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A. ROSSIGNOL

2,560,663

SKI AND ITS METHOD OF MANUFACTURE

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Fig. 1

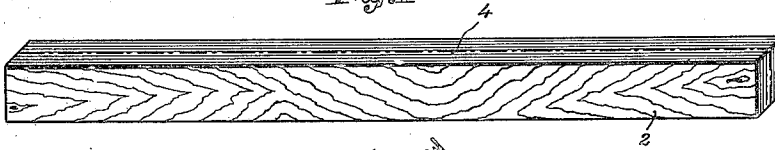


Fig. 2

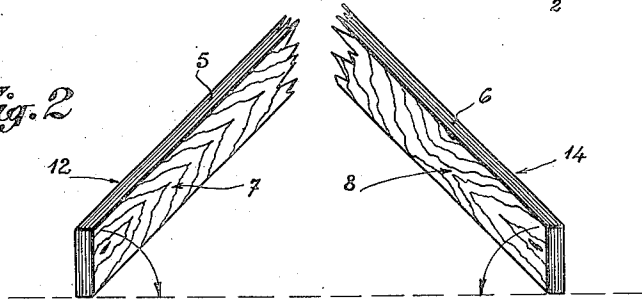


Fig. 3



Fig. 4

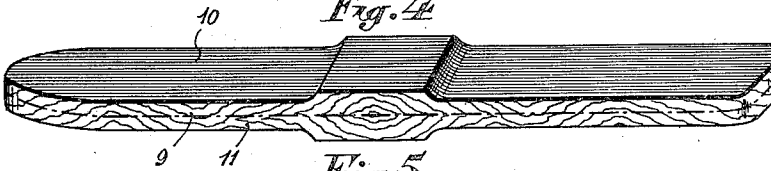


Fig. 5

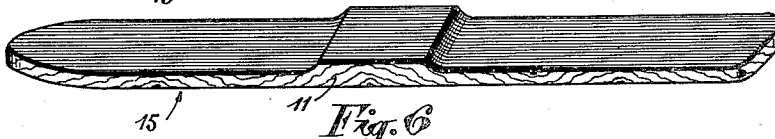
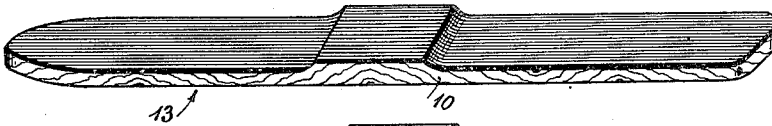
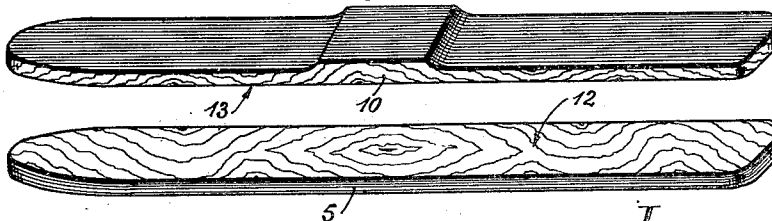


Fig. 6



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UNITED STATES PATENT OFFICE

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SKI AND ITS METHOD OF MANUFACTURE

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6 Claims. (Cl. 280—11.13)

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According to the methods in use to this day, the desired bend is given to skis during manufacture by softening the wood by means of steam or hot water after which the softened and bent skis are dried on a heated table or like support. But after some time, the bend disappears unless the skis, when not in use, are held inside suitable pressing devices.

The softening of the wood by means of warm water or by steaming produces always an alteration in the wood fibres the resistance of which is thereby substantially reduced.

On the other hand, the fibres in contact with the heated support shrink before the inner fibres and still longer before the fibres on the opposite side of the wood. This progressive shrinking of the successive inner layers of the wood produces inner stresses which cause cracks; said cracks may not be noticed when the wood has cooled but they form nevertheless an initiation of unavoidable splits and deformations.

