Oct. 18, 1955 W. D. GRAY 2,720,664

LIFE SAVING DEVICE

Filed April 17, 1953 2 Sheets-Sheet 1

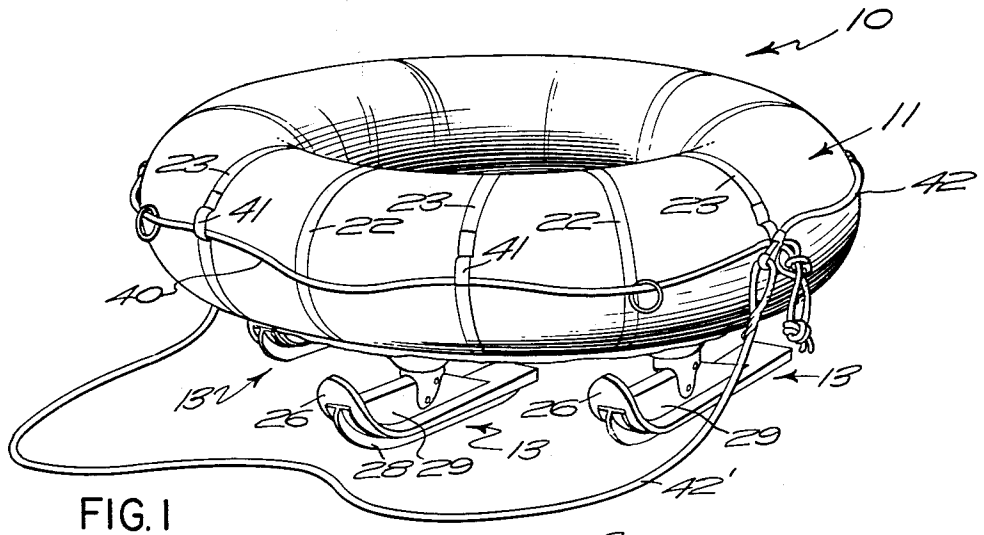


FIG. 1

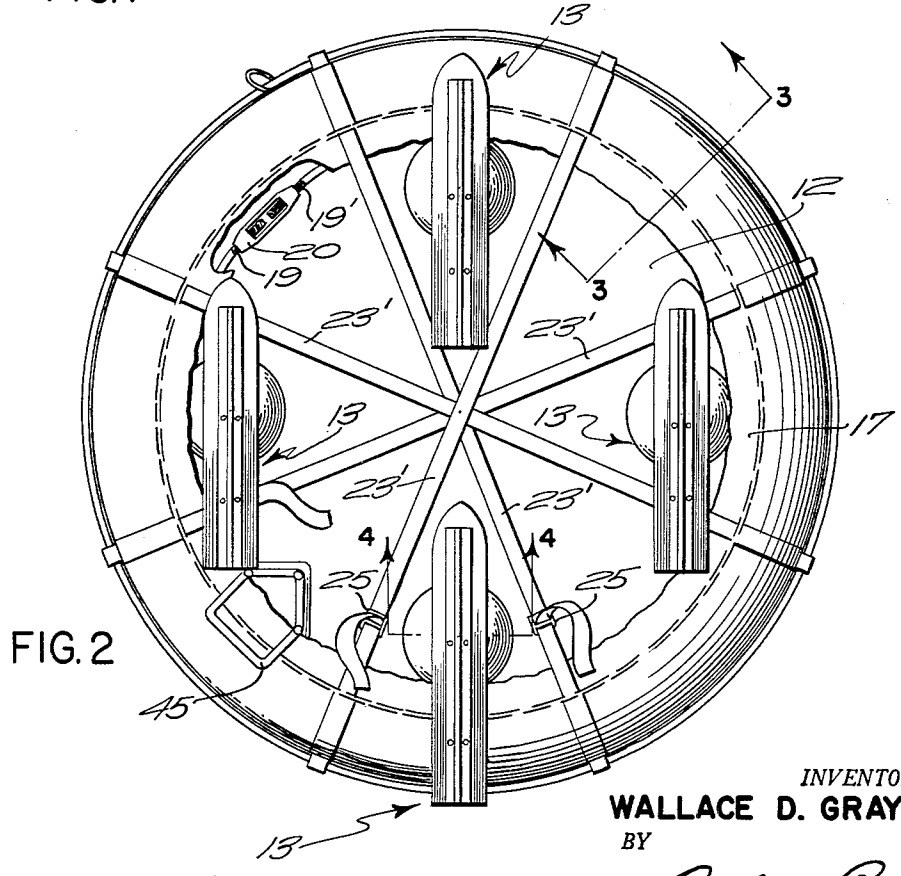


FIG. 2

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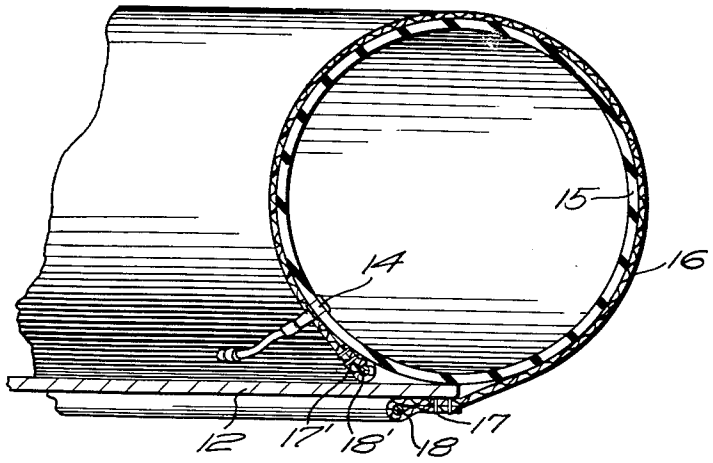


FIG. 3

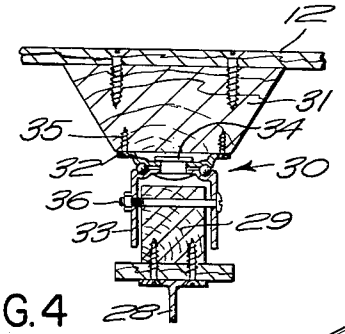


FIG. 4

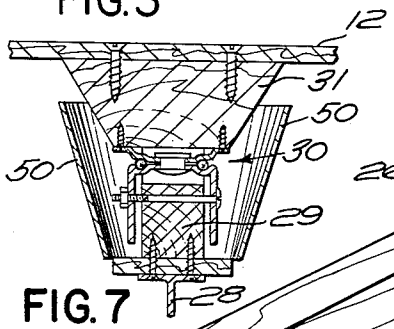


FIG. 7

FIG. 5

FIG. 8

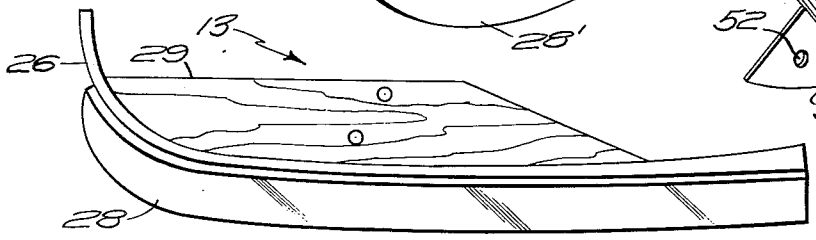


FIG. 6

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LIFE SAVING DEVICE

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6 Claims. (Cl. 9—11)

The invention relates to a life saving device which may be used equally well in water, on ice, or on snow.

One of the main objects of the invention is to provide a life saving device which may be easily propelled over ice or snow and which is buoyant so that it may be readily used to rescue persons who have fallen through thin ice.

Another object is to provide a life saving device which has a collapsible buoyant member to enable it to be shipped in a smaller package than that which would result if the buoyant member was of normal size and ready for immediate use.

