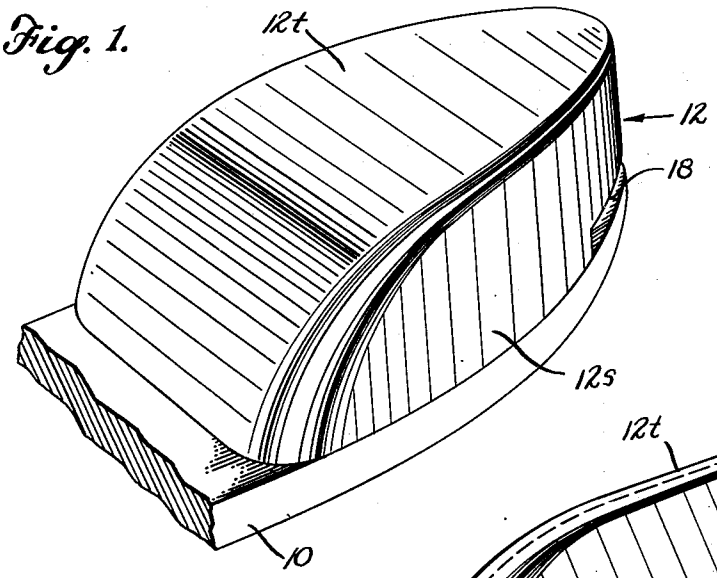
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SKI AND SKI TIP ATTACHMENT

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Fig. 1.



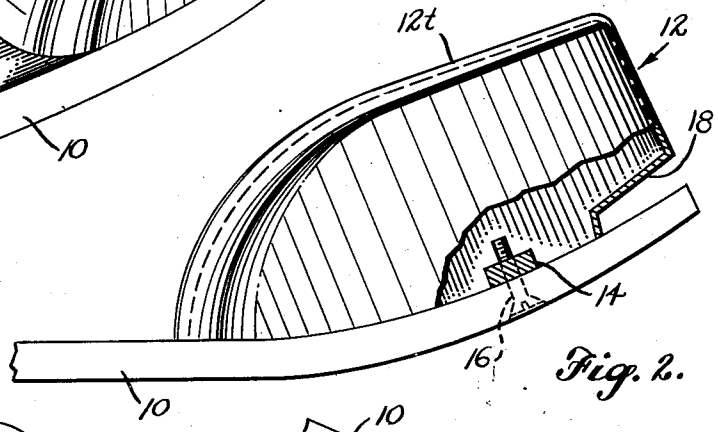
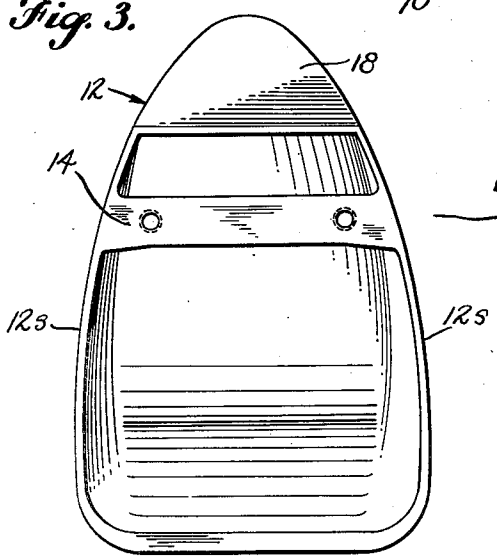


Fig. 2.

Fig. 3.



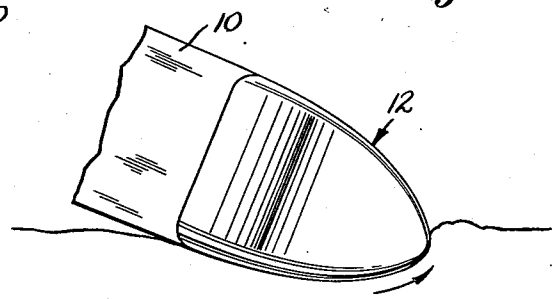


Fig. 4.

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Fig. 5.

