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BOTTOM STRUCTURE FOR SKIS

Filed March 10, 1965

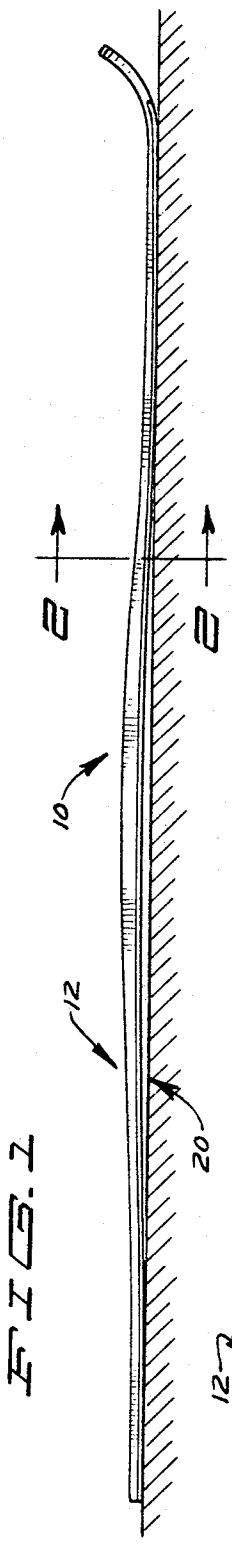


FIG. 1

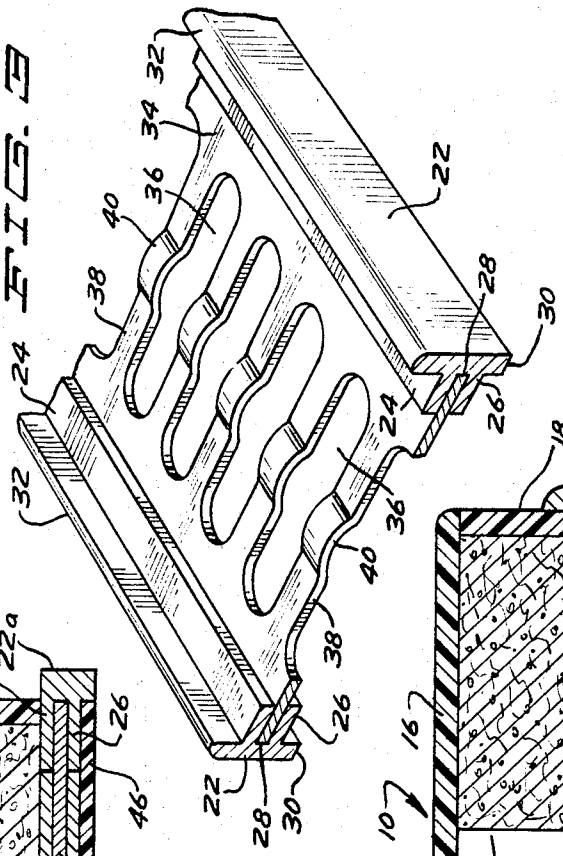


FIG. 3

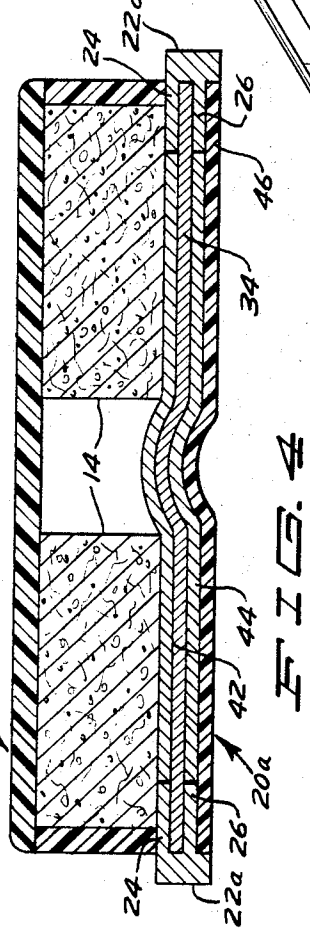


FIG. 4

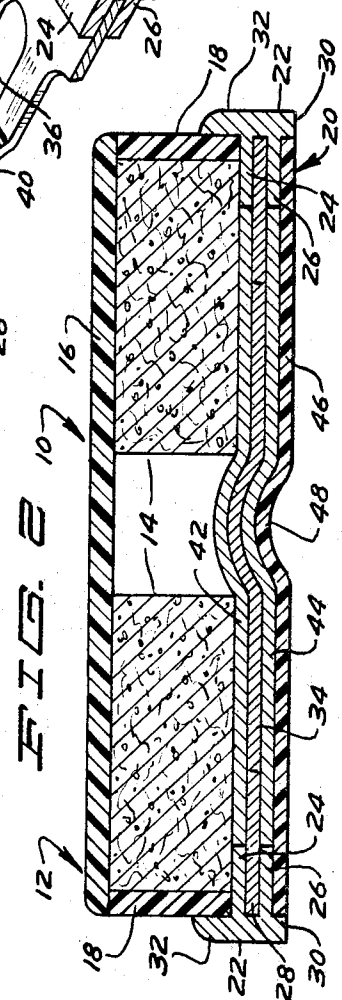


FIG. 2

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BOTTOM STRUCTURE FOR SKIS

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ABSTRACT OF THE DISCLOSURE

An edge member extends along each side of the ski. Each member has a pair of upper and lower horizontal flanges plus a downwardly projecting flange as well as an upwardly projecting flange. A sheet has its marginal portions crimped in between the horizontal flanges. The downwardly extending flanges have a running sheet extending therebetween, whereas the upwardly directed flanges serve as a seal for the body of the ski contained therebetween.

This invention relates generally to skis, and pertains more particularly to a bottom structure therefor having channeled running edges.

One object of the invention is to provide a ski bottom having a simplified construction. In this regard, attention is directed to our previously-issued Patent No. 3,145,998, granted Aug. 25, 1964. While our patented bottom structure for skis has met with a high degree of success, nonetheless considerable care must be exercised in the manufacture of such a ski. This care is needed largely because the running edges are welded in place and the welding heat produces objectionable distortion unless certain safeguarding techniques are practiced. The present invention has for an aim the elimination of heat generation and the accompanying likelihood of distortion that can result therefrom. Consequently, the present invention envisions a ski that will have a number of the desired attributes present in the ski structure described in out above-mentioned Patent No. 3,145,998 but which can be fabricated at a lower cost than our patented ski due to its simpler construction.

The invention has for a specific object the provision of a channeled or grooved running edge construction that may be crimped, pressed or rolled onto the sheet or strip to which the edges are to be attached, thereby appreciably reducing the time and effort required to fabricate the ski. Actually, the running edges may be anchored to such sheet or strip prior to assembling the remaining parts. Consequently, the fabrication can be done in stages, if desired, and at different locations within the factory, thereby making more efficient use of available facilities and plant equipment.

