

Oct. 14, 1941.

W. F. SERR

2,259,327

SKI RUNNER

Filed May 4, 1938

2 Sheets-Sheet 1

Fig. 1.

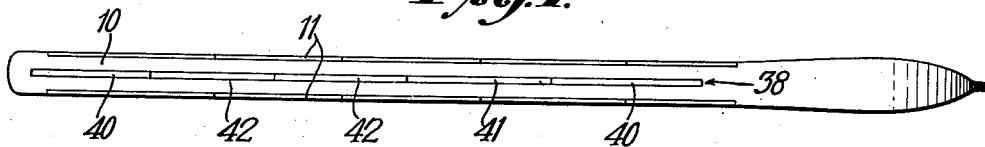


Fig. 2.



Fig. 3.

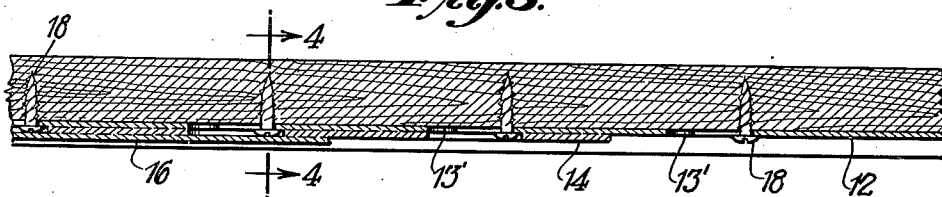


Fig. 4.

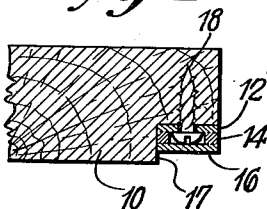


Fig. 6.

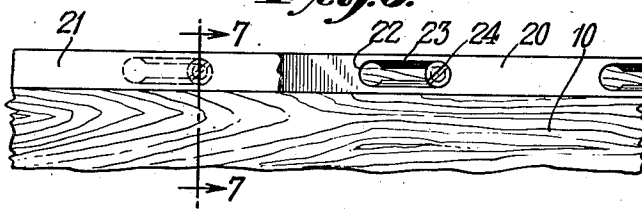


Fig. 5.

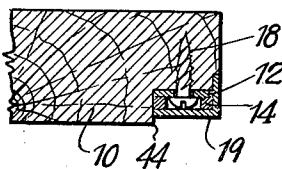


Fig. 7.

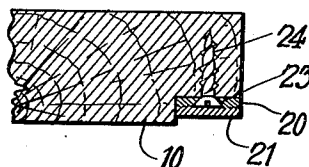
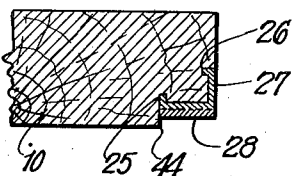


Fig. 8.



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Fig. 9.

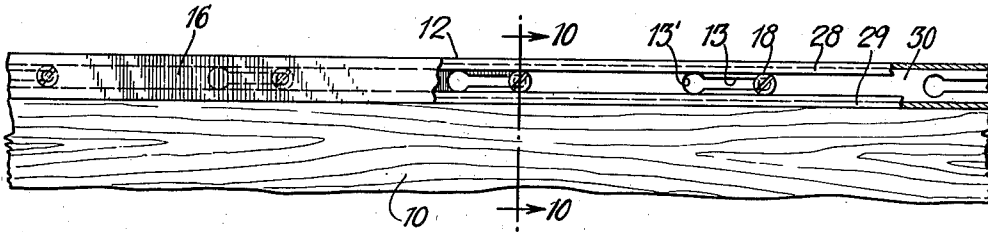


Fig. 10.

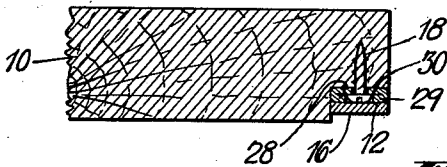


Fig. 11.

