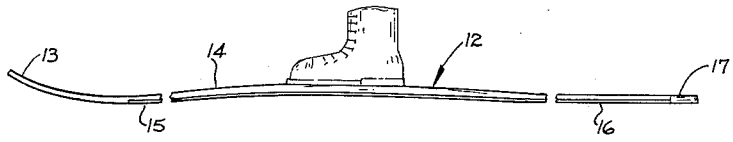
Aug. 3, 1965 C. S. BROWN, JR 3,198,535

SKI EDGE CONSTRUCTION

Filed Aug. 5, 1963

Fig. 1



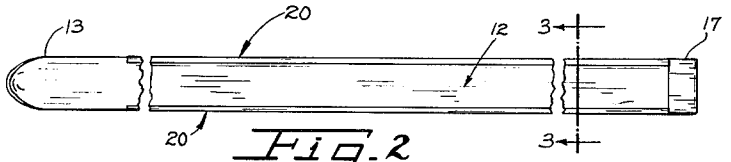


Fig. 2

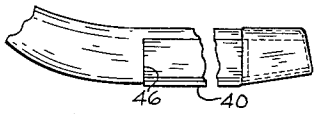


Fig. 4

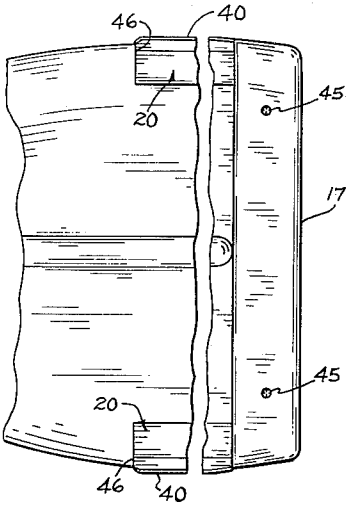


Fig. 5

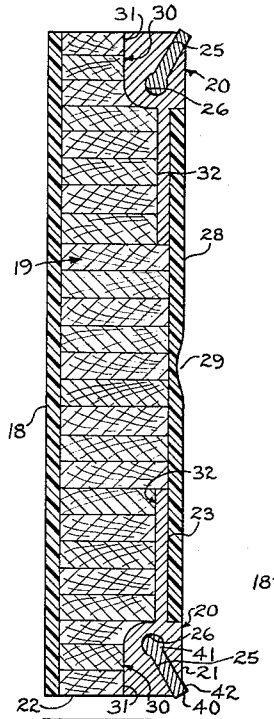


Fig. 3

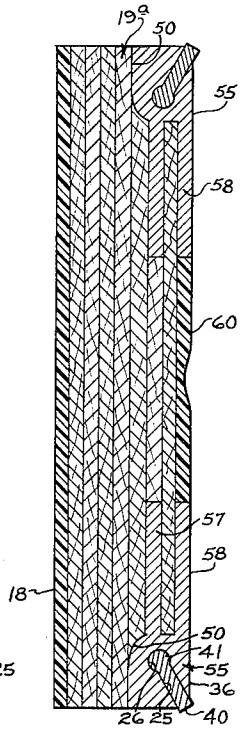


Fig. 6

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SKI EDGE CONSTRUCTION

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1 Claim. (Cl. 280—11.13)

This invention relates to a new ski edge for snow skis.

In the conventional ski construction segments of stripped metal are screwed into the bottom edge portions of the ski to form longitudinal hard metal edges. The purposes of the longitudinal edges are to form sharp hard surfaces for better engagement and contact with harder snow or ice and add additional stability to the ski-snow contact.

In the conventional ski construction the metal strips are of relatively short length and are abutted together to form the complete edge. From time to time the edges will either rust or become dislodged from the bottom of the ski and require replacement.

It is the principal object of the invention to provide a new form of ski edge construction by the employment of a housing or channel member which forms a part of the side and outside bottom edge of the ski. The channel member is slotted or provided with a channel adapted to receive and securely hold a strip-like ski edge which is held in the channel by frictional engagement. By this means the edge insert faces the corner edge of the ski at an angle to provide the ski edge.

