Nov. 10, 1942. N. L. SMITH ET AL 2,301,339

SKI AND METHOD OF MAKING THE SAME

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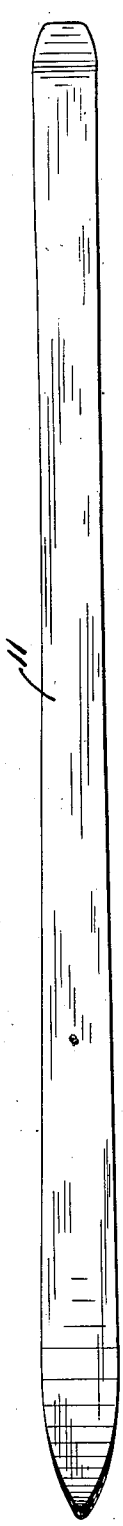


Fig. 2.

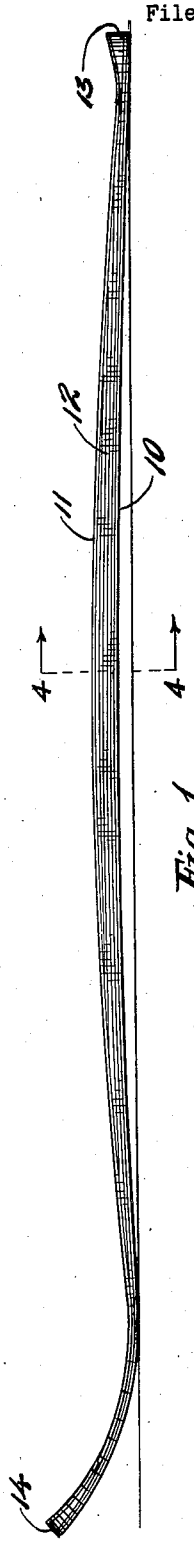


Fig. 1.



Fig. 3.

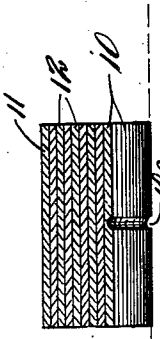


Fig. 4.

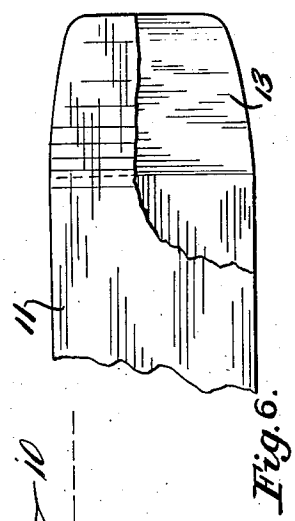


Fig. 6.

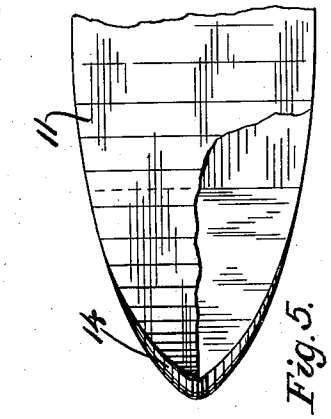


Fig. 5.

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SKI AND METHOD OF MAKING THE SAME

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Medford, Wis.

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2 Claims. (Cl. 144—309)

This invention relates to a ski and a method of making the same. The sport of skiing has increased greatly in recent years and with the increased emphasis on winter sports and winter resorts the use of skis is still increasing.

It was long the practice to fashion skis by hand from a single piece of wood. A great many skis are still made in this way. Said practice necessitates an extremely careful selection of material. A piece of wood must be selected with unusually straight and uniform grain and it must be substantially free of any defects. It will be seen that it is difficult to get two skis that are closely similar by said practice. Even after the skis are carefully shaped, steamed and formed to the desired shape some defect which was not discernible will cause a failure of the skis in use.

It has been proposed to make skis of several pieces of wood or of a plurality of layers. Said practice, however, has followed the theory that the ski should have a central body or core of considerable thickness which tapered in thickness towards its ends and which would give the needed strength and resiliency to the ski.

