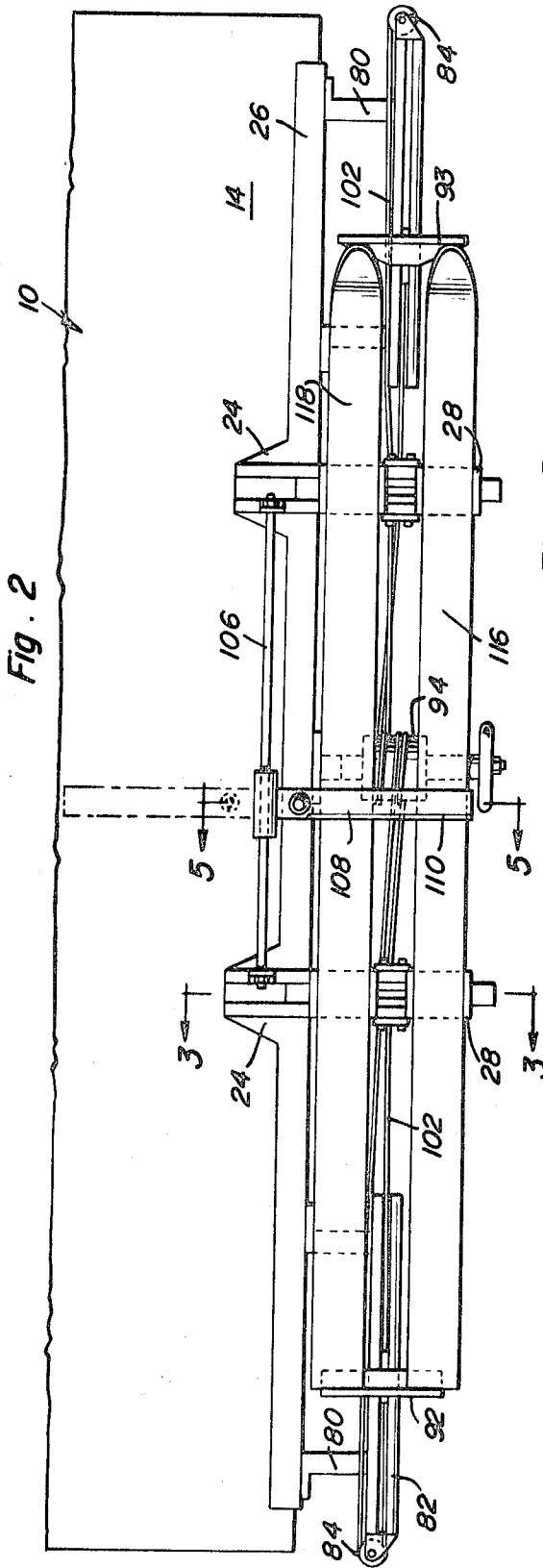
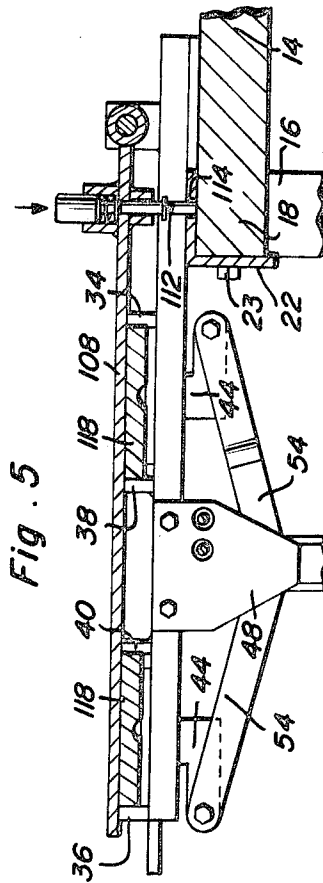
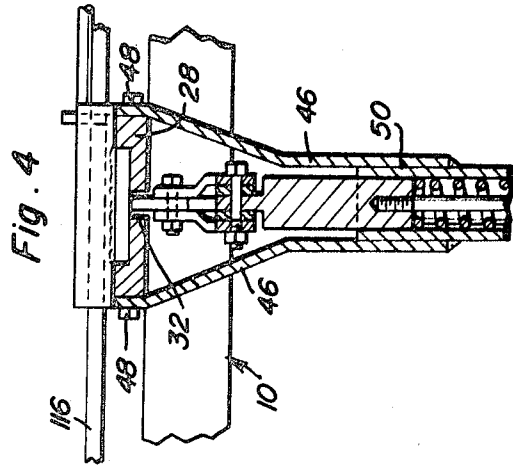
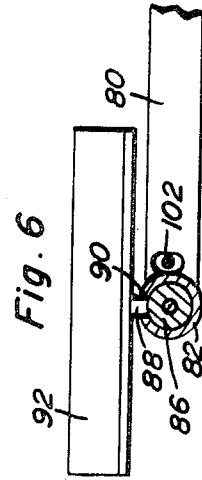
12 Claims, 6 Drawing Figures





