United States Patent [19]

Davies

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[54] **TOBOGGAN**

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[52] **U.S. Cl.** **280/18**

[51] **Int. Cl.** **B62b 15/00**

[58] **Field of Search** ..... 280/18, 19, 12 R; D34/15 AK

[56] **References Cited**

UNITED STATES PATENTS

D208,869	10/1967	Guastini	D34/15 AK
3,484,801	12/1969	Carlin	280/18
3,034,800	5/1962	Campbell	280/18
3,432,181	3/1969	McKee	280/18
D181,330	10/1957	Yager	D34/15 AK

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Assistant Examiner—Robert R. Song
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[57] **ABSTRACT**

A snow toboggan formed from a sheet of foldable water resistant material, preferably a synthetic plastics material by cutting scoring and folding a blank. The toboggan comprises a flat base, two upstanding side walls joined to the base along fold lines and a front wall which is also joined to the base along a transverse fold line and which bears against the outwardly and forwardly inclined front edges of the side wall. A flap is joined along a fold line to the upper edge of the front wall along a fold line and the flap is folded rearwardly and downwardly so as to interengage with the side walls. Preferably the side walls and the flap are slotted and the interengagement of the slots retains the side walls in the upright position. Additional retaining means in the form of lugs on the side walls which are secured to the flap can also be provided.

