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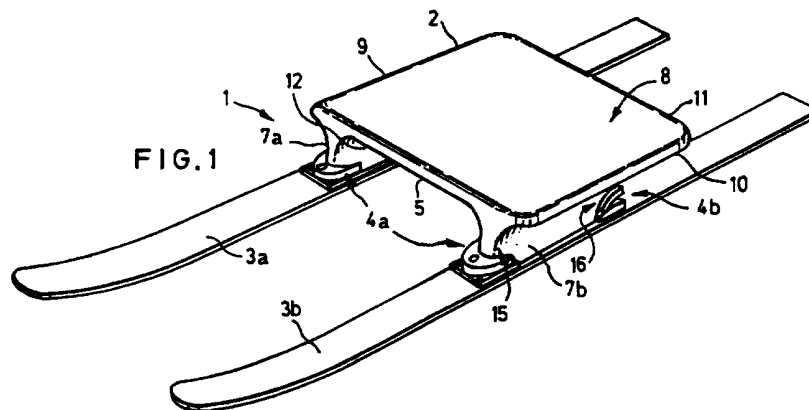
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(56) Documents Cited
GB 2191155 A **EP 0149953 A2** **EP 0046240 A1**
US 4466627 A **US 3799564 A**

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(54) Abstract Title
Sledge employing skis

(57) A support frame (2) in the form of a seat for use in a sledge (1) having a pair of skis (3a,3b) as the runners of the sledge, wherein the support frame comprises a platform (5) for supporting a rider, and the platform has a pair of spaced apart depending support members (7a,7b) for engagement with toe and heel portions of the ski bindings (4a,4b), so that the support members are securely held in the bindings in closed positions thereof. The seat may thus temporarily convert a pair of skis into a sledge. In the preferred embodiment the platform (5) and support members (7a,7b) are formed integrally in the seat.



GB 2 323 338 A

SKI DEVICE

The present invention relates to apparatus for use with
skis and, in particular, to a device for temporarily
5 converting a pair of skis into a sledge.

On average, skis tend to spend much of their life in
storage being rarely used outwith ski resorts, except by
enthusiasts. This can be for many reasons including inter
10 alia a lack of suitable skiing surfaces, and/or lack of
sufficient snow for skiing. Moreover, old skis with old ski
bindings are often thrown out or stored when new skis are
acquired. It is an aim of the present invention to provide
a device or means for adapting a pair of skis for a use
15 other than skiing.

For the avoidance of doubt, the phrase "ski bindings" as
used herein will be taken as a reference to the fastening
means provided on a ski by means of which the ski may be
20 fastened to a skier's boot. The ski bindings on a ski may
comprise one or more separate binding portions which may be
integrally formed with the ski or, more usually, securely
fixed to the ski. The most commonly used type of ski
bindings are of a quick-release type generally known as
25 "step-in" bindings in which the skier's boots are engaged in
the bindings by inserting the toe of each boot into a toe-
engaging portion of the bindings on a respective ski and
locking the heel of the boot in place by means of a quick-
release locking mechanism in a heel portion of the

bindings. The skier's boots are locked in the bindings in closed positions thereof. The present invention is designed for use with skis provided with such bindings of the quick-release type. The quick-release locking mechanism in the heel portion of the bindings may, for example, be in the form of a pivoting cam which can be locked against the skier's boot (to provide a "closed" position of the bindings), or disengaged therefrom (to provide an "open" position of the bindings) , in a simple "one-step" action.

10 The spacing between the toe and heel portions of the bindings on each ski is usually adjustable between a number of predetermined spacings suitable for engaging various ski boot sizes.

15 According to the present invention there is provided a support frame for use in a sledge having a pair of runners which runners comprise a pair of skis having ski bindings wherein said support frame comprises a platform for supporting a rider, said platform having a pair of spaced apart depending support member means having front and rear portions formed and arranged for engagement with toe and heel portions of said bindings, in use of the support frame, so that said support member means are securely held in said bindings in closed positions thereof.

