

May 4, 1943.

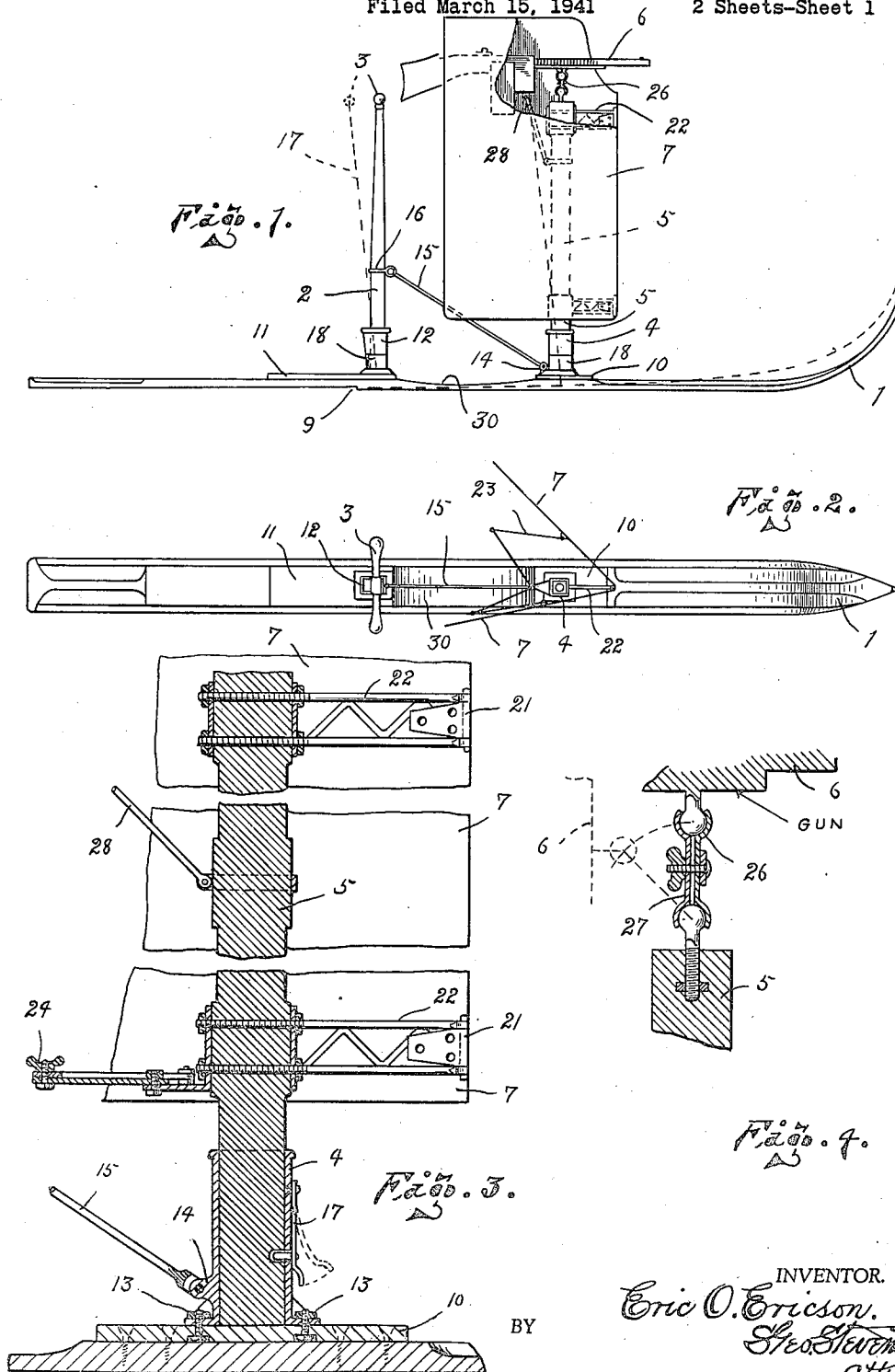
E. O. ERICSON

2,318,147

SKI

Filed March 15, 1941

2 Sheets-Sheet 1



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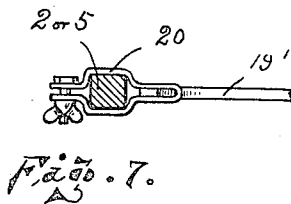
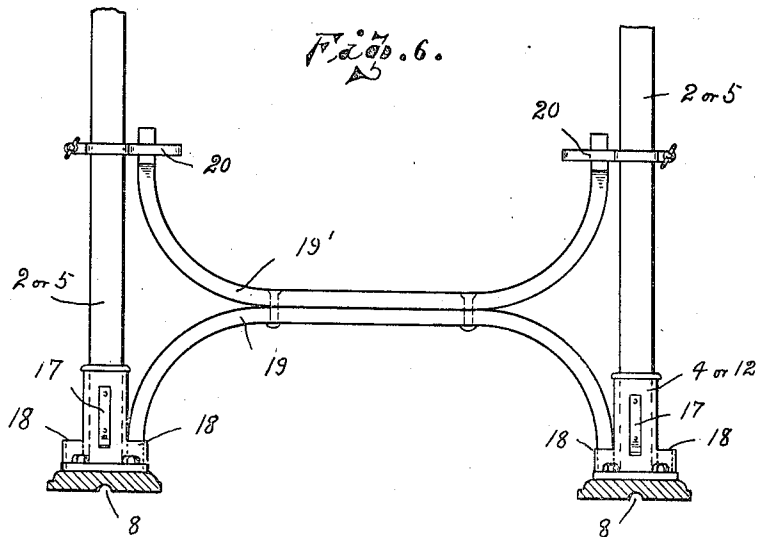
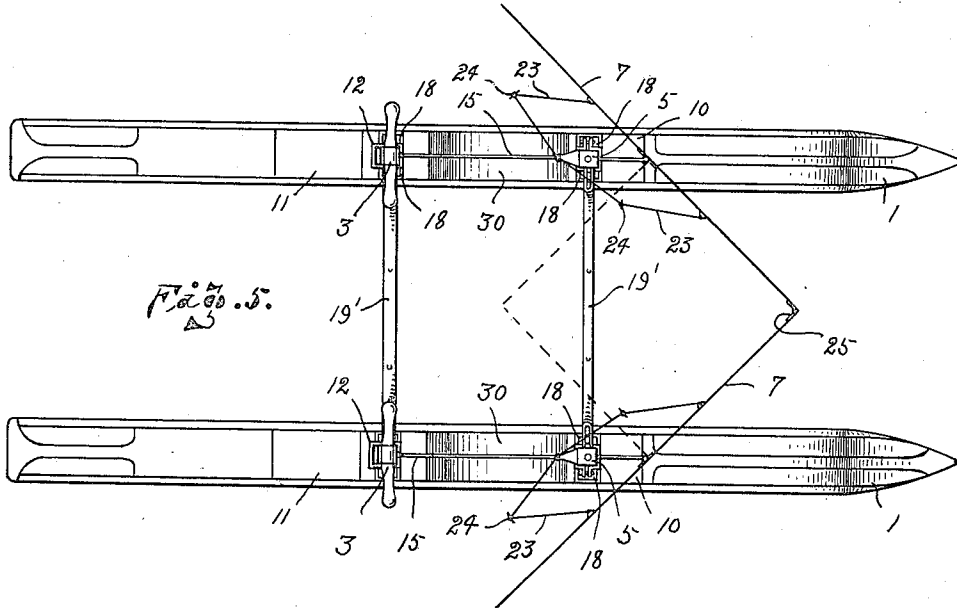
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2 Sheets-Sheet 2



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2,318,147

SKI

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6 Claims. (Cl. 280—12)

This invention relates to a single snow ski, provided with detachable accessories for mechanically joining two skis, for use in traveling over or across snow-covered terrain in the course of business, recreational, military or other pursuits, a mode of travel that is frequently the only practical way left open during winter months. Unlike the use of conventional snow skis wherein a pair of skis are necessary, except as hereafter set forth, only one push ski is employed by each rider for ordinary purposes, although for extraordinary purposes the use of two skis joined together in parallel alignment by a suitable coupling device is provided for.

The principal object of the invention is to provide a more practical, substantial, and adaptable ski for the purpose than heretofore used.

Other objects and advantages of the invention will appear in the following description thereof.

