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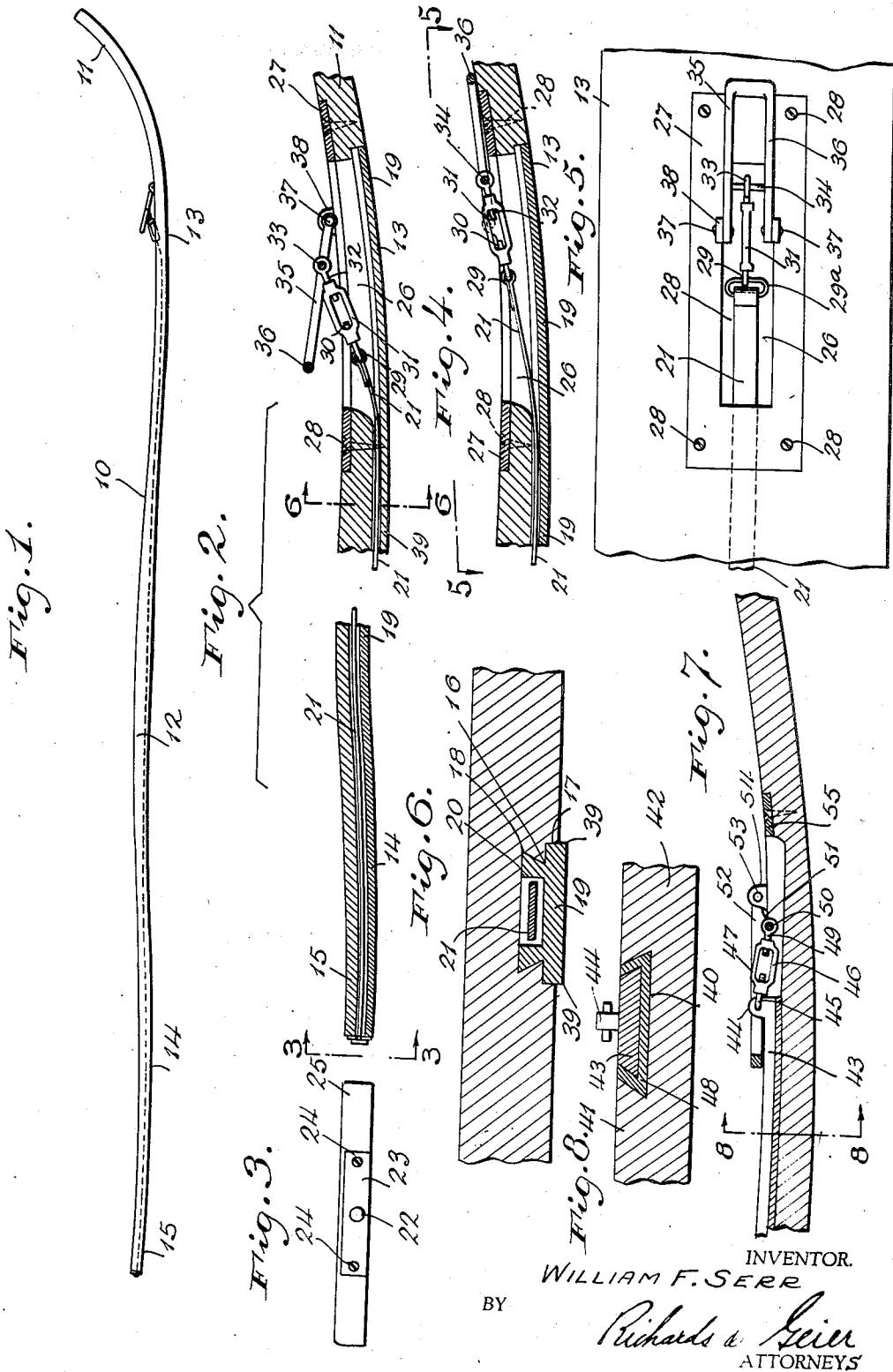
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SKI CONSTRUCTION

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## SKI CONSTRUCTION

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The present invention relates to an improved ski construction.

In the utilization of skis it is desirable that the skis grip satisfactorily upon hard or soft snow and upon uphill or downhill terrain.

Each of these conditions theoretically requires a different construction or shape of ski, but obviously it is not possible to substitute or utilize different types of skis when these conditions are met in the course of a trip or during the course of a skiing season.

