May 7, 1957 J. M. MELAND 2,791,435

FOLDING SKI

Filed June 16, 1955 2 Sheets-Sheet 1

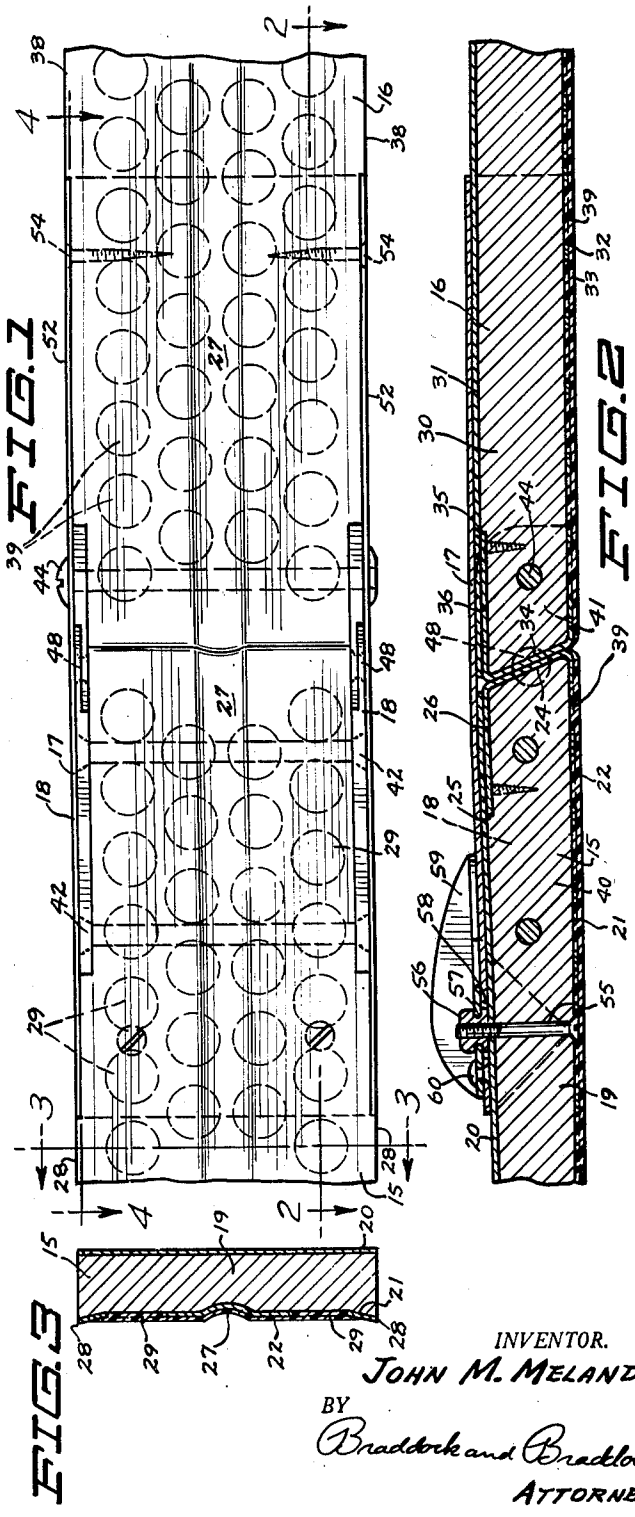


FIG. 1

FIG. 2

FIG. 3

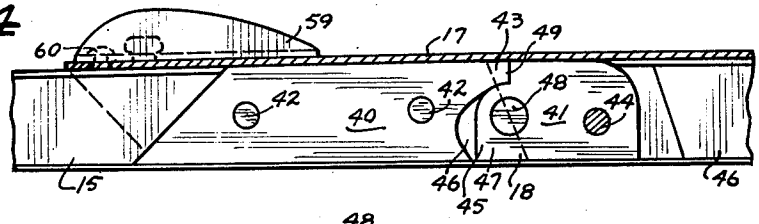
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FIG. 4