Referring now to the accompanying drawings, forming part of this application, and wherein like reference characters indicate like parts:

Figure 1 is a side elevation of my improved ski illustrating a piece of ordnance mounted thereon.

Figure 2 is a top plan view of Figure 1, with the ordnance removed.

Figure 3 is a central longitudinal sectional view of the ordnance supporting mast.

Figure 4 is a central longitudinal sectional view of the pivotal mounting for the ordnance.

Figure 5 is a plan view of a dual ski assembly.

Figure 6 is an enlarged elevation of one form of union for such assembly.

Figure 7 is an enlarged plan view of one of the assembly connections.

The push ski, which is fashioned from clear grained wood stock of dimensions determined largely by the specific use for which it is intended to be employed, is designed in such proportion of width and length as to confer upon its under side or snow surface a weight-bearing area sufficient in size to carry over or support upon the surface of even very soft snow not only the weight of the push ski and its rider but, in addition, a sizable burden of weight such as supplies, equipment, ordnance, etc. As will be seen in Figure 1, in its general appearance, this push ski resembles a conventional ski in many respects, particularly in that its snow riding or gliding properties are derived from its general design which incorporates a long, narrow, smoothly finished wooden plane or surface which, at its forward or toe end is symmetrically wedge or V-shaped, when viewed from above, tapering in two gentle curves

from each of its lateral edges forward and medially toward the center in the manner of the prow of a boat, as shown in Figure 2, and which, when viewed from its side, also at its forward or toe end, curves rather steeply upwards in a forwardly direction and away from the ground, thus providing an elevator or lifting surface during forward motion, as may be seen in Figure 1. It will be noted in Figures 1 and 2 that the beginnings and endings of the latero-medial curvatures, producing the wedge shape, and the forward and upward curvature, producing the elevator, are substantially co-terminous.

On the longitudinal center of the ski and slightly to the rear of the half way mark of its longer dimension is a miniature steering mast 2, having a transverse handle bar 3 affixed to its top, and which mast arises perpendicularly (normally at least) from the upper or standing surface of the ski to slightly more than the height of a man's waist. This mast, together with its handle bar, provides a suitable grasp or handle upon which the rider may push or pull, and with which he may steady or secure himself while riding, as well as a means of direct manipulation of the push ski itself during travel or motion. It also affords two points of attachment for the coupling device, hereinafter described, which is employed when it is desired to join together two push skis as a dual ski combination.

Situated in front of the steering mast and also located in the mid-line of the ski, a metal socket 4 is attached to the upper surface of the ski. This socket serves two purposes, as a point of insertion for a detachable carrier rod 5, and as a point of insertion for the ski coupling device when cross coupling of two such skis is desired.

To propel a single push ski the rider stands with one foot placed on the standing or upper surface of the ski, directly behind the steering mast. This foot and leg then support the body weight of the rider, and with his two hands grasping the handle bar. The free foot is then employed as an animated push pole to drive the ski forward and to assist in steering its course and in stopping it. To facilitate traction of the free foot in or upon the snow, a short snow shoe or ice creeper may be worn on the shoe of the pushing foot; choice of such accessories being determined by depth and character of the snow to be traversed. While riding down declines, the rider may, of course, stand with both feet upon the standing surface of the ski. By insertion of the detachable carrier rod 5 into its socket 4, a means of attachment for gun mount, such as

indicated at 6, protective shield 7, and luggage carrier is thus provided.

As is obvious from the several views the ski has a pencil-shaped outline which is approximately ten feet in its over-all length from tip of toe to heel, and its width is uniform at all points except for the wedging at the toe. One or more rounded grooves 8 are cut in the under surface of the ski its full length except at the toe to minimize side slipping, as is common.