It is an object of this invention to provide a method and ski in which the entire ski is made of layers of veneer wood, all of which layers are of substantially the same uniform thickness. Veneer wood is now produced in large quantities and can be obtained at quite a low cost.

It is a further object of the invention to provide a novel method of forming and assembling the layers of veneer which form the ski.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawing in which like reference characters refer to similar parts throughout the several views and in which:

Fig. 1 is a view in side elevation of the ski;

Fig. 2 is a top plan view thereof;

Fig. 3 is a bottom plan view of said ski;

Fig. 4 is a vertical section taken on line 4—4 of Fig. 1 as indicated by the arrows;

Fig. 5 is a partial view similar to Fig. 2 shown on an enlarged scale, a portion thereof being broken away; and

Fig. 6 is a partial view similar to Fig. 2 shown on an enlarged scale, a portion thereof being broken away.

In carrying out the invention, pieces of hard wood veneer are selected of suitable length. It may be stated that veneer is also made from the softer woods, such as pine, but the soft woods do not have the requisite strength to withstand the hard use and great stresses that the ski must encounter in use. Two or more pieces of hard wood veneer are carefully selected and these are formed roughly in plan as desired for the usual shape of the ski. These two layers having the full length of the ski are used for the top and bottom layers. There may be if desired two layers used at top and bottom. A plurality of other pieces of veneer wood are then selected and these are roughly shaped in plan, these layers being made successively of shorter length. The shape of these layers when finished will correspond to the portion of the ski in which they are disposed. The number of layers used in the ski will depend somewhat upon the type and upon the thickness of the veneer. In practice from 7 to 10 layers of veneer have been used. The number of layers is also varied somewhat according to the type of ski. Some skis are made for heavier persons and these will have a greater number of layers than some other skis which are made for lighter persons. While the thickness of the veneer wood varies somewhat, the thickness on rotary cut veneer runs from 150 to 8 pieces to the inch. Straight sawed veneer runs from $\frac{1}{16}$ of an inch to $\frac{1}{8}$ of an inch or more in thickness. After the series of pieces of veneer wood have been selected and shaped the same are assembled on the piece used for the bottom layer. The layers will be arranged in superposed relation and will be successively shorter in length toward the top of the ski. The layers will be covered with a waterproof adhesive, such as a high grade of casein glue. With the intermediate layers so placed on the bottom layer and the adhesive being in place, the said assembled layers are then placed between male and female dies having the desired shape for the ski. The layers are pointed and formed to give the shape shown in Fig. 1. The ski will have an upwardly bowed portion intermediate its ends which extends for the greater part of its length. The forward end of the ski which is pointed as shown is curved upwardly. The assembled layers are kept in the dies or molds of the press until they together with the adhesive are firmly set. The assembly is then removed from the press and the top surface is planed and smoothed so that a finished surface is provided. Next the top layer is placed over the assembly.

Referring now to the drawing the bottom layer 10 is shown, the top layer 11 is shown while the intermediate layers are shown as 12. When the

top layer is put in place as above stated, a wedge-shaped piece 13 of some suitable hard wood, such as mahogany, is placed at the rear end of the ski immediately under the top layer. The rear end of the ski is somewhat tapered as shown in Fig. 2 and the wedge-shaped piece 13 will have the same shape in plan and its thick end will be at the rear end of the ski. Another wedge-shaped piece 14 of similar material is placed beneath the top layer 11 at the front end of the ski. The thick end of this wedge-shaped piece 14 will lie in the outer end of the ski. The grain on the pieces 13 and 14 will extend transversely of the ski or substantially perpendicular to the longitudinal center line thereof. The top surface of the assembly and the bottom surface of the top layer will be provided with the adhesive. With the pieces 13, 14 and the layer 12 in place the ski is again placed in the press between the male and female dies and kept there until the entire assembly and the adhesive have firmly and permanently set. The assembly is then removed and the ski is cut and shaped to its finished form. The top and bottom surfaces as well as the edges of the ski or the side surfaces will all be brought to a very smooth and highly finished surface. The ski will be shaped in plan as shown in Fig. 2 of the drawing. A groove 10*a* is then cut in the bottom layer, extending longitudinally thereof from its rear end to a point adjacent the curved end of the ski. This groove as shown in Fig. 4 is preferably of circular cross section. In practice a base of lacquer seal is applied to the ski and then a finishing coat of lacquer put on over said base. The ski is then highly polished and is then ready for use.