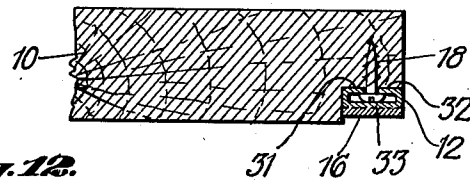


Fig. 12.

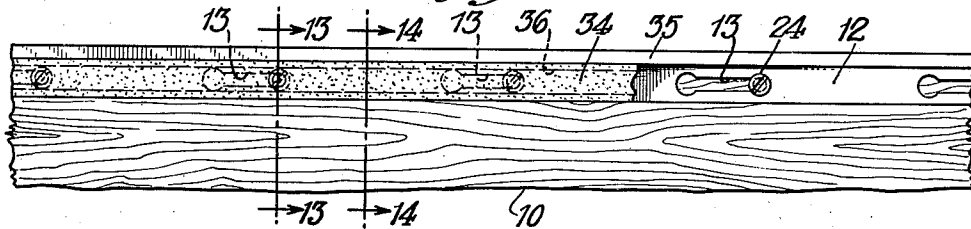


Fig. 13.

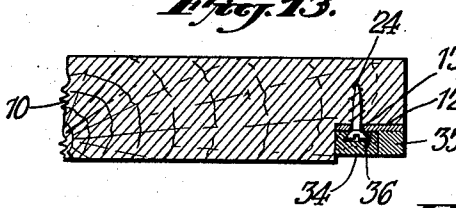


Fig. 14.

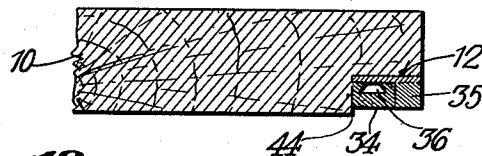


Fig. 18.

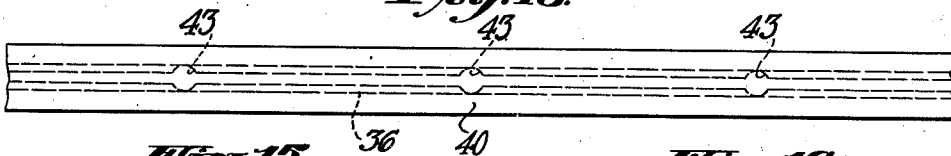


Fig. 15.

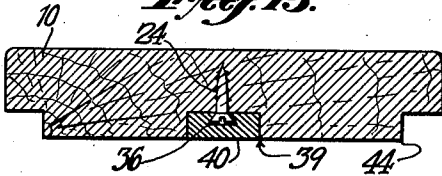
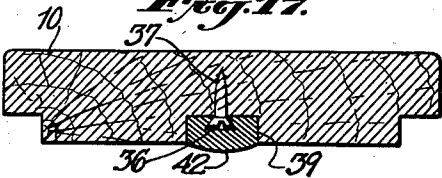


Fig. 16.



Fig. 17.



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SKI RUNNER

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Application May 4, 1938, Serial No. 205,883

12 Claims. (Cl. 280—11.13)

This invention relates to sport implements, especially to skis, and more particularly to metal strip attachments of a character intended to protect the longitudinal edges of a ski-runner, serving to prevent wear on the running edge; also to prevent side slip on ice and on hard snow surfaces encountered in ski-running; also to promote rapid running at all times.

Efforts have been made to provide skis with attachments or reinforcements of the nature of protective runner strips, but so far as known I am aware the use of such devices has been attended by various disadvantages, among which may be cited illustratively the imperfect securement of such strips to the ski runners; also the absence of suitable means to permit the devices to be readily removed and easily replaced when the existing devices become injured or worn, or to permit the devices to be removed from a defective ski for application to another ski.

Under such conditions, an object of the present invention is to provide a novel metal strip attachment or reinforcement for a ski runner, and more particularly for each longitudinal edge of such a runner, adapted to be affixed readily to the edges of the ski, and also to be removed therefrom at will, and to be replaced by similar strip reinforcements, or to be applied to another ski.