A novel feature of the present invention is that exclusive of its toe curvature and the longitudinal groove or grooves, the under surface of the ski presents two smooth, wooden planes or surfaces which, if projected, would be slightly spaced and nonparallel, and which are joined by the notch or step 9, as indicated in Figure 1. These two planes are in tandem relationship to each other along their common center line, and each occupies roughly one-half the under surface of the ski to the fore and to the rear of the point of attachment of the steering mast. The forward plane begins about fifteen inches behind the tip of the toe and extends backwards for a distance of about five feet where it terminates abruptly by the notch, or step 9, cut crosswise of the entire width of the ski. This step 9 may vary in depth depending upon the use to which the ski is to be put. The rear plane begins at the deepest portion of the notch or step and extends backwardly to the rear end of the ski. This step produced by the separation of the two plane surfaces is unique, and coupled with the reduction of thickness of the ski itself, combine to give the ski two of its more valuable features for more ready turning ability and maneuverability, namely, a notching or pivot edge or step on its under or sliding surface which at one and the same time serves as a brake to retard backward action or motion of the ski, and as a fulcrum upon which to raise or elevate the forward half of the ski, as well as an area of increased flexibility in the ski itself, just forward of the fulcrum, which permits of easy and quick elevation of the toe and entire forward portion of the ski, independently of the rearward portion thereof, without the use of any hinging device, through the simple act of producing backward traction on the handle bar 3 while the rider stands with his weight resting on the standing surface behind the steering mast 2.

Viewed from above and in profile, as in Figures 1 and 2, the push ski presents certain features in common with the conventional ski. Both lateral edges are beveled off over almost their entire length. Certain areas of the surface have been symmetrically gouged out bilaterally from the center to effect reduction in weight and afford greater flexibility against stresses and strains leaving other portions thicker as reinforcements against overloads of stress or strain. Two wooden reinforcing plates 10 and 11 have been added to the upper or standing surface of the ski. Each is approximately three fourths of an inch in thickness and in width slightly narrower than that of the ski runner itself. The forward reinforcing plate 10, which serves to give added strength to the area of attachment of the carrier rod socket 4 is attached with its long edges paralleling the side edges of the ski runner at a site beginning approximately three and one-half feet to the rear of the foremost point of the toe of the ski and extending backwards from a transverse line at such point. Attachment to the ski runner is accomplished by

the use of wood screws driven from above downwards through the reinforcing plate into the body of the ski runner and if desired glue may be applied to the meeting surfaces to further enhance the security of the attachment. The reinforcing plate 11 under the steering mast is applied to the ski runner in a similar manner. The upper surface of the ski between the two reinforcing plates is cut out as shown at 30 in Figure 1 across its entire width and to such depth as will reduce the thickness of the ski at this point to approximately one-half inch, for purposes hereinbefore explained.

The steering mast socket 12, and the carrier socket 4, both of which are made of metal, are secured to their respective reinforcing plates by bolts 13 which pass upwardly from below, through the reinforcing plate and into the base of the socket. The carrier rod socket 4 is essentially a square metal tube, flanged at its top and bottom, and to the rear face thereof near its base is formed a metal eye or hinge 14 which supports the lower end of the metal steering mast brace 15, the upper end of which is attached to a metal collar 16 extending about the steering mast and provided with an eye or hinge for such attachment, thus providing support and rigidity to the steering mast.

Located on the forward walls of the carrier rod socket 4 and of the steering mast socket 12 are lock bolts and plugs 17 and which consist of a springlike strip of metal affixed to the walls of the sockets, each of which strips of metal having affixed to its lower end a short metal dowel that passes through a round opening in the socket wall and into a hole made for its reception in the carrier rod and steering mast, and thereby to hold each in its respective socket, but providing means for convenient removal thereof, when desired.

The steering mast socket 12 is also a rectangular metal tube, flanged at its top and bottom, being square at its bottom and oblong at its top, its major axis being longitudinally of the ski. Three sides of the socket 12, namely the front wall and the two sidewalls are perpendicular, but the rear wall is formed at an angle of less than 90 degrees so that the inverted truncated wedge thus formed permits the mast to describe a rearward arc within its socket during backward traction upon the handle bars as illustrated in Figure 1 at 17. The steering mast 2 is, of course, squared at its lower end to fit within the bottom of the socket 12 and is provided with an opening to receive the male member of the lock plug when desired.