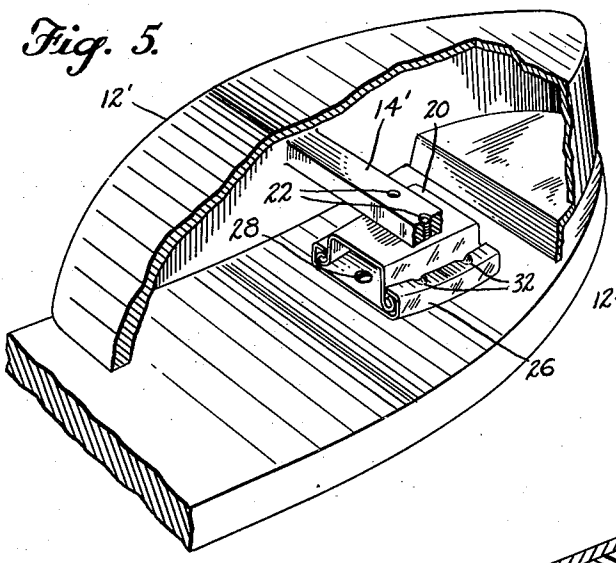
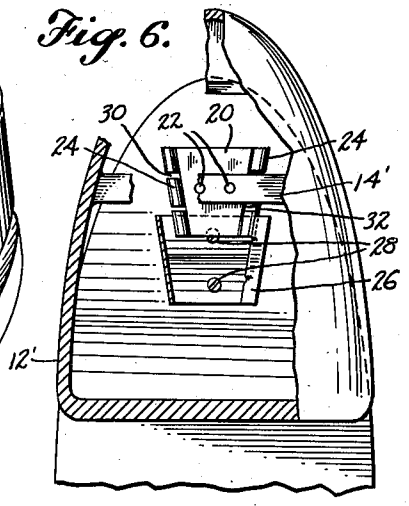


Fig. 6.



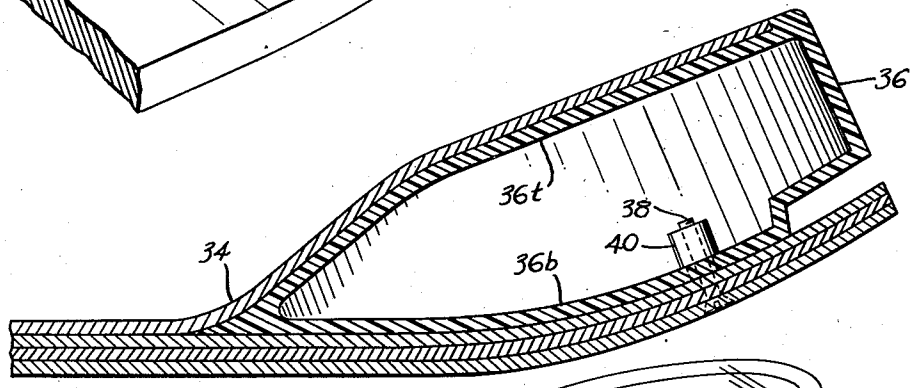


Fig. 7.

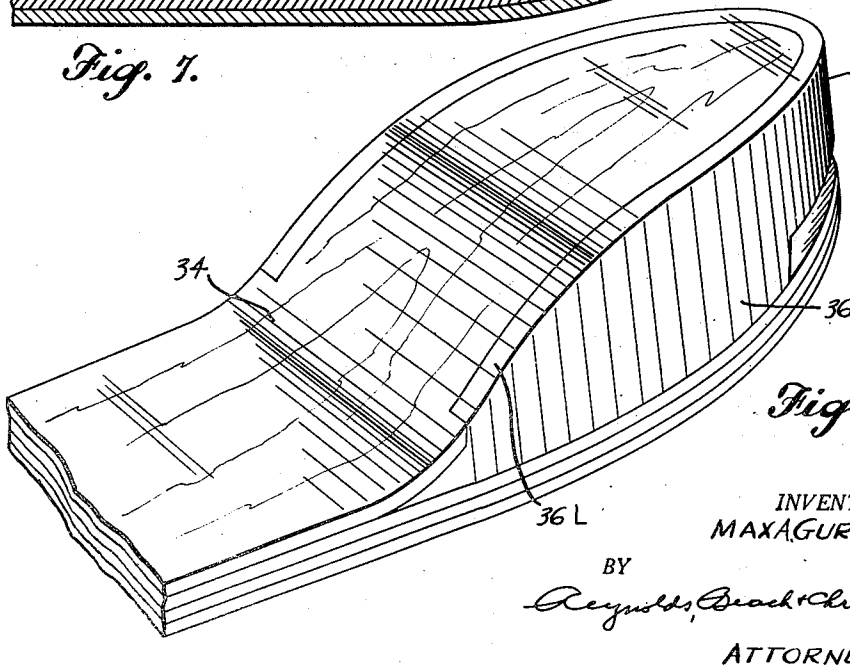


Fig. 8.

