THE JOINT EXAMINATION BOARD

PAPER P4

AMENDMENT OF SPECIFICATIONS FOR UNITED KINGDOM PATENT APPLICATIONS IN PROSECUTION, REVOCATION PROCEEDINGS OR OTHERWISE

21ST APRIL, 1994

10.00 a.m. - 1.00 p.m.

Please read the following instructions carefully. This is a THREE HOUR paper.

1. In the appropriate boxes at the top of each sheet please enter the designation of the paper, the question number, and your Examination number. Write on one side of the paper only using BLACK ink. You must NOT staple pages together. You must NOT state your name anywhere in the answers.

2. NO printed matter or other written material may be taken into the examination room.

3. Answers MUST be legible. If the examiners cannot read a candidate's answer no marks will be awarded.

INSTRUCTIONS TO CANDIDATES

In this paper, you should assume that a UK patent application comprising the attached specification has been filed and that the UK Patent Office has provided the attached Official Letter.

You should accept the facts given in the paper and base your answer upon these facts.

You should not make use of any special knowledge that you may have of the subject matter of the invention and should assume that the prior art referred to is in fact exhaustive.

Your task is to prepare the following:

> a draft letter to the UK Patent Office in response to the attached Official Letter including amended claims, if appropriate.

You should bear in mind, when drafting your response, that the claims should afford the maximum valid protection that is available.

If you believe that one or more divisional applications should be filed, you should draft the independent claim(s) for such divisional application(s) and indicate, where appropriate, your grounds for considering the claim(s) to be acceptable as well as any objections that you foresee may be raised by the UK Patent Office. You need not, however, propose an introduction for any divisional application(s).

PLEASE NOTE THAT, FOR THE PURPOSES OF THIS EXAMINATION QUESTION, YOU ARE NOT REQUIRED TO PROPOSE ANY AMENDMENTS TO THE DESCRIPTION OF THE PATENT.

LETTER FROM CLIENT

Thanks for your recent letter and the enclosed information received from the Patent Office. This patenting business certainly seems to take a long time!

I have quickly looked over the things which the Patent Office sent and I really don't think they should present a problem. The US Patent is quite different to my design. For instance, it is manoeuvred simply by means of the rider shifting his weight about. This means it would not be nearly so manoeuvrable as my design (it is the manoeuvrability of my design which is really its main selling point). Also it has no brakes. The only good thing I can say about it is that it is mechanically simple, which I suppose would mean it could be made relatively cheaply. As for the other patent (the one with the brakes), this relates to a conventional sled in which the runners are rigidly connected to the seat. Brakes of this type have been around for a long time. In fact, my German distributor mentioned to me the other day that a manufacturer over there has just started selling a similar sledge but with brakes like mine. I suppose it will be on the market over here before long.

I really cannot see why we need to change anything in my application, but I get the impression that you think something needs to be altered. Can you please let me see what you propose to do before you submit it to the Patent Office.

Incidentally, when we were finalising my application a year or so ago I meant to send you details of another old design. At the time I couldn't find the information and so I don't think I ever got around to sending it to you. As luck would have it, we were having a clear-out in the office the other day and I came across the enclosed report by one of my technical people. I thought you might be interested in it. The product was sold by a German company called Skischlitten GmbH and on the Continent it was quite successful for a while. I don't think it was ever sold over here (which I suppose explains why the Patent Office isn't bothered about it), though I believe one of our competitors, Slippery Sleds Ltd, was approached by Skischlitten with a view to distributing the product in the UK. It must be four or five years since I last saw it advertised.

clienta

OFFICIAL LETTER

PATENTS ACT 1977
REPORT UNDER SECTION 18(3) on Application No GB 9298765.4

Period for reply : 6 months from the date of this letter

The examiner (Mr A Hardcase) has reported that it appears to him that your application does not comply with the requirements of the Act and Rules made thereunder for the reasons set out below. A reply to this letter setting out your observations and/or any amendments to overcome the objections to the application should be filed within the period specified above. Any amendments to the application should be effected by filing replacement pages which comply with Rule 20. The Comptroller may refuse your application, after giving you an attempt, within the period specified above, either to satisfy him that these requirements are complied with, or to amend the application so as to comply with them.

2. It appears to the examiner that your application does not comply with the requirements of Section 1(1)(a) in that the invention, so far as claimed in Claims 1-8 of the application, is not new and/or is lacking in inventive step having regard to the matter contained in the patent specifications or other documents cited below:-

US 3 666 789 Against Claims 1-5

GB 1 000 001 Against Claims 6,7

3. In amending the specification care should be taken to make sure that the claims relate to a single inventive concept.

Yours faithfully

examrep

Application GB 9298765.4 Priority date 6 January 1992

Sledge

This invention relates to a sledge, in particular to a sledge with improved manoeuvrability.

Conventionally, sledges for recreational purposes comprise a platform which is rigidly connected to a pair of runners. The rider sits or lies on the platform. Generally, such a sledge will run downhill in a straight line unless the terrain causes it to change direction, though the rider may be able to exercise some control over the direction of travel by shifting his bodyweight. Such control is however very limited.

It is an object of the present invention to provide a sledge of high manoeuvrability which may be controlled by the rider and caused to execute turns or to slow or to stop.

According to the invention, there is provided a sledge comprising at least two skis laterally coupled together by a connecting device which allows movement of the skis relative to each other and of one ski relative to the other ski.

The connecting device preferably includes a seat portion on which a rider may sit, movement and control of the skis preferably being by means of levers which may readily be operated by the rider in a seated position.

It is preferred that the skis should be moveable from their normal "forward running" position, in which the skis are substantially parallel and point in the direction of travel, to a forwardly converging or "snow plough" position. In such a position, which is familiar from the art of skiing, the skis converge toward at each other at their tips and are banked oppositely about their longitudinal axes. Turning the skis by substantially equal amounts basically effects slowing or

stopping. However, by turning and banking one ski a greater amount than the other, a so-called "snow plough turn" may be effected. Independent control of the two skis in this way thus provides great manoeuvrability.

Preferably, banking of the skis occurs automatically when the skis are swung from the forward running position to the forwardly converging position.

