(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 2 937 464 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
28.10.2015 Bulletin 2015/44

(51) Int Cl.:
E01H 5/02 *(2006.01)*

(21) Application number: **14165940.9**

(22) Date of filing: **25.04.2014**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

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(54) **Snow sledge**

(57) The invention relates to a snow sledge (1), comprising: a forwardly open receptacle (2) with a bottom (3), side walls (4) and a back wall (5) for receiving and containing snow received over a front edge (7) of the bottom, and a handle (6). In order to obtain a wear resistant snow sledge which is easy to use also in difficult conditions the show sledge (1) comprises at least a first and a second elongated ski (8, 9) extending along an outer surface of the bottom (3) in a direction from the front edge (7) towards the back wall (5). The at least first and second elongated skis (8, 9) are detachably attached to the receptacle (2), and the at least first and second elongated skis (8, 9) protrude outwards from the outer surface of the the bottom (3).

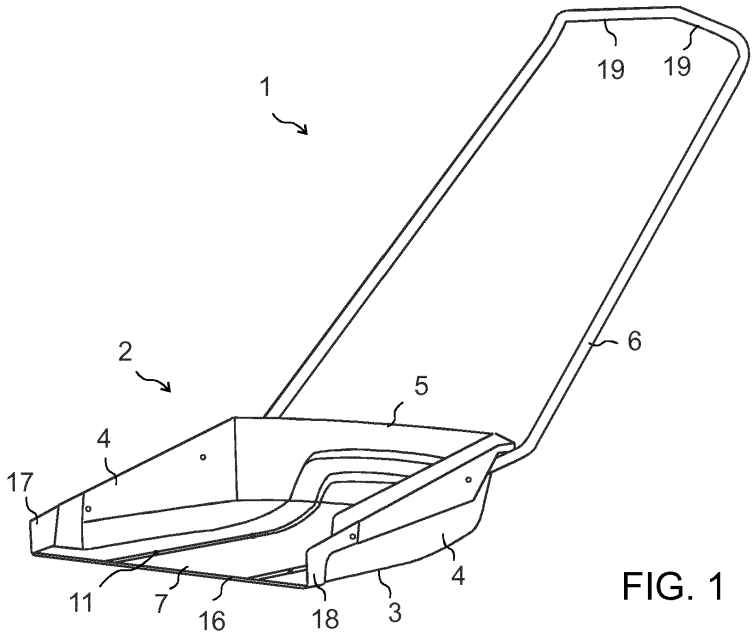

FIG. 1

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Description

BACKGROUND OF THE INVENTION

FIELD OF THE INVENTION

[0001] This invention relates to a snow sledge (occasionally referred to as a snow pusher, and more specifically, to a snow sledge which is used manually by a user via a handle of the snow sledge.

DESCRIPTION OF PRIOR ART

[0002] Previously there is known a snow sledge having a forwardly open receptacle with a bottom, side walls and a back wall for receiving and containing snow received over a front edge of the bottom. The snow sledge comprises a handle which the user utilizes for pushing the snow sledge forward during use, such that the outer surface of the bottom slides along the ground and snow on the ground enters the receptacle over the front edge of the bottom.

[0003] A snow sledge as described above works excellent when the conditions are optimal. In that case a hard layer of snow or ice covering the ground contacts the outer surface of the bottom and ensures that the friction is sufficiently low for a user to push the snow sledge.

[0004] Unfortunately the conditions are in practice often far from optimal. Occasionally, during difficult conditions there is no continuous hard layer of snow or ice under the soft layer of snow which needs to be removed with the snow sledge. Instead the outer surface of the bottom may come into contact with sand, asphalt, concrete or whatever the material of the ground under the soft layer of snow happens to be. In that case it is very heavy for the user to push the snow sledge due to friction between the outer surface of the bottom and the ground. Additionally, use of the snow sledge in such difficult conditions causes scratches in the outer surface of the bottom, which eventually wears out the bottom of the snow sledge.