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2,611,624

SKI AND SKI TIP ATTACHMENT

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Application May 23, 1950, Serial No. 163,602

6 Claims. (Cl. 280—11.37)

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This invention relates to an improved form of ski and to a novel ski tip attachment for converting a conventional ski into such improved form, possessing certain unique features and advantages as set forth in the following specification.

An object of the invention is to improve the controllability of skis in deep and soft snow. Conventional skis have a tendency to wander together and apart, and turns are difficult to execute with them under such skiing conditions. According to the invention a special form of ski tip tends to stabilize the skis against such wandering and further tends to facilitate slue turns under such conditions by effectively anchoring the tips against lateral or edgewise movement while the heel ends are readily slued about such tips effectively as fulcrums.

Another object is to reduce the danger of serious injuries during spills or falls when conventional ski tips sometimes tend to plunge into the snow and anchor the skier's foot, throwing him violently forward and frequently wrenching or breaking an ankle, for example. The novel ski tip herein described greatly reduces the tendency for the skis to plunge and anchor in this manner.

A related object is to reduce the tendency of banked skis to sink edgewise into the snow excessively during turns, causing retardation which sometimes will trip a skier.

Still another object is to provide a ski designed to reduce the annoying and sometimes dangerous tendency for the ski tips to cross over each other awkwardly when they are not kept apart properly, by the novice skier especially.

The invention is herein illustrated and described in three representative forms each having its separate advantages but all basically alike in principle. The underlying concept for an improved form of ski tip is to incorporate in or attach to the progressively tapering and upcurved tip of a ski, which ski preferably is otherwise conventional, lightweight means which will materially increase the effective thickness of the ski toe end or tip portion while retaining a similar or conventional side edge contour. Preferably the forwardly convergent opposite sides of the resulting prow-like ski toe end portion are several times the vertical width or thickness of the basic or conventional ski tip portion. The top face of the thickened tip portion slopes downward to the rear and its heel terminus may either fair gradually into the top face of the ski or join the same more or less abruptly in the vicinity of the heel end of such tip portion, depending on the design or form selected.

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These and other features, objects and advantages of the invention, including certain details of the three preferred forms thereof, will become evident from the following detailed description thereof having reference to the accompanying drawings.

Figure 1 is a perspective view of the tip portion of a conventional ski carrying a novel ski tip attachment, representing one form or embodiment of the invention.

Figure 2 is a side view of the same with a portion of the attachment broken away to show the means for securing the same to the ski.

Figure 3 is a bottom view of the same attachment separated from the ski.

Figure 4 is a top view illustrating the action of the modified ski tip in preventing digging or plowing of the ski tip into the snow during a fall or sharp turn, for instance.

Figure 5 is a perspective view corresponding to Figure 1 but showing a modified construction for securing the attachment to the ski tip.

Figure 6 is a top view of the same with parts broken away to illustrate the manner of engaging the connecting or securing elements.

Figure 7 is a longitudinal section of a third modification in which the means for effectively thickening the ski tip are incorporated integrally with the basic ski construction.

Figure 8 is a perspective view of the same.

The precise form of the tip of a conventional ski 10 to which the attachment 12 shown in Figure 1 is applicable is not critical. In the illustrated case the converging opposite side edges of the ski tip terminate with a slight rounding as shown. It will be understood, however, that attachments may be made of different shapes and sizes to conform to different ski tip shapes as desired, or that ski tips may be reshaped if desired to conform to standard forms of attachments.

