

[54] FOLDING SLED	3,755,859	9/1973	Solari	24/255 SL
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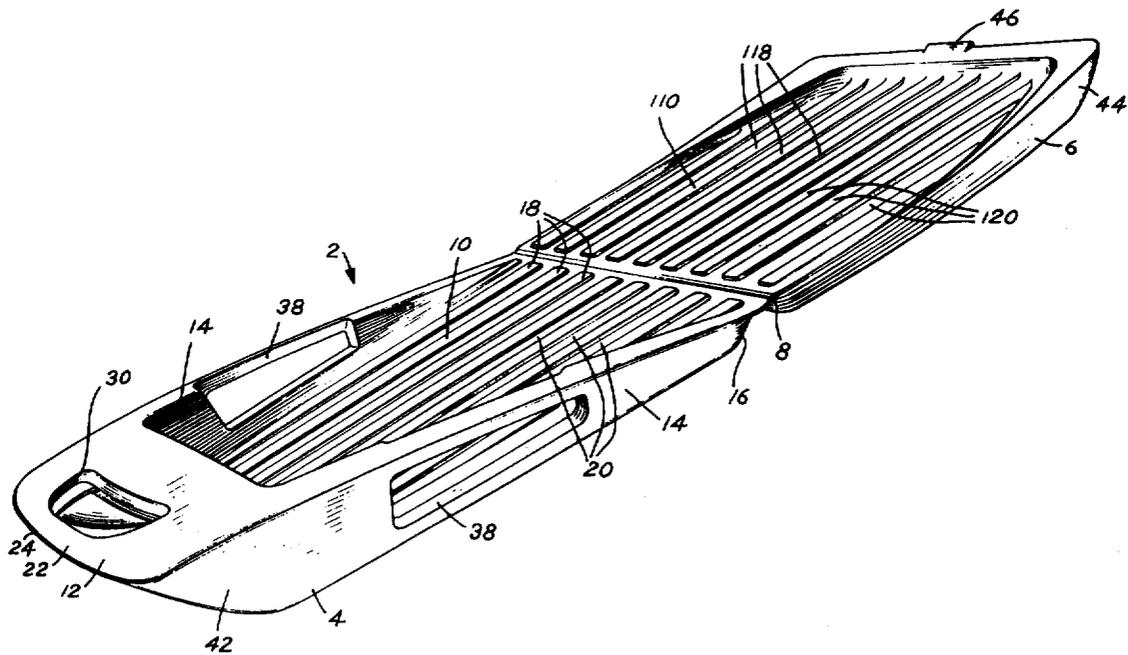
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 16/DIG. 13