It is, therefore, among the objects of the present invention to provide a ski construction which may be readily adjusted or modified to accommodate different snow conditions or different terrain conditions permitting the inclusion in one ski of an all-around adaptability without necessitating substantially additional equipment and which adjustments may be readily made by the average skier without difficulty.

In utilizing skis, it is desirable that the central part of the ski be arched particularly when utilized for climbing uphill and to retain the shape it is necessary to lock the skis together after usage with a block tied in between to cause the wood to retain the arch formation after each usage of the skis.

It is, therefore, among the further objects of the present invention to provide a means for assuring an adjustable arch formation of the skis without the necessity of using special frames or blocks in connection with the skis after each usage.

Furthermore, it is desirable that the edge of the ski afford a certain and sure grip to the snow which cannot be attained with an all wooden construction and it has been found that solid metal constructions are not altogether satisfactory for the edges of skis because of the weight and also of the fact that they weaken the wooden structure.

It is, therefore, among the further objects of the present invention to provide an improved edge construction for skis which not only will strengthen the ski but in addition will afford a better gripping thereby and more satisfactory usage thereof.

Other objects will be obvious or will be apparent during the course of the following specification.

In accomplishing the above objects, it has been found most satisfactory to utilize relatively thin drawn or bent light weight metal stock over the edging of the skis, said metal stock when insert-

ed in the ski being substantially flush with the side and bottom faces of the body thereof.

To attach these side pieces to the ski, it has been found most advantageous to provide the metal members with wedges or fins which may be readily fitted into the wood and which will firmly hold to the ski construction without substantially weakening the same.

Where these side pieces or strips are made of sheet angle stock, slots may be cut in the body thereof at predetermined intervals to enhance elasticity of the ski. At the narrow portions of the ski, the side portions may be omitted with the result that the edges will run only along the bottom of the edges of the ski.

It is generally preferred that all attachments by way of screws or otherwise be at the end of the skis and off the running or snow contacting faces thereof.

In order to enable the skis to grip all hard or soft snow, it is usually desirable to provide a central groove for soft snow. This groove is so shaped as to receive an intermediate edging device to enable better gripping of hard snow on which a central groove would not be of substantial value.

In several instances, it has been found satisfactory to provide a groove with a wedge base which is designed to receive series of inserts, carrying edges which would project below the bottom surface of the ski, said edges being of such nature as to provide a more satisfactory grip on hard snow.

In connection with this latter embodiment, it has been found most satisfactory to provide a groove or recess extending longitudinally between the bottom of the ski and the metal insert through which may extend a tensioning element consisting of either a wire or a flat strip of metal.

This tensioning metal may be provided with a turn buckle or tightening device which may then be loosened or tightened to give a desired curvature or arch to the bottom of the ski.

The above and other objects will appear more clearly from the following detailed description when taken in connection with the accompanying drawings showing preferred embodiments of the inventive idea.

In the drawings:

Figure 1 is a side view of a ski construction.

Figure 2 is a fragmentary side sectional view upon enlarged scale of the front and rear portions of the ski construction of Figure 1.

Figure 3 is an end view of the ski of Figure 2 on the line 3—3 of Figure 2.

Figure 4 is a side sectional view similar to the right hand side of Figure 2 with the tightening buckle construction in directly different position.

Figure 5 is a top view upon the line 5—5 of Figure 4.

Figure 6 is a fragmentary transverse sectional view on the line 6—6 of Figure 2.

Figure 7 is a side sectional view similar to Figures 2 and 4 of an alternative arching construction.

Figure 8 is a transverse sectional view on the line 8—8 of Figure 7.

Figure 9 is a transverse sectional view of an alternative ski construction showing different side edge and bottom edge constructions.

Figures 10, 11, 12, 13 and 14 are alternative fragmentary edge sectional views showing the metallic reinforcing and edging members.

Figures 15 and 16 show an alternative central stiffening arrangement, Figure 15 showing the stiffening edge element in position and Figure 16 showing it out of position.

Figure 17 is a top fragmentary perspective view showing one type of side edging element removed from the ski.

Figure 18 is a perspective view showing an alternative central metal edge construction removed from the ski.

Figure 19 is a fragmentary side view showing the method of connection between two central edging elements.