Accordingly an advantage of this invention lies in the fact that the edge insert can be completely replaced without the need of substantial mechanical skills and is further held in secure, rigid position for added stability with its running surface.

A related object is to provide a ski edge construction in which slotted mounting housings are adapted to be secured to the ski body along the lower outer edges; and in which edge strips of hard durable steel are adapted to be slidably inserted in the housing slots. In order to hold the edge strip, both the slots and the edge strips are formed with mating non-linear cross-sections which are operable to secure each edge strip so that one edge projects from the lower corner of the mounting body at least as far as the lower edge of the ski runner surface. As a means for holding the edge strips against longitudinal movement, cap means is detachably secured to the butt end of each ski for securing or blocking the inserted strip edge against slidable withdrawal from the slot.

A feature and advantage of this construction resides in the fact that the strip-like edge can be easily withdrawn from and replaced in the housing slot after the capping means is removed.

Still another feature of this construction resides in the fact that no edge mounting screw heads are exposed to the snow runner surface and as a result the ski bottom is smooth and streamlined for reduced friction travel across snow.

Still another object of this invention is to provide a ski edge construction in which the mounting housing can be extruded from conventional workable materials such as aluminum or soft steel. Thereafter, the extruded housing is cut to appropriate lengths and attached or otherwise permanently secured or bonded to the lower longitudinal edge of the flexible ski body.

Yet another object of this invention is to provide a housing of the above type in which a conventional low friction runner sheet can be secured to a substantial portion of the runner surface between the ski edge construction. An advantage of this is that the relatively soft runner material can be readily removed or scraped from the runner surface and replaced when it is worn.

Other objects, features and advantages of this invention will become apparent on reading the following detailed description and referring to the accompanying drawing in which:

FIGURE 1 is a side elevational view of a snow ski having the edge construction secured to the lower edge or bottom thereof;

FIGURE 2 is a bottom plan view of the ski of FIGURE 1 showing the relationship of the ski edge construction to the ski body;

FIGURE 3 is an enlarged cross-sectional view taken of the ski body taken along the line 3—3 of FIGURE 2 showing the details of the edge construction; and

FIGURE 4 is an enlarged fragmentary side elevational view of the ski and edge construction in which the central body portion of the ski has been omitted and in which the ski tip has been omitted;

FIGURE 5 is a bottom plan view of the ski and edge construction of FIGURE 4 showing an embodiment of the edge construction with relation to the runner surface; and

FIGURE 6 is an enlarged cross-sectional view of the ski body showing a second embodiment of the edge construction.

Referring now to FIGURE 1 there is provided generally a ski 12 having an upturned tip at 13 and an arched central portion at 14. As is conventional with snow skis, a leading, relatively flat runner surface 15 is provided between the upturned tip 13 and the arched central portion 14 while a trailing, relatively flat runner surface 16 is provided at the tail portion of the ski. As is more clearly illustrated by the bottom view (FIGURE 2), the ski edge constructions 20 are secured along the lower corners of the ski body 12 for the length between tip 13 and the rear cap 17.

Now referring to the details of the ski edge construction, FIGURE 3 shows an enlarged cross-sectional view of the ski body taken along the lines 3—3 of FIGURE 2. The general cross-sectional shape of the ski is rectangular in which the upper coating or skin 18 can be of durable wood, aluminum, plastic, paint or other material. The central body portion 19 of the ski provides the stiff resilient springiness and is accordingly made from some resilient material. As illustrated, one such construction could include laminated strips of wood which are bonded together by some chemical adhesive capable of withstanding temperature extremes, and shock and flexure which occurs during skiing. Of course, other ski body constructions and materials could be used which would be equivalent and the illustrated laminated wood is only meant to be representative.