In spite of all the care devoted to the pairing of a pair of skis, it is almost impossible to obtain two skis having the same suppleness, i. e. the same resistance to bending and the same weight, which makes it necessary to reduce the cross-section of either of the skis to obtain, with as great an approximation as possible, equality for these important factors from one ski to the other of the same pair of skis.

It is furthermore impossible to find two laths for the sliding portions of the skis, which have exactly the same fibrous structure and consequently, the sliding or frictional factor is different for the two skis of a pair, which is a considerable drawback for competition skis.

My invention has for its object a ski constituted by two superposed assembled boards one of which appears with its grain lying flat and the other with grain upright.

My invention has also for its object a method for manufacturing same according to which the two superposed boards are secured together through cold gluing and then bent by an energetic pressing against a suitable bending block during the drying thereof.

My invention has also for its object to provide the two skis of a pair with identical sliding surfaces and equal suppleness and to this end I obtain the lower boards or elements of the skis

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by ripping a wood lathe of suitable size and outline and by using each ripped part with the surface formed by the ripping as the sliding surface of the ski while the upper boards or elements of the ski are similarly obtained by ripping another wood lathe.

I have shown by way of example in accompanying diagrammatical drawings a form of execution of my invention.

Fig. 1 shows the lath having flat or upright grain, as used for making the lower boards of a pair of skis.

Fig. 2 is a view of part of each lower board cut out of the lath of Fig. 1.

Figs. 3 and 4 show the lath having upright or flat grain (according as to whether the lath of Fig. 1 has flat or upright grain) used for making the upper boards of the same pair of skis.

Fig. 5 shows the two upper boards as obtained after ripping the lath of Figs. 3 and 4.

Fig. 6 shows the upper and lower boards of a ski before they are assembled.

According to my invention, a lath 2 (Fig. 1) having flat or upright grain is cut to the size required for forming in superposition the two lower boards of a pair of skis.

Another lath 3 (Fig. 3) having grain in upright or flat arrangement, according as to whether the lath 2 has flat or upright grain, is cut to the size and shape required for forming in superposition the two upper boards of the pairs of skis and assumes then the appearance shown in Fig. 4.

The lath 2 is then ripped as shown by the line 4 (Fig. 1) so as to form two thin boards 5 and 6 (Fig. 2) which constitute the lower boards of the two skis. Care should be taken to use for the lower or sliding surface of the finished skis the surfaces 7 and 8 (Fig. 2) which have been separated by the ripping operation and show consequently perfectly identical friction and sliding coefficients. These boards 5 and 6 which have a maximum suppleness or a maximum rigidity according as to whether they are cut with flat or upright grain, may be of hard wood such as ash, hickory and the like or else compressed or bakelised wood.

The lath 3 (Fig. 3) is also ripped along kerf or line 9 in order to form the two upper boards 10 and 11 of a pair of skis. According as to whether

they are cut with upright or flat grain, these two boards will also provide maximum rigidity or maximum suppleness. The lower board 5 (or 6) and the upper board 10 (or 11) are then glued together through their cooperating surfaces 12—13 or 14—15 and held tightly against each other on a suitable bending block in which position they are retained until they are completely dry.

This operation being performed, the ski is practically deformation-proof. This is due to the fact that the fibrous structures glued together are not identical and consequently the stresses arising in the two assembled boards are not identical and they oppose one another as one board cannot be deformed without being submitted to the counteracting resistance of the other board.

Moreover the surfaces which have been glued together are provided with striations produced by the saw used for ripping, which striations engage one another from one board to the other and assist in resisting deformation.

Lastly in order to give the ski the shape of a solid of equal resistance, its cross-section should be rectangular and its breadth increases from the centre towards the ends while its thickness decreases. This outline allows the omission of the usual ribs provided for giving rigidity which ribs at the same time prevent the obtaining of the desired suppleness which should be equally distributed over the ski bearing surface in order to absorb any differences in ground level.

The skis made in accordance with the above method of manufacture show thus important advantages which no prior method has yet allowed, to wit:

1. Their flexibility and resistance are considerable for a minimum weight.

2. No harmful treatment alters the texture of the wood and its components.

3. The two skis of a pair show the same flexibility, the same resistance to permanent deformation and they have sliding surfaces which have the same sliding factor from one ski to the other.

