

[54] **PARALLEL SKI TRAINER AND LEG CONDITIONER**

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[76] Inventor: **Fred B. Hynes**, 3045 South Holly Place, Denver, Colo. 80222

Primary Examiner—Anton O. Oechsle
Assistant Examiner—Richard J. Apley
Attorney—Clarence A. O'Brien and Harvey B. Jacobson

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[51] Int. Cl.A63b 69/18

[58] Field of Search272/57 B

[57] **ABSTRACT**

A ski trainer for teaching parallel skiing including a pair of horizontally spaced apart supports including first support structure for releasably clampingly engaging and supporting the front ends of a pair of snow skis for guided limited oscillation about upstanding axes extending therethrough and also oscillation about axes extending longitudinally of the supported skis and second support structure in the form of a horizontal transverse elastic strap for supporting the rear ends of the same skis for generally horizontal swinging about the aforementioned upstanding axes, limited vertical oscillation and oscillation of the rear ends of the supported skis about their longitudinal axes.

[56] **References Cited**

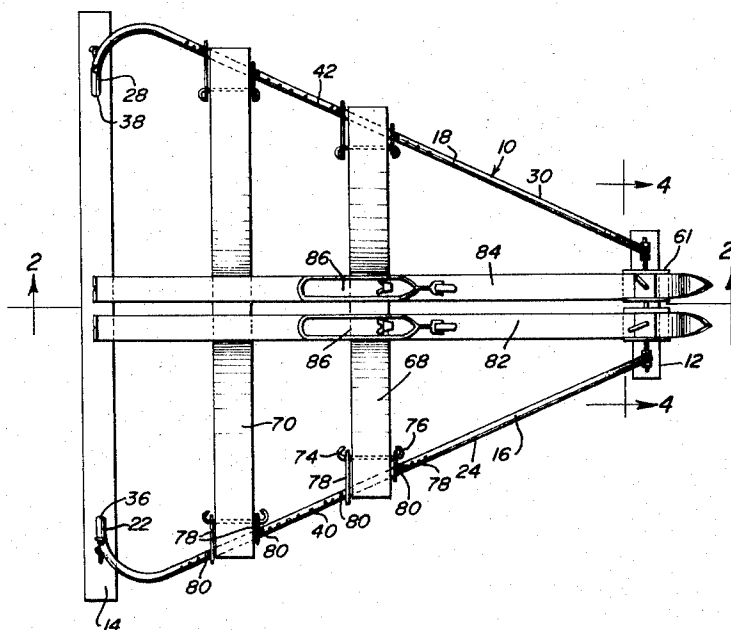
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12 Claims, 11 Drawing Figures