SUMMARY OF THE INVENTION

[0005] An object of the present invention is to solve the above mentioned drawback and to provide a snow sledge which is more wear resistant and comfortable to use also in difficult conditions. This and other objects of are obtained with a snow sledge according to independent claim 1.

[0006] The use of a snow sledge comprising at least a first and a second detachable elongated ski extending along the outer surface of the bottom makes the snow sledge more comfortable to use and improves its wear resistance. The material of the detachable skis may be selected independently of the material of the receptacle in order to ensure that a user friendly friction is obtained in all conditions. Additionally, once the skis wear out, they can easily be replaced without needing to replace the entire receptacle or snow sledge.

[0007] Preferred embodiments of the invention are disclosed in the dependent claims.

BRIEF DESCRIPTION OF DRAWINGS

[0008] In the following the present invention will be described in closer detail by way of example and with reference to the attached drawings, in which

Figures 1 and 2 illustrate a first embodiment of a snow sledge, and

Figures 3 and 4 illustrate a second embodiment of a snow sledge.

DESCRIPTION OF AT LEAST ONE EMBODIMENT

[0009] Figures 1 and 2 illustrate a first embodiment of a snow sledge 1. Figure 1 illustrates a side view of the snow sledge 1, and Figure 2 illustrates a bottom view of the snow sledge 1.

[0010] The snow sledge 1 comprises a forwardly open receptacle 2 with a bottom 3, side walls 4 and a back wall 5. A handle 6 protrudes upwards from the receptacle 2 to a height suitable for a user to grab the handle 6 with his hands in order to manually use the snow sledge 1 for removing snow from the ground. During such use snow enters the receptacle 2 over the front edge 7 of the bottom 3.

[0011] The illustrated snow sledge 1 comprises a first 8 and a second 9 elongated ski which extend along the outer surface of the bottom 3 in a direction from the front edge 7 towards the back wall 5. These skis are detachably attached to the receptacle 2. In the illustrated example it is by way of example assumed that this attachment is carried out with screws 10 and nuts 11, however, in other implementations other ways of attaching the skis may exist. In any case, due to the detachable attachment, the first 8 and second 9 ski may be detached and removed from the receptacle 2 in order to utilize the show sledge without skis, or alternatively, in order to replace the present skis with new skis. Such replacement may be necessary if the skis have been worn out.

[0012] In the illustrated embodiment the outer surface of the bottom is provided with one or more grooves 12 and the first 8 and second 9 ski are partially embedded into the one or more grooves 12. Partially embedded refers to a solution, where the skis are thicker than the depth of the grooves, such that the skis at least partly protrude out of the grooves and beyond the outer surface of the bottom 3 of the receptacle 2. The skis may protrude about 5 - 8 mm beyond the outer surface of the bottom. In this way it can be ensured that when the snow sledge 1 slides along the ground, it is the surface of the skis that contacts the ground instead of the outer surface of the receptacle as in prior art snow sledges. Suitable mutual dimensioning of the width of the grooves and the width

of the skis ensures that the sides of the skis are supported by the sides walls of the grooves, such that the skis are very firmly and rigidly attached to the receptacle 2. A suitable width for the skis is about 5 - 10 cm. Additionally, the grooves 12 in combination with the partially embedded skis makes the bottom 3 of the receptacle 2 more stiff, which is an advantage when heavy snow loads are handled with the snow sledge.

[0013] As best seen in Figure 2, the bottom 3 of the receptacle has a generally flat portion 13 adjacent to the front edge 7. Curved portions 14 of the bottom adjoin the flat portion 13 to the side walls 4 and to the back wall 5 of the receptacle. In order to obtain skis well suited for use with such a receptacle, the skis need to have a shape that matches the shape of the bottom 3. Consequently, the first 8 and second 9 ski are provided with a flat front portion and curved rear portions, which confirms to the shape of the outer surface of the bottom.