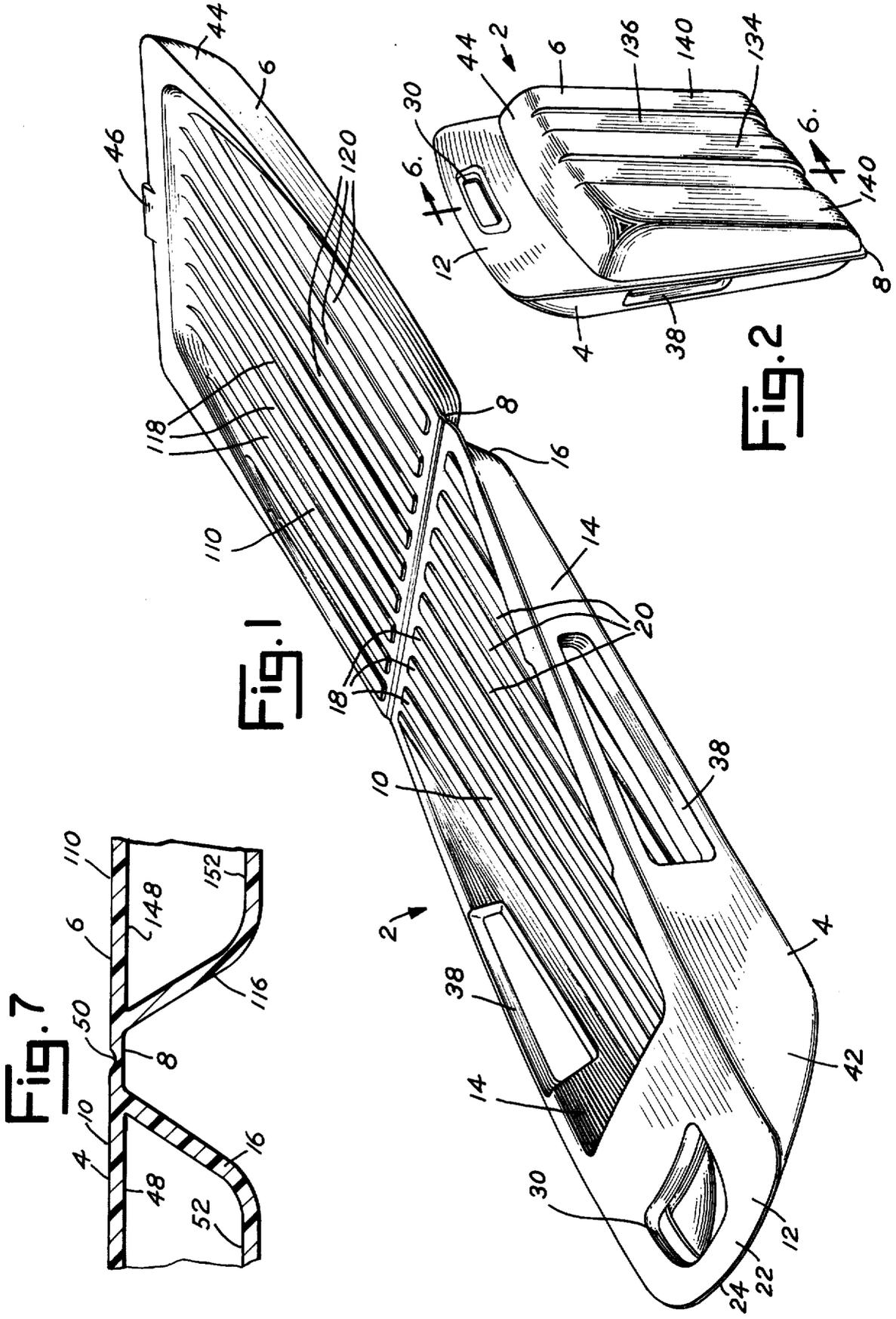
[57] ABSTRACT

A unitary, plastic, folding or collapsible sled. The sled includes a first and second sled section integrally connected by a flexible plastic web acting as a hinge.