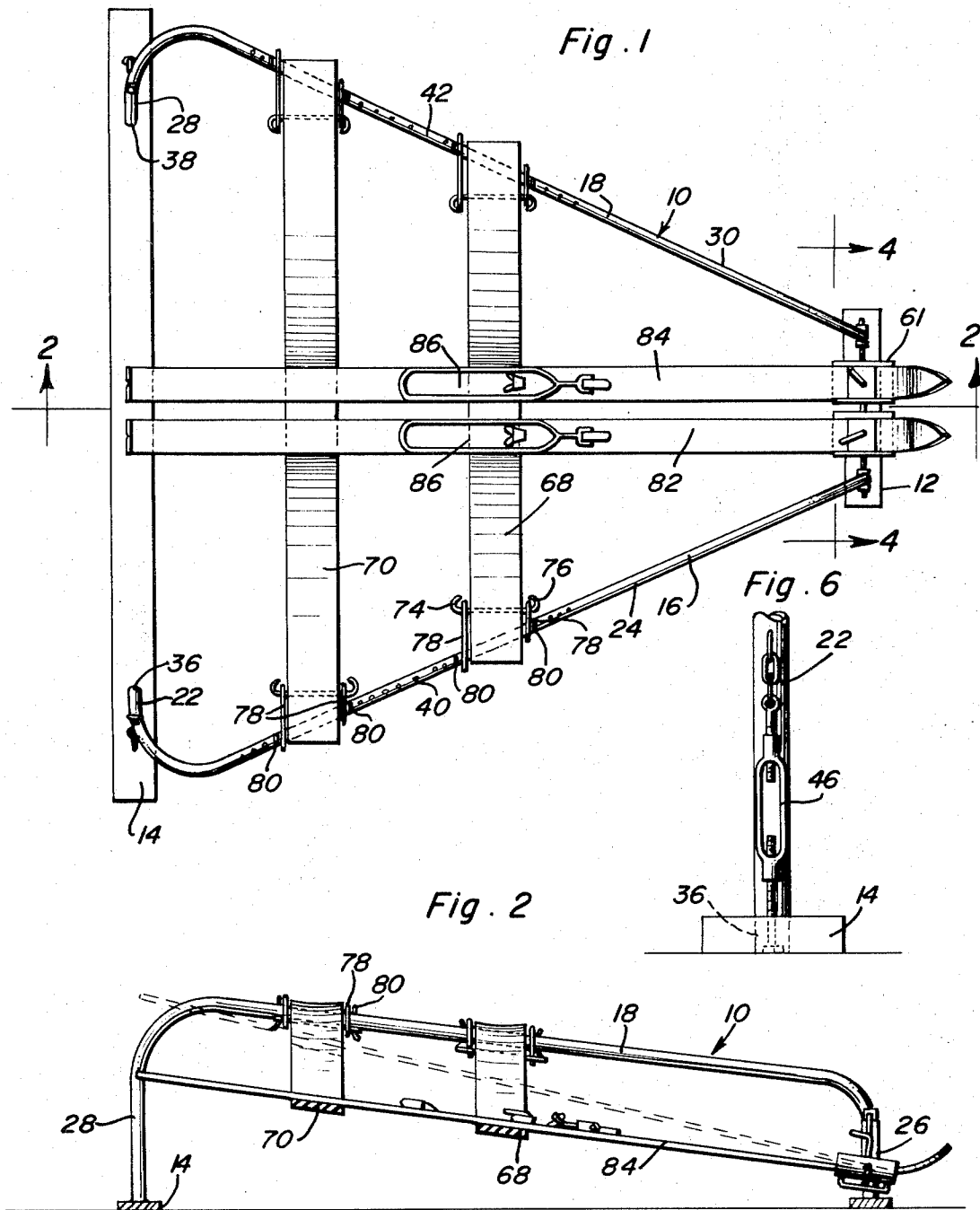


Fig. 1

Fig. 6

Fig. 2

Fig. 7

Fred B. Hynes
INVENTOR.