Another object of the invention is to allow to a large extent the employment of conventional ski fabrication techniques. In this regard, it is planned that certain parts be adhesively bonded together as previously done, it being specifically contemplated that the edge be crimped or rolled so as to effect its securement to the horizontal steel sheet that allows the running edges to be prefabricated as a unit prior to assembly into the composite ski construction.

Still another object of the invention is to provide a bottom structure for skis that will permit the running edges to be easily offset from the sides of the upper portion of the ski, thereby facilitating the subsequent sharpening of the edges when it is necessary to do so.

A still further object of the invention is to provide a channeled running edge which extends along each side

of the ski which can be either continuous or segmented, segmented edges being generally less expensive.

These and other objects and advantages of our invention will more fully appear from the following description, made in connection with the accompanying drawing, wherein like reference characters refer to the same or similar parts throughout the several views and in which:

FIGURE 1 is a side elevational view of a ski constructed in accordance with the teachings of our invention;

FIGURE 2 is a transverse sectional view taken in the direction of line 2—2 of FIGURE 1;

FIGURE 3 is a perspective view of the elongated sheet or strip having the running edges pressed thereon, and

FIGURE 4 is a sectional view corresponding generally to the construction shown in FIGURE 2 but illustrating a still simpler embodiment constituting the invention.

Referring now in detail to the drawing, FIGURE 1 shows a ski **10** constructed in accordance with the present invention. It will be observed that the upper portion or structure of the ski **10** has been generally labeled **12**. Conventionally, the upper structure **12** includes core material **14**, preferably spaced so as to provide a medial void as clearly shown in FIGURE 2. The upper structure **12** further includes a top panel **16** of phenolic fiber which can be bonded by means of a suitable adhesive to the top surfaces of the core material **14**. Similarly, side panels **18** of phenolic fiber are adhered to the sides of the core material **14**. Actually, the upper structure **12** may vary considerably with respect to its constructional make-up, the parts above described being only exemplary.

The bottom structure of the ski **10** has been indicated generally by the reference numeral **20**. The channeled steel running edges **22** at each side of the ski **10** are configured so as to provide an upper horizontal flange **24**, a lower horizontal flange **26** and a horizontal groove **28** therebetween. Also, as clearly visible in FIGURE 2, there is a downwardly extending flange **30** and an upwardly extending flange **32**. The channeled running edges **22** can be formed either by machining or extruding.

