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3D Printable pickleball paddle core design.

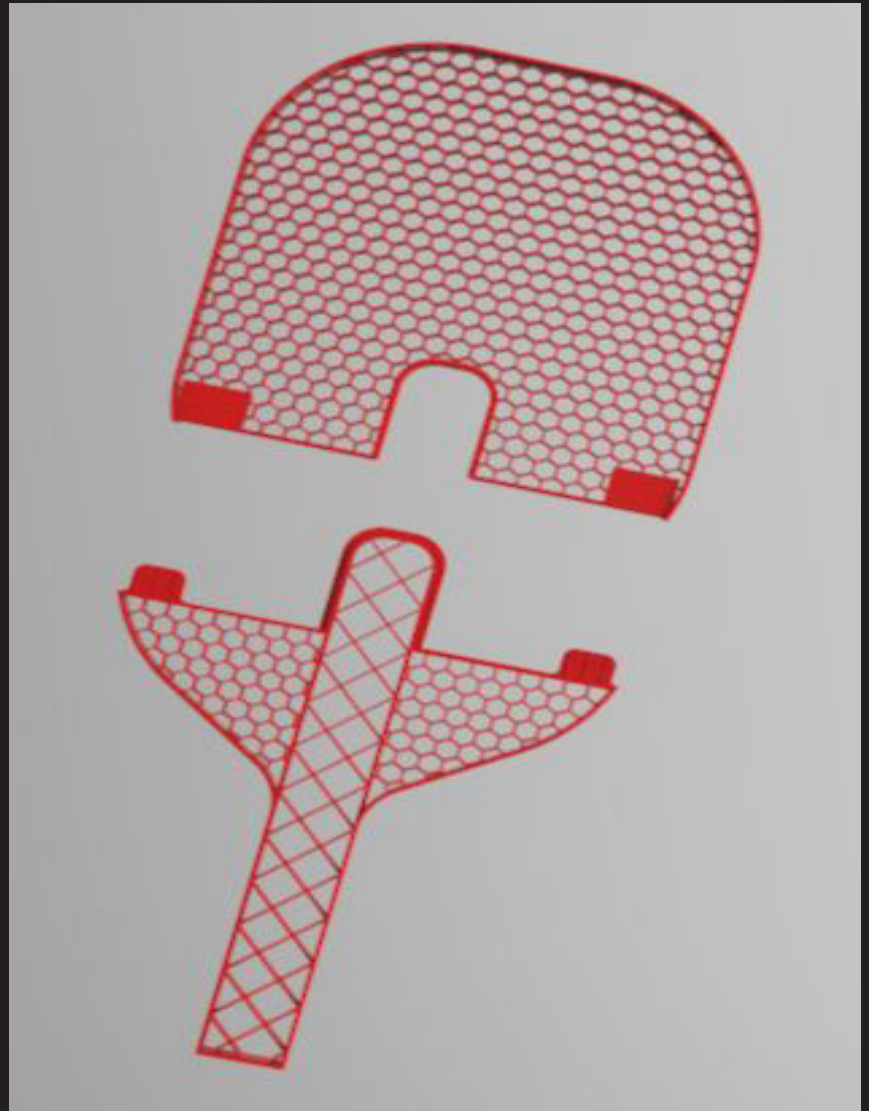
Necessity is the mother of invention
Plato 427-447 B.C