12 Claims, 5 Drawing Figures

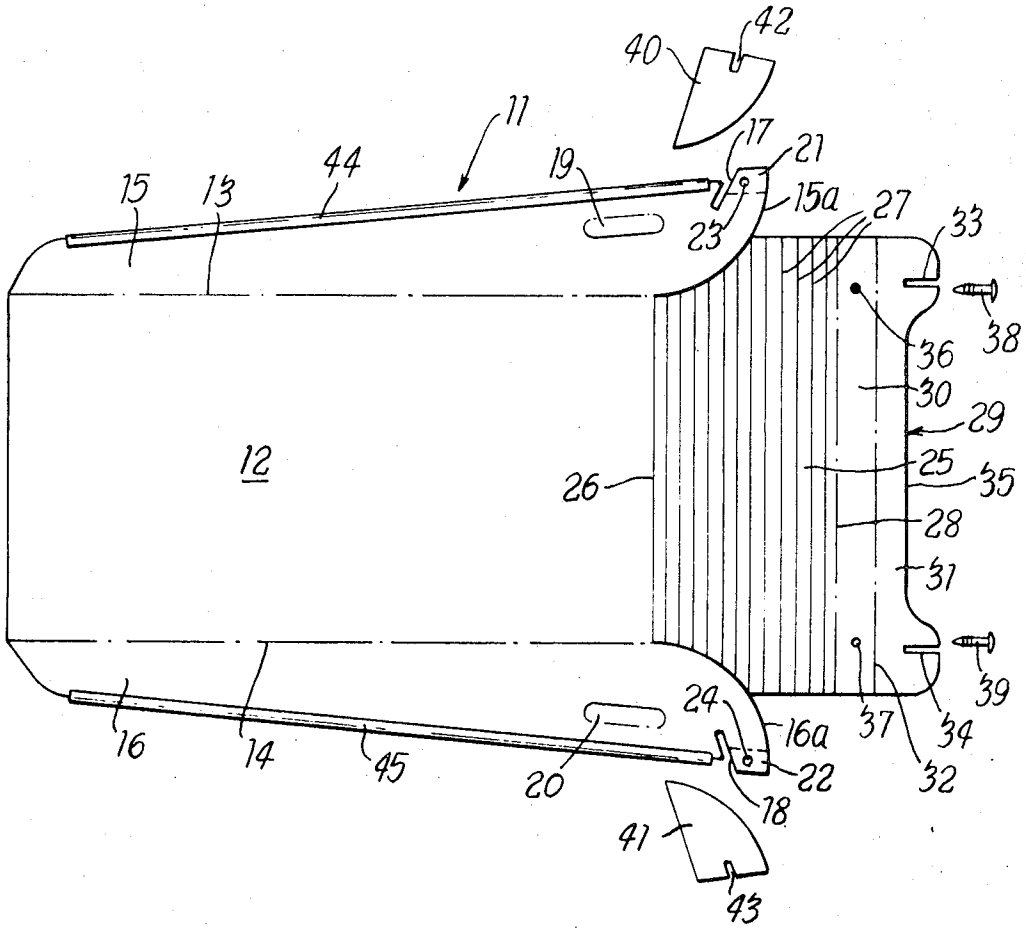


FIG. 1

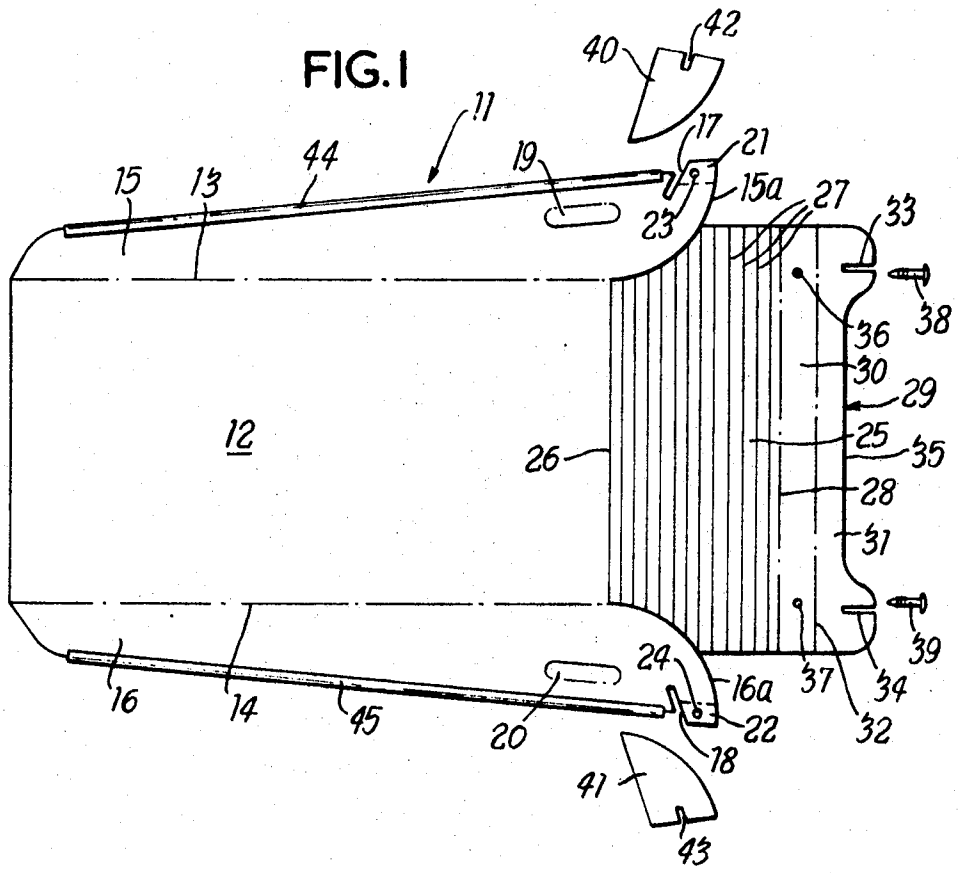

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17
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15a
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16a
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FIG. 2