Referring to Figures 1 to 6, the ski structure 10 has an upturned front portion 11, an arched portion 12 and front and rear contact portions 13 and 14. The tail 15 may be slightly upturned as indicated in Figure 1.

The central bottom portion of the ski is provided with a groove 16 (see Figure 6) having a rectangular portion 17 and a dove-tailed portion 18. Received in the groove 16 is the insert member 19 provided with a channel 20 which receives the wire strip 21. The wire strip 21 at the rear end of the ski is connected by the button 22 to the end plate 23. The plate 23 is attached by the screws 24 to the back of the skier 25.

The front of the strip 21 extends into the recess 26 in the ski structure, which recess is provided with a plate 27. The plate 27 is held in position by the screws 28.

The front end of the metal strip 21 is connected by the ring 29a to the eye 29 of the screw piece 30, which screw piece connects to the turn buckle 31.

The other end of the turn buckle 31 carries the screw 32 having the eye member 33.

The eye member 33 fits onto the pivot 34 which is connected to the side members 35 of the U-shaped lever 36. The lever 36 is pivoted at 37 on the ears 38, said ears 38 being struck up from the plate 27.

In the construction as shown in Figures 1 to 6, it is apparent that the tightness of the strip 21 which is concealed between the base of the groove 16 and the edging strip 19 may be regulated by the turn buckle 31 when in the position shown in Figure 2.

After suitable adjustment has been made, the lever 36 may be turned over as indicated in Figure 4 tightening the strip 21 and causing the ski to take up the desired arch, as indicated in Figure 1.

The projecting edges 39 of the insert 19 enable a better grip on hard snow and on soft snow the insert 19 may be removed together with the wire

21 leaving the groove 16 or another insert to cover the wedge groove 18 alone may be used.

Referring to Figures 7 and 8, the groove 40 which is positioned in the upper face 41 of the ski construction 42, may receive a liner 48. Within the liner 48 is provided the strip 43 having an ear 44 connected to the screw element 45 of the turn buckle 46. Expansion of the strip 43 causes arching of the ski.

The other side of the turn buckle is connected by the screw member 49 and the eye 50 to the ear 51 on the loop 52.

The loop 52 is pivotally connected at 53 to the ears 54 upturned from the plate 55.

The operation in connection with the embodiment of Figures 7 and 8 is similar to that described in Figures 1, 2 and 5, except that the expansion arches the ski instead of tightening as in Figures 1, 2 and 5.

In Figure 9, is shown a jumping ski, the side edges of which are provided with the extruded or bent metallic corner members 57 or 58 which may be used alternatively.

Referring to the edge 57, there is a relatively short side flange 59 where the ski is very thin. The edge 57 has an inturned flange 60 fitting into the wooden body 61 of the ski. The lower flange 62 is much wider and has an upturned portion 63.

It will be noted that the flanges 59 and 62 are flush with the side and bottom of the ski construction 61 and that the flanges 60 and 63 hold the corner piece 59 in position without substantially weakening the wooden structure 61.

In the corner piece 58, the side flange 64 is somewhat higher and both the side flange 64 and bottom flange 65 are provided with inclined or oblique flanges 66 and 67 inserted into the wooden body.

The body of the ski 61 may receive a plurality of grooves 68 which in turn receive the wedge shaped metal portions 69 of the strips 70.

The elements 57 and 58, as shown in Figure 9, may be slid into position from the end of the ski, and they may be readily held in position by means of a suitable cement.

Instead of three elements, 69—70, as shown, one of these elements may be employed and if desired, the sides of the wedge may be continued leaving off the projecting outside portion 70.

It is also possible to use fiber pieces instead of metal, as material of construction for the elements 57, 58 and 69 of Figure 9.

It has been found that wax will stick to these tough fiber inserts as well as it will to the wood of the ski body or structure itself.

The sections of Figures 10, 11 and 12 show the alternative corner pieces 71, 72 and 73 respectively. At 71, the side flanges 72 and 73 are provided with the inturned elements 74 and 75.

In Figure 11, the corner piece extends diagonally and is provided with a dove-tail 76 which fits into the dove-tailed groove 77.

In Figure 12, the corner piece 73 consists of a square block of metal having the holding flanges 78 and 79.

Figure 10 also shows a central edge construction 81 having inturned holding flanges 82.