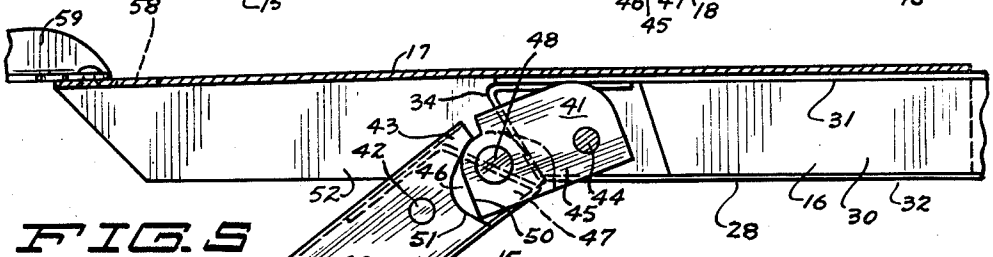


FIG. 5

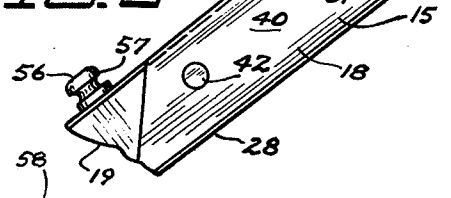
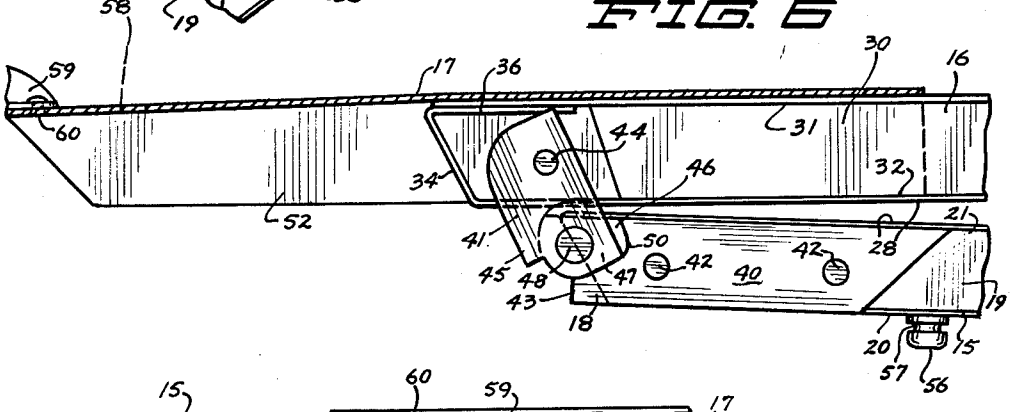


FIG. 6



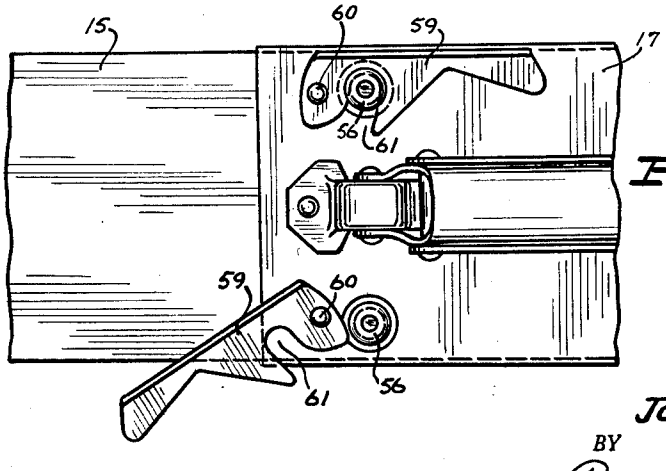


FIG. 7

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FOLDING SKI

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6 Claims. (Cl. 280—11.13)

The invention herein presents a ski constructed to be capable of being folded when out of use, thus to be more compact for transportation and storage purposes than would otherwise be the case.

The object of the invention is to provide a folding ski wherein will be incorporated novel and improved features and characteristics of construction.

In the accompanying drawings forming a part of this specification,

Fig. 1 is an enlarged, fragmentary bottom plan view disclosing an intermediate portion of a folding ski made according to the invention;

Fig. 2 is a detail sectional view, taken on line 2—2 in Fig. 1;

Fig. 3 is a detail sectional view, taken on line 3—3 in Fig. 1;

Fig. 4 is a detail sectional view, taken on line 4—4 in Fig. 1, parts being omitted;

Fig. 5 is a view corresponding generally with the disclosure of Fig. 4 showing the ski as when in partially folded condition;

Fig. 6 is a view corresponding generally with the disclosure of Figs. 4 and 5 showing the ski as when in nearly completely folded condition; and

Fig. 7 is a fragmentary top plan view, on the scale of Fig. 1, detailing latching mechanism for detachably retaining forward and rearward elongated members of the ski in longitudinal alinement.