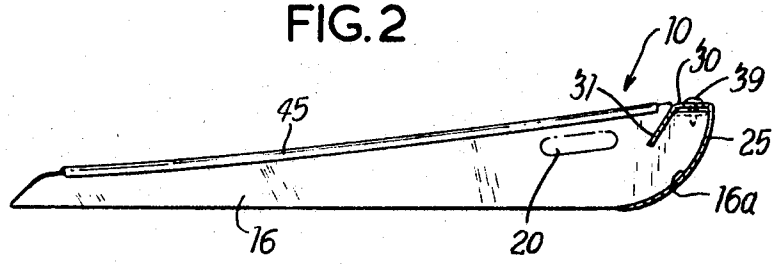

10
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45
25
16a
16
20

FIG. 3

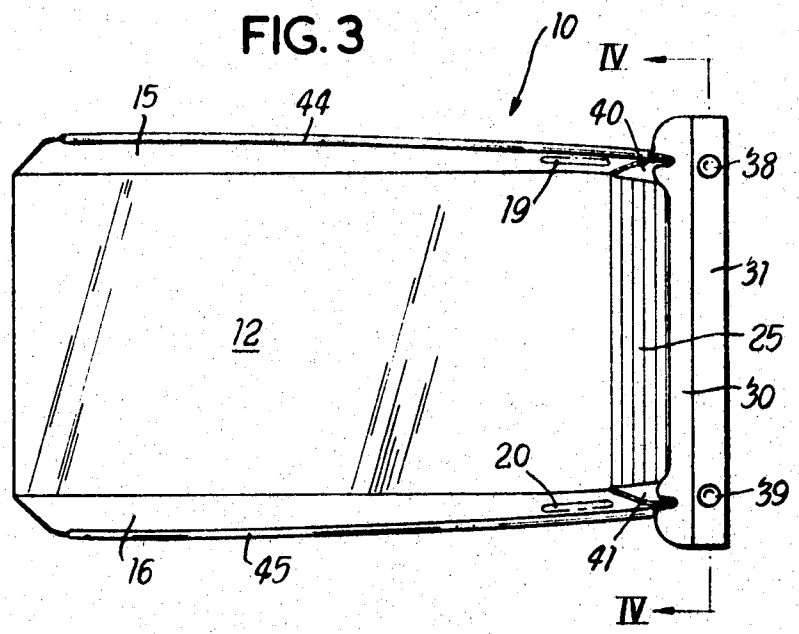


FIG. 4

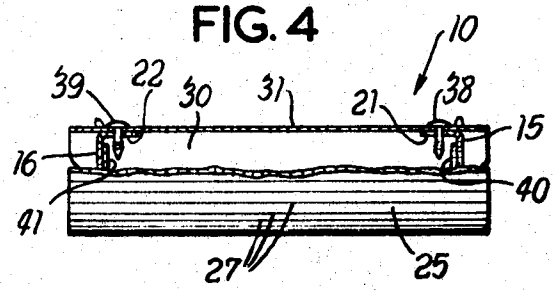
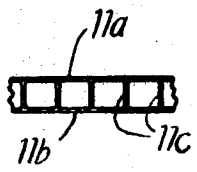


FIG. 5



TOBOGGAN

BACKGROUND TO THE INVENTION

The present invention is concerned with snow toboggans or sledges and more particularly relates to a snow toboggan or sledge which is made from a sheet of foldable material such as a sheet of extruded corrugated plastics material.

Hitherto, toboggans for children have been made from wood and sometimes provided with metal runners but this type of toboggan although it may have a relatively long life is expensive to manufacture because of the high cost of the materials and labour reguired.

It has also been proposed to manufacture a childs toboggan from a synthetic plastics material as a one shot injection moulded shell. However, this method again results in a relatively expensive product because of the high capital cost of the moulding equipment and the amount of raw material required to produce an end product having the required strength.

The present invention overcomes the problem of cost by employing a foldable synthetic plastics sheet material which is readily available at a relatively low cost. By cutting and folding a blank of the sheet material in the correct way the end product has the necessary strength and rigidity. At the same time, the cut and scored blanks can be transported in the flat with a very substantial saving in transport and packaging costs.

STATEMENT OF THE INVENTION

According to one aspect of the present invention, I provide a toboggan formed from a unitary sheet of foldable material so as to comprise a substantially flat rectangular base, two upstanding side walls joined to the longitudinal edges of the base along longitudinal fold lines and formed with front edges inclined forwardly and outwardly from the base, a front wall joined to the front edge of the base along a transverse fold line and bearing against the front edges of the side walls and a flap joined to the upper transverse edge of the front wall along a transverse fold line and having a horizontal portion extending across the upper edges of the side walls and a retaining portion, wherein each side wall is formed with a first slot extending into its upper edge adjacent its inclined front edge and the retaining portion of the flap is formed with a pair of spaced second slots in its transverse leading edge, the retaining portion of the flap being folded about a transverse fold line so as to interengage with the side walls with the said first slots in the side walls slotted into the said second slots in the retaining portion to secure the retaining portion and the side walls together.