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An advantage of the invention is that it allows more use to be made of a pair of skis since the skis can, for at least a temporary period, be turned into a sledge which may be used by anyone on any slope having sufficient snow coverage

to take a traditional toboggan or plastic sledge, for example. A further advantage of the support frame according to the invention is the ease of assembly and disassembly of the support frame to the skis, the ski bindings already
5 provided on the skis being the only means required to attach the support frame to the skis. Thus, no additional fastenings or fixing means need be provided. This makes the support frame particularly suited for carrying, with a pair of skis, to the top of a slope where it may be quickly and
10 easily attached to the skis to assemble the sledge.

Preferably, said pair of support member means comprises two support members depending from the platform, each said support member having front and rear end portions formed
15 and arranged for engagement with toe and heel portions of ski bindings of a respective ski, in use of the support frame. Said front and rear end portions of each said support member are advantageously provided integrally in a single elongate rib or fin depending from the platform.

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Alternatively, each support member means of said pair of depending support member means comprises separate front and rear depending support members, conveniently in the form of a pair of front and rear legs formed and arranged for
25 engagement with said toe and heel portions respectively of ski bindings of a respective ski. The legs may be attached to the platform, integrally or otherwise, at fixed relative positions. Alternatively, at least one leg of each pair of legs may be adjustably mounted on the platform,

conveniently so that the distance between the legs of each pair of legs may be increased or decreased. Where the spacing between the first and second binding portions of the ski bindings on an available pair of skis is fixed
5 (i.e. non-adjustable), the spacing of the legs can thus be adjusted, by the user, for engagement with the bindings of the available skis.

Preferably, said two support members, or said two pairs of
10 support members, are disposed in substantially parallel, opposing relationship so that, in use of the seat, the skis attached thereto are disposed substantially parallel to one another. Said support members may depend to a depth of 150mm to 200mm below the platform, preferably approximately
15 175mm. These dimensions help ensure that the height of platform in relation to the skis is sufficient to allow snow to pass underneath the seat, in use of the seat under various different conditions of softness of the snow.

20 Said support members are preferably integrally formed with the platform of the seat, the seat being conveniently formed from an impact-resistant plastics material, for example a polyalkene, polyamide, or polypropylene. This provides a relatively strong seat construction.

25 Alternatively, the support members may be, preferably permanently, fixed to the platform by mechanical means, adhesive means or other suitable fastening means. Other materials such as wood or glass-reinforced plastic (GRP),

which are known in the sledge and ski construction arts, could also be used.

The platform conveniently has a generally flat seating
5 surface. At least one of said pair of depending support
member means may be inset from one or more edges of the
platform whereby said one or more edges overhang(s) at
least one said support member means. The platform may be
generally rectangular and may be provided, at least in each
10 region of the platform which extends between the front and
rear end portions of a said support member, or between the
front and rear legs of a said pair of legs, with an
overhanging lip which overhangs said support members or
said legs, thus providing a convenient hand grip for a
15 rider supported on the platform. Alternatively, or
additionally, the support frame may be provided with one or
more handles for a rider to grip, in use of the support
frame/sledge.

20 According to another aspect of the invention there is
provided a kit of parts suitable for constructing a
temporary sledge, the kit comprising a support frame
according to the above-described invention, and a pair of
skis having ski bindings formed and arranged for engagement
25 with said support frame in closed positions of said
bindings.

In accordance with a yet further aspect of the invention
there is provided a seat comprising a platform having at

least two support members depending therefrom, said support members being formed and arranged for engagement, in use of the seat, with quick-release ski bindings of a pair of skis, so that the seat serves to temporarily convert a pair
5 of skis into a sledge.

Preferred embodiments of the invention will now be described, by way of example only, and with reference to the accompanying drawings in which:

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Fig.1 is a perspective view of a seat according to the invention, in use to form a "ski-sledge";

Fig.2 is an end view of a seat according to the invention, when not in use with a pair of skis, and

15 Fig.3 is a side view of the seat, in use to form a ski-sledge.

Fig.1 shows a "ski-sledge" apparatus 1 which is assembled from a support frame in the form of a seat 2 according to a
20 preferred embodiment of the present invention, and pair of skis 3a,3b. The skis 3a,3b are of standard construction, each having ski bindings 4a,4b of the quick-release type affixed thereto for engagement with a skier's boots, in normal use of the skis. In the embodiment shown, the
25 bindings 4a,4b on each ski 3a,3b comprise a forward, "toe" binding portion 4a for bearing against a toe portion of a skier's boot, and a rearward or "heel" binding portion 4b in the form of a pivoting cam designed for engagement with a

rearward or heel portion of the boot respectively. The toe and heel binding portions act together to hold a skier's boot in quick-release locking engagement with the respective ski.