BY *Clarence A. O'Brien*
and *Harvey B. Jackson*
Attorneys

Fig. 3

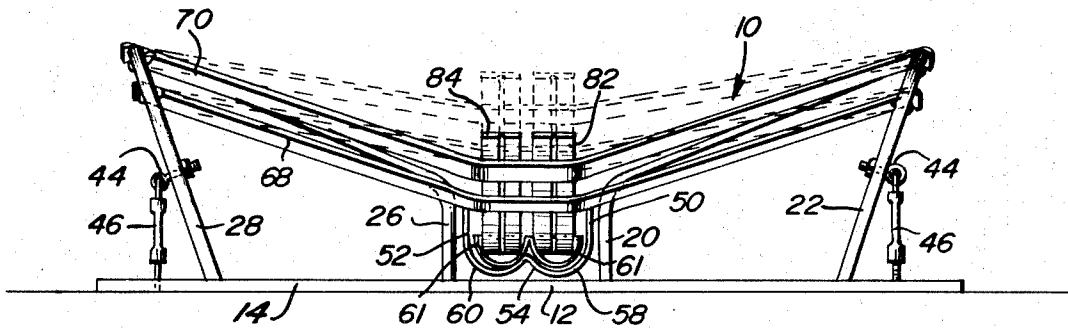


Fig. 4

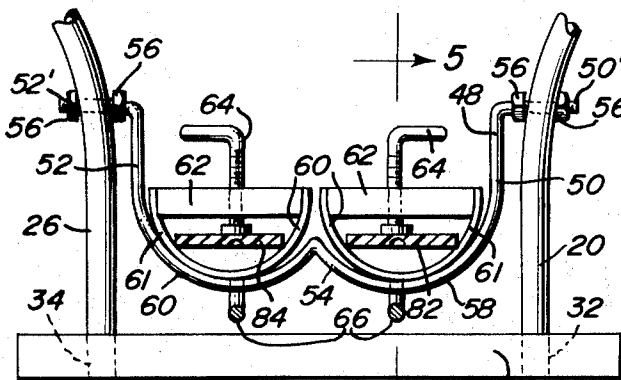


Fig. 5

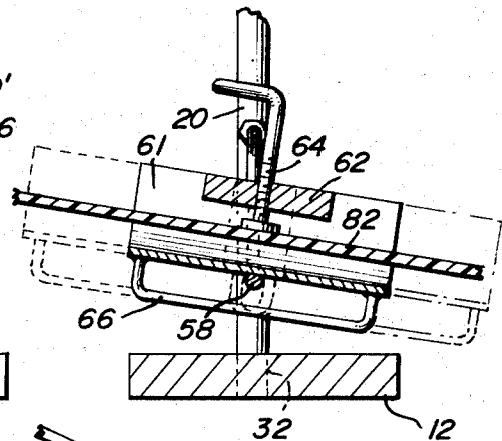


Fig. 8

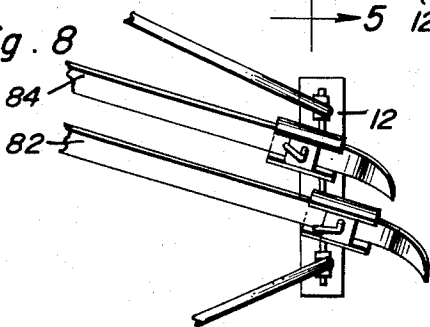


Fig. 9

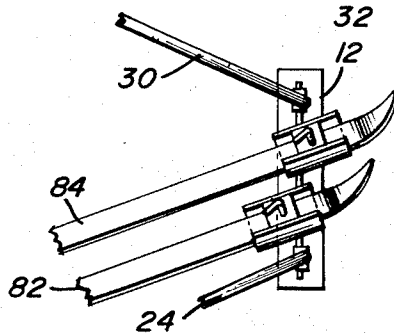


Fig. 11

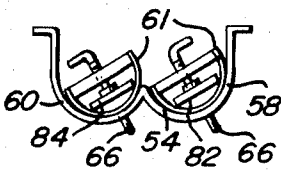
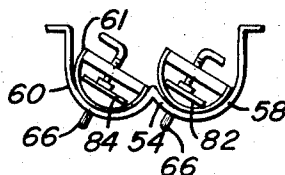


Fig. 10



Fred B. Hynes
INVENTOR.

BY *Alvanee A. O'Brien*
and Harvey B. Jacobson
Attorneys

PARALLEL SKI TRAINER AND LEG CONDITIONER

The instant invention has been specifically designed to permit a skier to practice parallel turns at home using his own boots and skis and under conditions that effectively simulate actual snow and skiing conditions. The regular use of the device of the instant invention not only develops and teaches proficiency in the parallel skiing technique, but also develops the leg muscles used in skiing.

To properly understand the usefulness and effectiveness of the instant invention, one must first understand the basics involved in parallel skiing, particularly in making parallel turns.

Parallel skiing consists of keeping the two skis close together and parallel through all motions. The degree of proficiency of the individual skier is judged by his ability to maintain his skis parallel to each other, particularly through each and every turn. To the extent that his skis are permitted to separate or are permitted to be forwardly convergent, his achievement toward parallelism is downgraded. There are several independent motions which must become matters of muscle-memory to properly execute this turn.