In a preferred embodiment of the invention each side wall includes a lug folded inwardly and beneath the said horizontal portion of the flap and means are provided for mechanically attaching the said lugs to the said horizontal portion of the flap.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of a cut blank from which to toboggan of the present invention is constructed;

FIG. 2 is an elevation of a toboggan according to the present invention formed from the blank of FIG. 1;

FIG. 3 is a plan view of the toboggan of FIG. 2;

FIG. 4 is a section on the line IV—IV of FIG. 3; and

FIG. 5 is an enlarged view of a section through the material used for the blank shown in FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In FIGS. 2 and 3 a toboggan is indicated generally at 10 which is formed from the blank 11 shown in FIG. 1. The blank 11 is cut to the shape shown in FIG. 1 from a sheet of corrugated plastics material, for instance a polypropylene which is commercially available in the United Kingdom under the trade name 'Hammarpac'. This material which is illustrated in FIG. 5 is waterproof and therefore not damaged in any way by contact with snow or slush and provides an extremely smooth outer surface which will slide readily over packed snow. It can be creased both in the direction of the corrugations and perpendicular to the corrugations but in order to achieve an effective creasing and bending in a direction perpendicular to the corrugations it is advantageous to form a slit on the convex side of the crease or bend partially through the material.

The toboggan 10 shown in FIGS. 2 and 3 comprises a substantially flat base 12 lying between two parallel longitudinal crease lines 13 and 14 which run perpendicular to the corrugations in the material. On each side of the base 12 are upstanding side walls 15 and 16 which are joined to the base along the fold lines 13 and 14 and which increase in depth from the back end of the toboggan towards the front end. The front end edges 15*a*, 16*a* of the side walls 15 and 16 extend outwardly and forwardly of the base 12 and are curved to form abutments and support for the front wall of the toboggan. Slots 17 and 18 are formed in the upper edges of the side walls 15 and 16 respectively at an angle of 45° to 60° to the fold lines 13 and 14 and spaced from each slot 17 and 18 flaps 19 and 20 respectively are sheared from the side walls to form hand holds for the user of the toboggan.

Adjacent the slots 17 and 18 respectively, each side wall is formed with a lug 21 and 22 respectively which is adapted to be folded inwardly. Each lug 21 and 22 has a hole 23 and 24 respectively to receive a stud.

A front wall 25 extends across the front end of the sledge 10. In the blank 11 the front wall 25 forms a continuation of the base 12 and is joined to the base along a transverse fold line 26. The front wall 25 is formed with a plurality of transverse crease lines 27 which extend transversely of the base 12 and along the line of the corrugations in the material to enable the front wall 25 to be curved upwardly to conform to the curvature of the end edges 15*a* and 16*a* of the side walls 15 and 16.

The front wall 25 is joined along a fold line 28 to a flap 29 which comprises a horizontal portion 30 adjacent the front wall 25 and a retaining portion 31 which is joined to the horizontal portion along a transverse fold line 32. Two slots 33 and 34 extend into the transverse end edge 35 of the flap, approximately at right angles thereto.

In order to assemble the toboggan 10 from the cut and creased blank 11, the side walls 15 and 16 are folded upwardly at right angles to the base 12, the lugs 21 and 22 are folded inwardly of the side walls 15 and 16 into an approximately horizontal plane, the front wall 25 is folded upwardly against the end edges 15*a* and 16*a* so as to conform to the curvature of the end edges and the flap 29 is folded back and the retaining portion 31 interenegaged with the side walls, with the slots 33 and 34 sliding into the slots 17 and 18.

In this assembled position, the retaining portion **31** of the flap **29** holds the front ends of the side walls **15** and **16** in an upright position and the horizontal portion **30** of the flap **29** rests on the lugs **21** and **22**. Apertures **36** and **37** are formed in the horizontal portion **30** and align with the apertures **23** and **24** in the lugs. In order to firmly secure the flap **29** in position, headed studs **38** and **39** are passed downwardly through the aligned apertures **23,36** and **24,37** to secure the flap **29** to the lugs **21** and **22**.

In order to strengthen the front end portions of the side walls **15** and **16** stiffening panels **40** and **41** are preferably adhered to the inside faces of the front end portions of the side walls. Each stiffening panel **40** and **41** is complementary in shape to the front end portion of its associated side wall and is formed with a slot **42,43** respectively which aligns with the slot **17** and **18** respectively.

In order to protect the upper edges of the side walls **15** and **16** and also to provide a smooth hand hold, plastics beadings **44** and **45** are clipped on to the upper edge portions of the side walls.