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The seat 2, which is shown in more detail in Fig. 2 (shown separate from the skis) and Fig.3 (shown attached to skis), comprises a generally flat platform 5 having two support members 7a,7b depending from an underside 6 thereof. The platform 5 is of substantially rectangular shape, having side edges 9,10,11,12 and a substantially planar upper side providing a seating surface 8. The support members 7a,7b are configured for locking engagement with the quick-release ski bindings 4a,4b on a pair of skis, in the same manner as a skier's boots are engaged by the bindings, in use of the skis. Each depending support member 7a,7b is in the form of a solid ridge or fin which is integrally formed with the platform 2 of the seat. The seat is formed from a strong plastics material, for example, polypropylene, which is preferably relatively light in weight. The two fins are substantially parallel and are each inset from a respective generally parallel side edge 9,10 of the platform 5, each said platform edge 9,10 thus forming an overhanging lip 13,14 which may function as a hand grip for a user seated on the seat 2. The fins 7a,7b are spaced apart in by an amount which is chosen to allow a person seated on the seat, in use thereof, to position their legs generally between the skis 3a,3b. The depth to which the fins 7a,7b depend below the platform 5 is approximately 150mm-200mm.

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This makes the height H of the platform 5 above the skis, in use of the ski-sledge, approximately 150mm-200mm, which is sufficient to allow snow to pass underneath the sledge.

5 A forward portion 15 of each fin has a generally rounded configuration which is complementary to the configuration of the toe binding 4a on a respective ski, and which also provides a relatively aerodynamic shape for the fin. The seat 2 is easily snapped into locking engagement with the
10 ski bindings 4a,4b by pressing the forward portions 15 of the two fins against the toe bindings 4a so as to bear thereagainst and pushing down on the seat 2 so a respective rearward portion 16 of each fin snaps into locking engagement with a pivoting cam 17 provided in the heel
15 binding 4b of the respective ski. Once in place, the seat and skis together form a sledge which may be used on any convenient snow slope. Once the sledge is no longer required it can be easily disassembled by detaching the seat 2 from the skis 3a,3b (by pressing down on a
20 protruding portion 18 of the pivoting cam 17 in the heel binding 4b, in the usual manner in which a ski boot would be released from the binding), the seat and skis then being in a convenient form for carrying or storing away.

25 The skis 3a,3b may be an old or out of use pair of skis in the possession of the person intending to use the seat 2. In the embodiment illustrated in Figs. 1 to 3, the ski bindings 4a,4b on the skis are already affixed thereto so that the bindings 4a,4b on one ski 3a are generally

parallel to the bindings on the other ski 3b when the two
skis are arranged parallel to one another. The spacing
between the toe 4a and heel bindings 4b, along the length
of each ski, can be varied between a number of
5 predetermined spacings by adjustment of the heel bindings
4a,4b so as to set the bindings for engagement with various
recognised standard ski boot sizes. In this embodiment of
the invention the depending support members 7a,7b of the
seat 2 are of appropriate predetermined shape and
10 dimensions (in particular of an appropriate length) for
engagement with ski bindings set for "Size 7" on the normal
heel binding adjustment scale used by most ski and ski
binding manufacturers.

15 It will be appreciated that some skis may have bindings in
which each pair of toe and heel bindings 4a,4b are
integrally provided in a single binding member which is
formed and arranged to allow adjustment of the spacing of
toe and heel engagement portions thereof.

