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3,567,239

SKIING INSTRUCTIONAL DEVICE

Filed Feb. 26, 1969

2 Sheets-Sheet 1

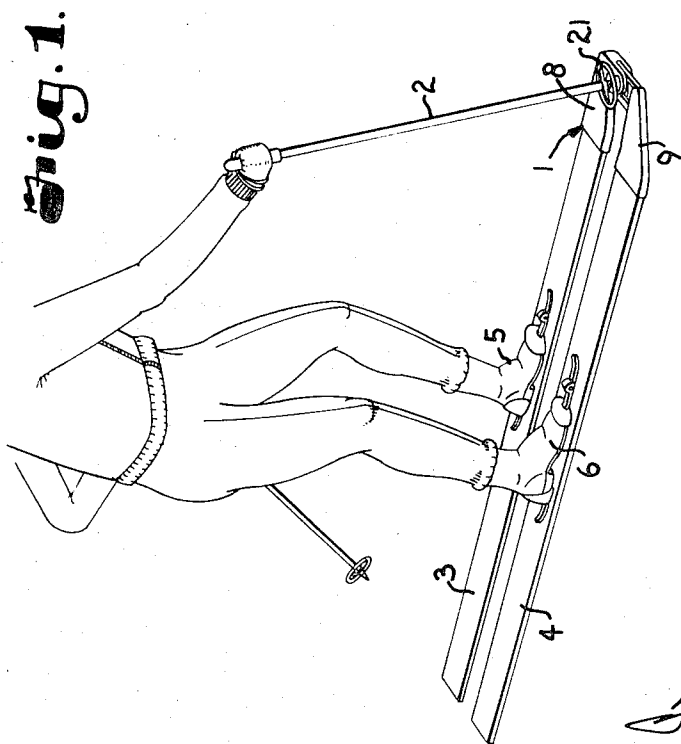
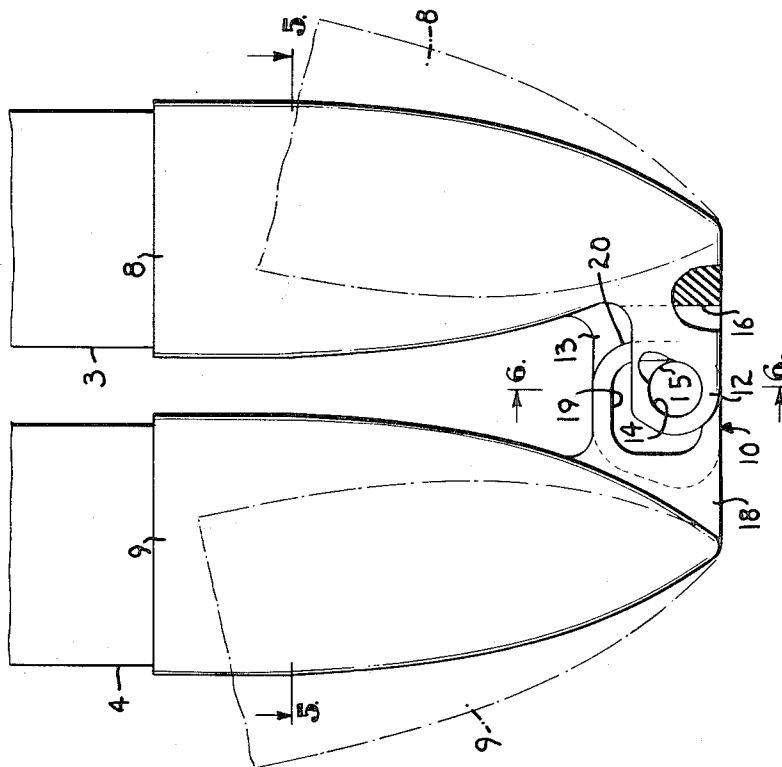


Fig. 2.



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Fig. 6.

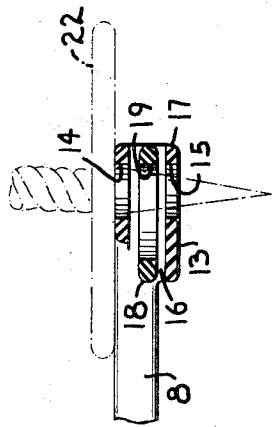


Fig. 4.