The new and improved ski includes a forward elongated ski member 15, a rearward elongated ski member 16, a channel member 17, and a pair of hinges, each denoted 18.

The forward elongated ski member 15 is constituted, in the disclosure as made, as an elongated wooden plank 19, an elongated flat strip 20 of aluminum suitably and conveniently secured upon and against an upper surface of said plank, an elongated flat strip 21 of steel secured upon and against a lower surface of the plank, and a coating 22 of plastic, or other suitable material, upon a lower surface of said strip of steel. Forward end portions of the aluminum and steel strips 20 and 21 are secured to the wooden plank 19. A rearward end portion of the steel strip 21 extends first forwardly and upwardly in engaged relation with the rearward end of the plank 19, as denoted at 24, and thence forwardly in engaged relation with an undercut upper surface 25 at the rearward end portion of said plank, as indicated at 26. The rearward end portion of the aluminum strip 20 is in overlying engaged relation with the part of the rearward end portion of the steel strip 21 which engages the undercut upper surface 25. The lower surface of the forward elongated ski 15 includes a longitudinally extending, centrally disposed guide 27. The coating 22 extends over the major portion of the lower surface of the steel strip 21, but terminates short of the opposite side edges 28 of said steel strip. Lower portions of said side edges are in the plane of the lower surface of said coating. Numeral 29 represents each of perforations through the steel strip

21, and portions of the coating 22 enter said perforations and engage the lower surface of the wooden plank 19.

The rearward elongated ski member 16 is constituted as an elongated wooden plank 30, an elongated flat strip 31 of aluminum secured upon and against an upper surface of said plank, an elongated flat strip 32 of steel secured upon and against a lower surface of the plank, and a coating 33 upon a lower surface of said strip of steel. A forward end portion of the steel strip 32 extends first forwardly and upwardly in engaged relation with the forward end of the plank 30, as indicated at 34, and thence rearwardly in engaged relation with an undercut upper surface 35 at the forward end portion of said plank 30, as denoted at 36. The forward end portion of the aluminum strip 31 is in overlying, engaged relation with the part of the forward end portion of the steel strip 32 which engages the undercut upper surface 35. The lower surface of the rearward elongated ski 16 includes a longitudinally extending guide alined with the longitudinal guide 27. The coating 33 extends over the major portion of the lower surface of the steel strip 32, and terminates short of the opposite sides 38 of said steel strip. Lower edges of said sides 38 are in the plane of the lower surface of said coating 33. There are perforations 39 through the steel strip 32, and portions of the coating 33 enter said perforations and engage the lower surface of the wooden strip 30.

Each hinge 18 consists of first and second hinge members, indicated 40 and 41, respectively, pivotally connected for swinging movement between a position where the forward and rearward ski members 15 and 16 are in alinement, as in Figs. 1, 2, 4 and 7 of the drawings, and a position where said forward and rearward ski members are substantially parallel, as in Fig. 6.

The first hinge members 40 of the different hinges 18 are rigidly secured, as at 42, to and against opposite side surfaces of the rearward end portion of the forward ski member 15 in alined relation transversely of the ski and so that a rearward end portion 43 of each first hinge member extends rearwardly beyond the rearward end of said first ski member. Desirably, the first hinge members can be secured upon the forward ski member by rivets which extend transversely through the wooden plank 19.

The second hinge members 41 of the different hinges 18 are pivotally connected, as at 44, to and in contiguous relation with opposite side surfaces of the forward end portion of the rearward ski member 16 in alined relation transversely of the ski and so that a forward end portion 45 of each second hinge member extends forwardly beyond the forward end of said second ski member. As shown, the second hinge members are rotatably connected to the rearward ski member by an element which extends transversely through the wooden plank 30.