At this time, attention is called to the use of an elongated steel sheet **34** having perforations at **36** with intervening bridging portions **38** that are centrally humped at **40**. The marginal side portions of the steel sheet **34** are received in the grooves **28** and the flanges **24**, **26** are crimped or otherwise pressed tightly against these marginal portions in order to secure the channeled running edges **22** to the sheet **34**. By so attaching the edges **22**, it will be appreciated that no heat distortion exists during the fabrication of the bottom structure **20**, for no welding is required.

With the exception of the channeled running edges **22** and the elongated sheet **34**, the bottom structure **20** is susceptible to certain changes. In this regard, an upper strip **42** is interposed between the flanges **24**, overlying the sheet **34**. This upper strip **42** may be of metal or it may be a glass fiber laminate. In any event, the strip **42** is easily bonded to the underside of the core material **14** and to the upper surface of the sheet **34**. Similarly, a lower strip **44** which can be of metal or a glass fiber laminate is adhesively bonded to the lower surface of the sheet **34**, the lower strip **44** extending between the horizontal flanges **26**. Thus, it should be evident that the strength of the bottom structure **20** is based for the most part upon the sheet **34** and the mode of attaching the running edges **22**. However, the adherement of the strips **42**, **44** contribute to the over-all strength of the bottom structure **20**. Furthermore, the presence of the upwardly directed flanges **32**, which can be adhesively bonded to the side panels **18**, assist in preventing the entrance of moisture into the region between the core material **14** and the flanges **24** and the strip **42**.

It will be discerned that the downwardly extending flanges **30** provide a shallow recess or cavity in which a suitable material, such as a wax modified polyethylene, can be molded or bonded, this running sheet having been indicated by the reference numeral **46**. As is conventional, a tracking groove **48** extends longitudinally of the bottom surface of the running sheet **46** and the laminates disposed above can be configured accordingly. Actually, it is preferable that the humped regions **40** be eliminated and spaces provided in the manner shown in our Patent No. 3,145,998. However, by utilizing the bridging portions **38** which are connected together by reason of the humped sections **40**, a unitary sheet **34** is provided and the illustration thereof in FIGURE 3 is rendered somewhat simplified. Of course, it should be appreciated that the term "sheet" as referred to in conjunction with the member **34** may be composed of two halves and the term is to be construed in this light.

As pointed out above, the presence of the upwardly directed flange **32** provides a sealing medium against the entrance of moisture and also adds to some extent to the strength of the over-all ski. In this embodiment, the flanges **32** receive the upper portion of the ski **10** therebetween. However, it is not absolutely essential that the flanges **32** be provided, and for this reason the modification pictured in FIGURE 4 has been presented. This figure differs from FIGURE 2 due to the omission of the flange **32**. Hence, the bottom structure has been designated generally by the reference numeral **20***a* and the channeled running edges as **22***a*. The other parts are the same, as can be readily perceived from a comparison of FIGURES 2 and 4. Therefore, it is not believed necessary to describe in further detail the modification illustrated in FIGURE 4.

Having presented the foregoing information, it is believed evident that the benefits to be derived from a practicing of the instant invention are appreciable. Not only is the sheet due to welding avoided, but the unit shown in FIGURE 3 can be prefabricated and assembled into the composite or over-all ski construction when the final assembly is undertaken.

It will, of course, be understood that various changes may be made in the form, details, arrangements and proportions of the parts without departing from the scope of our invention as set forth in the appended claims.

What is claimed:

1. In a laminated ski, a bottom structure therefor comprising an elongated sheet, and running edge means extending along each side of said sheet having upper and lower flanges forming a horizontal groove therebetween, the side marginal portions of said sheet extending into said groove and said flanges being crimped thereagainst to secure said edge means to said sheet, each of said edge means also having a downwardly projecting flange, and running sheet means bonded to the lower face of said first sheet and extending laterally between said downwardly projecting flanges.

2. A ski having a bottom structure as set forth in claim **1** in which each of said edge means has an upwardly projecting flange, said upwardly projecting flanges being adapted to receive therebetween the upper portion of the ski.

3. In a laminated ski, a bottom structure therefor comprising a first elongated sheet, respective running edge means extending along each side of said sheet having upper and lower flanges forming a horizontal groove therebetween, and also having a downwardly extending flange of lesser width than said upper and lower flanges, the side marginal portions of said first sheet extending into the groove of each edge means and secured therein, a second sheet bonded to the lower face of said first sheet and extending between the said lower flanges, and a third sheet bonded to the lower face of said second sheet and extending laterally between said downwardly projecting flanges, the bottom of said third sheet providing a running surface.

4. A ski having a bottom structure as set forth in claim **3** in which each of said edge means has an upwardly projecting flange, said upwardly projecting flanges being adapted to receive therebetween the upper portion of the ski.

5. A ski having a bottom structure as set forth in claim **3** in which said upper and lower flanges are crimped against said first sheet to secure said edge means to said first sheet.

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