In its form shown in Figures 1 to 4, the attachment 12, preferably of cast magnesium or other light and strong material, is in the form of an open-bottomed wedge-like shell held or clamped securely against the top face of the ski tip to impart a prow-shaped form to the tip. The attachment sides 12*s* constitute upward extensions of the oppositely curved side edges of the ski tip and are joined by a top wall or web 12*t* which, over the major portion of its length, and when mounted on the ski tip, slopes downward to the rear generally parallel to the downwardly sloping ski tip. Near its heel end the slope of upper wall 12*t* progressively increases as shown. Preferably its lower rearward edge and the lower

edges of the side walls 12s make uniform close contact with the top face of the ski to prevent infiltration and accumulation of snow which would add weight and tend to unbalance the ski.

The toe end of the attachment 12 has a lower recess or notch formation 18 defined by the ski tip and by intersecting transverse wall portions, one substantially perpendicular to the surface of the ski tip, which it contacts, and the other substantially parallel to such surface, as shown best in Figure 2. This notch is provided for receiving a cord or cable for fastening climbers to the ski when desired. A loop of cord inserted in this notch extends rearwardly to fastenings on the climber in the usual manner.

For securing the attachment 12 to the conventional ski tip, a mounting bar or web 14 extends transversely between opposite lower side edges of the attachment and is bored and tapped at transversely spaced locations to receive mounting screws 16 projected upwardly and threaded into the bores through the bottom of the ski as shown in Figure 2. The screw heads are countersunk to avoid projections which would increase the gliding resistance of the ski. If desired other means for securing the attachment to the ski tip may be employed as a substitute or to augment that shown.

In a typical case an attachment of cast magnesium has an average wall thickness of about ⅛ of an inch, and for standard six- or seven-foot skis is about five inches in length and about three inches in transverse width. Its maximum height or vertical width is about two inches. The shape and dimensions of the attachment may be varied appreciably. It is preferred that its length be such that its heel end, when mounted on the ski, will lie at or just behind the upwardly curved tip portion of the ski. If it be much longer its size and hence its weight will be objectionably increased.

In the alternative form shown in Figures 5 and 6 the general shape and construction of the ski tip attachment shown and described above is retained, the modification residing in the manner of securing the same to the ski tip. In this case the transverse securing bar 14' occupies an elevated position bridging between opposite side walls 12s of the attachment, as shown in Figure 5. In this case the attachment 12' is adapted for ready detachment from the ski.

The illustrated detachable securing device comprises the tapered channel-shaped member 20 having an upper web or back side which is fastened by machine screws 22 in a central position against the lower side of the securing bar 14'. The lower edges of the longitudinally convergent vertical flanges of this channel are of rolled construction to form sliding ribs 24 as shown. A similarly tapered channel-shaped clip 26 having vertical flanges inturned at their edges to form grooves slidably receiving the ribs 24, is secured by wood screws 28 on the face of the ski tip. The clip 26 is so located on the ski tip, that when the element 20 is engaged therewith by rearward engaging movement of such element from its initial position shown in Figure 6 to its engaged position shown in Figure 5 the ski tip attachment 12' will be in proper registry with the ski tip contour as shown.

Spaced notches 30 cut in the rolled edges 24 of the element 20 are engaged by the indentations 32 of the clip flanges to produce resilient locking action and prevent accidental dislodgement of the element 30 from the clip 26. Other suitable detent devices may be employed to the same end. Such notches also permit slight bending of the rolled edges in their vertical planes to conform to the longitudinal curvature of the ski tip.

In the third illustrated form shown in Figures 7 and 8, the desired result is accomplished by permanently incorporated means imparting the desired prow-like form and increased thickness to the ski tip. This is achieved in the illustrative case, of a laminated type ski, by separating the top layer 34 from the underlying layers or laminations of the ski tip in process of manufacture, and forming a notch or recess adapted to receive the prow-shaped hollow insert 36. This hollow insert, of plastic, cast magnesium, or other lightweight, strong material, has side walls 36s conforming to the side edge contour of the desired basic ski tip form. Its top wall 36t and bottom wall 36b (Figure 7) converge rearwardly to intersect in a sharp acute angle. Near such heel end of the insert its downwardly sloping upper face flattens out somewhat and fairs gradually into the plane of the ski. As a result the top lamination 34 can be shaped conformably and bonded thereto as shown. A phenolic resin or other water resistant adhesive may be used to hold the insert between the laminations of the ski tip, aided if desired by bottom screws 38 threaded into suitable reinforcing elements 40 molded on the inside of the bottom wall 36b of the attachment. Preferably a protective lip 36L extends around the upper edge of the insert 36 and is flush with or slightly higher than the top face of the lamination 34 to protect its edge against being caught and split or loosened.