These advantages are still further increased by the possibility of using compressed or bakelised wood which produces an undeformable support the wear of which is practically nil and the hardness and toughness of which is greater than if it were made of natural wood.

What I claim is:

1. A method for producing a pair of skis consisting in shaping a lath to the outline of a ski, ripping it along a surface parallel to its outer surfaces, ripping a further shaped lath, gluing each ripped element of the first lath to a ripped element of the second lath to form a ski the lower surface of which is constituted by the ripped surface of the first lath to obtain operative sliding surfaces that are exactly symmetrical for both skis with reference to a longitudinal vertical plane separating them when lying in side-by-side relationship, the transversal cross-section of the contacting surfaces between the superposed ripped elements forming each ski extending rectilinearly across the ski, bending each ski formed by the superposed lath elements into final ski shape and holding them in their bent shape during the drying of the glue between the ripped elements.

2. A pair of skis comprising two skis including each respectively one of the two boards obtained

through the ripping of a shaped lath to form the lower members of the skis, each board having its ripped surface directed downwardly, and an upper board having a shape similar to that of the corresponding lower board and contacting with said corresponding lower board along a surface the transverse cross section of which is constituted by a straight line extending throughout the breadth of the skis, the outer lower surface of the lower boards of the two skis assuming thus structures that are exactly symmetrical with reference to a longitudinal vertical plane separating the two skis when lying next to each other.

3. A pair of skis comprising two skis including each respectively one of the two boards obtained through the ripping of a shaped lath to form the lower members of the skis, each board having its ripped surface directed downwardly, and one of the two boards obtained through the ripping of a further shaped lath, last mentioned lath forming an upper board having a shape similar to that of the corresponding lower board and contacting with said corresponding lower board along a surface the transverse cross section of which is constituted by a straight line extending throughout the breadth of the skis, the outer lower surface of the lower boards of the two skis assuming thus structures that are exactly symmetrical with reference to a longitudinal vertical plane separating the two skis when lying next to each other.

4. A pair of skis comprising two skis including each respectively one of the two boards obtained through the ripping of a shaped lath to form the lower members of the skis, each board having its ripped surface directed downwardly, and an upper board having a shape similar to that of the corresponding lower board and contacting with said corresponding lower board along a surface the transverse cross section of which is constituted by a straight line extending throughout the breadth of the skis, the grains of the superposed boards of each ski being orthogonal with reference to one another.

5. A method for producing a pair of skis consisting in shaping a lath to the outline of a ski, ripping it along a surface parallel to its outer surface, shaping two further strips to form the upper boards of the skis, gluing at room temperature each ripped lath to the corresponding upper strip, the transverse cross section of the contact surface between the ripped lath and the cooperating upper strip being constituted by a straight line extending throughout the breadth of the skis, the ripped surfaces of the lath lying on the outside of the compound skis obtained to produce ground-engaging surfaces that are exactly symmetrical for the two skis lying in side by side relationship with reference to a longitudinal vertical plane passing between them, bending each ski formed by the superposed upper strip and ripped lath and holding the skis in their bent positions during the drying of the glue between the ripped lath and upper strip forming each of the skis.

6. A method for producing a pair of skis consisting in shaping a lath to the outline of a ski, ripping it along a surface parallel to its outer surfaces, ripping a further shaped lath, gluing each ripped element of the first lath to a ripped element of the second lath to form a ski the lower surface of which is constituted by the ripped surface of the first lath to obtain operative sliding surfaces that are exactly symmetrical for both

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skis with reference to a longitudinal vertical plane separating them when lying in side-by-side relationship, the grain of the superposed ripped lath and upper strip in each ski lying orthogonal with reference to each other, the transverse cross-section of the contacting surfaces between the superposed ripped elements forming each ski extending rectilinearly across the ski, bending each ski formed by the superposed lath elements into final ski shape and holding them in their bent shape during the drying of the glue between the ripped elements.

ABEL ROSSIGNOL.

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