When it is desired to execute a right turn in parallel skiing, the skier pumps his legs so as to lower his body, raise his body and then lower his body again. It is this body movement which unweights the skis, particularly at the rear ends thereof so that the major contact of the skis with the snow surface is at the forward or tip end of the skis. This permits the rear ends of the skis to be moved laterally to the left. As the rear ends of the skis are shifted laterally to the left, the skis are rotated slightly about their longitudinal axes so as to raise the left edge portions thereof and the right hand ski is shifted slightly forward of the left ski. These basic maneuvers are carried out repeatedly during parallel skiing and can be accurately reproduced by utilizing the instant invention thereby enabling a skier to maintain himself in optimum condition for executing such moves when actually skiing, even during the summer months when no snow is available.

The main object of this invention is to provide a ski training apparatus which will enable beginning, intermediate and expert skiers to practice parallel skiing and to maintain themselves in proper condition for skiing should there be an extended interval between actual skiing sessions.

Another object of this invention, in accordance with the immediately preceding object, is to provide a training apparatus which may be utilized to exercise substantially all of the muscles which are used in parallel skiing.

Another important object of this invention is to provide a ski training apparatus enabling a skier to practice parallel turns while actually wearing his own ski boots and skis.

Still another important object of this invention is to provide a training device apparatus in accordance with the preceding objects and operable to simulate parallel skiing turns in a manner such that resistance to lateral shifting of the rear ends of the unloaded skis is afforded.

A final object of this invention to be specifically enumerated herein is to provide a ski training apparatus in accordance with the preceding objects which will con-

form 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 top plan view of the ski training apparatus of the instant invention;

FIG. 2 is a vertical sectional view taken substantially upon the plane indicated by the section line 2—2 of FIG. 1;

FIG. 3 is a rear elevational view of the ski training apparatus;

FIG. 4 is an enlarged fragmentary transverse vertical sectional view taken substantially upon the plane indicated by the section line 4—4 of FIG. 1;

FIG. 5 is a fragmentary longitudinal vertical sectional view taken substantially upon the plane indicated by the section line 5—5 of FIG. 4;

FIG. 6 is a fragmentary side elevational view of one of the rear adjustable length vertical brace members;

FIG. 7 is a fragmentary sectional view illustrating the manner in which the ends of the resilient straps are anchored to the forwardly convergent side rails of the apparatus;

FIGS. 8 and 9 are fragmentary top plan views illustrating the positions in which the associated skis are disposed when right and left hand turns, respectively, are being simulated; and

FIGS. 10 and 11 are fragmentary sectional views illustrating the relative positions of the front ski supports of FIGS. 8 and 9.

Referring now more specifically to the drawings, the numeral 10 generally designates the ski trainer of the instant invention. The trainer 10 includes a pair of generally parallel horizontal front and rear support members 12 and 14. The front support member 12 is appreciably shorter than the rear support member 14 and corresponding ends of the support members 12 and 14 are interconnected by means of a pair of inverted U-shaped members 16 and 18. The U-shaped member 16 includes a pair of short and long legs 20 and 22 interconnected by means of an integral bight portion into whose opposite ends the upper ends of the legs 20 and 22 smoothly curve. The U-shaped member 18 includes a pair of similar legs 26 and 28 interconnected by means of an integral bight portion 30 and it may be seen that the legs 20 and 26 are substantially vertical and have their lower ends received in upstanding bores 32 and 34 formed in opposite ends of the support member 12. The lower ends of the legs 20 and 26 may be secured in the bores 32 and 34, if desired.

The legs 22 and 28 are upwardly divergent, although disposed in the same vertical plane, and the lower ends of the legs 22 and 28 are received in similar but upwardly divergent bores 36 and 38 formed in opposite end portions of the support member 14.