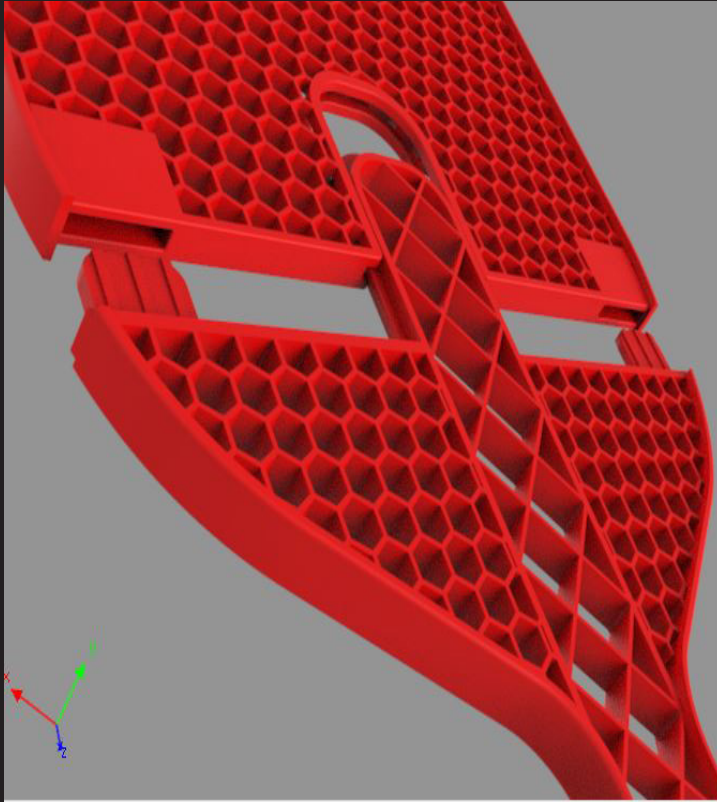
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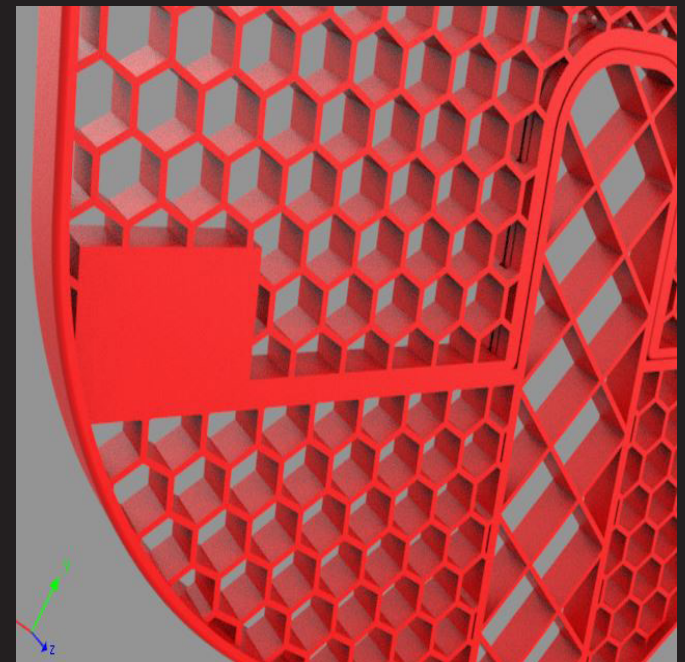
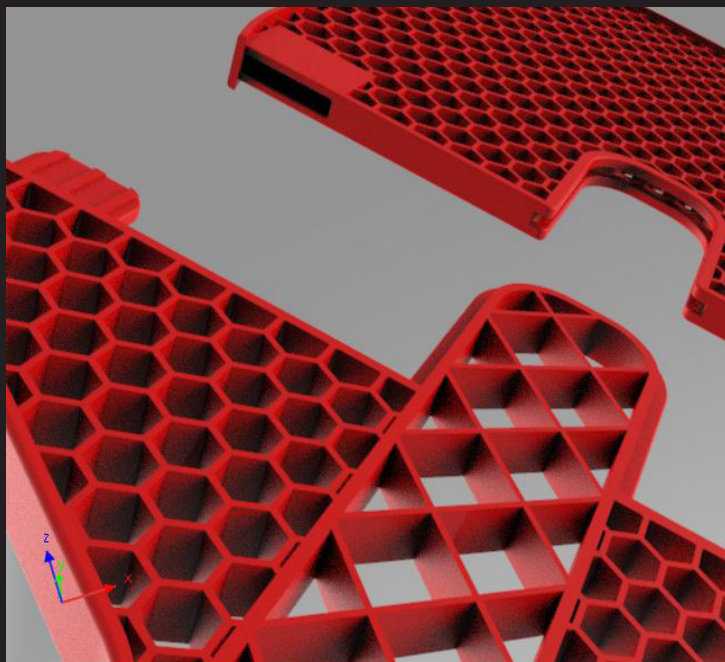
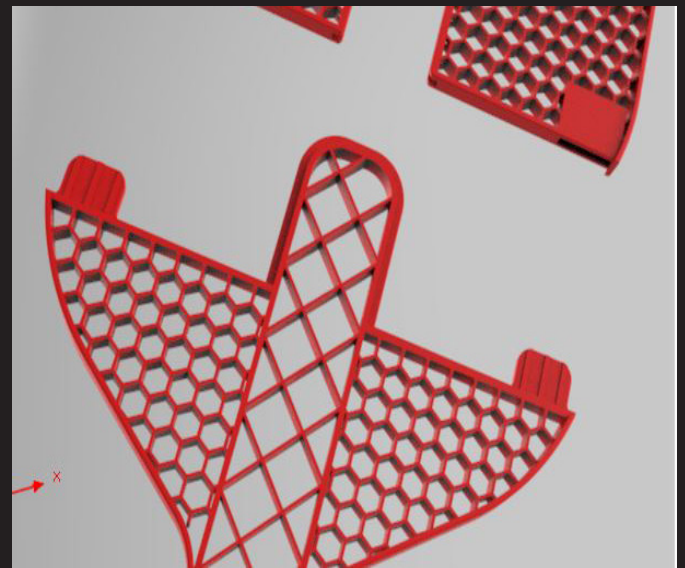
**2 piece 3D printable paddle
core design**