If desired the insert 36 may be of a plastic material having the appearance of wood or any other appealing design or coloring. Being of completely sealed construction, such an insert is impervious to penetration of snow or moisture.

In all forms, the modified ski tip has advantages and characteristics tending to increase the safety and enjoyment of skiing as described. Because of the several-fold increased thickness of the ski tips, the tendency thereof to cross over one another to the embarrassment of a novice skier, for example, is greatly diminished. Moreover, if the skier should fall when traveling at high speed and the tip of a ski on edge commence to dig into the snow, the then lower portion of the prow-shaped tip will present to the snow a broad upwardly curved surface which resists such penetration as shown in Figure 4. In other words the ski tip tends to surface itself under various conditions and prevent the edges of the skis from sinking into the snow excessively. This feature also operates to advantage during turns in which the edges of conventional skis tend to sink into the snow when the skis are banked and thereby retard the skis to such an extent that a skier is sometimes tripped. When skiing in deep snow these prow-shaped high side walls of the novel ski tip provide stability against wandering of the skis, the pressure of the snow directed equally inward against both sides tending to prevent unstable banking of the skis. Furthermore turns in deep, soft snow are greatly facilitated as a result of the increased broadside area of the novel ski tip or toe end portion, which tends to fix the tips effectively as fulcrums about which to swing or slue the heel ends of the skis for changing direction of travel.

Because of its lightweight construction such

a ski tip affords these advantages without unduly unbalancing the skis. Any slight unbalance which the attachments 12 or the inserts 36 may create can be readily corrected or compensated for by fastening a balancing weight on the heel ends of the skis in an obvious manner. Alternatively any such slight unbalance which the attachments or inserts create can be compensated for by shifting the positions of the bindings slightly forward of the balance point of the skis without such attachments or inserts. It will be noted that the resulting thickness of the ski tip in any of the modifications shown is of a thickness greater than half the maximum width of the ski.

I claim as my invention:

1. A demountable ski tip attachment for a ski having an elongated and generally flat body portion and a toe end portion joined to the body portion and curved upwardly and forwardly therefrom and progressively tapered forwardly in width, comprising a prow-shaped member having a top wall, and upright side walls converging forwardly and spaced apart substantially corresponding to the width of the ski toe end portion, the bottom edges of said upright sides being convexly curved for substantially contiguous engagement with the upwardly curved ski toe end portion, and means for securing said attachment on the upper side of the ski toe end portion.

2. A demountable ski tip attachment for a ski having an elongated and generally flat body portion and a tip portion joined to the body portion and curved upwardly and forwardly therefrom and progressively tapered forwardly in width, comprising a prow-shaped hollow shell member having top and rear transverse wall portions, and upright side walls converging forwardly and spaced apart substantially corresponding to the width of the ski tip portion, leaving an open bottom, the bottom edges of said upright sides being convexly curved for substantially contiguous engagement with the upwardly curved ski tip portion, and means for securing said attachment on the upper side of the ski tip portion with such tip portion closing the bottom opening of the attachment.

3. The attachment defined in claim 2, wherein the securing means comprises a bar extending between the upright sides of the attachment substantially flush with the lower edges of such sides.

4. The attachment defined in claim 2, wherein the securing means comprises a bar extending between the upright sides of the attachment, a clip adapted to be secured to the upper side of the ski tip portion, and a cooperating clip engaging element carried by said bar and detachably engageable with said clip for securing said attachment to the ski.

5. A laminated ski comprising stacked laminations adhesively bonded together over the major portion of the ski's length, the toe end portion of the ski being upwardly curved and including an upper lamination separated from an underlying lamination, and a hollow prow-shaped insert interposed between and secured to said upper and underlying laminations to increase the thickness of said toe end portion over a substantial part of the length to several times that of the immediately adjoining portion of the ski.

6. The laminated ski defined in claim 5, in which the hollow insert is closed on all sides.

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