The finished ski will appear as shown in the drawing and will have the above mentioned upwardly bowed intermediate portion. The ski will be resilient and when the user places his weight thereupon the ski will bend down so that substantially all of the bottom layer is in one planed surface. The bottom layer will then touch the support throughout substantially its entire extent.

From the above description it will be seen that we have provided a novel, simple and inexpensive structure of ski. The ski is made without the usual thickened core which has heretofore been used. It has been necessary to select the said core with great care just as it was necessary to select the piece of wood for a one-piece ski with great care. By using the thin veneer wood it is easier to select perfect pieces of wood. With the very thin thickness any defects in the wood can readily be seen. There is more strength in the ski comprised of the large number of thin veneer pieces than in the one-piece ski or a ski with top and bottom layers and an intermediate thick core. The stresses set up in the present ski will be more evenly distributed than those in a ski made of one piece or those in a ski having a thickened core. The thin layers of material with the adhesive therebetween give a much more homogeneous structure to the ski. A ski is thus provided which is much more certain to withstand the great stresses which are often applied to it. It is within the purview of the invention to have the grain in some of the intermediate layers 12 disposed at an angle to the grain in the top and bottom layers. The grain in successive ones of the layers 12 could extend at equal angles to the longitudinal center line of the ski in opposite directions. The novel ski is thus not only much more easily and inexpensively made but has greater strength and other novel and desirable characteristics. Another great advantage of the present ski is that it does not warp as do most skis made from solid pieces of wood or with thick cores. The ski is of course adapted for use as an airplane ski as well as a ski for personal use. The finished ski is quite artistic and beautiful. The invention has been amply demonstrated in actual practice and found to be very successful and efficient.

It will, of course, be understood that various changes may be made in the steps and sequence of steps of the method and in the form, details and proportions of the product without departing from the scope of applicants' invention, which generally stated, consists in a method and product such as set forth in the above objects, and such as disclosed and defined in the appended claims.

What is claimed is:

1. The method of making a ski which consists in shaping top and bottom layers of ordinary hard wood veneer to the general shape of said ski in plan, said layers being of a length to extend throughout the full length of sid ski, shaping a plurality of integral layers of thin hard wood veneer of uniform thickness to the general shape of said ski in plan, covering said layers with a casein glue, placing said plurality of layers upon said bottom layer with the layers decreasing in length toward the top, placing said assembled layers between dies to shape said ski to have an upwardly bowed intermediate portion throughout the greater portion of its length and to have an upwardly curved front end, covering said assembled layers with casein glue, placing said top layer upon said assembled layers, then again placing said ski between said dies and maintaining said ski under pressure of said dies until it is thoroughly set to shape and secured in position and then finishing and polishing said ski.

2. The method of making a ski which consists in shaping top and bottom layers of ordinary hard wood veneer to the general shape of said ski in plan, said layers being of a length to extend throughout the full length of said ski, similarly shaping a plurality of integral layers of hard wood veneer and of small uniform thickness, covering said layers with a casein glue, placing said plurality of layers upon said bottom layer with the layers decreasing in length toward the top, placing said assembled layers between dies to shape said ski to have an upwardly bowed intermediate portion throughout the greater portion of its length and to have an upwardly curved front end, covering said assembled layers with casein glue, placing said top layer upon said assembled layers, placing wedges beneath said top layer at the front and rear ends of said ski, said wedges tapering to no thickness toward the center of said ski, then again placing said ski between said dies and holding said ski under pressure until it is thoroughly set to shape and then polishing and finishing said ski.

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