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Interlocking segment piece for strength, fit and function.



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Portable Fishing Shanty (Floating) Provisional Patent Application and Prototype Build

Portable Ice Fishing Shelter

Background of the Invention

1. Field of the Invention

The present invention relates to the field of portable, collapsible shelters in general and in particular to an ice fishing shelter.

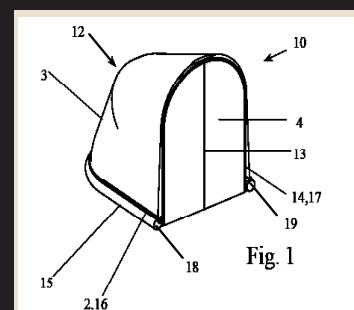
2. Description of Related Art

Multitudes of diverse portable ice fishing shelters exist in prior art including the following U.S. Patent Numbers 6,397,870; 5,133,378; 5,368,057; 4,084,597.

While all of the aforementioned prior art constructions are more than adequate for the basic purpose and function for which they have been specifically designed, they are uniformly deficient with respect to their failure to provide simple, efficient, practical and easily portable shelter that can provide a level of buoyancy during an ice failure. In addition there is no means of maintaining afloat if the shelter were completely submerged and covered with water. Much like a sinking ship when water permeates the various orifices of the shelter its buoyancy is lost.

An example of this can be seen in U.S. Patent Number 6,397,870. Even this prior art would succumb to the overwhelming element of water completely filling its hull. It's buoyancy would be lost.

Another issue experience by fisherman is the lack of safe and secure storage for fishing poles and tackle. Typically a fisherman will set the gear in an open pile or on the floor of the shelter were it is free to bounce and move around. Consequently the gear is often lost or broken during transportation and storage.



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Clearly there exist a need for a new and improved portable ice fishing shelter that provides buoyancy after ice failure and resolves the need for safe storage of poles and tackle. Such a construction is the stated objective of the present invention.

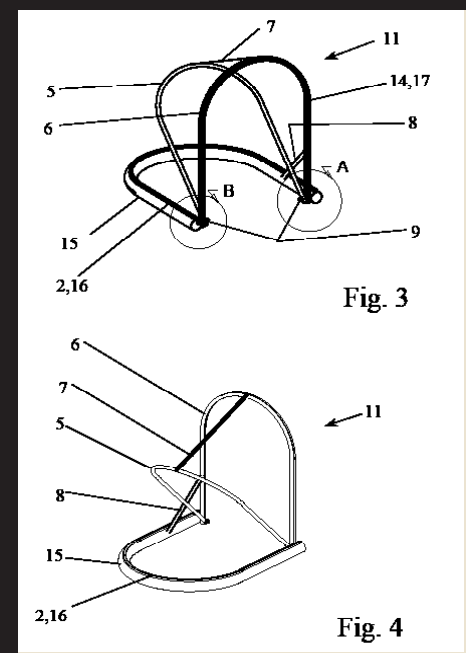
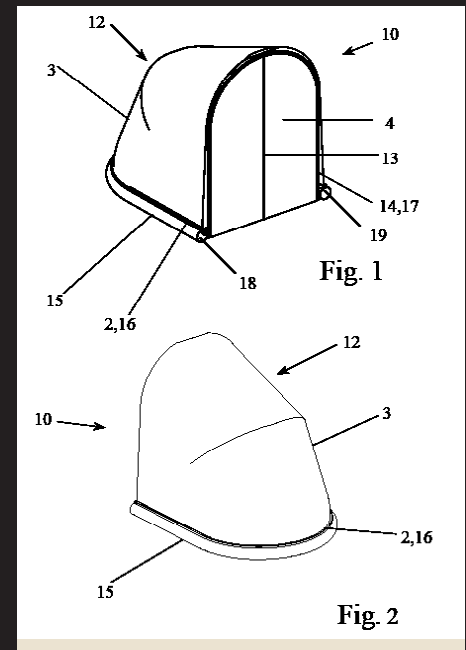
Summary of Invention