A lower part of the interior surface of the rearward end portion 43 of the first hinge member 40 of each hinge 18 is cut away, as at 46, a lower part of the exterior surface of the forward end portion 45 of the second hinge member 41 of each hinge is cut away, as at 47, and the cutaway part of each first hinge member is in overlapping relation to and pivotally connected, as at 48, with the cutaway part of the second hinge member at the same side of the ski. The construction and arrangement are such that the pivotal connections 48 maintain the first and second hinge members 40, 41 of each hinge 18 in a single vertical plane extending longitudinally of the ski. The hinges connect the forward and rearward ski members 15 and 16 for relative swinging movement in the plane of the longitudinal axis of the folding ski. When the first and second hinge members 40 and 41 of each hinge 18 are in longitudinal alinement, as in Fig. 4 of the drawings, the forward and rearward ski members

15 and 16 also will be in alinement, and an upper portion of the rearward end of each first hinge member will be engaged, as at 49, with an upper portion of the forward end of the corresponding second hinge member.

When the forward and rearward ski members 15 and 16 are swung from their alined position as in Fig. 4 toward folded position, the first hinge members 40 will be swung relative to the second hinge members 41, while said second hinge members remain in fixed relation to the rearward ski member, until rearwardly facing stop surfaces 50 at upper parts of the rearward end portions 43 of the first hinge members 40 engage forwardly facing stop surfaces 51 at upper parts of the forward end portions 45 of the second hinge members 41, as disclosed in Fig. 5. When said forward and rearward skis are swung from partially collapsed condition as in Fig. 5 to fully collapsed condition, as in Fig. 6, the hinges and forward ski member will remain in fixed relation to each other and rotate as a unit upon the pivotal support 44. With rotation of the forward ski member from position as in Fig. 6, to position as in Fig. 5, the hinges and forward ski member will remain in fixed relation, and with rotation of said forward ski member from position as in said Fig. 5 to position as in Fig. 4, the first hinge members will be swung relative to the second hinge members. Rotation of the second hinge members 41 in clockwise direction from the position as in Fig. 4 is prevented by engagement with the channel member 17.

Hinges of construction as illustrated and described provide for ready and easy swinging of the forward and rearward ski members between their positions as in Figs. 1, 2 and 4, where the rearward end of the forward ski member and the forward end of the rearward ski member are in proximate relation, and their position as in Fig. 6, where said forward and rearward skis are in parallel relation.

The channel member 17 is of rigid material, metal as shown. It includes a flat body and parallel flanges 52, 52 integral with the opposite side edges of and perpendicular to said flat body. A rearward end portion of the flat body of said channel member rests upon the upper surface of the forward end portion of the strip of aluminum 31 of the rearward elongated ski member 16 and is secured to said rearward ski member by screw bolts which pass downwardly through said strip of aluminum 31 into the wooden plank 30. Rearward end portions of the flanges 52, 52 are secured down against outer side surfaces of said wooden plank 30 by the pivotal support 44 and by screws 54 which enter the opposite sides, respectively, of the wooden plank 30. The rearward end of the channel member 17 terminates to the rear of the rearward ends of the second hinge members 41.

A front end portion of the flat body and front end portions of the flanges 52, 52 of the channel member 17 extend forwardly of the front end of the rearward elongated ski member 16 in parallel relation thereto to be capable of snugly receiving the first hinge member 40 and the rearward end portion of the forward elongated ski member 15 assembled with and adjacent to said first hinge members. The construction and arrangement are such that when the first ski member 15 is engaged against the interior surface of the forward end portion of the body of the channel member 17, as in Figs. 1, 2 and 4, the first and second hinge members 40 and 41 of each hinge 18 will be in alinement, the forward and rearward elongated ski members 15 and 16 also will be in alinement, the rearward end of the forward ski member and the forward end of the rearward ski member will be in adjacent relation, as best disclosed in Fig. 2, and the lower surfaces of the forward and rearward ski members will be in a single plane, with the lower edges of the first and second hinge members of the hinges 18 slightly above this same plane and the upper edges of said first and second hinge members in adjacent relation to said interior surface of said forward end portion of the body of said channel member 17.

A rearward end portion of the forward elongated ski member 15 supports transversely spaced screw bolts 55 which extend upwardly through said forward ski member at a location in advance of the forward ends of the first hinge members 40, and the upper end of each of said screw bolts 55 supports a nut 56 including an external annular groove 57. When the first and second hinge members 40 and 41 of the hinges 18, and the forward and rearward ski members 15 and 16, are alined, the nuts 56 will be situated in spaced, transversely alined apertures 58 in the forward end portion of the body of the channel member 17 with the annular grooves 57 disposed immediately above the upper surface of said forward end portion. The forward end of the channel member terminates at the front of the forward ends of the first hinge members 40 when these and the forward and rearward ski members are in alinement.