In pursuance of the above general object, a more particular object of the invention is to provide a triple laminated structure of metal strips in which the base strip has keyhole slots with straight side walls to receive the shanks of screws with heads having straight shoulders under the heads; also an intermediate strip having slots of suitable width to accommodate the full width of the screw heads; and a top metal strip adapted to serve as the runner strip proper, overlying the intermediate strip and covering the keyhole slots and the screw heads lying therein.

As a modification of such a laminated strip reinforcement, an object of the invention is to provide a base reinforcement strip having a series of keyhole apertures provided with bevelled side walls, rather than straight side walls, so disposed as to be entered by a corresponding series of screw devices driven into the bottom margin of the ski-runner, and having heads with bevelled faces under the heads so disposed that when the skis are in use the reinforcement strips will be biased into retentive engagement with the heads of the retaining screws.

A further object of the invention is to provide a supplemental runner strip or strips adapted

to overlie the above-mentioned base strip and to present a smooth running face for engagement with the hard snow, ice or other surface upon which the skis are to run, having a well-defined edge designed to cut into said surface as does the edge of a skate runner, to arrest or retard side slip of the ski in use.

In each of the above embodiments of the invention it is preferably a feature to secure the top strip to the contiguous face of an underlying strip, whether the base strip or an intermediate strip, by spot welding, so that the several strip components constitute a unitary structure that can be readily fitted to the screw heads and removed therefrom, by the user of the skis, without requiring the use of special tools, and by persons having only average skill or mechanical experience.

The invention has, as a further object, the provision of a modified form of protective edge strip for a ski-runner, L-shaped in cross-section, the margins flanking the longitudinal edge being provided preferably with inturned flanges adapted to enter rabbeted grooves formed in the ski-runner in parallel with the protected lengthwise edge of the runner.

Another object of the invention is the provision of a modified form of protective edge strip for a ski-runner comprising a tread strip or facing made up of two materials so constructed and associated as to present a sharp outer, skate-like edge and to present also a tread zone, intermediate the edge of the ski-runner and a wall of the runner, of a material possessing characteristics particularly adapted for the purposes desired.

Another object is the provision of means for selectively adjusting the ski-runners to varying snow and terrain conditions, which means may be conveniently carried by the user and readily and quickly applied to and removed from the skis to meet the exigencies of changing conditions.

In carrying into effect the last mentioned object of my invention, the body of the ski-runner is provided with a longitudinal, centrally disposed, channel adapted to receive, in tandem relationship, a series of tread strips the outer exposed faces of which are selectively designed to contact snow of different degrees of hardness and to apply to varying terrain conditions with the maximum degree of efficiency.

A still further object of my invention is the provision, in combination with the utilitarian marginal ski-edge strips, of centrally disposed

insert strips each so constructed and cooperating one with the other as to make for the maximum efficiency in skiing under all conditions of service.

Other objects of the invention will appear as the detailed description of the invention progresses, in connection with the accompanying drawings, in which:

Fig. 1 is a bottom plan view of a conventional form of ski, showing my invention applied thereto;

Fig. 2 is a bottom plan view, on an enlarged scale, of a portion of a ski, illustrating my invention more in detail;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2;

Fig. 4 is a sectional view taken on the line 4—4 of Fig. 3;

Fig. 5 is a sectional view similar to Fig. 4 but illustrating additionally a modification;

Fig. 6 is a bottom plan view of a portion of a ski illustrating a further modification;

Fig. 7 is a detail sectional view taken on the line 7—7 of Fig. 6;

Fig. 8 is a detail sectional view of a still further modification;

Fig. 9 is a plan view of another modification of my invention;

Fig. 10 is a sectional view along the line 10—10 of Fig. 9;

Fig. 11 is a cross-sectional view illustrating a modified form of base plate or strip;

Fig. 12 is a plan view of a further modification of my invention;

Fig. 13 is a sectional view taken on the line 13—13 of Fig. 12;

Fig. 14 is a sectional view taken on the line 14—14 of Fig. 13;

Fig. 15 is a cross-sectional view of a ski-runner provided with a longitudinal, centrally disposed, channel designed to receive insertedly a strip or series of strips the outer tread surfaces of which is or are substantially flush with the tread face of the ski-runner;

Figs. 16 and 17 are views similar to Fig. 15, in all respects except that the outer tread surfaces of the insert strips are of respectively different conformation, and

Fig. 18 is a plan view of the insert strips shown in Figs. 15, 16 and 17.