The snow plough turn is a fundamental turning procedure which is relatively easy to master. However, its execution involves a loss of speed. It is therefore preferred that the skis should also be moveable from the forward running position to a "parallel turn position" in which the skis, whilst turned from the initial direction of travel, remain in, or quickly reassume, a parallel orientation.

Whilst in the foregoing we have referred only to a sledge travelling downhill under the influence of gravity, it will be appreciated that the sledge could be motorised for use on flat or undulating terrain.

The invention will now be described in greater detail, by way of illustration only, with reference to the accompanying drawings, in which

Figure 1 is a front perspective view of a sledge according to the present invention, comprising a seat mounted on a pair of skis;

Figure 2 is a plan view of the sledge with parts in section and parts broken away;

Figure 3 is a side view of the sledge;

Figure 4 is a sectional rear elevation view of the sledge taken along the line 4-4 of Figure 3;

Figure 5 is an enlarged sectional elevation view through one side of the sledge taken along the line 5-5 of Figure 3;

Figure 6 is an enlarged sectional elevation view through the front swivel support for one of the skis;

Figure 7 is a sectional rear elevation view similar to Figure 4 but illustrating the skis in a "snow plough" position;

Figure 8 is a sectional view similar to Figures 4 and 7 but illustrating the skis in a right parallel turn position;

Figure 9 is a sectional front view illustrating one of the brakes taken along line 9-9 of Figure 1; and

Figure 10 is a side view of the brake shown in Figure 9.

Referring to the drawings, a sledge of the present invention is generally indicated at 11 and comprises a cushioned seat 12 for supporting a rider in a seated position. The seat 12 has a rigid bottom portion suitably secured to a U-shaped frame member 13 (dotted lines in Figure 2), the arms 14 of which are hollow and point towards the rear of the sledge. Vertically extending legs 15 and 16 are integrally connected to the outer forward ends of the frame 13 and are supported through swivel connections 17 and 18 by a pair of skis 20 and 21, respectively.

As shown in Figure 6, each swivel connection, ie 18, comprises a pivot element 22 connected to the lower end of the respective leg, ie 16, by a pivot pin 23 for pivotal movement about a vertical axis and connected by a pin 24 to a U-shaped bracket 25 suitably secured to the respective ski, ie 21, for pivotal movement about a horizontal axis extending parallel to the length or longitudinal axis of the ski.

A hollow guide tube 26 is suitably attached to the rear underside of frame 13. As shown in Figures 7 and 8, the guide tube 26

slidably supports a pair of telescoping support bars 27 and 28. Such bars are of equal length and pivoted at 30 and 31 to rear support legs 32 and 33, respectively, permitting pivotal movement of the legs about vertical axes relative to the bars 27 and 28.

The lower end of the leg 32 is pivoted at 34 to a U-shaped bracket 35 suitably secured to the ski 21, permitting pivotal movement of the ski about an axis parallel to the length thereof. The lower end of the leg 33 is similarly pivoted at 36 to a bracket 37 secured to the ski 20.

A spring 38 is tensioned between the legs 32 and 33 to normally hold the telescoping support bars 27 and 28 in their innermost positions illustrated in Figures 2 and 4 in abutting engagement with each other, thereby normally maintaining the skis 20 and 21 parallel to each other and to the length of the sledge.

The skis are normally maintained with their under surfaces 39 in a horizontal plane, as seen in the full lines of Figures 4 and 5, but are banked when executing a turn as will be described later. For this purpose, telescoping banking devices 40 are provided for both skis 20 and 21. Such devices are similar to each other and the one shown in Figures 3 and 5 comprises a tube 41 rigidly connected, as by welding, to a bracket 42 suitably attached to the ski 21. A second tube 43 is slidably fitted within the tube 41 and is pivoted at 44 to a bracket 45, integral with the arm 14 of seat frame 13, for pivotal movement about a horizontal axis extending parallel to the length of the sledge. It will be seen that as the rear end of the ski 21 is swung outwardly about its forward swivel pin 23 (Figure 6) from its "forward running" position (solid line in Figure 2) toward its dot-dash line position 21a (Figures 2 and 5), the banking device 40 will cause it to bank or tilt clockwise (when viewed from the rear as seen in Figures 5 and 7) about the axes of the pivots 24 and 34. Also, it will be noted that the angle of bank of the ski will automatically increase as it is swung outward from its forward running position. Likewise, when the ski 21 is moved inwardly

from its normal "forward running" position it will be banked counter-clockwise to assume a position shown by the dot-dash lines 21b of Figure 5.

The skier may selectively and individually or jointly locate the skis 20 and 21 in forwardly converging positions to assume a "snow plough" stopping or turning setting, or may locate the skis in substantially parallel positions to assume a "parallel" turning setting. For this purpose, a pair of control levers 46 and 47 are provided for independently controlling respective ones of the skis 20 and 21. Lever 47 is pivoted at 48 to a bracket 50 integral with the frame leg 16 for movement about a horizontal axis. A depending arm 51 of lever 47 is connected to one end of a cable 52 (shown in solid black for clarity) which is reeved in succession over pulleys 53, 54 and 55 (see Figures 2 and 3) rotatably supported in a suitable manner by the frame 13. The cable is guided through the hollow frame arm 14 between the pulleys 54 and 55. The opposite end of the cable 52 is attached at 155 to a projection 56 attached to the telescoping support bar 27. The projection 56 is slidable within a slot 57 formed in the forward-facing wall of the guide tube 26.

The control lever 46 is similarly supported for pivotal movement about a horizontal axis and is connected by a cable 60 guided over a pulley system similar to the pulleys 53, 54 and 55, the opposite end of the cable 60 being attached to a projection 61 attached to the telescoping bar 28, the projection 61 being movable within the slot 57.

Thus, when the left hand control lever 47 is pulled upwardly, the bar 27 will be drawn out of the guide tube 26, to the left as viewed in Figure 4, causing the ski 21 to pivot about the forward leg 16 by means of the vertical pivot pin 23 of the forward pivot member 22 toward its dot-dash "snow-plough" position 21a of Figure 2. Concurrently, as the ski 21 swings into its "snow plough" position, the banking device 40 banks the same about its longitudinal axis to assume its position illustrated in dot-dash

lines 21a in Figure 5 and in full lines in Figures 7 and 8.