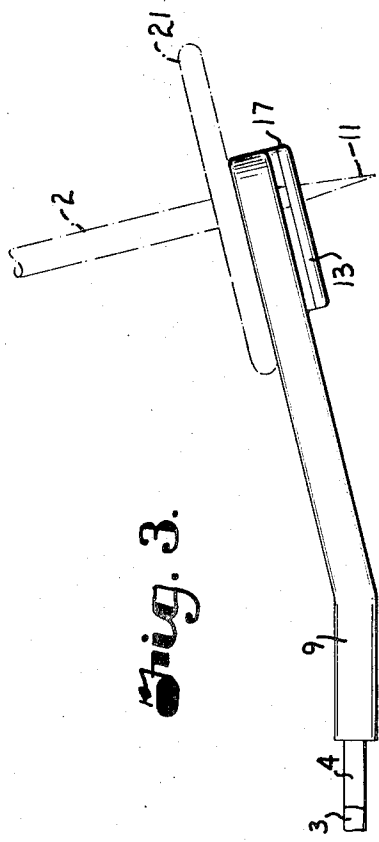
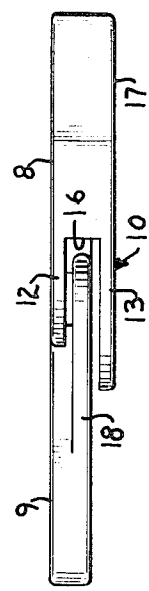
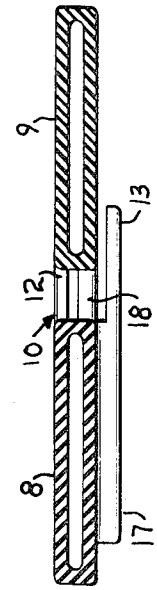


Fig. 3.

Fig. 5.



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SKIING INSTRUCTIONAL DEVICE

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ABSTRACT OF THE DISCLOSURE

A skiing instructional device consisting of cooperative members on the forward end of each of a pair of skis and having loosely engaging connecting portions with openings adapted to receive a pointed end of the ski pole for separably connecting same and preventing the forward ends of the skis from moving or spreading apart.

The present invention relates to skiing instructional devices and more particularly to such devices to be mounted on snow or water skis to assist students or novices to learn to ski on snow or water and to assist instructors or mentors in suitably instructing such students.

The principal objects of the present invention are: to provide a skiing instructional device using a connecting pin such as a ski pole and members on forward ends of a pair of skis with said members connected thereby wherein the skiing instructional device permits relative vertical and horizontal movement between the forward ends of the skis within selected limits; to provide such a skiing instructional device which suitably attaches together the forward ends of two skis which are independently attached to the two feet of a skier to assist the skier in learning to ski on snow or water; to provide such a device which maintains forward portions of the skis within a limited spacing range between each other but permits relative movement of the skis; to provide such a skiing instructional device minimizing the danger of injury in a fall by preventing one of the skis from straying out to the side and thereby reducing the falls by the skier; and to provide such a skiing instructional device which is economical to manufacture, easily installed on the skis, easily maintained, positive and efficient in operation, and particularly well suited for the proposed use.

Other objects and advantages of this invention will become apparent from the following description taken in connection with the accompanying drawings wherein are set forth by way of illustration and example certain embodiments of this invention.

FIG. 1 is a perspective view of a skier using a skiing instructional device embodying features of the present invention.

FIG. 2 is an enlarged plan view of the skiing instructional device showing alternate positions of the skis in broken lines.

FIG. 3 is a side elevational view of the skiing instructional device.

FIG. 4 is a front elevational view of the skiing instructional device.

FIG. 5 is a transverse sectional view through the skiing instructional device taken on line 5—5, FIG. 2.

FIG. 6 is a fragmentary sectional view through the skiing instructional device taken on line 6—6, FIG. 2, showing a modified connecting member.

Referring more in detail to the drawings:

The reference numeral 1 generally designates a skiing instructional device for use with a connecting member, preferably a ski pole 2, and mounted on a pair of

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conventional elongated skis 3 and 4 in which the forward ends are rounded or pointed and curved upwardly. The skis 3 and 4 are suitably attached to the feet 5 and 6 of a skier 7 by any conventional method. Elongated tubular sleeves 8 and 9 having one end open and the other end closed are mounted on the pointed or rounded forward ends of the skis 3 and 4 respectively and positioning means 10 in the form of connector members associated with the sleeves 8 and 9 extend between the forward closed ends thereof for receiving a pointed lower end 11 of the ski pole 2 for separably connecting the forward ends of the skis 3 and 4 and preventing same from spreading apart or crossing.