Briefly stated, the *portable ice fishing shelter* of the present invention increases the ability to float after a complete submerging of the ice fishing shelter. In addition the present invention provides for a safe and secure compartment like feature to stow fishing poles and tackle. This floorless construction speeds up the set up time needed for most collapsible ice fishing shelters.

The construction that forms the basis of the present invention comprises in general 3 "U" shaped tubular frame members pivotally connected at the ends. At least one of these members is partially filled with foam. Each frame member while in the open position takes a different position. Basically pivoting around the common axis from the ground/ice up to 45 degrees for the angled member and 90 degrees for the vertical member. Therefore leaving the main member on the ground/ice. In the closed position the upper 2 members are pivoted on the common axis down to the lower main member. It is in this position that the present invention is transported by pulling it along by a line attached to the front center area of the u shaped main member. The entire assembly slides along on the bottom of the main member.

This hollow main member being of larger size and in general potentially larger diameter is partially filled with either injected foam or a foam insert therefore giving the unit buoyancy. In the area near the ends of the main member would be hollow and left empty for storage of poles and tackle. The ends of the hollow main member are closed off with a reusable cap like part.

In addition, there is a cover that drapes over the upper frame members and follows the form of these frame members down to the lower main member. A spline and channel feature attaches the cover. The cover is pressed into a generally "U" shaped channel feature that follows the form of the member, after which a spline or rope like feature is pressed into the channel there by



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preventing the removal of the cover from the channel. This cover remains on the invention and is not removed during its use.

Within the flat vertical u shaped area of the cover exist an entry area closed off by the use of a zipper or other general means of fastening. It is this area that the fisherman can enter and exit the shelter.

Brief Description of the Drawings

Figure 1 is a perspective view of the shelter entry area.

Figure 2 is a perspective view of the front of the shelter area.

Figure 3 is a perspective view of the shelter frame entry area with the cover removed for clarity.

Figure 4 is a perspective view of the front of the shelter frame with the cover removed for clarity.

Figure 5 is a perspective view of the shelter front in the collapsed position.

Figure 6 is a perspective view of the shelter rear in the collapsed position.

Figure 7 is a detail view in circle A taken from figure 3.

Figure 8 is a detail view in circle B taken from figure 3

Figure 9 is a rear view of the shelter construction.

Figure 10 is a right side view of the shelter construction.