On the other hand, when the control lever 46 is pulled upwardly concurrently with lever 47, the other support bar 28 will cause the ski 20 to be swung about the axis of the forward supporting leg 15 into its dot-dash line position 20b. Accordingly, the skis 20 and 21 will converge forwardly to assume a full "snow-plough" setting to slow down or stop the forward movement of the sledge. In this case, the skis will be oppositely banked as seen in Figure 7. By raising one of the levers 46 and 47 a greater amount than the other, the respective ski will be both banked and pointed or toed inwardly a greater amount than the other, causing a "snow-plough" turn in the direction of the ski which is so turned.

However, when only one of the control levers, say lever 47 is pulled upward and the other lever, ie lever 46, is allowed to remain in its normal lowered position, then the bar 27 is drawn out of the guide tube 26 (to the left as viewed in Figure 8) as previously described. However, the spring 38 then causes the other support bar 28 to follow the bar 27 to the left, thereby causing the right rear support leg 33 to move to the left beyond its position shown in Figure 4 to that shown in Figure 8. The rear support legs 32 and 33 and skis 20 and 21 thus assume their positions shown in Figure 8 relative to each other and to the seat 12. That is, as the leg 33 moves leftward the banking device for ski 20 will now bank such ski in a clockwise direction. Accordingly, it will be noted that both skis are now pointed in substantially the same direction and are both banked in the same clockwise direction about their longitudinal axes to execute a right hand "parallel turn". The spring 38 is thus responsive to movement of one only of the skis 20 and 21 to the forwardly converging position and causes the other ski to swing to a position at least substantially parallel to the first ski. Similarly, raising only the lever 46 causes the sledge to execute a left hand "parallel turn".

It will also be noted in Figure 8 that due to the aforementioned leftward shifting of the rear ends of the skis to execute a right hand parallel turn, the centre of gravity of the skier, as indicated by an arrow 63 passing centrally and vertically through the seat 12, will be closer to the ski, in this case the ski 20, which is located on the inside of the turn. A corresponding alignment of the skier's centre of gravity nearer to the left ski 21 will occur during a left hand parallel turn.

Combined foot rests and brakes, generally indicated at 64 and 65 (Figures 1, 9 and 10), are attached to the forward portions of the skis 20 and 21 to enable braking of the skis to either stop the sledge or execute turns by applying a drag on either ski. Such brakes 64 and 65 are similar to each other and each comprises a foot pedal 66 pivoted at 67 at its rear end for movement about a horizontal axis on a bracket 68 suitably attached to the respective ski, eg 21. The foot pedal 66 is integral with a depending inverted U-shaped frame 70 which straddles the ski 21. The frame 70 comprises a cross member 71 and triangular vane elements 72 and 73 which may penetrate the snow at different depths below the ski and thus provide variable braking. A U-shaped limit stop 74 is suitably secured to the ski 21 to limit vertical movement of the cross member 71 and thus limit the upper and lower positions to which the pedal 66 may be moved. A toe strap 75 is secured to the pedal 66 to receive the skier's foot.

In operation, the skier inserts his foot under the toe strap 75 and can thus rest the heel of his foot on the portion of the pedal 66 adjacent hinge 67 while either holding the brake out of braking position or allowing the same to drop into such braking position. When unattended, the weight of the pedal 66 causes the vane elements 72 and 73 to penetrate the snow and thus maintain the sledge in braked position. The brakes are thus fail-safe, becoming effective when released by the rider. Accordingly, if the rider should fall off the seat then the brakes would be automatically applied.

The foregoing construction, resulting in the seat 12 being raised with an open space thereunder, enables a motor driven propulsion unit (not shown) to be mounted under the seat.

Claims

1. A sledge comprising at least two skis laterally coupled together by a connecting device which allows movement of one ski relative to the other ski.

2. A sledge as claimed in Claim 1, wherein the connecting device includes a seat on which a rider may sit.

3. A sledge as claimed in any preceding claim, wherein movement and control of the skis is effected by means of levers which may readily be operated by the rider in a seated position.

4. A sledge as claimed in any preceding claim, wherein the skis are moveable from a parallel running position, in which the skis are substantially parallel and point in the direction of travel, to a forwardly converging position in which the skis converge toward at each other at their tips.

5. A sledge as claimed in Claim 4, further comprising means responsive to movement of a ski into the forwardly converging position, said means being effective to bank the ski about its longitudinal axis.

6. A sledge as claimed in any preceding claim, wherein one or both skis are provided with brakes including downwardly-depending members moveable from a raised position, in which they are disengaged from the ground over which the sledge is travelling, to a lowered position in which they engage the ground so as to bring the sledge to a standstill.

7. A sledge as claimed in Claim 6, wherein the downwardly-

depending members are moved from the raised position to the lowered position by foot pedals operated by the rider.