Throughout the several figures of the drawings like parts will be indicated by like characters of reference.

Proceeding now to a detailed description of my invention, taken in connection with the several views of the drawings, and referring first to Fig. 1, the reference character 10 indicates the wooden body portion of a ski, showing applied thereto, along the lateral edges thereof, the metallic strips 11 constituting my invention.

These edge strips, in one embodiment of my invention, are made up of the base strip 12, which is preferably constituted of a type of steel easily machined, and is provided at spaced intervals with keyhole slots 13. A second soft steel strip 14 is superposed upon the strip 12, and this strip 14 is provided with slots 15 coincident in length with the slots 13 but being throughout of a width at least equal to the greatest width of the keyhole slots 13. A third strip of hard tempered steel designated by the reference character 16, is superposed upon the strip 14, and the three strips 12, 14 and 16 are suitably attached together as by spot welding. This assembly of the said three steel strips makes up a unitary structure which is illustrated in longitudinal section at the

left hand end of Fig. 3 and in cross section by Fig. 4.

In applying this laminated metallic unit to the lateral edge of a wooden ski, the latter is first channelled as shown at 17, Fig. 4, and is then provided with screws 18 driven in alignment into the channel 17 at intervals corresponding with the spaced keyhole slots 13. These screws 18 are set into the wood of the ski to a point where the under sides of the heads thereof approach the wood a distance equal to the thickness of the metallic strip 12.

The laminated metallic strip consisting of the three strips 12, 14 and 16, welded together, are applied to the ski by first inserting the heads of the screws 18 through the larger portions 13' of the keyhole slots 13. When all of the heads of the screws 18 are positioned in the apertures 13', the laminated strip may be pushed longitudinally until the screws find seats in the narrow ends of the slots 13, as indicated in Figs. 2 and 3.

It may be here noted that the keyhole slots 13 are so positioned that the normal drag upon the laminated strip, incident to use of the ski, will serve to always urge the strip toward the narrow end of the slot.

It will be apparent from the foregoing description that the laminated metallic strip may be readily removed from the ski by pushing it longitudinally until the heads of the screws 18 are brought into registry with the larger portions 13' of the keyhole slots 13.

A modification of my invention is illustrated by Fig. 5 of the drawings. This embodiment of my invention utilizes a tread plate 19 of L-shaped conformation, which also, it will be apparent, may be used in connection with the further modifications of my invention to be now described.

This said further modification which is illustrated by Figs. 6 and 7, comprises two metallic strips, rather than three as above described, to wit, the strips 20 and 21. In this embodiment of the invention the strip 20 has the edges of its keyhole slots 22 mitered off as at 23 for the purpose of compensating for the heads of the screws 24 so that when the latter are seated, their heads, which are flat, will be flush with the face of the strip 20. This strip 20 may be applied in the same manner as is the 3-ply unit above described, after the hard tempered strip 21 has been attached thereto as by spot welding. This form of the invention may be readily removed for the ski in the manner heretofore described.

A still further modification of my invention is illustrated by Fig. 8 of the drawings. In this embodiment of my invention the tread and side edges of the wooden ski body are slotted, as at 25 and 26, for the sliding reception of an L-shaped metallic member 27, which is provided at each arm of the L with flanges fitting into the slots 25 and 26. This member 27 is also preferably made of a type of steel amenable to ready formation and upon it is superposed and welded thereto a flat, runner-strip 28, or an angular strip such as is illustrated in Fig. 5, of hardened steel.