In order to fit the ski edge construction to ski body 12, a concave molding or channel 30 is formed toward the lower end of the outermost laminated wood strips. Normally this can be done by rabbeting or otherwise cutting the resilient core material 19. In making these channels they should include an enlarged body portion which projects deeply into the ski core 19 at 31 to greatly shorten the outermost laminated wood strips 22 while toward the central or innermost portion, the laminated wood is only cut to a relatively shallow depth at 32. As a result, the resiliency or springiness of the ski core 19 is retained for the most part. With this channel so formed, it is possible to mount a ski edge construction 20 having a substantial body while providing a large bonding surfaces area to which the ski edge construction 20 can be secured or otherwise adhered and fastened as will be explained shortly.

Once the outer moldings or channels 30 have been formed, a ski edge construction such as housing 20 can be secured in place. The slotted housing portion 21 of the ski edge construction is enlarged and has a lower surface and a side wall formed at right angles to one another. A relatively thin strip flange 23 is formed to project lat-

erally from the innermost side wall of slotted housing 20 and operates to provide substantial bonding area and strength between the ski core 19 and the ski edge construction 20. The upper surface of a ski edge construction 20 is of substantially the same shape as the concave molding or channel 30. Appropriate fastening means such as high strength chemical adhesives can then be used to bond the contoured upper surface of ski edge construction housing 21 into the channel. When necessary, or if thought desirable, flat head screws can be screwed through counter-sunk holes in the thin strip flange 23 and into the ski core 19 to provide additional securing strength.

Before referring to the details of housing portion 21 and the inclined slot 25 with the enlarged end aperture 26 which receives the mated ski edge strip 40, it should be noted that a base wax or runner surface 28 is laid down and applied to the bottom surface of the ski between slotted housing portions 21. Thus, the lower surfaces of the housing construction form a portion of the runner surface near the ski edges while a conventional base wax surface 28 having a suction breaking snow groove 29 is secured between them. The strip of plastic or other conventional material can be bonded, glued, or otherwise attached to the lower surface of strip flanges 23 and the lower surface of the central-most laminated core 19. Thus, when the base wax surface is worn from continuous use it can be scraped out or otherwise removed and replaced with a similar material.

Referring back to ski edge construction 20, it can be seen that slot 25 is formed so that it inclines upwardly from the lower outermost corner of mounting housing 21. As illustrated, the cross-sectional shape of this slotted aperture 25 is linear or of constant dimension for a substantial portion except at the upper end 26 where it is enlarged and thus non-linear. This upper end 26 is in the form of an enlarged diameter bore 26 which is adapted to cooperate with an enlarged diameter portion or bead on an insertable ski edge 40 to prevent transverse movement within the slot as will be explained shortly.

An advantage of this simple housing construction is that it can be easialy extruded from a die and made of aluminum or other easily worked metals or plastics. Through the proper choice of materials for this housing, it is possible to add resiliency and strength to the ski body or to control the weight of the skis for different skiing operations such as jumping or racing.

As shown more clearly in the fragmentary views of FIGURES 4 and 5, each ski edge construction 20 extends from a point in back of the ski tip to a point just before the butt end of the ski. Ski edge 40, which is inserted in this construction 20, is formed in a long, thin strip which is dimensioned slightly smaller than the inclined slotted aperture. In selecting the tolerance between the slot 25 and ski edge 40, it should be sufficient so that there is negligible movement once the ski edge is mounted but will permit the ski edge to be slidably inserted and withdrawn from the aperture. Ski edge 40 is also formed with a bead 41 along its upper edge which is sized to intimately fit within thhe enlarged slot portion 26. The thin, flat blade 42 is of sufficient width so that it extends at least beyond the outer or flat walls of housing 21 to the lower ski corner. In choosing the metal for this edge 40, it should be sufficiently durable to withstand a substantial amount of wear in order to retain sharpness so that it may bite into the snow for control.