8. A sledge substantially as hereinbefore described, and as illustrated in the accompanying Figures.

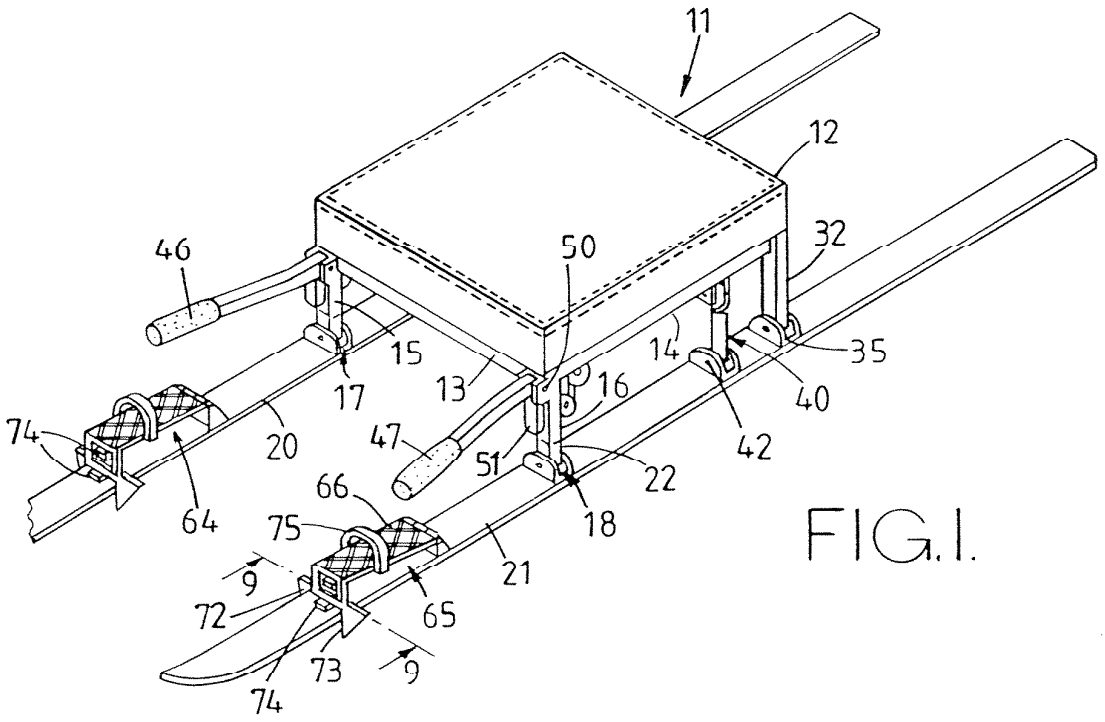


FIG.1.

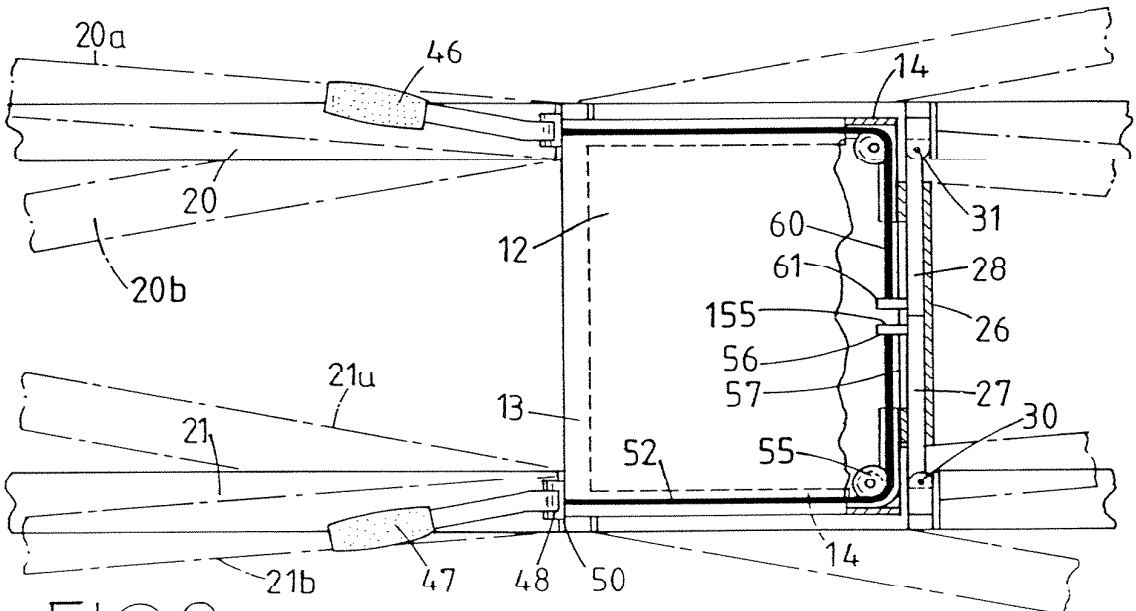


FIG.2.

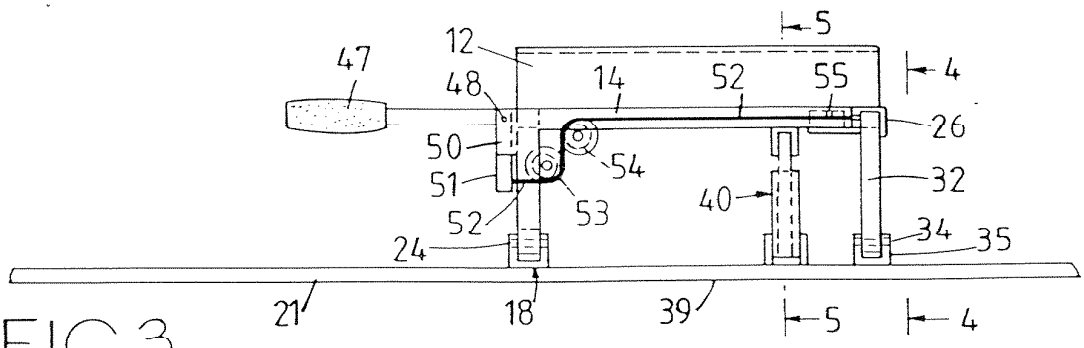


FIG.3.

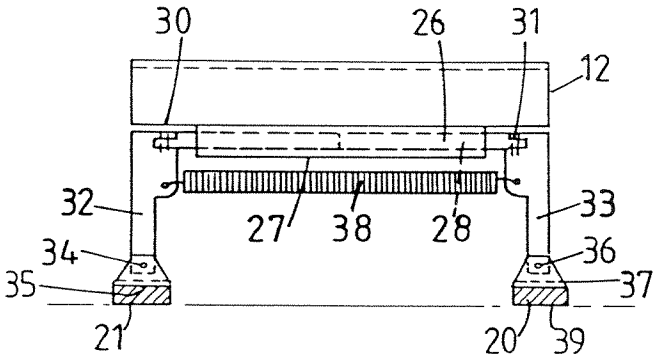


FIG.4.