[0014] From Figure 2 it can be seen that the first 8 and second skis 9 are provided with one or more longitudinal slits 15 in a bottom surface of the skis. Such slits are not necessary in all embodiments, but may be useful in order to assist the user in controlling the snow sledge such that the snow sledge proceeds straight forward when the user manually pushes the snow sledge 1 via the handle 6.

[0015] In order to ensure that the front edge 7 of the snow sledge 1 is sufficiently stiff and wear resistant, a metal reinforcement bar 16 extends substantially along the entire length of the front edge 7. Small gaps may be provided between the front edge 7 and the metal reinforcement bar 16 on the bottom side of the receptacle at the locations of the skis. In that case the first 8 and second ski 9 may be shaped and dimensioned to protrude into these gaps. Such a solution enhances the attachment of the skis to the receptacle by mechanically locking the front end of the skis in a space between the bottom 3 of the receptacle and the metal reinforcement bar 16.

[0016] In the illustrated example the reinforcement bar 16 is provided with first 17 and second 18 end pieces extending upwards from the front edge 7 at the opposite ends of the front edge 7. In practice, the metallic reinforcement bar 16 may be bent upwards at its opposite ends to obtain the first 17 and second 18 end piece, in which case the reinforcement bar 16 will be generally U-shaped. An advantage obtained with the first 17 and second 18 end piece, is that these, preferably metallic and sharp pieces cut snow very efficiently. Due to this a very nice looking and clean cut is obtained in the snow when the snow sledge is used for removing snow.

[0017] In the illustrated example the handle 6 consists of an elongated part having a plurality of adjoining sections 19 which extend in different directions. In practice the handle 6 may be manufactured of once single metallic piece, such as a pipe, that is bent at suitable locations in order to obtain the desired shape. In the illustrated embodiment the handle 6 is shaped in such a way that the first 20 and second 21 end of the handle 6 are attached to the first 17 and second 18 end piece of the reinforcement bar 16. An advantage with such a solution is that the force directed by the user to the handle 6 is very efficiently conducted to the reinforcement bar 16 with a minimum of elasticity between these parts. Consequently, if the user scrapes ice on the ground with the reinforcement bar 16, a maximum force can easily be conducted from the handle 6 to the reinforcement bar 16.

[0018] The material of the receptacle may be polypropylene (PP), for instance. The skis may also be of polypropylene, or alternatively of Polyoxymethylene (POM), for instance, which is a relatively slippery material having excellent wear resistance properties.

[0019] Figures 3 and 4 illustrate a second embodiment of a snow sledge. The snow sledge of Figures 3 and 4 is very similar to the one explained in connection with Figures 1 and 2. Therefore the embodiment of Figures 3 and 4 are mainly explained by pointing out the differences between these embodiments.

[0020] For simplicity, Figures 3 and 4 illustrate only the receptacle 2 of the snow sledge without the handle. In the illustrated embodiment, a soft cover 22' has been added to cover at least the lower surface of the metallic reinforcement bar 16. The soft cover 22' may be manufactured of the same material as the skis, for instance, or alternatively of another soft and wear resistant material. Preferably the soft cover 22' is detachable, such that it may be removed from the snow sledge if the user so prefers. This may be achieved by attaching the soft cover to the snow sledge with screws, for instance.

[0021] An advantage obtained by utilizing a soft cover 22' at least on the lower surface of the reinforcement bar 16 is that this soft cover 22' prevents unintentional contact between the reinforcement bar 16 and the surface below the layer of snow which is being removed with the snow sledge. This is a significant advantage when utilizing the snow sledge in locations where damages could otherwise occur, such as on metal-sheeted roofs or wooden terraces. Additionally, the soft cover 22' also improves the use of the show sledge in difficult conditions in the same way as the first 8 and second ski 9, in other words by lowering the friction and improving the wear resistance, as has been explained previously.