Figs. 9 and 10 illustrate a form of the invention similar to that disclosed in Figs. 2 to 5, inclusive, except that it, like Figs. 6 and 7, comprises two rather than three strips, the base strip 12, in this embodiment of the invention, employing in its formation a relatively wider plate, the marginal edges 28 and 29 of which are

folded inwardly upon themselves, in such manner that the inner edges of the overlapping lips thus formed are spaced apart a distance slightly in excess of the diameter of a screw head, thereby forming a continuous, longitudinal channel 30, upon which the usual strip of hardened steel 16 is metallically secured in overlapping relationship.

In the embodiment of my invention illustrated by Fig. 11, the lateral margins 31 and 32 of the base strip 12 are folded inward toward each other but in spaced relation to the web portion 33 of the strip in such manner as to provide a flattened, tubular structure, the extremities of the lips 31 and 32 defining the boundaries of a continuous, longitudinal channel of uniform width throughout, said intumed lips being spaced from the web portion 33 of the strip 12 a distance equal to the thickness of the heads of the screws 18, which latter are disposed in spaced aligned relation in the margin of the ski-runner with their heads protruding a distance equal to the thickness of the said intumed lips 31 and 32. Superposed upon this structure and metallically secured thereto, as in the previously described embodiments of my invention, is the hardened metal tread strip 16. In this construction, after the screws 18 have been placed in spaced alignment in the margin of the ski-runner, sections of the composite structure may be slidably inserted in engagement with the heads of the screws 18. If desired, the slot or channel defined by the edges of the intumed lips 31 and 32 may be provided at intervals, corresponding with the spacing of the screws, with screw-head receiving enlargements, in which case the composite structure, instead of being slidably applied, would merely be set over the screw heads and then slid along into locking engagement with the more restricted portions of the slot or channel.

Referring now to Figs. 12, 13 and 14, the base strip 12 of this modification is identical with the base strip of Fig. 2, but in this embodiment of the invention I preferably employ screws of the countersunk head type, such as the screw 24 shown in Fig. 7, although of course screws of any suitable head construction may be employed. The width of the keyhole slots 13, throughout their narrow portions, is sufficient to receive the shanks only of such types of screws as may be employed, in the instance illustrated the screws 24, so that the heads of the screws will project above the base strip to serve as anchors for the strip 34, which is made of Bakelite or of similar synthetic material or of any material possessing similar characteristics. Bakelite, it may be noted, is of a character particularly adapted for the purposes desired; it has greater wearing qualities than wood; unlike steel, ice will not form upon it in use, and it takes and retains ski-waxes better than does steel.

This strip 34, made of Bakelite, as above stated, is preferably made of what is known as "laminated" Bakelite, in that it has a fabric base. To the outer corner of the base strip 12 a strip of hardened steel 35, having a sharp outer corner, is attached as by spot welding, although obviously these two pieces 12 and 35 may be made integral. The strip 34 is of such dimensions as to fit between the metallic corner strip 35 and the wall of the ski-runner, and on one face thereof an undercut, longitudinal channel is provided as at 36. This channel 36

conforms in cross-section with the heads of the attaching screws such as 24, or with the heads of any other type of screw which may be employed, which screws are set in the ski-runner as above described.

The channel 36 may be of uniform width throughout, in which case the Bakelite strip 34 would be slidably applied, or it may be provided with enlargements at its entrance of a size and shape and so spaced apart as to admit the heads of the spaced screws, in which case the strip 34 would be merely set over the heads of the screws and then slid along so that the screw heads will be out of register with the screw-head receiving orifices and the strip thus locked in place. The heads of the screws 24, it will be noted, protrude above the base plate 12, the narrow ends of the keyhole slots being of a width just sufficient to accommodate the shanks of the screws at their base.

Referring now to Figs. 15, 16 and 17, there are illustrated by these views cross-sections of ski-runners having longitudinal, centrally disposed channels, as 39, designed for the reception of strips having external tread faces adapted to meet varying conditions of snow and terrain. In Fig. 15 an insert strip 40 is shown as having a straight tread face, while Fig. 16 shows a strip 41 the face of which is concave in cross-section, and Fig. 17 a strip 42 whose face is convex in cross-section.