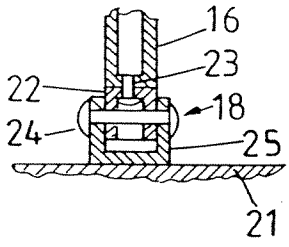


FIG.6.

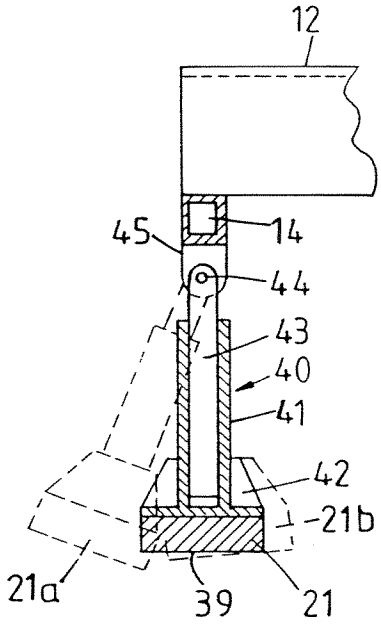


FIG.5.

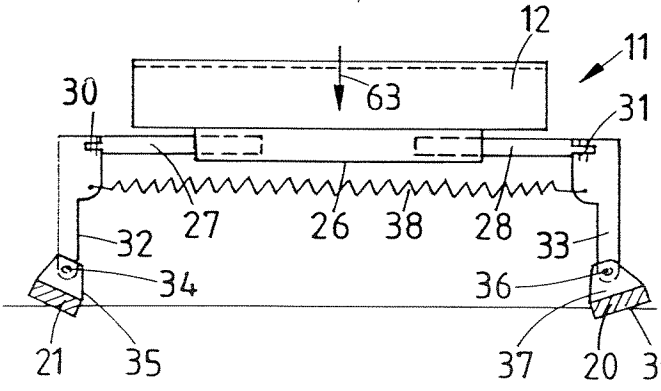


FIG.7.

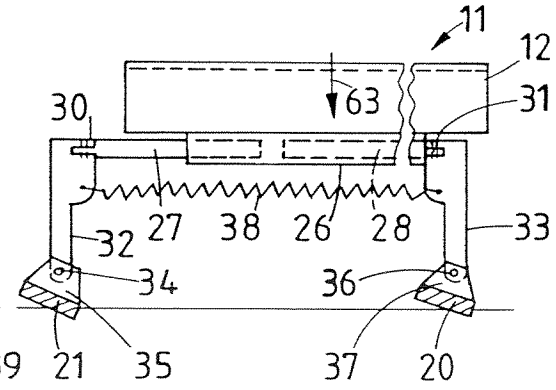


FIG.8.

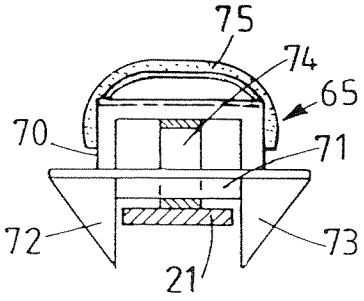


FIG.9.

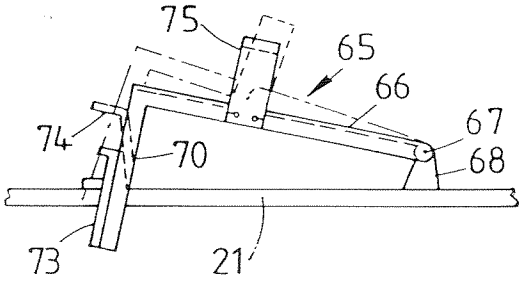


FIG.10.

US Patent No 3 666 789 (Extract) Issued 19 November 1976

Sled with Tiltable Runners Controlled by a Tilting Rider Support

This invention relates to a sled which is capable of slalom movements over the snow in a manner similar to that of skiing but which is manageable simply by inclination of the rest supported by the skis and on which one or more persons can sit, lie or otherwise rest.

It is an object of this invention to produce a sled which embodies the characteristics of skis for slalom and the like movements over the snow; which is simple and safe in operation; which is sturdy in construction; which can be economically manufactured of readily available materials; which can be easily managed in turning movements over the snow merely by tilting action of the rest; and which can be used by young and old alike for sport and for pleasure.

These and other objects and advantages of this invention will hereinafter appear and for purposes of illustration, but not of limitation, an embodiment of the invention is shown in the accompanying drawing in which:

Figure 1 is a schematic side elevational view of the ski-sled embodying the features of this invention;

Figure 2 is a front elevational view of the ski-sled shown in Figure 1;

Figure 3 is a top plan view of the ski-sled shown in Figures 1 and 2; and

Figure 4 is a view similar to that of Figure 2 but showing the relationship between parts when in tilted position for turning in the snow.

The ski-sled of this invention is formed with a seat A in the form of a substantially flat platform and a pair of laterally spaced apart skis F. The platform is supported in vertical spaced apart relation between the pair of skis by a rod system which is effective to cause the skis to incline sideways in one direction or the other responsive to and concurrently with tilting movement of the platform which in turn may be effected by disposition of weight or force by the operator at rest on the platform or seat.

For this purpose, there is provided a group of four rods at the forward end portion of the platform and a similar group of four rods at the rearward end portion of the platform. In each group the four rods are substantially crosswise aligned and include a pair of inner rods D with one rod of said pair pivoted at its lower end to the top surface of one of the skis while the other rod is pivoted at its lower end to the top surface of the other of said skis with the upper end portions of the rods D having a substantially common pivot lengthwise aligned with the centre line of the platform and which thus defines the pivotal axis of the platform.

The other two rods C in each group of four are arranged to extend in parallel relation with the rods D but are spaced outwardly therefrom to define a parallelogram therebetween (see Figures 2 and 4). Each of the outer rods C is similarly pivoted at its lower end portion onto the top surface of the ski and spaced outwardly from the pivot of the rods D while the upper end portions of the outer rods C are pivoted to the bottom side of the platform equally spaced outwardly from the corresponding pivots of the inner rods D. Because of the parallelogram formed between the pairs of pivoted rods, tilting movement of the platform will effect corresponding tilting movement of the skis in exactly the same direction (see Figure 4) since the skis and the platform define the opposite sides of the described parallelogram.