The bight portion 24 is provided with a plurality of vertical bores 40 spaced longitudinally therealong and the bight portion 30 is provided with a plurality of similar bores 42 spaced longitudinally therealong.

Each of the legs 22 and 28 has an eyebolt 44 secured therethrough and a pair of turnbuckles 46 are secured in substantially vertical position between the eyebolts 44 and the underlying end portions of the support member 14.

A generally U-shaped saddle 48 including a pair of upstanding legs 50 and 52 interconnected by means of an integral bight portion 54 is secured between the upper ends of the legs 20 and 26. The upper ends of the legs 48 and 52 include oppositely outwardly directed end portions 50' and 52' which are secured through the upper ends of the legs 20 and 26 by means of suitable threaded fasteners 56. The bight portion 54 defines a pair of side by side generally semi-cylindrical cradles 58 and 60 and each of the cradles supports a semi-cylindrical follower 61 therefrom. Each of the followers 61 includes a diametric brace 62 through which a clamp screw 64 is threadedly engaged as well as an underlying generally U-shaped bail 66 through which the corresponding cradles or saddles extend. Accordingly, each of the followers 61 is shiftable between the extreme right hand and left hand positions thereof illustrated in phantom lines in FIG. 5 of the drawings and may be oscillated between the oppositely inclined positions thereof illustrated in FIGS. 10 and 11 of the drawings.

A pair of elongated flexible strap members 68 and 70 are provided and extend between pairs of corresponding locations spaced along the bight portions 24 and 30. The strap members 68 and 70 are elastic and each has a plurality of longitudinally spaced transversely extending bores 72 formed through its opposite ends. An anchor pin 74 is passed through a selected bore 72 in each end of each strap member and the ends of each pin 74 are bent as at 76. Each end of each strap member 68 and 70 is provided with a pair of anchor rings 78 having corresponding ends looped over the bent ends of the associated anchor pin 74 and the rings 78 are slidably mounted on the corresponding bight portion. Further, a pair of cotter pins 80 defining abutments are secured through two pairs of bores 40 and 42 in each of the bight portions 24 and 30 outwardly of each pair of rings 78 whereby shifting of each pair of rings 78 longitudinally of the corresponding bight portion is prevented. Of course, the support members 68 and 70 may be adjusted laterally relative to each other and longitudinally of the corresponding bight portions 24 and 30.

In operation, a person using the ski trainer 10 will first support his skis 82 and 84 on the ski trainer 10 in the manner illustrated in FIGS. 1, 2 and 4 of the drawings with the forward ends of the skis 82 and 84, just rearward of the tips thereof, clamped in the followers 61. Then, the person desiring to use the trainer will place his feet upon which he is wearing ski boots in the bindings 86 of the skis 82 and 84. Then, after the user of the trainer has assumed a standing position and has equipped himself with a pair of ski poles, the user will then push downwardly on and then immediately thereafter lift his feet without applying upward pressure on the forward ends of the skis 82 and 84 so as to unload the rear ends of the skis. At this point the rear ends of the skis may be shifted laterally as in a parallel turn. Of course, as the rear ends of the skis are shifted laterally in one direction, the skis are rotated about their longitudinal axes in the other direction and the ski

on the side to which the skis are rotated is advanced relative to the opposite ski. This maneuver is repeated while swinging the rear ends of the skis to alternate sides.

Although the strap members 68 and 70 are elastic, they are sufficiently strong in resisting elongation so as to limit the amount of vertical travel of the rear ends of the skis required to "unload" the rear ends of the skis. The tension of the support members or strap members 68 and 70 may be adjusted according to the weight of the user of the trainer 10 merely by shifting the anchor pins 74 longitudinally of the strap members 68 and 70. In addition, shifting of the strap members 68 and 70 longitudinally of the bight portions 24 and 30 will also have the effect of varying the deflection of the strap members 68 and 70 according to a given load on the skis 82 and 84.