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BENCH JIG FOR SKIS

The bench or table jig of the instant invention has been specifically designed whereby a pair of skis to have bindings secured thereto may be precisely positioned in side-by-side parallel relation in a manner such that a pair of bindings may be readily secured in exact corresponding positions on the skis supported from the clamp assembly. The clamp assembly of the bench jig has further been designed for support from a workbench or table and includes actuating means adapted to be operated by the foot of a person standing adjacent the worktable or bench.

The main object of this invention is to provide an adjustable jig or support structure operable to support a pair of skis in exact corresponding positions relative to a transverse reference line whereby the aforementioned reference line may be utilized in positioning ski bindings on the skis in exact corresponding positions prior to securing of the ski bindings on the skis.

Another object of this invention, in accordance with the immediately preceding object, is to provide a bench jig or clamp assembly specifically designed for support from any suitable support table or bench.

Still another object of this invention is to provide a jig in accordance with the preceding objects and constructed in a manner whereby exact predetermined indexing of skis of various lengths may be readily accomplished with a minimum of effort and the indexed skis may be releasably rigidly retained in proper indexed positions relative to a transverse reference line.

A final object of this invention to be specifically enumerated herein is to provide a bench jig for skis in accordance with the preceding objects and which will conform to conventional forms of manufacture, be of simple construction and easy to use so as to provide a device that will be economically feasible, long lasting and relatively trouble free in operation.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIG. 1 is a fragmentary perspective view of a conventional form of worktable or bench upon which the jig or clamp assembly of the instant invention has been mounted;

FIG. 2 is a fragmentary enlarged top plan view of the bench illustrated in FIG. 1 and in particular that longitudinal marginal edge portion of the bench to which the bench jig or clamp assembly is supported;

FIG. 3 is an enlarged fragmentary transverse vertical sectional view taken substantially upon the plane indicated by the section line 3—3 of FIG. 2;

FIG. 4 is a fragmentary transverse vertical sectional view taken substantially upon the plane indicated by the section line 4—4 of FIG. 3;

FIG. 5 is an enlarged fragmentary vertical sectional view taken substantially upon the plane indicated by the section line 5—5 of FIG. 2; and

FIG. 6 is an enlarged fragmentary transverse vertical sectional view taken substantially upon the plane indicated by the section line 6—6 of FIG. 1.

Referring now more specifically to the drawings, the numeral 10 generally designates a conventional form of worktable or bench including four corner legs 12 interconnected at their upper ends by means of a horizontal rectangular top 14. The table 10 additionally includes an intermediate pair of legs 16 spaced apart and between the legs 12 disposed at opposite ends of the forward marginal edge portion 18 of the top 14. If the worktable or bench 10 does not include the legs 16, the latter may be added to the conventional workbench or table 10 in order to provide additional bracing for the bench jig of the instant invention referred to in general by the reference numeral 20. The jig 20 includes an L-shaped mounting plate 22 secured over the front marginal edge of the top 14 and the front marginal edge portion of the upper surface of the top 14

means of suitable fasteners 23. The mounting plate includes a pair of longitudinally spaced intermediate lateral extensions 24 of its upper flange portion 26 and the rear ends of a pair of laterally spaced and generally parallel horizontal support arms 28 are secured in overlying relation to the extensions 24 in any convenient manner with the front ends of the support arms 28 projecting forwardly of the vertical flange portion 30 of the mounting plate 22.

As will be seen from FIG. 4 of the drawings, the support arms 28 are shallow channel shaped in cross section and include longitudinal slots 32. Further, each of the support arms 28 includes a pair of upstanding transverse stationary abutment flanges 34 and 36. The flanges 34 are longitudinally aligned as are the flanges 36 and each of the support arms 28 further includes a pair of laterally shiftable upstanding and transversely extending clamp jaws or flanges 38 and 40. The flanges 38 and 40 include follower portions 42 guidingly engaged in the corresponding channels defined by the support arms 28 and also depending arm portions 44 carried by the follower portions 42 and slidably received in and projecting downwardly through the corresponding slot 32.