[0022] Though it is sufficient to arrange the soft cover 22' to cover the lower surface of the reinforcement bar, it may be practical to implement the soft cover 22' as illustrated in Figures 3 and 4, where the generally U-shaped soft cover 22' surrounds the reinforcement bar from three sides, from the lower side, front side and upper side. In such an embodiment the attachment of the soft cover 22' may be implemented as a snap attachment, where the elasticity and stiffness of the U-shaped soft cover ensures that a protruding part of the soft cover 22' enters a cavity in the receptacle 2 or in the reinforcement bar 16 once the soft cover is pushed into the correct location illustrated in the figures. In that case no attachment screws are needed.

[0023] It is to be understood that the above description and the accompanying figures are only intended to illus-

trate the present invention. It will be obvious to a person skilled in the art that the invention can be varied and modified without departing from the scope of the invention.

Claims

1. A snow sledge (1), comprising:

   a forwardly open receptacle (2) with a bottom (3), side walls (4) and a back wall (5) for receiving and containing snow received over a front edge (7) of the bottom, and
   a handle (6) protruding upwards from the receptacle (2), **characterized in that**
   the show sledge (1) comprises at least a first and a second elongated ski (8, 9) extending along an outer surface of the bottom (3) in a direction from the front edge (7) towards the back wall (5),
   the at least first and second elongated skis (8, 9) are detachably attached to the receptacle (2), and
   the at least first and second elongated skis (8, 9) protrude outwards from the outer surface of the the bottom (3).

2. The show sledge according to claim 1, wherein the outer surface of the bottom (3) is provided with one or more grooves (12), and the first and second elongated skis (8, 9) are partially embedded in the one or more grooves (12).

3. The show sledge according to claim 1 or 2, wherein the bottom (3) of the receptacle (2) has a generally flat portion (13) adjacent to the front edge (7), and curved portions (14) which adjoin the flat portion (13) to the side walls (4) and to the back wall (5), and the at least first and second elongated skis (8, 9) are provided with flat front portions and curved rear portions for confirming to the shape of the outer surface of the bottom (3).

4. The snow sledge according to one of claims 1 to 3, wherein
   at least one of the first and second ski (8, 9) is provided with one or more longitudinal slots (15) in a bottom surface of the first and second ski (8, 9) respectively.

5. The snow sledge according to one of claims 1 to 4, wherein the front edge (7) of the bottom comprises a metal reinforcement bar (16) extending substantially along the entire length of the front edge.

6. The snow sledge according to one of claims 1 to 5, wherein the metal reinforcement bar (16) comprises a first and a second end piece (17, 18) extending upwards from the front edge (7) at the opposite ends of the front edge to provide a generally U-shaped reinforcement bar (16).

7. The snow sledge according to one of claims 5 to 6, wherein at least a lower surface of the reinforcement bar (16) is covered by a soft cover (22').

8. The snow sledge according to one of claims 6 to 7, wherein
   the handle (6) consists of an elongated part having a plurality of adjoining sections (19) extending in different directions, and
   a first and a second end (20, 21) of the handle are attached to the first and second end piece (17, 18), respectively.