It is significant and critical to the invention that the positioning means 10 permit relative horizontal and vertical movement of the skis 3 and 4 and also permit relative rotation or tilting of the skis 3 and 4 in a second plane. The positioning means 10 is located near or slightly forward of points of inflection of the skis 3 and 4 and between the inner edges of the skis. In the present invention the skis 3 and 4 are connected at only one point and the ski pole 2 in the positioning means 10 prevents separation thereof while allowing the ready removal of the ski pole 2 therefrom, particularly during falls.

It is essential for the novice to learn to "snow-plow" maneuver to effect a breaking action while traveling straight downhill or while traversing at an angle to the "fall-line" of the hill in a downward direction. The "fall-line" of a hill is a path that a free rolling object would take if allowed to roll unobstructed down the incline in question. It is also important that the beginner learns to "traverse" across the face of a hill in a downward direction with his skis essentially in a parallel relation. This is accomplished by skiing at an angle of approximately ten to eighty degrees (10° to 80°) away from the "fall-line" of the hill. The greater the angle at which the skier skis away from the "fall-line" the slower his speed will be. Therefore, it is important for the novice to learn to "traverse" with his skis in a parallel position since it is so effective in controlling his speed. Thirdly, it is necessary for the beginner to learn to "turn" in order to avoid other skiers or natural obstacles and also merely to change his direction of descent as in the case when the skier "traverses" from one side of a hill to the other side and back again in a path producing a continuing series of "S's" in his travel down the slope.

It is, therefore, recognized that the three basic maneuvers described above (snow-plowing, traversing, and turning) all have a common feature as far as the relative position of the two skis is concerned. The feature referred to is that if the portions near the tips or forward ends of the skis are controlled so that they remain within a fixed, relatively short range of spacing between each other, each of the maneuvers will present a minimum of difficulty.

The sleeves 8 and 9 should conform to the longitudinal shape of the respective skis with a portion of each sleeve on each side of the respective points of inflection. It is desirable that the interior of the sleeves 8 and 9 be contoured or shaped to conform to the exterior contour or shape of the forward ends of the skis 3 and 4 whereby the sleeves may slide thereon in applying same to the skis. While the sleeves 8 and 9 and the positioning means 10 may be rigid, it is preferred that they be made or formed of a flexible, weather-resistant material, such as rubber, neoprene or synthetic resin to conform to the shape of the ski portions on which they are mounted.

A bifurcated portion is on one of the sleeves and, in the illustrated structure, vertically spaced upper and lower arms 12 and 13 respectively extend outwardly from the

forward end of one of the sleeves, as for example sleeve 8, and the arms 12 and 13 are transverse to longitudinal axis of the ski 3. The upper and lower arms 12 and 13 each have apertures or openings 14 and 15 respectively extending vertically therethrough with the openings or apertures 14 and 15 being aligned. In the illustrated structure, the openings or apertures 14 and 15 are circular and equally sized. A stop or abutment surface 16 extends between the upper and lower arms 12 and 13 and is positioned adjacent the forward end of the sleeve 8 facing the outer ends of the arms 12 and 13.

The upper arm 12 extends outwardly from an upper surface of the one sleeve 8 with an upper surface of the upper arm 12 being flush with the upper surface of the sleeve 8. A shoulder 17 depends from a lower surface of the sleeve 8 and the lower arm 13 extends outwardly therefrom with a lower surface of the lower arm 13 being flush with the lower surface of the shoulder 17. In the illustrated structure, the upper and lower arms 12 and 13 each have a vertical thickness substantially equal to the thickness of the walls of the sleeve 8. An intermediate arm 18 extends outwardly from the forward end of the other sleeve 9 and, in the illustrated structure, the arm 18 is transverse to the other ski 4 and the arm 18 has an aperture 19 extending vertically therethrough with the aperture 19 being alignable with the apertures 14 and 15 through the upper and lower arms 12 and 13, thereby being positioned to receive the pointed lower end 11 of the ski pole 2 therein to maintain the forward ends of the skis 3 and 4 in selected spaced relation. In the illustrated structure, the aperture 19 through the intermediate arm 18 is of a larger size than the apertures 14 and 15 through the upper and lower arms 12 and 13 whereby the forward ends of the skis 3 and 4 are movable horizontally relative to each other and the skis 3 and 4 are movable longitudinally of each other as defined by the limits of the aperture 19. An outer or free end 20 of the intermediate arm 18 is engageable with the stop or abutment surface 16 thereby defining a limit to the movement of the forward ends of the skis 3 and 4 and sleeves 8 and 9 thereon toward each other whereby a minimum spacing between said forward ends is established.