As shown in Fig. 1, these centrally disposed insert strips are preferably divided into a series of short strips all of which are provided on one face with a longitudinal slot 36 corresponding with the slots of Figs. 12, 13 and 14 as being formed in the Bakelite strip 34. Similarly to Figs. 12, 13 and 14, these slots of Figs. 15, 16 and 17 are of such cross-sectional outline as to accommodate the heads of any types of screws which may be desirably employed, as will be readily understood.

Fig. 18 is a bottom plan view of the insert strips constituting the modifications illustrated by Figs. 15, 16 and 17, the outlines of the slots 36 being indicated in dotted lines. This slot is preferably provided at intervals with enlargements 43 constituting screw-head receiving orifices which are spaced apart coincidentally with the spacing of the screws 24, which, as hereinbefore described, are disposed in the channel 39 in the same manner as are those retaining screws set in the edge channels 17. As before stated with respect to Figs. 13 and 14, however, these strips 40, 41 and 42 may have slots of uniform, uninterrupted width throughout.

These centrally disposed inset strips such as 40, 41 and 42, may be made of any suitable character of hard wood, or of Bakelite or the like, or of any suitable non-corrosive metal.

As before stated and as shown by Fig. 1, these centrally disposed inset strips, such as 40, 41 and 42, are preferably made in short sections so that each section is selectively interchangeable whereby they may be the more readily applied and removed and worn sections replaced without discarding the entire structure, and this is true also with respect to the marginal strips. The conditions of snow and/or of the terrain encountered will dictate which of the types of the short, intermediately applied sections to employ. In practice it has been found expedient usually to employ at the front and rear of the ski-runner inset strips with straight tread faces such as 40, and strips such as 41 and 42 intermediate the

front and rear ends. For instance, the exigencies incidental to use may dictate the employment in tandem sequence from front to rear (see Fig. 1) of the members such as 40, 41, 42, 42 and 40. This order of assembly may of course be varied in any desired sequence to meet the conditions encountered.

In each of Figs. 15, 16 and 17 the inset strips are shown substantially flush with the bottom or tread face of the ski-runner 10, but in practice it is often desirable that some of the strips project. This may of course be provided for by merely making such inset strips thicker, as may well be understood without further illustration.

Insert strips of a variety of surface outlines may of course be employed. For instance, strips having their faces serrated either longitudinally or transversely may be employed.

It is obvious, furthermore, that other adaptations of the means herein disclosed for attaching the protective edge strips may be also employed to attach the intermediate strips.

It will be apparent from the foregoing exposition of the construction and purposes of the strips applied to the marginal edges of the ski-runner, and of the insert strips applied immediately thereof, that a cooperative relationship of efficiency exists therebetween. For instance, intermediate strips having a facing of the nature such say as 41 will cooperate with the sharp-cornered marginal edge strips in the prevention of side slip, and that the use of insert strips having a facing such as the strip 42 will, together with the edge runner strips, cooperate in facilitating easy longitudinal slippage over the snow of the ski-runner as a whole.

In all of the figures of the drawings the marginal edge strips are illustrated as having their tread faces disposed in a plane above that of the tread surface of the ski body 10. The corner edge thus defined, as at 44, may, however, be desirably skived off so that the adjoining faces of the strips and of the face of the ski-runner will occupy substantially the same plane. As a matter of fact in practice these corners 44 wear away rather quickly in use.

In those various embodiments of the marginal string of my invention herein disclosed wherein the base plates are provided with spaced slots for the reception of the retaining screws, it is obvious that in the place of keyhole slots as shown, I may employ angular, bayonet-like slots the entrances to which will extend transversely inwardly from the inner edges of said base strips.

In those embodiments of the invention wherein the parts have relative sliding engagement only, it is of course necessary to provide means to prevent sliding disengagement, such as detents of any nature placed in the strip-receiving channels.

I claim:

1. The combination with a ski-runner of a laminated metal strip reinforcement having a base strip provided with spaced apart keyhole slots adapted to receive retaining screws set in the margin of said ski-runner.