Another object of this invention is to provide a life saving device with runners that may be freely rotated in any direction so that the device will readily align itself to the direction of propulsion.

Still another object of the invention is to provide a buoyant life saving device which is provided with ski runners that are so mounted upon the body of the life saving device that slush and snow will not jam between the body of the device and the ski.

A still further object of the invention is to provide a buoyant life saving device having a plurality of skis, each of which is free to move over a complete arc of 360 degrees and each of which is provided with a skate for engagement with ice.

With these and other objects in view, the invention consists of certain novel features of construction as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings:

Figure 1 is a perspective view of the life saving device of my invention;

Figure 2 is a bottom view of the life saving device showing a plurality of skis mounted on the bottom thereof and the manner in which the fabric cover fastens the various parts of the device together;

Figure 3 is a sectional view taken on lines 3—3 of Figure 2;

Figure 4 is a sectional view taken on lines 4—4 of Figure 2, showing particularly the mounting of the ski and the castering arrangement thereof;

Figure 5 is a perspective view of a modified form of ski that may be used with the life saving device;

Figure 6 is an end view of the skis showing the slightly convex surface thereof;

Figure 7 is a sectional view similar to Figure 4 showing a deflecting plate affixed to a ski;

Figure 8 is a perspective view of the deflecting plate.

In proceeding with this invention, I provide an inflatable tube and affix to the tube a platform of generally the same configuration as that of the tube by means of a canvas or other fabric covering. Additionally, I mount a plurality of skis on the platform through suitable castered supports and provide a projection on the surface-engaging portion of the ski, which is substantially the length of the ski and which forms a skate.

With reference to the drawings, **10** generally designates the life saving device having a buoyant member of substantially circular cross section generally designated as **11**, a platform **12**, and a plurality of runners **13**. The buoyant member **11** is preferably circular in shape, although other configurations may be resorted to, and consists of a hollow tube **15** which is joined together at its ends. Preferably this tube is made out of rubber, plastic, or other suitable flexible material which may be readily collapsed when the air in the body thereof is released. To effect the inflation or deflation of such a construction, a suitable valve means such as shown at **14** in Figure 3 may be utilized. The buoyant member may also consist of a solid buoyant material such as balsa wood, cork, or the like if compactness for portability is not desired. The platform **12**, which may be made out of wood, plastic, metal, or other suitable material, generally conforms to the configuration of the tube **15** and is held in assembly with the tube by means of a fabric cover **16**. The fabric cover **16** is generally shaped to completely encircle circumferentially the body of tube **15** and is provided at each edge thereof with a hem **17, 17'**. Within the hem **17** there is provided a metallic band **18** which has oppositely disposed threads **19—19'** at each end thereof for the attachment of a turn-buckle or other tightening device **20**. Similarly disposed in the hem **17'** of the fabric cover **16** is a second metallic ring **18'**, which may be either one solid ring or may be split with oppositely disposed threads and a turn buckle construction similar to that described in connection with the metallic ring **18**.

In order for the fabric cover **16** to assume the generally circular shape as shown in the drawings, it has been suitably cut into panels which have been sewn together as shown by the stitching such as at **22** and has additionally been provided with reinforcing strips **23** in the alternate panels, said reinforcing strips extending into straps **23'** which are provided with buckles **25** so that the ends of the straps may be diametrically joined to each other.

The fabric cover **16** holds the base member **12** to the buoyant member through the action of the metallic rings **18, 18'**. The metallic ring **18'** is of a diameter greater than the internal diameter of the buoyant member and generally exerts a force outwardly from the center of the buoyant member to snugly adhere to the interior of the tubular member **15**. The metallic ring **18**, on the other hand, which is of less diameter than the outside diameter of the buoyant member, exerts a force that is radially opposed to the force exerted by ring **18'** and tends to pull the fabric **16** into a smaller diameter. Therefore, should a force be exerted on the platform member **12** in an attempt to force it away from the buoyant member **15**, the resultant lines of force from ring **18'** are such that the hem and ring portions **17', 18'** tend to more snugly adhere to the interior of the buoyant member and prevent the fabric **16** from tangentially moving over the outside body of the buoyant member **15**. Therefore, in all conditions the hem **17** and ring **18** hold the platform **12** snugly against the circumference of the buoyant member **15**. In addition, straps **23'**, which crisscross the platform **12**, tend to hold the parts in assembly.