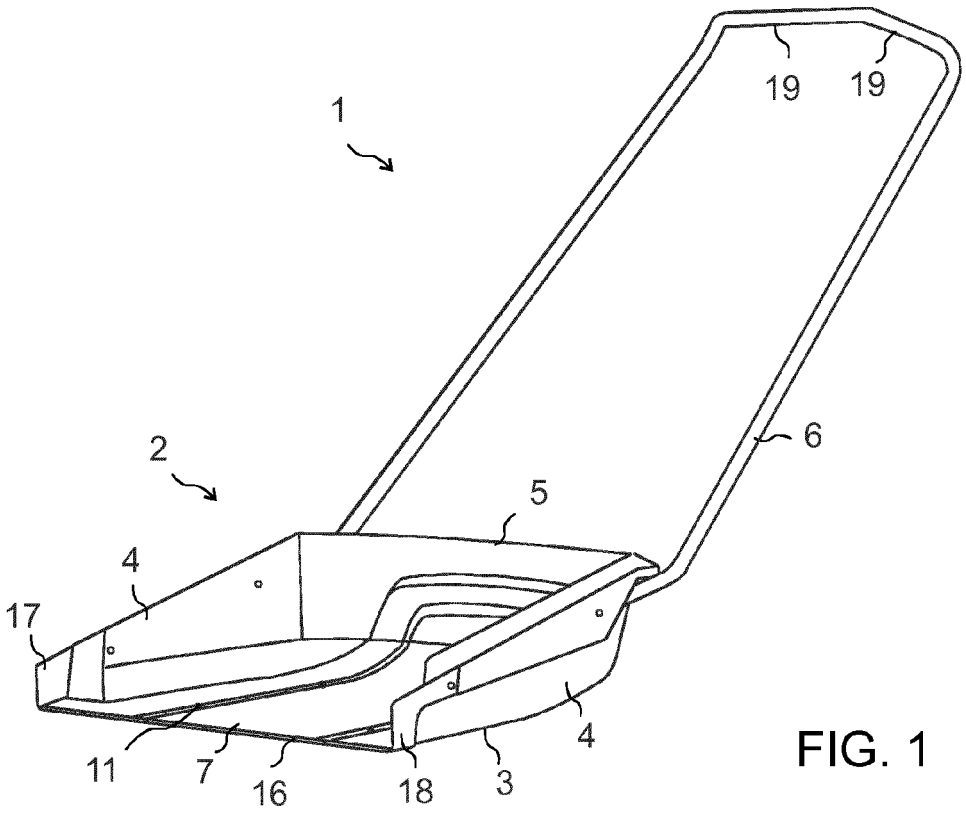
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FIG. 1

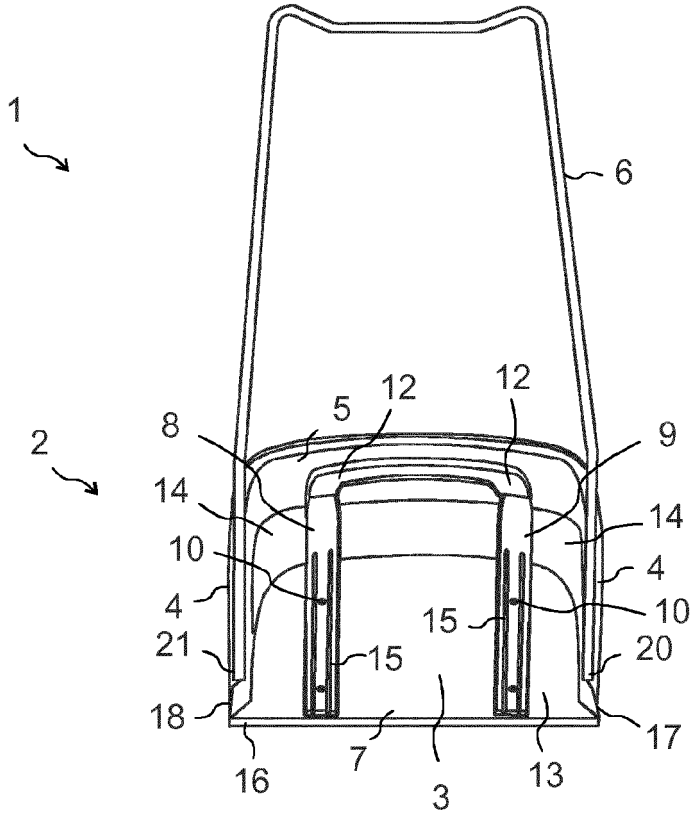
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FIG. 2