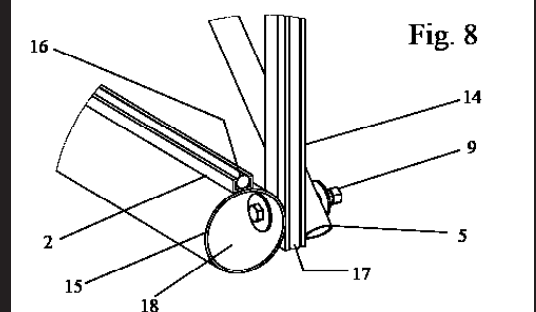
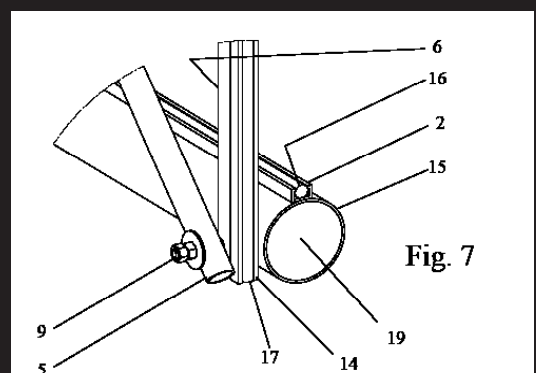
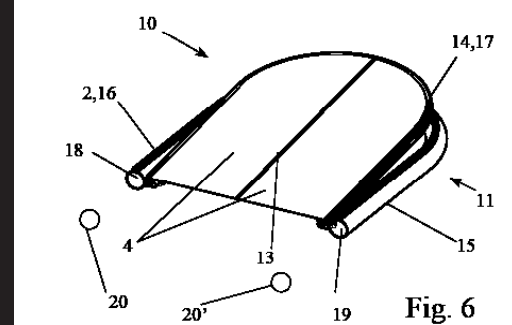
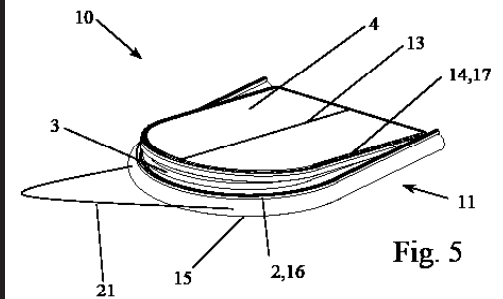
Figure 11 is a cross-section view taken through line C-C in Fig. 9.

Figure 12 is a rear view of the shelter construction in the collapsed position.

Figure 13 is a right side view of the shelter construction in the collapsed position.

Detailed Description of the Drawings

As can be seen by reference to the drawings, and in particular to Fig. 1-4, the *portable ice fishing shelter* construction that forms the basis of the present invention is designated generally by the reference number 10. The construction 10 is made up of in general a frame 11 and a cover unit 12. These units will now be described in detail.



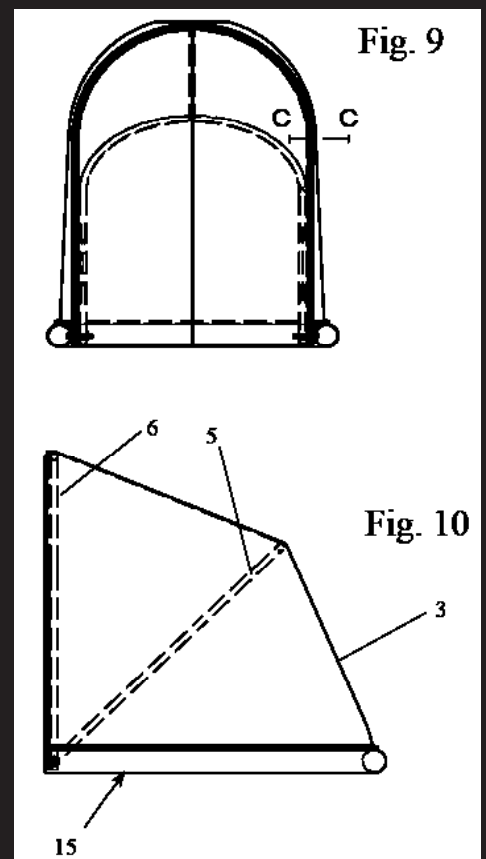
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A collapsible frame 11, best shown in Fig. 3-8, is composed of three "U" shaped tubular frame members 5,6,15 pivotally connected at the ends 9, a removable brace 8, these would preferably be made from plastic and be injected with foam or have foam inserted into them. The main member 15 having a larger overall diameter is partially filled with foam and has storage areas for poles and tackle 18,19. This main member 15 acts as a ski or runner during transportation. In addition a channel and spline system 2,16,14,17 is attached to the main member 15 and the vertical member 6 using any number of types of conventional fasteners or adhesives. Preferably the channels 2,14 would be molded into and exist as part of the form of the adjacent members 6,15 therefore eliminating the need for channels 2 and 11.

While in the open position the removable brace 8 engages the main member 15 and the vertical member 6 on a general 45-degree angle therefore supporting the vertical member 6. This can most clearly be seen in Fig. 3 and 4. A second brace could later be added for additional stability, this second brace would exist symmetrically opposite the first brace 8. While in the open position most clearly seen in Fig. 3 and 4 the angled member 5 is then supported by the vertical member via a fabric tie strap 7. This tie strap 7 having a fixed attachment at the vertical member end 6 and be adjustable on the angle member end 5 would allow for adjustability in the shape and contour of the cover 12. By making longer or shorting the tie strap 7 the general shape of the cover 12 would change.