Through repeated use of the trainer 10 the user thereof may strengthen by exercise substantially all of the muscles utilized in parallel skiing. Further, he may practice turns in parallel skiing with a high degree of simulation of actual skiing conditions and he may also practice in using his ski poles in parallel ski turning.

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.

What is claimed as new is as follows:

1. In combination, first support means including horizontally spaced apart portions, elongated flexible generally horizontal strap means anchored at its opposite ends to said spaced portions of said first support means, second support means disposed laterally outwardly of one side of the mid-portion of said strap means, and a pair of anchor means supported from said second support means for individual oscillation about a pair of first parallel upstanding axes spaced apart along a path generally normal to a line extending between said strap means and said second support means and a second pair of parallel generally horizontal axes extending between said anchor means and said strap means as well as for individual limited longitudinal shifting along paths generally paralleling said second axes, said strap means being adapted to have the rear end portions of a pair of generally parallel snow skis disposed thereon for support therefrom, and said anchor means including support means for removably stationarily supporting the front end portions of said skis therefrom.

2. The combination of claim 1 wherein said strap means is constructed of elastic material.

3. The combination of claim 2 wherein said strap means includes a plurality of elongated strap members laterally spaced apart along a line extending between said strap means and said anchor means.

4. In combination, first support means including horizontally spaced apart portions, elongated flexible generally horizontal strap means anchored at its opposite ends to said spaced portions of said first support means, second support means disposed laterally outwardly of one side of the mid-portion of said strap

means, and anchor means supported from said second support means for oscillation about a first upstanding axis and a second generally horizontal axis extending between said anchor means and said strap means, said strap means being adapted to have the rear end portions of a pair of generally parallel snow skis disposed thereon for support therefrom, and said anchor means including support means for removably supporting the front end portions of said skis therefrom, said opposite ends of said strap means are anchored for adjustable positioning along paths extending between said opposite ends and said anchor means.

5. In combination, first support means including horizontally spaced apart portions, elongated flexible generally horizontal strap means anchored at its opposite ends to said spaced portions of said first support means, second support means disposed laterally outwardly of one side of the mid-portion of said strap means, and anchor means supported from said second support means for oscillation about a first upstanding axis and a second generally horizontal axis extending between said anchor means and said strap means, said strap means being adapted to have the rear end portions of a pair of generally parallel snow skis disposed thereon for support therefrom, and said anchor means including support means for removably supporting the front end portions of said skis therefrom, said strap means being constructed of elastic material, said strap means said first support means including coating means for selectively anchoring longitudinally spaced portions of said strap means to said portions of said first support means, whereby initial tensioning of said strap means may be adjusted.

6. The combination of claim 5 wherein said strap means includes a plurality of elongated strap members laterally spaced apart along a line extending between

said strap means and said anchor means.

7. The combination of claim 6 wherein the opposite ends of said strap means are anchored for adjustable positioning along paths extending between said opposite ends and said anchor means.

8. The combination of claim 4 wherein said strap means is disposed at an elevation spaced above a horizontal plane in which said anchor means is disposed.

9. In combination, a pair of generally horizontal elongated supports disposed in side by side spaced apart relation and being slightly convergent toward one pair of corresponding end portions thereof, generally horizontal elongated flexible strap means, said supports and the opposite end portions of said strap means including coating means anchoring said end portions of said strap means in selected positions spaced longitudinally along the pair of elongated supports, and anchor means supported from said one pair of corresponding ends of said elongated supports for universal oscillation relative thereto, said strap means being adapted to have the rear end portions of a pair of generally parallel snow skis disposed thereon for support therefrom, and said anchor means including support means for removably supporting the front end portions of said skis therefrom.

10. The combination of claim 9 wherein said strap means is constructed of elastic material.

11. The combination of claim 9 wherein said strap means includes a plurality of elongated strap members laterally spaced apart along said elongated supports.

12. The combination of claim 9 wherein said strap means is disposed at an elevation spaced above a horizontal plane in which said anchor means is disposed.

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