The same arrangement is effected between the rearward group of rods and the skis and platform.

By tilting the platform to effect a corresponding tilt of the skis, the ski-sled can be made to slalom or it can be steered by the same techniques which are employed conventionally in skiing over the snow. Thus by shifting the weight or tilting the platform from one side to the other, the ski-sled can be made to weave its way, as in a slalom.

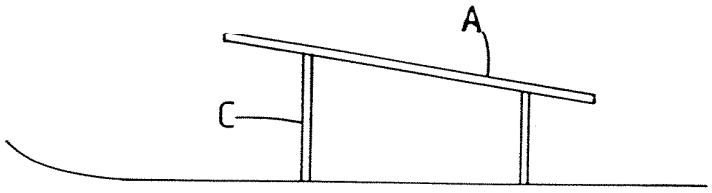


FIG.1.

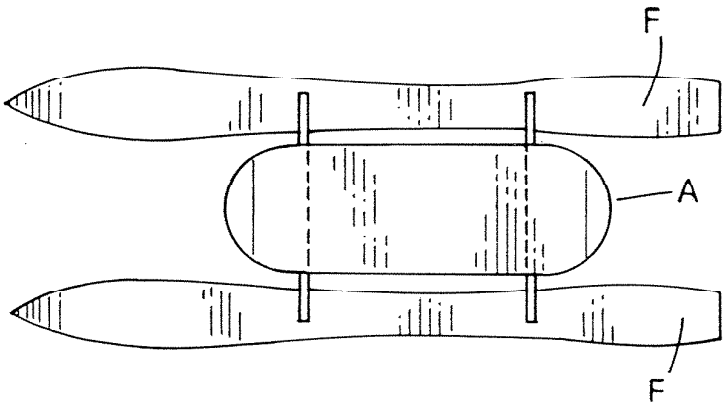


FIG.3.

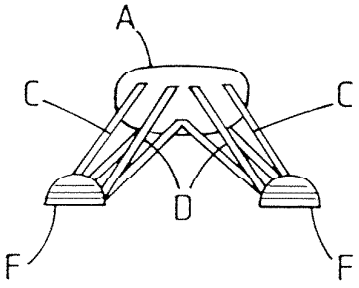


FIG.2.

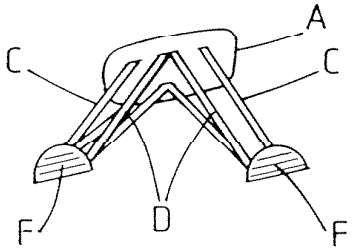


FIG.4.

GB Patent No 1000001 (Extract)
Date of publication of complete specification 18 February 1962

Sledge

Figure 1 shows a side elevational view of a sledge according to the invention; and

Figure 2 is a sectional view along the line II-II in Figure 1.

Referring first to Figure 1, a sledge (generally designated 1) comprises a flat support platform 2 held in vertically spaced apart relationship from each of two runners 3 by struts 4,5 (only one runner 3 and pair of struts 4,5 being visible in Figure 1). The runners 3 curve upwardly at their forward ends.

A braking mechanism comprises a plate 21 which is held captive on the runner 3 by a pair of mushroom headed pins 22,23. The pins 22,23 pass through apertures in the plate 21 and are fixed in the upper surface of the runner 3. The plate 21 is urged upwards by compression springs 24,25 mounted about the shafts of the pins 22,23.

The forward end of the plate 21 is formed into downwardly-depending limbs 26,27 which are broadened in their lower regions.

In the normal position (as shown in the Figures) the lower ends of the limbs 26,27 are held clear of the snow over which the sledge travels. To effect braking, the rider (lying on the platform 2) presses down on the central region of the plate 21, between the pins 22,23. The plate 21 moves downward, against the action of the springs 24,25, bringing the limbs into contact with the snow and thereby bringing the sledge to a halt.

Identical braking mechanisms are provided on each of the runners 3.

prior2

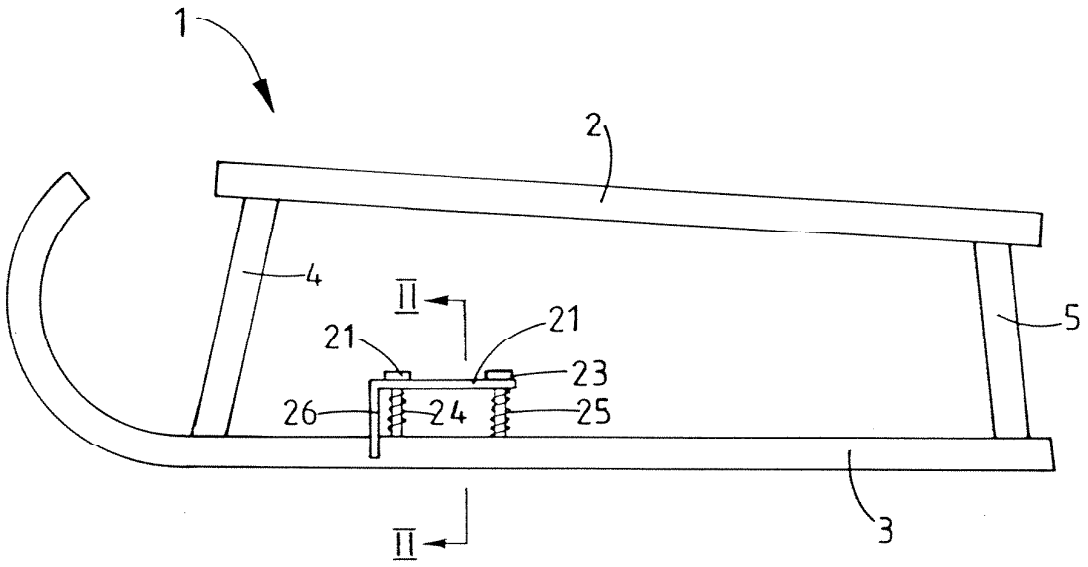


FIG. 1.