The intermediate arm 18 extends outwardly from a lower surface of the other sleeve 9 with a lower surface of the intermediate arm 18 being tangent with the lower surface of the other sleeve 9. The thickness of the intermediate arm 18 is also substantially equal to the wall thickness of the other sleeve 9. The intermediate arm 18 is received between the upper and lower arms 12 and 13 and, in the illustrated structure, the vertical spacing between facing surfaces of the upper and lower arms 12 and 13 is greater than the vertical thickness of the intermediate arm 18 thereby permitting the forward ends of the skis 3 and 4 to move vertically relative to each other within the limits defined by the difference between the vertical spacing between the arms 12 and 13 and the thickness of the intermediate arm 18.

It is necessary that the pointed lower end 11 of the ski pole 2 be above the surface of snow or water to minimize the resistance to the travel of the skier 7. A snow ring 21 on the ski pole 2 is positioned adjacent the pointed lower end 11 thereof and positioned to define the length of said lower end 11 which is less than the distance between the upper surface of the upper arm 12 and lower surfaces of the sleeves 8 and 9 whereby when the snow ring 21 engages the upper surface of the upper arm 12, the pointed lower end 11 will not extend below the lower surface of the sleeves 8 and 9. Also, the arms 12, 13, and 18 are positioned forward of the point of inflection of the skis 3 and 4 whereby the upper surface of the upper arm 12 is above a major portion of the skis 3 and 4.

The skiing instructional device 1 is particularly adapted to the "snow-plowing" maneuver wherein the tips or forward ends of the skis 3 and 4 are maintained within a limited spacing range while pressing the heels or rear

ends of the skis 3 and 4 apart and at the same time tilting or tipping the skis 3 and 4 inwardly in order to literally plow the snow or water. The great tendency in this maneuver is for both of the skis 3 and 4 to spread wide apart and for the tips or forward ends thereof to point outwardly in opposite directions or for the forward ends or tips to cross each other. In either case, it leads to an uncomfortable fall for the skier 7 with possible injury, such as broken bones. The skiing instructional device 1 prevents most of the worst of such errors that are commonly committed by a novice or student while tending to maintain the skis 3 and 4 in the necessary spaced relation for the three basic maneuvers.

The skiing instructional device 1 is particularly adaptable to the "stem turn" maneuver wherein one of the skis is turned outwardly and tilted as in the "snow-plowing" maneuver while maintaining the other ski in a substantially level and forwardly directed position. The pointed lower end 11 of the ski pole 2 is generally conically shaped whereby the pointed lower end 11 is movable within the aperture 15 through the lower arm 13 while fully engaging the aperture 14 through the upper arm 12. The movement of the pointed lower end 11 within the aperture 15 permits an upper end of the ski pole 2 to be directed rearwardly toward the skier 7.

As was previously noted, it is desirable that the sleeves 8 and 9 and the arms 12, 13 and 18 be of a resilient material, such as rubber or neoprene, thereby permitting tilting of the skis 3 and 4 relative to each other. It is preferable that the arms 12, 13 and 18 be planar members and that same be positioned forward of the respective points of inflection of the skis thereby directing the ski pole 2 toward the skier 7 even without adjusting same within the aperture 15 through the lower arm 13.

During the "traversing" maneuver, it is desirable that the forward end of one of the skis be forward of the forward end of the other ski and that the skis 3 and 4 be maintained in a substantially parallel relation and it may be necessary for one of the skis to be slightly above or below the other ski. This is accomplished by the size of the aperture 19 relative to the size of the pointed lower end of the ski pole 2 and the vertical spacing between the upper and lower arms 12 and 13 relative to the thickness of the intermediate arm 18, thereby allowing the uphill ski to normally be positioned above the downhill ski and slightly forward thereof, if desired.

During the initial learning stage, it may be desirable for the student to grasp a single ski pole 2 placed in skiing instructional device 1. As the learning proceeds, the student may use a ski pole in each hand in the conventional manner while maintaining a suitable connecting member, such as a pin or plug 22 in the skiing instructional device. It is desirable for the pin or plug 22 to have the same general shape as the end 11 of the ski pole 2 and to have a portion similar to the snow ring 21 for engaging the upper surface of the arm 12 to position the pin or plug 22 in the apertures 14 and 15. During this step it is desirable to be able to quickly remove the connecting member, therefore, a suitable flexible member, such as a cord or rope, is connected to the plug or pin 22 and held or grasped in one hand of the student whereby the plug or pin 22 can be quickly removed when desired, such as during a fall.