Each of the support arms 28 includes a pair of depending brace arms 46 whose upper ends are secured to the support arms 28 by means of suitable fasteners 48 and a guide tube or sleeve 50 is secured between the lower ends of each pair of brace arms 46. A follower 52 is slidably received in the upper end of each guide tube or sleeve 50 and a pair of connecting links 54 have one pair of corresponding ends thereof secured to each follower 52 and the other pair of corresponding ends thereof pivotally secured to the corresponding arm portions 44 whereby downward movement of each follower in its associated guide tube or sleeve 50 will cause the corresponding flanges 38 and 40 to move toward each other and away from the associated flanges 34 and 36 and upward movement of each follower 52 will cause the corresponding flanges 38 and 40 to move away from each other and toward the opposing flanges 34 and 36, respectively.

The lower end of each guide tube or sleeve 50 includes an apertured lower end wall 56 upwardly through which an actuating rod 58 extends and the upper end of each actuating rod 58 is threaded in a blind bore 60 formed in the lower end of the associated follower 52. In addition, each of the guide tubes or sleeves 50 has a compression spring 62 disposed therein about the actuating rod 58 and between the corresponding follower 52 and its apertured lower end wall 56.

A pair of journal brackets 64 are secured to the lower ends of the legs 16 by means of fasteners 66 and the journal brackets 64 include journal portions 68 which journal the opposite ends of an operating shaft 70 having a pair of crank arms 72 mounted thereon. The outer ends of the crank arms 72 are pivotally secured, as by fasteners 74, to the lower ends of the actuating rods 58 and the center of the operating shaft 70 includes a generally radially outwardly extending foot pedal 76 which may be depressed against the biasing action of the spring 62 so as to pull the followers 52 downwardly and shift the flanges 38 and 40 away from the corresponding flanges 34 and 36. However, release of the foot pedal or lever 76 will allow the biasing action of the springs 62 to urge the followers 52 upwardly and to thus shift the flanges 38 and 40 away from each other and toward the flanges 34 and 36.

The opposite ends of the mounting plate 22 each includes a pair of longitudinally spaced horizontally outwardly projecting support arms 80 and a pair of slotted sleeve guides 82 are supported from the pairs of support arms 80. The remote ends of the guide sleeves or sleeve guides 82 include pulley wheels 84 and each sleeve guide 82 has a tubular cylindrical follower 86 slidably disposed therein. Each follower 86 includes an upstanding flange portion 88 which projects through the slot 90 formed in each sleeve guide 82 and the flanges 88 have transverse abutment flange 92 and 93 secured to the portion thereof which projects above the sleeve guide 82.

A winding member 94 is journaled from a mount 96 secured to the mounting plate 22 intermediate the support arms 28 by

means of suitable fasteners 98 and the winding member 94 includes a handwheel 100 which may be rotated in order to rotate the winding member 94. A pair of elongated flexible tension members 102 have their midportions turned several times about the winding member 94 and their opposite end portions secured to opposite ends of the followers 86 with one end portion of each tension member 102 being trained over the corresponding pulley wheel 84. Accordingly, rotation of the winding wheel 100 in one direction will cause the abutment flanges 92 to move away from each other while rotation of the winding member 94 in the other direction will cause the abutment flanges 92 to move toward each other.

Finally, an elevated support shaft 106 is secured between the rear ends of the support arms 28 and has a generally radially outwardly extending indexing arm 108 mounted thereon including a beveled edge 110, see FIG. 2, as well as a spring-mounted detent pin 112. The upper horizontal flange portion 26 of the mounting plate 22 includes an opening 114, see FIG. 5, in which the spring-urged indexing pin 112 is receivable. The base end of the positioning arm 108 is rotatably and slidably mounted on the rod or shaft 106. However, when the free end of the arm 108 is swung outwardly of the forward marginal edge portion of the top 14, a predetermined position of the arm 108 along the rod or shaft 106 may be achieved by the seating of the lower end of the indexing pin 112 in the opening or bore 114.