The toboggan **10** is now ready for use and provides a lightweight toboggan which is readily handled by children and which, by virtue of the material used, has a low co-efficient of friction on packed snow while being highly resistant to moisture.

As can be seen from FIG. **3**, the side walls **15** and **16** tend to flatten out towards the horizontal at the trailing end of the toboggan and this tendency can be reduced by slotting the outer skin of the material along the fold lines **13** and **14**.

The number of crease lines **27** formed in the front wall can be varied, provided that a sufficient number of crease lines are provided to produce a relatively smooth curve. The crease lines **27** are preferably formed by scoring the outer liner of the material with perforating it and this method can also be used for the fold lines **13** and **14**.

If a permanent fixture of the flap **29** is required, then the lugs **21** and **22** can be adhered to the undersurface of the horizontal portion of the flap. Alternatively, the lugs **21** and **22** can be stapled, pinned or spot welded on to the horizontal portion of the flap.

It will be appreciated also that the blank **11** can be formed with the fold lines **13** and **14** running parallel with the corrugations in the sheet material in which event the transverse fold lines will run at right angles to the corrugations.

Further minor modifications can be made to the above described embodiment without departing from the spirit and scope of the invention which is best described in the following claims.

I claim:

1. A toboggan formed from a unitary sheet of foldable material so as to comprise a substantially flat rectangular base, two upstanding side walls joined to the longitudinal edges of the base along longitudinal fold lines and formed with front edges inclined forwardly and outwardly from the base, a front wall joined to the front edge of the base along a transverse fold line and bearing against the front edges of the side walls and a flap joined to the upper transverse edge of the front wall along a transverse fold line and having a horizontal portion extending across the upper edges of the side walls and a retaining portion, wherein each side wall is

formed with a first slot extending into its upper edge adjacent its inclined front edge and the retaining portion of the flap is formed with a pair of spaced second slots in its transverse leading edge, the retaining portion of the flap being folded about a transverse fold line so as to interengage with the side walls with the said first slots in the side walls slotted into the said second slots in the retaining portion to secure the retaining portion and the side walls together.

2. A toboggan as claimed in claim **1** and including means for resisting withdrawal of the retaining portion of the flap from the side walls.

3. A toboggan as claimed in claim **2**, wherein each side wall includes a lug folded inwardly and beneath the said horizontal portion of the flap and said means comprises means for mechanically attaching the said lugs to the said horizontal portion of the flap.

4. A toboggan as claimed in claim **3**, wherein said means comprises two studs, each of which extends through the horizontal portion of the flap and through a lug to attach the horizontal portion of the flap to the lugs.

5. A toboggan as claimed in claim **1**, wherein the said first slots in the side walls are inclined at an angle of 45°–60° to the said longitudinal fold lines.

6. A toboggan as claimed in claim **5**, wherein the said end edges of the side walls are curved and the front wall is correspondingly curved.

7. A toboggan as claimed in claim **1**, wherein a stiffening panel is provided adjacent the front edge of each side wall and complementary in shape with the front portion of the side wall, each stiffening panel being provided with a slot which interengages with the flap and each stiffening panel being adhered to the inside face of the side wall.

8. A toboggan as claimed in claim **1**, wherein the said sheet material is a synthetic plastics extruded, corrugated material.

9. A toboggan as claimed in claim **8** wherein the said longitudinal fold lines are arranged at right angles to the corrugations in the material.

10. A toboggan formed from a unitary blank of foldable sheet material so as to comprise a substantially flat, rectangular base, two upstanding side walls joined to the longitudinal edges of the base along longitudinal fold lines and having front edges inclined outwardly and forwardly of the base, a front wall joined to the front edge of the base along a transverse fold line and bearing against the front edges of the side walls, a lug integral with the upper edge of each side wall adjacent the said front edge thereof and folded inwardly of the side wall, and a front flap joined to the upper transverse edge of the front wall and folded back so as to interengage with the side walls to retain the side walls in a spaced upright position, the width of the flap being greater than the spacing of the side walls whereby spaced portions of the flap overly the respective upper edges of the side walls, said flap portions being mechanically attached to the said respective upper edges at said lugs.

11. A toboggan as claimed in claim **10**, wherein the side walls and the flap are slotted so as to interengage.

12. A toboggan as claimed in claim **11**, wherein the said flap is attached to each lug by a stud.

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