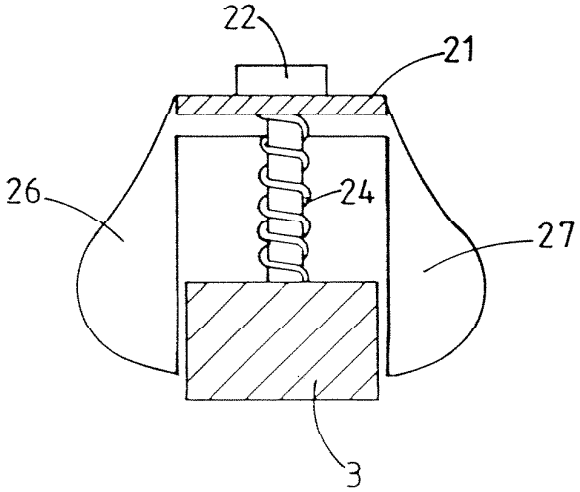


FIG. 2.

COMPETITOR PRODUCT REPORT

Subject: Skischlitten manoeuvrable sledge

Date: 4/11/84

Background

Skischlitten are marketing a sledge in Germany which basically consists of a seat unit mounted on a pair of skis. The product was heavily promoted at the recent Munich Wintersports Fair. The attached drawings are taken from technical literature distributed by Skischlitten.

Technical Description

The aim of the product is to provide a sledge with enhanced manoeuvrability. This is achieved by pivotally mounting a seat unit 58 on a frame supported by a pair of ski-like runners 10. The seat pivots about a point 54.

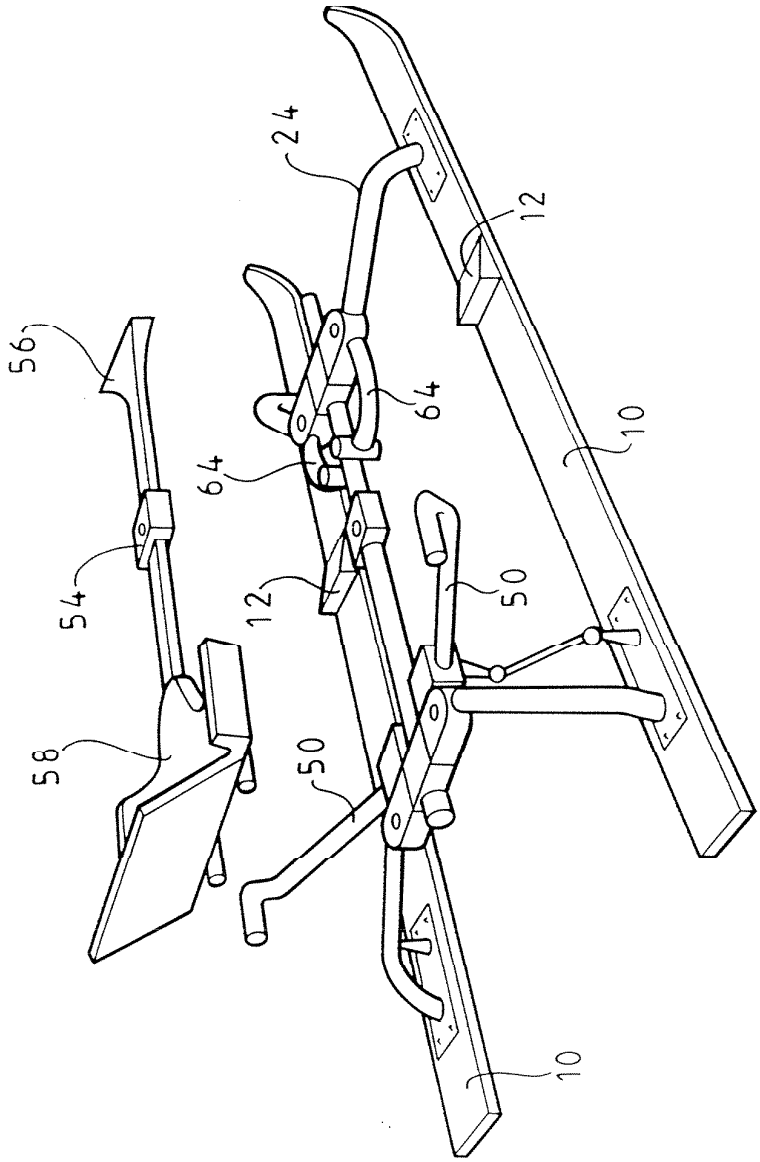
The rider sits on the seat and places his feet on foot rests 12. To make a right-hand turn, he swings the seat to the right. The front end 56 of the seat unit then acts on a curved arm 64 which is connected by a leg 24 to the forward end of the left ski. This causes that ski to turn into the position shown in Figure 2, and the sledge performs a "snow plough" turn to the right. To turn to the left, the seat is swung the other way.

As the seat is swung one way or the other, it rides along bars 50 (see Figure 3) which are joined by pivoting linkages to the rearward ends of the skis. This causes the skis to tilt as they are turned.

The sledge has no brakes. This is a drawback as it means that to stop the sledge you have to perform a turn through more than 90° (ie until the sledge is pointing uphill). Stopping rapidly and/or in a confined space is therefore difficult.