The sockets 4 and 12 may be provided with laterally extending coupling sockets 18 upon each of their side walls and which are cast or stamped out as an integral part thereof. These are for the reception of the two lower arms 19 of a coupling structure which may be employed to join two of the skis herein described together in a dual ski combination. Each coupling structure consists of two U-shaped pieces of squared wood which are joined back to back by bolts and nuts as clearly shown in Figure 6 to form an H-shaped structure. After the two lower arms 19 of the coupling have been slipped into their respective coupling sockets on each of two skis, the two upper arms 19' are secured by passing over the tops of each the free ends of the split brace socket 20 which surrounds each mast and is freely movable or adjustable as to height. These braces can quickly be set in position and

the coupling is then in place. By the use of two such couplings which span the gap between mast and mast and between carrier rod and carrier rod of any two such skis, they may be securely and quickly joined together to form a dual ski combination. The operation of such combination requires two riders, both of whom perform in unison or combination the same acts required of a single rider with a single ski to attain motion thereof. This dual ski combination combines most of the advantages without the disadvantages of a toboggan and skis; that is to say, it may serve as a means of transporting as large or larger loads than can be hauled by a toboggan while retaining much of the ease of propelling associated with skis. The upper ribs of the couplings form a natural cradle for the carrying of innumerable kinds of luggage, or even a stretcher, while by adjustments of the angles of suspension of the wings of the shield, hereinafter described, many combinations are possible ranging from a simple windbreak to that of a small but effective barricade against armed men. The lower ribs of the couplings, arching upwards as they do, give adequate snow clearance for the burden being transported.

It is to be noted that the holding sockets 20 are elongated, providing means to permit of free lateral movement of either of the skis independently of the other without undue stress as may be required in traversing a side hill or rough ground.

The carrier rod 5 not only supports the ordnance such as indicated at 6, but also provides adequate support for the adjustable shield members 7 which are shown as being attached at 21 to the forwardly extending termini of the brackets 22. These latter, of course, may be of any desired construction but made as light as possible and rigidly attached to the rod 5. These shield members 7 are made selectively adjustable upon their hinge support by means of any suitable form of lazy tong connections such as at 23, having one or more of their pivotal points provided with suitable thumb nuts 24 for holding them in any desired position, and which may be with one closed and the other open, for example as illustrated in Figure 2 of the drawings to suit circumstances. When the connection for dual use of the device is assembled as previously described and shown in Figures 5, 6, and 7, the forward meeting ends of the shield members may be united by one or more removable hinge members as indicated at 25.

One form of pivotal support for the ordnance or gun 6 is illustrated in Figure 4 and designed to utilize two adjustable ball and socket joints held together as by the clamping member 26 and 27, so that the gun may be readily tipped to

any desired angle, or completely folded down behind and substantially parallel with the rod 5, such adjustment being illustrated in dotted lines in Figure 4 of the drawings, and of course, at which time the bracing member 28 would have to be correspondingly adjusted upon the rod 5.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is:

1. A ski of the type described having formed in its bottom surface a transverse notch approximately mid-way between the ends of the ski, said bottom surface on opposite sides of said notch being in different planes when extended, a steering mast extending upwardly from the upper surface of the ski approximately above said notch, the upper surface of the ski, immediately forwardly of said steering mast, being cut-away to provide an area of increased flexibility of the ski and whereby a tipping backwardly of said steering mast will elevate the forward half of the ski.

2. A ski of the type described having a steering mast and a carrier rod extending from the upper surface thereof in longitudinally spaced relation, the upper surface of said ski between said mast and rod being cut-away to provide increased flexibility of the ski.

3. A ski of the type described having a gun supporting mast thereon and a steering mast spaced rearwardly of said gun mast, characterized by the bottom surface of said ski being stepped just rearwardly of said steering mast to form a normally horizontally extending flat surface forwardly of said step and a downwardly inclined surface rearwardly of said step.

4. The structure set forth in claim 3, said ski being further characterized by having the upper surface thereof, intermediate of said masts, cut-away to increase the yieldability thereof for assistance in steering same.

5. A ski of the type described having its bottom surface formed in a pair of spaced non-parallel planes joined by a step or notch approximately mid-way between the ends of the ski, and its upper surface cut-away just forwardly of said notch, and a steering mast extending upwardly from the upper surface of the ski rearwardly of said cut-away portion.

6. The combination with a pair of skis, each having a gun supporting mast thereupon and an adjustable shield forwardly of and common to both of said masts, of means for cooperative union of said skis rearwardly of said shield, and means carried by each of said masts for independent adjustable support of their respective halves of said shield when said skis are not cooperatively united.

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