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5 Claims, 7 Drawing Figures





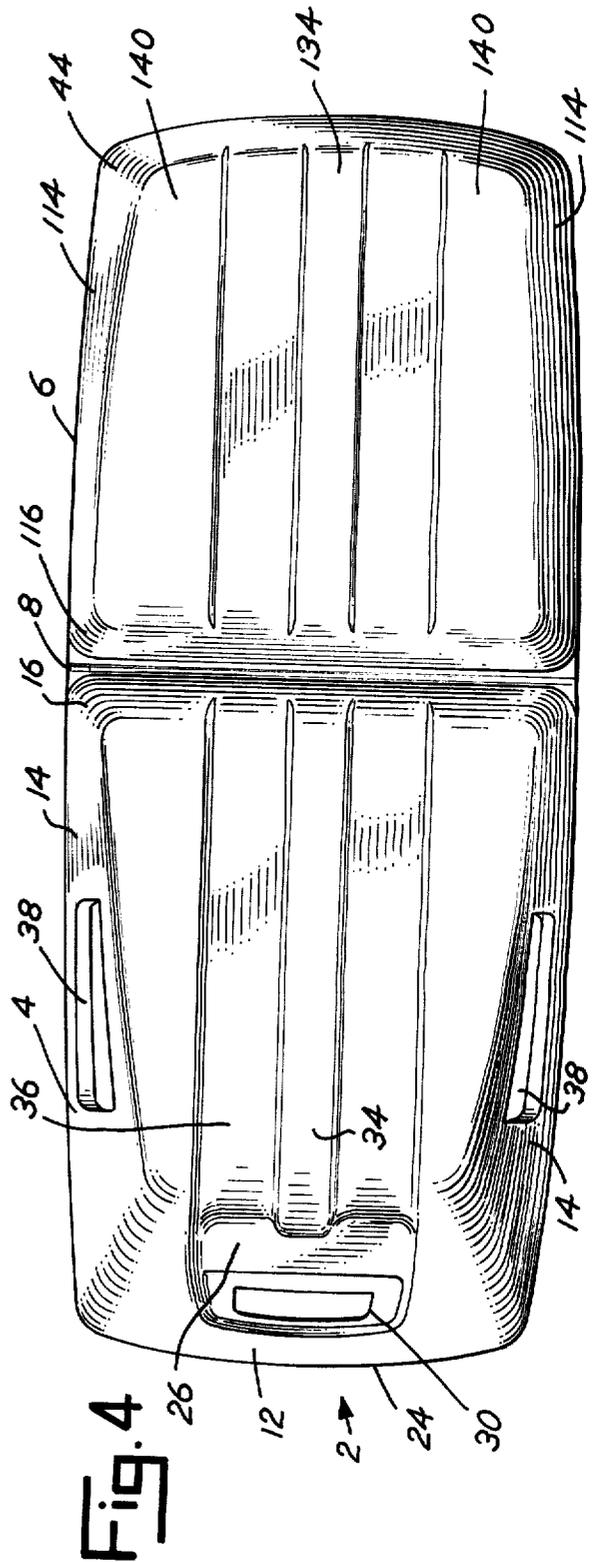
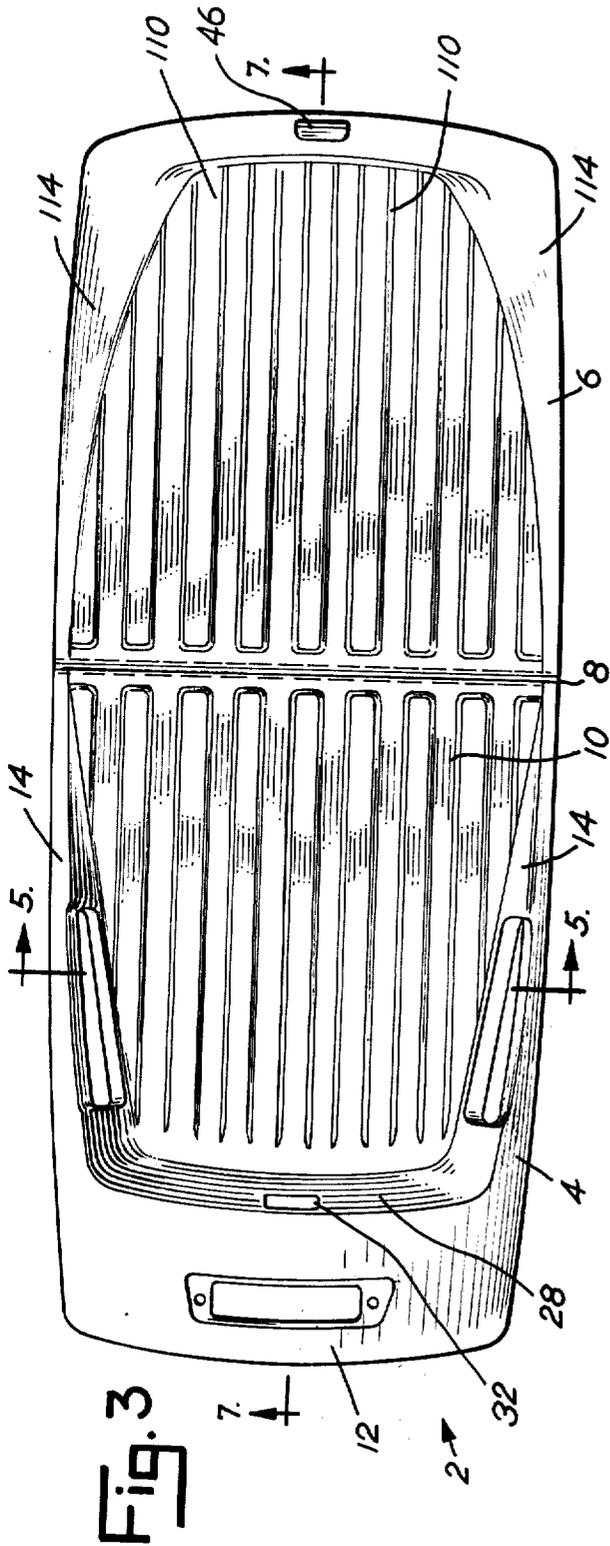