In operation, a pair of matched skis of any given length are placed upon the support arms 28 between the flanges 34 and 38 and the flanges 36 and 40 after the foot pedal 76 has been depressed and the winding member 94 has been rotated in a direction shifting the abutment flanges 92 away from each other. Then, with the foot pedal 76 still depressed, the winding member is rotated so as to move the abutment flanges 92 toward each other whereby the opposite ends of the skis supported from the support arms 28 will be abutted by the abutment flanges 92 and the skis such as the skis 116 and 118 illustrated in FIGS. 2, 3 and 5 of the drawings will be shifted to the proper longitudinally shifted indexed positions so as to have their longitudinal center points in predetermined position relative to the bore 114 and thus the beveled edge 110 of the arm 108 when the latter is in the positions illustrated in FIGS. 2 and 5 of the drawings. Then, the foot pedal 76 is released whereupon the followers 52 will be pushed upwardly by the springs 62 and the flanges 38 and 40 will move toward the flanges 34 and 36 to thus clamp the opposite side edge portions of the skis 116 and 118 therebetween and automatically position the skis in exact parallel relation paralleling the mounting plate 22. Thereafter, the arm 108, which until this time has been in the position thereof illustrated in FIG. 1 of the drawings, may be swung to the positions thereof illustrated in FIGS. 2 and 5 of the drawings and the beveled edge 110 may be utilized as a guide for making any necessary markings on the skis 116 and 118 for securing ski bindings thereon in exact corresponding positions.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

I claim:

1. In combination, a support defining a longitudinal centerline and including portions for supporting a pair of skis thereon with the skis only generally paralleling said centerline and transversely registered position relative to each other and spaced on opposite sides of said centerline, said support including longitudinal shift means operative to engage the opposite ends of said skis and longitudinally shift the latter relative to each other and said support into exact transverse registry and with the skis shifted along said centerline into position centered relative to a predetermined line disposed normal to said centerline and extending between said skis.

2. In combination, a support defining a longitudinal centerline and including portions for supporting a pair of skis thereon with the skis only generally paralleling said centerline and transversely registered position relative to each other and spaced on opposite sides of said centerline, said support including lateral shift means operative to engage the opposite sides of each of said skis at each of a plurality of locations spaced longitudinally thereof and shift said skis laterally relative to each other and said support into exact parallel relation equally spaced to opposite sides of said centerline.

3. The combination of claim 2 wherein said support means further includes means operative to engage the longitudinal shift means operative to engage the opposite ends of said skis and longitudinally shift the latter relative to each other and said support into exact transverse registry and with the skis shifted along said centerline into position centered relative to a predetermined line disposed normal to said centerline and extending between said skis.

4. The combination of claim 1 wherein said longitudinal shift means includes a pair of generally parallel abutment members mounted on said support at points spaced along said centerline and interconnected for simultaneous and equal inverse movement along said centerline and including opposing upstanding opposing faces for engagement with the tip and rear ends of said skis.

5. The combination of claim 2 wherein said lateral shift means includes pairs of first stationary abutment elements spaced along said centerline with the elements of each pair disposed on opposite sides of the centerline and against which said skis may be laterally abutted, said lateral shift means also including pairs of second abutment elements spaced along said centerline, opposing the first elements and mounted on said support for shifting laterally of said centerline toward and away from the opposing first elements, and means associated with said second elements operative to simultaneously shift said second elements toward the opposing first elements.

6. The combination of claim 5 wherein said longitudinal shift means includes a pair of generally parallel abutment members mounted on said support at points spaced along said centerline and interconnected for simultaneous and equal inverse movement along said centerline and including opposing upstanding opposing faces for engagement with the tip and rear ends of said skis.

7. The combination of claim 1 wherein said support means comprise a pair of generally parallel horizontal support arms between and generally normal to which said centerline extends.

8. The combination of claim 7 including lateral shift means operative to engage the opposite sides of each of said skis at each of a plurality of locations spaced longitudinally thereof and shift said skis laterally relative to each other and said support into exact parallel relation equally spaced to opposite sides of said centerline, said lateral shift means including pairs of first stationary abutment elements spaced along said centerline with the elements of each pair disposed on opposite sides of the centerline and against which said skis may be laterally abutted, said lateral shift means also including pairs of second abutment elements spaced along said centerline, opposing the first elements and mounted on said support for shifting laterally of said centerline toward and away from the opposing first elements, and means associated with said second elements operative to simultaneously shift said second elements toward the opposing first elements.

9. The combination of claim 8 wherein said second abutment elements are mounted on said arms for shifting therealong.

10. The combination of claim 9 wherein said stationary abutment elements being stationarily supported from said arms.

11. The combination of claim 2 including a positioning arm supported at one end from said support for swinging through a plane normal to said centerline and between a first position swung away from said centerline and a second position

crossing said centerline a spaced distance above the latter for closely overlying the upper surfaces of said skis after they have been positioned by said longitudinal and lateral shift means.

12. The combination of claim 2 wherein said lateral shift means includes means for clampingly retaining said skis in adjusted shifted position.

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