In order to provide a path for slidable insertion of ski edge 40 into the housing slot 25, an end cap 17 is detachably fastened to the butt end of the ski body 12. End cap 17 can be a thin walled hollow housing in which a pair of screws or fasteners 45 can be threaded or mounted through the cap walls and into the core material of the ski. With cap 17 removed the rear end of the inclined slot is exposed and the thin strip of ski edging can thereafter be inserted or removed. Once edge 40 reaches its rorwardmost portion in housing 21, it is blocked by the shoulder 46 of the body portion of the ski to prevent additional sliding travel. With the ski edge 40 cut to the same length as mounting construction 20, end cap 17 can then be replaced on the butt end of the ski and fastened in place. Thus, the forward shoulder 46 formed by the ski body and the rearward shoulder formed by the edge or rim of the detachable cap 17 prevent sliding movement of the ski edge 40 in the slot. The beaded portion 41 of ski edge 40 cooperates with the enlarged diameter or non-linear portion 26 of the slot 25 to prevent transverse movement of the edge. Thus the ski edge is locked securely in place.

If desired, the leading tip and trailing tip of edges 40 can be trimmed and rounded so as to provide a smooth contoured surface between ski tip and tail and the edge. Of course, this is only necessary in cases where the ski edge 40 projects substantially beyond the lower corner of the ski body.

As illustrated in FIGURE 6, a second embodiment of this invention could include a ski edge mounting construction including a housing 55 having a double strip flange 57 and 58. The ski core 19*a* in this case could very easily include a single piece of wood or flexible material or else comprise a plurality or horizontally oriented laminated strips as illustrated. When the core is laminated the bonding material would have to be of sufficient structural strength to withstand flexing and shock inherent in skiing as previously mentioned. The upper skin 18 is also bonded to the core 19 while the concave molding or channel 50 is contoured to the upper or unexposed surfaces of mounting housing 55.

Now referring to the details of this mounting housing 55, it includes a slotted mounting body 56 and upper and lower thin strip flanges 57 and 58 projecting from its inner side wall. The channeled surface 50 of ski core 19 is bonded to the mounting construction of the surface at the slot formed between these two strip flanges and at the upper surface and unexopsed side surfaces of housing 55. As a result of this arrangement, a substantial increase in bonding area is obtained which provides an even stronger and more secure bond. In choosing the material for bonding mounting construction 55 to the core, it is sufficient to say that it can be any material which is capable of withstanding the shearing stresses, strains and shocks which are inherent in ski conditions.

A grooved ski wax or runner surface 60 of plastic or other acceptable material is thereafter bonded to the lower surface of the ski core 19*a* between the two lower strip flanges 58. The choice of material for runner surface 60 can be made from any of the conventional runner surfaces.

As a result of this construction, the runner surface has a central plastic area which can be waxed and in which the edges are of metal and form a substantial portion of the runner area. Thus, a long wearing runner surface is provided which need only be replaced at relatively infrequent intervals, if at all.

Since the inclined slot 25 and the ski edge 40 are substantially similar in form and cooperate with the mounting housing in much the same way as described in the first embodiment, they will not be redescribed.

Although several embodiments in this invention have been described and illustrated for purposes of explanation, it should be understood that other changes can be made in the details, arrangements and parts and materials without departing from the scope of the invention as defined in the appended claim.

What is claimed is:

In a ski the combination of: a pair of recess areas formed along the lower corners of the ski and running substantially the entire length thereof, an elongate housing mounted within each of said recess areas having a side wall aligned with the outer side wall of said ski and a bottom wall aligned with the bottom of the ski, said housing formed with a flange running along the entire

length of the housing and projecting inwardly into the body of said ski in an axis parallel with the bottom of the ski, means permanently fastening said flange to the body of the said housing, said housing formed to provide an interior channel projecting outward to the lower corner of the housing and extending the entire length of the housing, said channel having a cross-sectional shape which includes an enlarged portion, and a strip formed with a cross-sectional shape complementary to the cross-sectional shape of the channel and providing a fit snug enough to maintain stability against lateral movement within said channel and loose enough to allow the strip to be slidably inserted in and removed from the channel, and said strip

being formed with an end portion dimensioned to project outwardly from the housing to form a control edge.

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A. HARRY LEVY, *Primary Examiner.*