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It will further be appreciated that various modifications
to the seat 2 are possible without departing from the scope
of the invention. For example, instead of only two
depending support members 7a,7b the seat 2 may be provided
25 with a plurality of support members. For example, the seat
may have four depending legs, two front legs and two rear
legs, each leg being formed and arranged for engagement
with a respective front or rear (i.e. toe or heel) binding.
In this embodiment (not shown) the legs may be mounted, or

integrally attached, to the platform 5 at fixed relative positions or, alternatively, two or more of the legs may be adjustably mounted so as to allow the spacing between the front and rear legs, for example, to be increased and/or
5 decreased. For example, the rear legs may be slidable between two or more positions in which they may be temporarily fixed or, alternatively, the rear legs may be temporarily set at any spacing within a predetermined range. This embodiment of the invention has the advantage
10 over the first described embodiment of the seat of being particularly suitable for use with skis having non-adjustable ski bindings i.e. ski bindings in which the spacing between the toe and heel binding portions is set at a single predetermined spacing (which may be unsuitable for
15 use with a seat of the type according to Figs. 1 to 3, having only two fixed support members 7a,7b of a particular length). The seat can, for example, be adapted for use with different pairs of skis having bindings set at different predetermined, fixed spacings by adjusting the spacing
20 between the front and rear legs of the seat.

The size of the platform 5, in particular the seating surface 8, may be larger or smaller depending on the amount of sitting and/or lying room which is provided for the user
25 and/or to provide better hand grips for the user. Hand grips could, alternatively, be affixed to the seat at desired positions.

CLAIMS

1. A support frame for use in a sledge having a pair of runners which runners comprise a pair of skis having ski
5 bindings wherein said support frame comprises a platform for supporting a rider, said platform having a pair of spaced apart depending support member means having front and rear portions formed and arranged for engagement with toe and heel portions of said bindings, in use of the
10 support frame, so that said support member means are securely held in said bindings in closed positions thereof.

2. A support frame according to claim 1 wherein said pair of support member means comprises two support members.
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3. A support frame according to claim 2 wherein each said support member has front and rear end portions formed and arranged for engagement with toe and heel portions of ski binding means of a respective ski, in use of the support
20 frame.

4. A support frame according to claim 3 wherein said front and rear end portions of each said support member are provided integrally in an elongate fin depending from said
25 platform.

5. A support frame according to claim 1 wherein each said support member means of said pair of depending support

member means comprises separate front and rear support members.

6. A support frame according to claim 5 wherein each support member means of said pair of support member means comprises a pair of front and rear legs formed and arranged for engagement with toe and heel portions of said ski bindings of a respective ski.

7. A support frame according to any preceding claim wherein said support member means and said platform are provided integrally in the support frame.

8. A support frame according to claim 6 wherein at least one leg of each said pair of front and rear legs is adjustably mounted on the platform so that the distance between the legs of each said pair of front and rear legs can be varied.

9. A support frame according to any preceding claim wherein said support member means depend to a depth of 150mm to 200mm below the platform of the seat.

10. A support frame according to any preceding claim wherein at least one of said pair of depending support member means is inset from at least one edge of the platform whereby said at least one edge overhangs at least one said support member means.

11. A kit of parts suitable for constructing a temporary sledge, the kit comprising a support frame according to any of claims 1 to 10 and a pair of skis having ski bindings formed and arranged for engagement with said support frame
5 in closed positions of said bindings.

12. A seat comprising a platform having at least two support members depending therefrom, said support members being formed and arranged for engagement, in use of the
10 seat, with quick-release ski bindings of a pair of skis, so that the seat serves to temporarily convert a pair of skis into a sledge.

13. A support frame substantially as herein described and
15 with reference to Figures 1 to 3.



Application No: GB 9705513.1
Claims searched: 1 to 12

Examiner: Karl Whitfield
Date of search: 11 June 1997

**Patents Act 1977
Search Report under Section 17**

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
UK CI (Ed.O): B7B (BTS)
Int CI (Ed.6): A63C 11/00, B62B
Other: Online database: Derwent World Patents Index accessed via Questel

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2191155 A (POLLOCK) especially figure 1	1-7, 9, 11 & 12
X	EP 0149953 A2 (PERRET) especially figures 1, 5, 8 & abstract	1-12
X	EP 0046240 A1 (SCHMID) especially figure 1	1-12
X	US 4466627 (GOTTLIEB) especially figures 1, 12 & col 2 ll 36-46	1-7 & 9-12
X	US 3799564 (EISENSCHMID) especially figure 1	1-7, 9, 11 & 12

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.