It is to be understood that, while I have illustrated and described one form of my invention, it is not to be limited to the specific form or arrangement of parts herein described and shown.

What I claim and desire to secure by Letters Patent is:

1. A skiing instructional device comprising in combination:

- (a) a pair of elongated skis each having up curved forward ends,
- (b) connector members mounted on each of the skis at the forward ends thereof and having portions extending from one forward end toward the other,

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- (c) the extending portion on the connector member of one ski having spaced upper and lower arms, the extending portion on the connector member of the other ski being an intermediate arm positioned between said upper and lower arms with the relative up and down movement thereof limited to the space between the intermediate arm and said upper and lower arms,
- (d) said arms each having openings in alignment when the forward ends of the skis are in selected spaced relation, and
- (e) a connector pin member extending into said openings of the connector member arms for preventing the forward ends of the skis from spreading apart.
2. A skiing instructional device as set forth in claim 1 wherein:
- (a) said openings through said upper and lower arms are equally sized,
- (b) said opening through said intermediate arm is of a larger size than said openings through said upper and lower arms whereby said forward ends of said skis are movable relative to each other within selected limits,
- (c) a stop surface between said upper and lower arms, said stop surface being positioned to be engaged by an outer end of said intermediate arm thereby defining a minimum spacing between said forward ends of said skis, said stop surface facing the outer ends of said upper and lower arms.
3. A skiing instructional device comprising in combination:
- (a) a pair of elongated skis each having up curved forward ends,
- (b) connector members mounted on each of the skis at the forward ends thereof and having portions extending from one forward end toward the other, said portions each having openings in alignment when the forward ends of the skis are in selected spaced relation,
- (c) a connector pin member extending into said openings of the connector member portions for preventing the forward ends of the skis from spreading apart,
- (d) said connector pin member being an elongated ski pole having a snow ring mounted thereon adjacent a pointed end thereof,
- (e) each of said connector members being an elongated sleeve mounted on each of said forward ends of said skis with each sleeve having a closed forward end,
- (f) said connector member portions extending from one of said connector members comprising vertically spaced upper and lower arms extending outwardly from the forward end of one of said sleeves, and
- (g) said connector member portions extending from the other of said connector members comprising an intermediate arm extending outwardly from the forward end of the other sleeve.
4. The skiing instructional device as set forth in claim 3 wherein:
- (a) said openings through said upper and said lower arms are equally sized; and
- (b) said opening through said intermediate arm is of a larger size than said openings through said upper and lower arms whereby said forward ends of said

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- skis are movable relative to each other within selected limits.
5. The skiing instructional device as set forth in claim 3 wherein:
- (a) said vertical spacing between said upper and lower arms is greater than the vertical thickness of said intermediate arm whereby said forward ends of said skis are movable vertically relative to each other within selected limits.
6. The skiing instructional device as set forth in claim 5 wherein:
- (a) said upper and lower arms and said intermediate arm are flexible members whereby limited relative tilting of said skis may be accomplished beyond that permitted by the spacing of said upper and lower arms.
7. The skiing instructional device as set forth in claim 3 including:
- (a) a stop surface between said upper and lower arms, said stop surface being positioned to be engaged by an outer end of said intermediate arm thereby defining a minimum spacing between said forward ends of said sleeves, said stop surface facing the outer ends of said upper and lower arms.
8. The skiing instructional device as set forth in claim 3 wherein:
- (a) said lower arm extends outwardly from a shoulder depending from a lower surface of said one sleeve;
- (b) said upper arm extends outwardly from an upper surface of said one sleeve with an upper surface of said upper arm being flush with said upper surface of said one sleeve; and
- (c) said intermediate arm extends outwardly from a lower surface of said other sleeve with a lower surface of said intermediate arm being flush with said lower surface of said other sleeve whereby said forward ends of said skis are movable vertically relative to each other.
9. The skiing instructional device as set forth in claim 8 wherein:
- (a) said pointed end of said ski pole has a length less than the distance between said upper surface of said upper arm and lower surfaces of said sleeves whereby said ski pole does not extend below said lower surfaces of said sleeves when said snow ring engages said upper surface of said upper arm.
10. The skiing instructional device as set forth in claim 3 wherein:
- (a) said upper and lower arms and said intermediate arm are planar members; and
- (b) said upper and lower arms and said intermediate arm are positioned forward of a point of inflection whereby an upper end of said ski pole is directed rearwardly of said forward ends of said skis.

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