Fig. 5

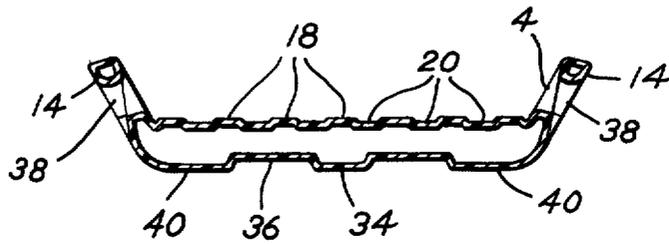
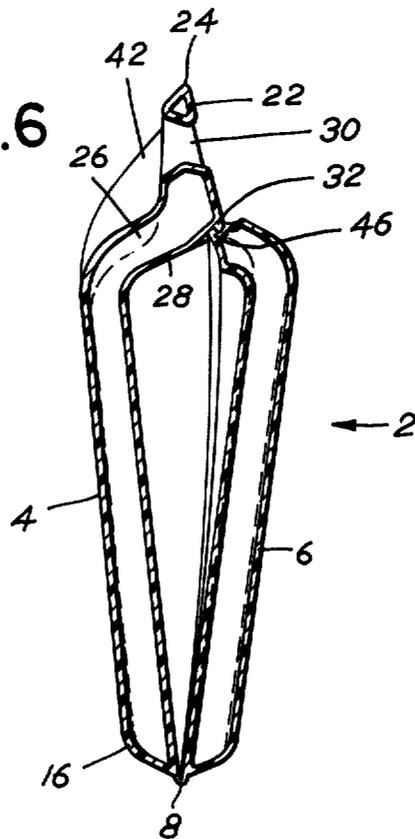


Fig. 6



FOLDING SLED

BACKGROUND OF THE INVENTION

The present invention relates generally to a sled, and more particularly to a folding sled.

Numerous folding or collapsible sleds have heretofore been manufactured and sold. The vast majority, however, include complicated hardware which renders the folding operation cumbersome and substantially increases the weight of the sled. As such, the presently known folding sleds are unsuitable and impractical for use by small children for the sport of downhill sledding.

SUMMARY OF THE INVENTION

In a principal aspect, the present invention comprises a unitary folding sled including a first and second sled section and a plastic hinge. The plastic hinge is a flexible, bendable web which integrally joins the first and second sled sections together.

It is thus an object of the present invention to provide a lightweight, readily manufactured and simply operated folding sled.

It is also object of the present invention to provide a collapsible sled wherein the sled sections are unitarily connected by a plastic hinge possessing a high degree of flexibility, regardless of temperature.

It is a further object of the present invention to provide a collapsible sled which is readily secured and locked in a folded or collapsed state.

These and other objects and advantages of the present invention will become apparent in the following detailed description.

BRIEF DESCRIPTION OF THE DRAWING

A preferred embodiment of the present invention will be described in detail with reference to the drawing wherein:

FIG. 1 is a perspective view of a preferred embodiment of the present invention in an open state;

FIG. 2 is a perspective view of the preferred embodiment shown in FIG. 1 in a closed or collapsed state;

FIG. 3 is a top view of the preferred embodiment shown in FIG. 1;

FIG. 4 is a bottom view of the preferred embodiment shown in FIG. 1;

FIG. 5 is a cross-sectional view of the preferred embodiment shown in FIG. 3 taken along 5—5;

FIG. 6 is a cross-sectional view of the preferred embodiment shown in FIG. 2 taken along 6—6; and

FIG. 7 is an enlarged, partial cross-sectional view of the preferred embodiment shown in FIG. 3 taken along 7—7.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIGS. 1-6, a preferred embodiment of the present invention is shown as a folding sled 2. The folding sled 2 is a unitary, molded plastic structure including a first, or forward, sled section 4, a second, or rear, sled section 6, and a plastic hinge 8. The plastic hinge 8 integrally joins the first and second sled sections 4, 6.