In Figure 13, is shown an alternative corner piece construction 83 having a bottom flange portion 84 and diagonal flange portions 85 and 86.

The flanges 85 and 86 are designed to extend into the bottom 87 of the ski.

These elements may be single as indicated in

Figure 14 or double with the flanges 85 in contact as indicated in Figure 13.

In Figures 15 and 16, is illustrated an alternative central groove construction 90 in the ski body 91 which has a rounded portion 92 having the slots 93 which receive the keying elements 94.

The insert element 95 carrying the keys has projecting edges 96 which enable a grip in hard snow.

The groove 97 is designed to receive a tightening wire 98 similar to that shown at 21 in Figures 1 to 5.

Figure 17 shows a perspective view of the edge construction of similar edge construction of the character of 57 of Figure 9 in which a series of slots 100 and 101 have been alternately cut to give enhanced flexibility.

At the thin forward portion of the ski, the flanges 59, 60 and 63 are omitted, as indicated at 110 and the screws 111 are provided to enable this portion of the strip to be screwed to the ski.

Slots 100 are preferably cut through the portions 59, 60 and 63 leaving 62 intact or through the portions 60, 62 and 63 leaving 59 intact.

Although the central elements 79, 70, 81 and 95 shown respectively in Figures 6, 9, 10 and 15 may be continuous, they also may be made of a series of interlocking sections such as indicated at 112 in Figure 18 or 113 in Figure 19.

As indicated in Figure 18, the wedge is cut away at 114 and the bottom portion is turned up and over, as indicated at 115 to overlie the portions 116 of the other element.

In the alternative construction of Figure 19, the bottom portion of one element is recessed at 119 and the tongue section 120 of the next element fits thereinto.

The individual pieces 112 of Figure 18 and 113 of Figure 19 may be carried in a bag and fitted into position when it is necessary to use skis on hard snow.

The various metallic side and central edging members may be made of sheet metal stock, of tubular conformation or of return bent constructions, and if desired the metallic may be slit longitudinally or laterally or both for flexibility and such tubing in cross section may be wedge-shaped, trapezoid-shaped, round-shaped, oval-shaped, rectangular-shaped and so forth.

It is apparent that the specific illustrations shown above have been given by way of illustration and not by way of limitation and that the structures above described are subject to wide variation and modification without departing from the scope or intent of the invention, all of which variations and modifications are to be included within the scope of the present invention.

What is claimed is:

1. A ski construction comprising a wooden base and metallic edges to reinforce said base

and enable better engagement between the base and the snow when in use, said metal edges taking the form of extruded right angle bars, said bars having flanges extending perpendicularly into the side and bottom of said base at right angles to each other.

2. A ski construction comprising a wooden base and metallic edges to reinforce said base and enable better engagement between the base and the snow when in use, said metal edges taking the form of metal strips of rectangular cross section, said strips having flanges extending perpendicularly into the side and bottom of said base at right angles to each other.

3. A ski construction comprising a wooden base having a central groove in the bottom thereof and means received in said groove to cause arching thereof and a cover plate for said groove extending beyond the bottom of said base to form a central edging element.

4. A ski construction comprising a wooden base having a central groove in the bottom thereof and means received in said groove to cause arching thereof, said means being adjustable and a cover plate for said groove extending beyond the bottom of said base to form a central edging element.

5. A ski construction comprising a wooden base having a central groove in the bottom thereof and means received in said groove to cause arching thereof, said means including a metal strip received in a groove in the ski and a cover plate for said groove extending beyond the bottom of said base to form a central edging element.

6. A ski construction comprising a wooden base having a central groove in the bottom thereof and means received in said groove to cause arching thereof, said means including a metal strip fixed at the rear of the ski and provided with a tightening and loosening device at the front of the ski and a cover plate for said groove extending beyond the bottom of said base to form a central edging element.

7. A ski construction comprising a wooden base and a metallic edge member therefor, said edge member comprising a unitary strip extending longitudinally a substantial portion of the base and formed with a plurality of relatively flat walls defining an angular cross-section, all but one of the walls being slit transversely at intervals through their lengths to provide increased flexibility of said strip.

8. A ski construction comprising a wooden ski and a metallic edge member therefor, said edge member comprising a unitary strip having angularly disposed walls defining an angular cross-section, certain of said walls being slit transversely for flexibility and at least one wall extending continuously.

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