2. The combination with a ski-runner of a laminated protective strip having a base strip provided with spaced apart keyhole slots adapted to receive retaining screws set in the margin of said ski-runner, and a top strip covering said keyhole slots and secured metalically to said base strip.

3. A device having the features claimed in

claim 2 in which the base strip is made of ductile steel and the top strip of hard-tempered steel.

4. The combination with a ski-runner of a laminated metal strip reinforcement having a base strip provided with spaced apart keyhole slots adapted to receive retaining screws set in the margin of said ski-runner, said slots having bevelled side walls cooperating with bevelled shoulders under the heads of said screws, the slots and screw heads in said base strip being flush with the upper surface thereof, and a metal top strip secured to said base strip metalically.

5. As a new article of manufacture, a metal reinforcement strip adapted to be affixed removably to the margin of a ski-runner and having an edge designed to protect said margin and present a sharp edge to resist side slip of the runner in use and slots shaped for self-locking engagement with headed stud members on a ski runner.

6. The combination with a ski-runner of a laminated edge strip comprising a metallic base strip provided with spaced apart keyhole slots adapted to receive the shanks of retaining screws set in the margin of said ski-runner, a metallic strip metalically secured to the outer edge of the base strip, and a synthetic resin strip covering the keyhole slots, said synthetic resin strip having a longitudinal, undercut channel conforming in cross-section with the shape of the heads of said retaining screws, the entrance to said channel being of a width approximating the diameter of the base shanks of said screws, said channel entrance having screw head receiving enlargements at intervals spaced apart coincidently with the spacing of said screws.

7. The combination with a ski-runner of a laminated, protective edge strip comprising a metallic base strip provided with spaced apart keyhole slots adapted to receive the shanks of retaining screws set in the margin of said ski-runner, a metallic strip metalically secured to the outer edge of the base strip, and a synthetic resin strip having a longitudinal, undercut channel of uniform cross-sectional configuration throughout, the outline of said channel conforming to the shape of the heads of said retaining screws, and the entrance to said channel being of a width approximating the diameter of the base shanks of said screws.

8. The combination with a ski-runner of retaining screws set in spaced apart alignment in the margin of said ski-runner, a base strip comprising a metallic, flattened, tubular member provided with a longitudinal slot, said slot being of a width to accommodate the shanks of said retaining screws and being of uniform width throughout, the heads of said screws projecting through said slots, the inner opposed edges of said tubular member which define the boundaries of said slot engaging the under sides of the heads of said retaining screws, and a metallic tread strip superposed upon and metalically secured to said tubular base member.

9. The combination with a ski-runner of retaining screws set in spaced apart alignment in the margin of said ski-runner, a base strip comprising a metallic, flattened, tubular member provided with a longitudinal slot, said slot being generally of a width to accommodate the shanks of said retaining screws but being provided at intervals spaced apart coincidently with the spacing of said screws with screw head receiving enlargements, the heads of said screws projecting through said slots, the inner opposed

edges of said tubular member which define the boundaries of said slot at its restrictive portions engaging the under sides of the heads of said retaining screws, and a metallic tread strip superposed upon and metalically secured to said tubular base member.

10. A ski-runner having, in combination, longitudinal marginal channels and a channel of uniform depth intermediate said marginal channels, facing strips secured in said marginal channels and provided with metallic facings presenting sharp, outer corners, a plurality of strips differing one from the other in thickness and in tread face formation disposed in tandem relationship in said intermediate channel in selective sequence as to thickness and tread face formation, and stud-and-slot means receiving said strips to said ski-runner.

11. The combination with a ski-runner of a wear strip including a plurality of laminations and means connecting said laminations, the innermost lamination being formed of readily machinable metal and the outermost lamination being formed of hard-tempered metal, and means cooperating with said innermost lamination for attaching said wear strip to said ski-runner.

12. The combination with a ski-runner of threaded fastening members formed with heads and threaded into said ski-runner, and a detachable metal edging strip, said strip being provided with slot-like sockets adapted to engage over the heads of said threaded fastening members for detachably retaining said strip on said ski-runner.

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