The first sled section 4 is hollow and includes a substantially flat, body-supporting portion 10, a nose portion 12, and sidewall portions 14. As best shown in FIGS. 1 and 7, the first sled section 4 also includes a

rearwardly and upwardly curved end portion 16 which smoothly and unitarily joins with the plastic hinge 8.

The body-supporting portion 10 of the first sled section 4 defines a series of longitudinal ribs 18 and grooves 20. The ribs 18 and grooves 20 extend the length of the body-supporting portion 10.

As best shown in FIG. 6, the nose portion 12 of the first sled section 4 defines a forwardly extending tip 22, having a forward edge 24, and an upwardly and forwardly curved neck 26, having an upper surface 28. The tip 22 includes an opening 30 which facilitates the transportation of the folding sled. That is, the tip 22 and opening 30 cooperatively define a carrying handle for the folding sled 2. A rope (not shown) can also be secured to the sled 2 through the opening 30.

The neck 26 includes a locking slot or groove 32 in the upper surface 28. The locking slot 32 is centrally located, i.e., equidistance from the sidewall portions 14. The significance of the locking slot 32 is discussed below.

Referring to FIGS. 4 and 5, the neck 26 also defines the origin of a central sled runner 34. The runner 34 extends longitudinally along the underside 36 of the first sled member 4 from the neck 26 to the end portion 16. The runner 34, as shown, is centrally located between the sidewall portions 14.

The sidewall portions 14 of the first sled section 4 are slightly curved or bowed and extend substantially vertically from the edges of the body-supporting portion 10 and nose portion 12. The sidewall portions 14 incline upwardly from the end portion 16 to smoothly join the nose portion 12. The sidewall portions 14 include a pair of openings 38 which permit a user (not shown) to grasp the folding sled 2 during a sledding run.

More particularly, the sidewall portions 14 extend downwardly from the nose portion 12 and wrap around and under the body-supporting portion 10 to define a pair of outer sled runners 40, substantially parallel to the central sled runner 34. The outer sled runners 40 extend from the forward edge 24 of the tip 22 to the end portion 16 of the first sled member 4.

As best shown in FIGS. 1 and 6, each outer sled runner 36 includes an upwardly curved front end 42. The upturned ends 42 cause the folding sled 2 to ride upon the snow, rather than to cut through the snow, thereby decreasing the frictional drag.

The second sled section 6 includes various features which correspond to or cooperate with the previously identified and described features of the first sled section 4. These features of the second sled member 6 are identified below by the same numeral use in the description of the first sled member 4, plus 100.

As shown, the second sled member 6 is hollow and includes a substantially flat body-supporting portion 110, which defines a series of longitudinal grooves 118 and ribs 120, sidewall portions 114 and an end portion 116. The longitudinal ribs 18, 118 and grooves 20, 120 of the first and second sled sections 4, 6, respectively, align and prevent the user of the folding sled 2 from transversely sliding on the body-supporting portions 10, 110 during a sledding run. As shown in FIG. 7, the end portion 116 curves upwardly and unitarily joins the plastic hinge 8.

The second sled member 6 also includes an upwardly curved rear portion 44. The rear portion 44 defines a centrally located upwardly extending locking tab 46,

adapted to be received by the locking slot 32 as the first and second sled sections 4, 6 are folded together.

The sidewall portions 114 extend from the edges of the body-supporting portion 110 and rear portion 44. The sidewall portions 114 also incline upwardly from the end portion 116 to smoothly join the rear portion 44.