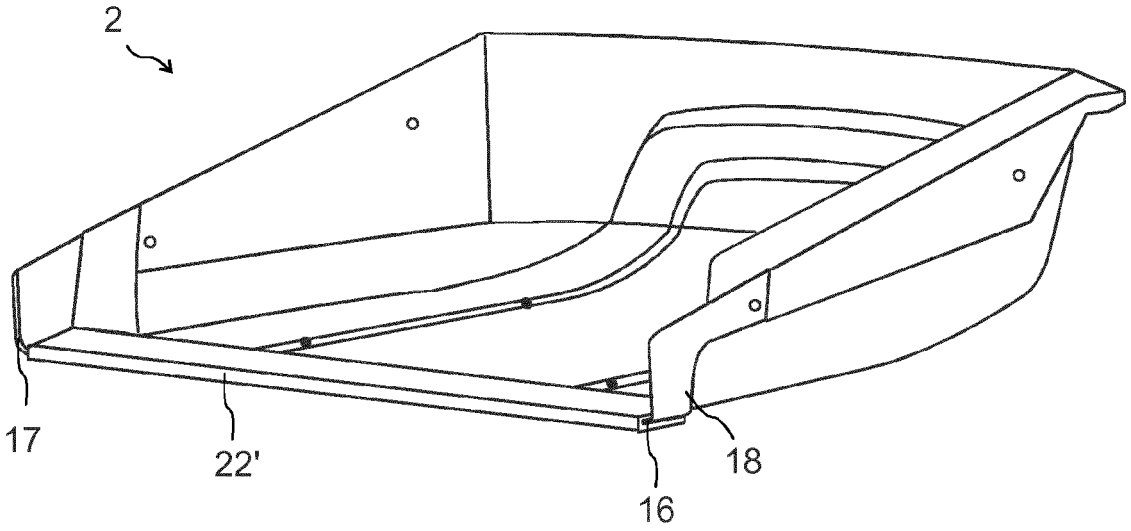

FIG. 3

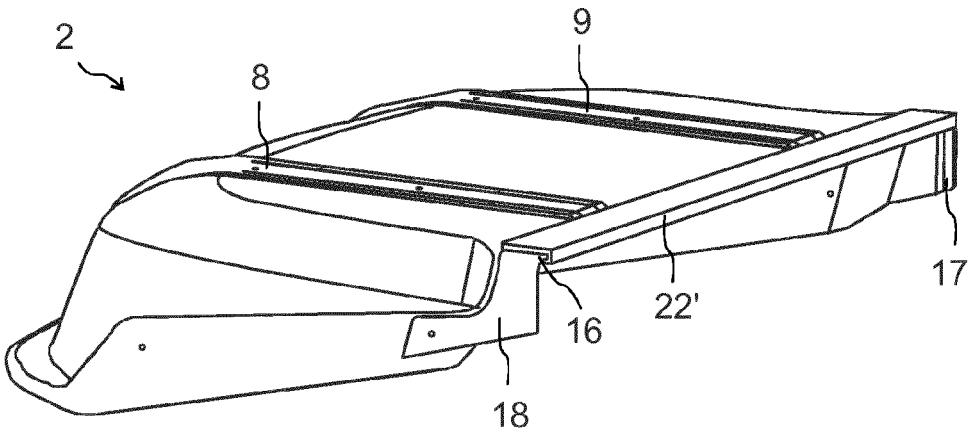

FIG. 4

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EUROPEAN SEARCH REPORT

Application Number
EP 14 16 5940

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 258 260 A (STAPLES) 23 May 1882 (1882-05-23) * the whole document *	1-8	INV. E01H5/02
X	US 1 678 135 A (CROSMAN GEORGE L ET AL) 24 July 1928 (1928-07-24) * pages 1-3 *	1-3,5-7	
A	US 4 248 466 A (CARPER WILLIAM B) 3 February 1981 (1981-02-03) * pages 1-3 *	1-8	

TECHNICAL FIELDS SEARCHED (IPC)
E01H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	26 September 2014	Saretta, Guido

CATEGORY OF CITED DOCUMENTS

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 258260 A	23-05-1882	NONE	
US 1678135 A	24-07-1928	NONE	
US 4248466 A	03-02-1981	NONE	

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82