prior3

FIG 1



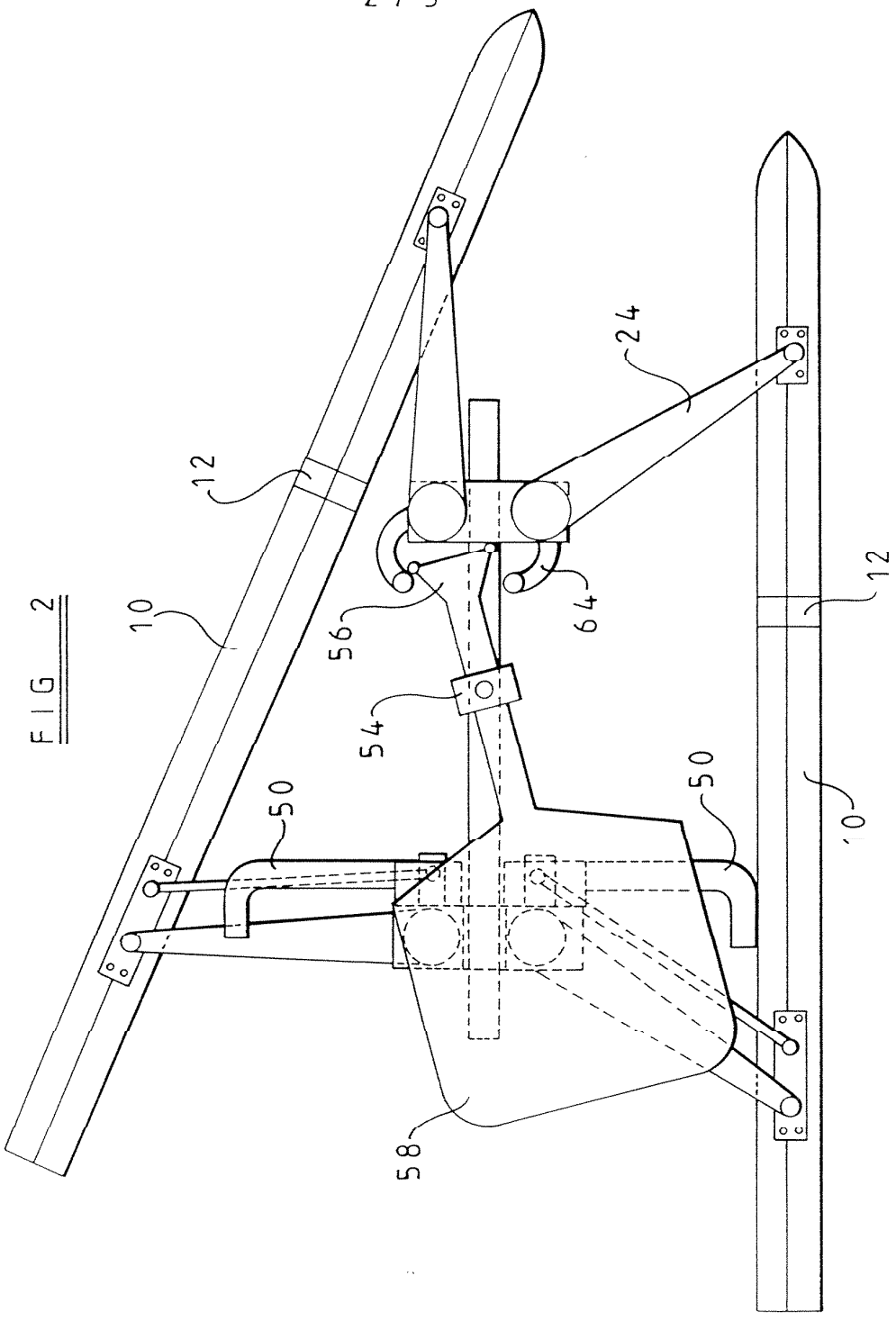


FIG 2

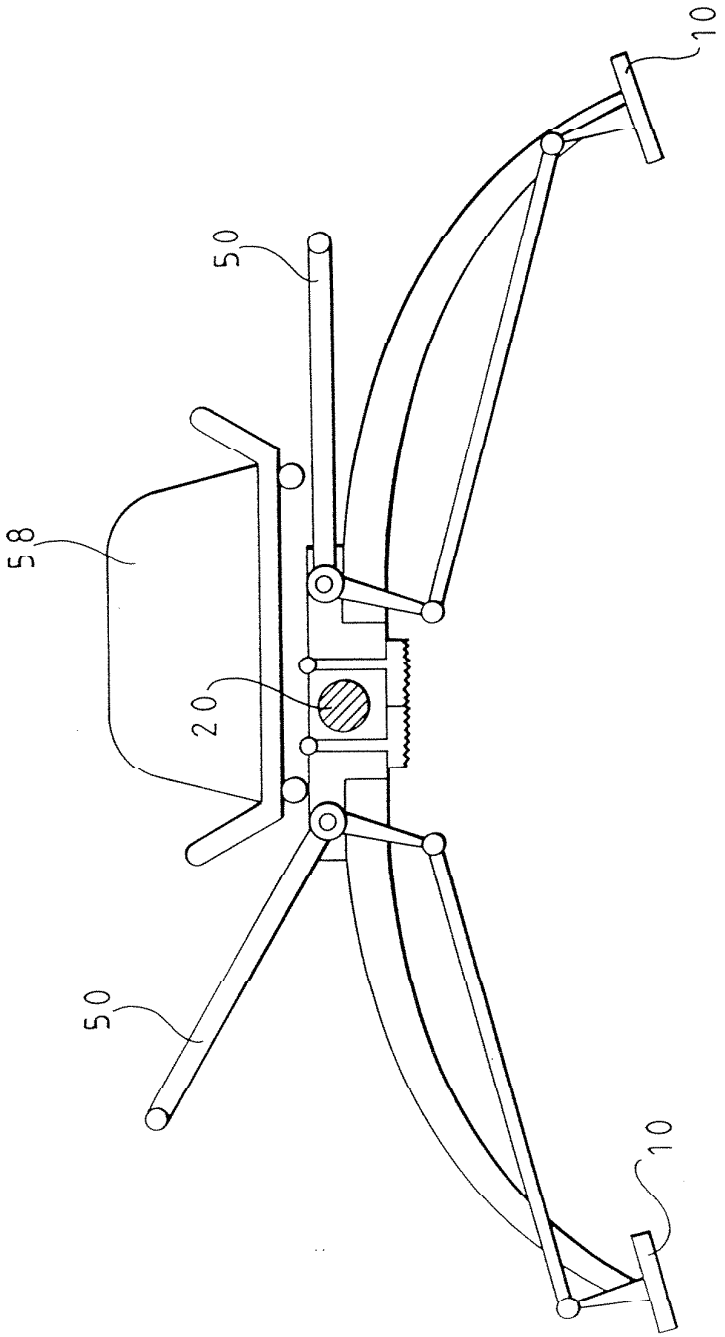


FIG 3