The forward end portions of the flanges 52, 52 of the channel members 17 in advance of the second hinge members 41 and the rearward ski member 16 cooperate with the rearward end portion of said channel member to preclude relative transverse movement of the forward and rearward ski members when these are alined, and the forward end portion of the body of the channel member, together with the hinges 18, precludes relative swinging movement of said forward and rearward ski members in one direction to position where out of longitudinal alinement.

Latching mechanism operable in cooperation with the channel member 17 to detachably retain the ski members 15, 16 and the hinge members 40, 41 in alinement, with the upper surface of the rearward end portion of the forward ski member up against the interior surface of the forward end portion of said channel member, is constituted as a pair of locker levers, each indicated 59, rotatably mounted, as at 60, upon and in proximate relation to the upper, exterior surface of the forward end portion of the body of the channel member for swinging movement in a plane parallel to said body. Each locker lever 59 includes an arcuate slot 61 in one of its side edge portions, and the annular grooves 57 are for removably receiving portions of said locker levers in surrounding relation to the arcuate slots 61. The locker levers 59 are swung inwardly to locking position and outwardly to released position. When said locker levers are in locking position they are situated wholly above the channel member 17 and extend longitudinally thereof. See Figs. 2 and 7.

What is claimed is:

1. In a folding ski, first and second elongated ski members, a hinge at each of opposite sides of said ski connecting said first and second ski members for relative swinging movement in a single plane between positions where alined and parallel, each of said hinges consisting of first and second hinge members and the first and second hinge members, respectively, of the different skis being in transverse alinement, each of said first hinge members being rigidly secured to and against an end portion of an adjacent side surface of said first ski member, each of said second hinge members being pivotally secured to an end portion of an adjacent side surface of said second ski member and there being a pivotal connection between the first and second hinge members of each hinge, a channel member secured to an adjacent end portion of the second ski member consisting of a flat body and parallel flanges rigid with opposite sides of and perpendicular to said flat body, a first end portion of said flat body resting upon an upper surface of an adjacent end portion of the second ski member and first end portions of said parallel flanges lying adjacent to outer side surfaces of said adjacent end portion of said second ski member, and a second end portion of said flat body and second end portions of the parallel flanges of said channel member extending beyond an end of said second ski member in parallel relation thereto to remov-

ably receive said first hinge members and an adjacent end portion of said first ski member when the first and second ski members are alined and the first hinge members are in proximate relation to a lower, interior surface of said second end portion of the flat body of said channel member.

2. The combination as specified in claim 1, an element supported by said first ski member, there being an opening in said second end portion of the flat body of the channel member for receiving said element, and means for releasably locking said element in said opening to maintain the first and second ski members and the first and second hinge members in alinement.

3. The combination as specified in claim 1 wherein the first and second hinge members of each of said hinges are in a single plane extending longitudinally of said ski, and stop means for arresting relative swinging movement of the first and second hinge members of the hinges in response to relative swinging movement of said first and second ski members.

4. In a folding ski, first and second elongated ski members, a hinge connecting said first and second ski members for relative swinging movement in a single plane between positions where alined and parallel, said hinge consisting of first and second hinge members, said first hinge member being rigidly secured to an end portion of said first ski member, said second hinge member being pivotally secured to an end portion of said second ski member and there being a pivotal connection between said first and second hinge members, a channel member secured to an adjacent end portion of the second ski member constituted as a flat body and flanges rigid with opposite sides of and substantially perpendicular to said flat body, a first end portion of the flat body resting upon an upper surface of said adjacent end portion of said second ski member and first end portions of said parallel flanges lying adjacent to outer side surfaces of said adjacent end portion of the second ski member, and a second end portion of said flat body and second end

portions of the parallel flanges of said channel member extending beyond an end of said second ski member in parallel relation thereto to removably receive said first hinge member and an adjacent end portion of said first ski member when the first and second ski members are alined and said first ski member is in adjacent relation to said second end portion of the flat body of the channel member.

5. The combination as specified in claim 4, an element secured to said first ski member, there being an opening in said second end portion of the flat body of the channel member for receiving said element, and means for releasably locking said element in said opening to maintain the first and second ski members and the first and second hinge members in alinement.

6. The combination as specified in claim 4 wherein the first and second hinge members of said hinge are in a single plane extending longitudinally of said ski, and stop means for arresting relative swinging movement of said first and second hinge members in response to relative swinging movement of said first and second ski members.

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