As shown, the sidewall portions 114 define, on the underside 136 of the second sled section 6, outer sled runners 140 which substantially align with the outer sled runners 40 of the first sled member 4. A central sled runner 134 also extends longitudinally along the underside 136 of the second sled member 6, substantially aligned with the central sled runner 34. The runners, 134, 140 smoothly terminate in the upwardly curved rear portion 44.

The runners 34, 36, 134, 136 decrease the surface contact between the folding sled 2 and the sledding surface or snow (not shown). Frictional drag is, therefore, also decreased, and the speed of the folding sled 2 is substantially over flat-bottomed sleds.

As shown in FIG. 7, the plastic hinge 8 is a thin plastic web. The plastic hinge 8 is substantially planar with the upper walls 48, 148 of the first and second sled sections 4, 6, respectively. As such, the first sled section 4, second sled section 6 and plastic hinge 8 present a substantially planar and continuous body-supporting surface for the user.

Preferably, the plastic hinge 8 is a synthetic plastic, such as polyethylene, polypropylene, polyurethane or polycarbonate, and possesses a high degree of flexibility, bendability and resiliency, irrespective of temperature. The plastic hinge 8 also includes an upwardly open groove 50 which extends the length of the plastic hinge 8, i.e., the width of the folding sled 2. The groove 50 increases the flexibility of the plastic hinge 8. The plastic hinge 8 and groove 50 cooperatively permit the first and second sled members 4, 6 to be folded together from an open state, shown in FIG. 1, to a closed state, shown in FIG. 2.

In the closed state, the sidewall portions 14, 114 of the first and second sled sections 4, 6, respectively, substantially abut and the rear portion 44 of the second sled section 6 contacts the nose portion 12 of the first sled section 4 in the vicinity of the neck 26. As such, the locking tab 46 engages the locking slot 32 to detachably secure the first and second sled members 4, 6 together.

As indicated, the folding sled 2 is a unitary body, and thus, the first and second sled members 4, 6 are also a synthetic plastic. The hollow construction of the first and second sled members 4, 6 provides rigidity and also "cushions" the user during a sledding run. That is, the lower walls 52, 152 of the first and second sled sections 4, 6, respectively, are flexible and will absorb small bumps, thereby providing a smoother ride than would

otherwise be possible with a solid sled.

A single preferred embodiment of the present invention has been described. It is to be understood, however, that various changes and modifications can be made without departing from the true spirit and scope of the invention as defined by the following claims.

What is claimed is:

1. A unitary, single body collapsible sled, comprising, in combination:

a first sled member having a forwardly and upwardly turned nose portion and a first body-supporting portion, said first body-supporting portion including a first upper wall member and a first lower surface-engaging wall member, said first upper and lower wall members being specially separated by a first hollow region of said first sled member;

a second sled member having an end portion and a second body-supporting portion, said second body-supporting portion including a second upper wall member and a second lower surface-engaging wall member, said second upper and lower wall members being specially separated by a second hollow region of said second sled member;

a plastic hinge integrally and hingedly connecting said first and second sled members opposite said nose and end portions, respectively, whereby said collapsible sled is operable in an open and folded state, said first and second body-supporting portions being substantially planar in said open state; and

means for locking said first sled member to said second sled member in said folded state;

said first and second upper wall members, said first and second lower surface-engaging wall members and said first and second hollow regions cooperatively defining cushion means for absorbing shock upon said first and second lower surface-engaging wall members to substantially avoid transmission of said shock to a user of said collapsible sled.

2. A unitary, single body collapsible sled as claimed in claim 1 wherein said first and second upper wall members and said plastic hinge are substantially planar in said open state.

3. A unitary, single body collapsible sled as claimed in claim 1 wherein the said plastic hinge includes a thin plastic web.

4. A unitary, single body collapsible sled as claimed in claim 3 wherein said plastic web is polyethylene, polypropylene, polyurethane or polycarbonate.

5. A unitary, single body collapsible sled as claimed in claim 1 wherein said first and second sled members include a locking tab and a locking slot, said locking tab and slot cooperatively defining said locking means, said locking tab lockingly engaging said locking slot in said folded state.

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