A flexible cover 12 composed of the main cover area 3, and the entry area 4. Preferably these two areas would be formed as one piece. The cover 12 is tailored to surround and cover the frame 11. The flexible covering 12 is preferably formed of a water repellent durable material. A component of the main cover 12 is an entry area 4 which includes a means of closing two flaps together either by zipper, Velcro, tie straps or snaps 13.

The cover 12 is attached to the frame through the use of a channel and spline 2,16,14,17. This system is best shown in the crosssection taken through line C-C in Fig. 9 and shown in Fig. 11. The main cover area 3 and the entry area 4 are pressed into the channels 14 and 2, after which the splines 12,10 are inserted thereby securing the entire periphery of the cover 12.

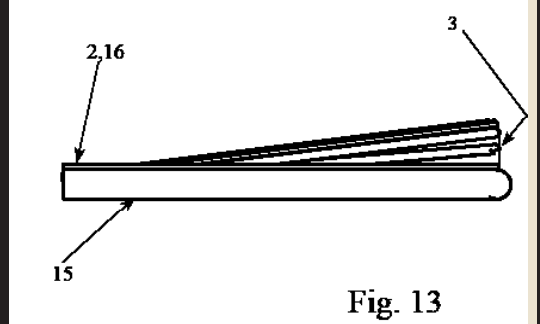
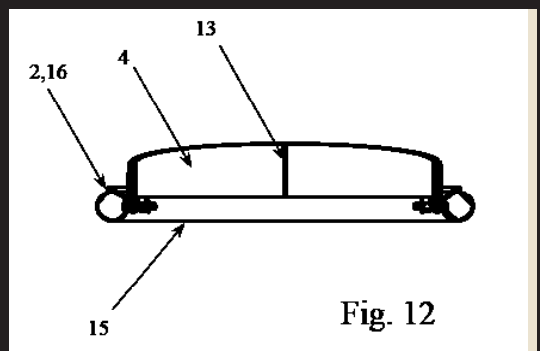
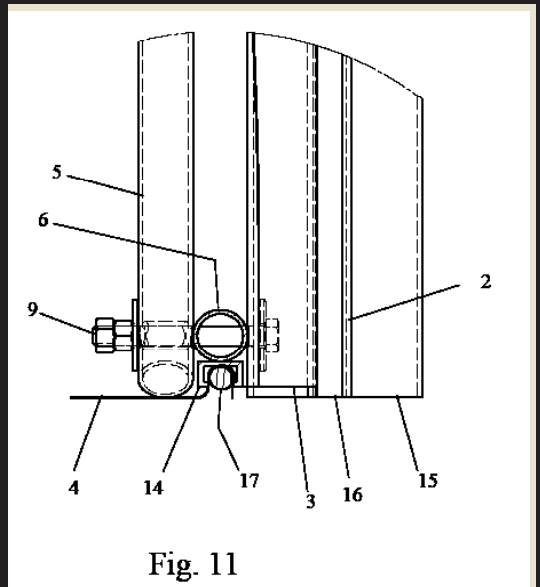


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The present invention is made portable by removing the removable brace 8 and allowing the vertical member 6 and the angled member 5 to rotate on the pivot 9 and collapse onto the main member 15. This position is best seen in Fig. 5 and Fig. 6. The brace is then stowed away in either of the storage areas 18,19. Caps 20,20' are inserted in the storage openings 18,19 thereby securing the contents.

Transporting the present invention is done by means of a towline 21. The user simply grasps the towline 21 and walks along pulling the present invention behind. The portable ice fishing shanty slides along on the bottom of the main member 15. In the case of a ice failure the user would hang on to the portable ice fishing shanty giving them something buoyant to hang on to until help can arrive.

Although only an exemplary embodiment of the invention has been described in detail above, those skilled in the art will readily appreciate that many modifications are possible without materially departing from the novel teachings and advantages of this invention.



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Prototype Build and Testing

“This idea came to me while sitting on thin ice in a very expensive fishing shanty”

The goal was to create a fishing shanty that:

- could retail for under \$100
- sets up in under 20 seconds
- floats in the event of a break through
- had protective storage for poles and gear



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For more information please feel free to contact me at:

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