The platform member **12** is provided with a plurality of skis or other type runners, which as shown in the drawings are four in number, although any number over three may be provided. The runners as shown in Figures 1 and 2 of the drawings take the form of a ski which is provided with the usual upturned end **26** and which has a lower or surface-engaging portion that is slightly convex in shape and which is additionally provided with a skate or projection **28**. The body of each of the skis is reinforced with a block **29** that is suitably affixed thereto and which forms a means of mounting the ski to the platform **12**. Each of the skis **13** is mounted on the platform **12** through the mounting block **29**, a caster designated generally **30**, and a spacer

block **31**. The caster **30** may take the usual form and consists of two members such as **32** and **33**, which have parallel disposed faces that are joined together by a rivet **34** and upon which are provided circular races for the reception of anti-friction balls. Portion **32** is secured to spacer block by suitable fastenings as **35**, and member **33** is fastened to block **29** by bolts **36**.

Referring now more particularly to Figure 5, there is shown a runner or ski **13'** which is of generally the same construction as the runner or ski **13**, except that in this embodiment the lower or surface-engaging portion of the ski is provided with two upturned ends **26** and **26'**. A projection or skate **28'** additionally extends throughout the surface-engaging portion of the ski **13'**, and a mounting block **29'** is provided to suitably caster mount the ski on the mounting platform **12**.

The device may be readily maneuvered through slush or snow or a combination thereof, as the supporting member **29** for the skis **13** is so designed that slush and snow will not clog between the upper portion of the ski and its mounting means. In addition, as mentioned before, the portion opposite the upturned end **26** of the ski is also slightly upturned, as the entire surface-engaging portion of the ski **13** is slightly concave. This particular feature is greatly magnified in the embodiment of the ski as shown in Figure 5 where each end of the ski is provided with an upturned end. This particular construction aids in the maneuverability of the life saving device and allows it to be backed up very readily, for the castering action of the skis will take over and reverse the direction thereof.

Referring now more particularly to Figures 7 and 8, there is shown a pair of deflecting plates **50** of pseudo-conical shape which may be attached to either side of the member **29** in a position to surround the caster **30**. Flanges **51** having mounting holes **52** extend radially from the plate **50** and are adapted to engage the vertical faces of the member **29** an equal distance either side of the caster **30** to effect the mounting. As particularly shown in Figure 7, the body of plates **50** is of a height sufficient to encase substantially all of the caster **30** and the spacer block **31**, each plate covering an arc of at least 180° so as to provide complete encirclement. With the plates attached, any possible clogging, particularly of ice, that might occur is positively prevented and complete castering of the ski will always be available.

Affixed to the body of the buoyant member **11** are several lines. The first of these designated **40** generally encircles the buoyant member and is affixed thereto through suitable loops **41** that are stitched to the reinforcing bands **23**. This line **40** aids in providing a suitable grasping portion of about the outside of the buoyant member **11**, particularly for the aid of a person being rescued. Additionally, there is provided a second pair of lines **42** and **42'** which are affixed to the buoyant member at diametrically opposed points and which are intended to serve as a means of towing the life saving device over a solid surface such as ice, land, or snow by the person who would be effecting the rescue. Additionally, there is provided a towing ring **45** mounted on the platform member **12** and to which a sturdy retrieving line may be attached.

To describe the operation of the life saving device of my invention, assume for the moment that a person has

fallen through thin ice on a lake and that the life saving device as well as the person effecting the rescue are on the shore of said lake. The person effecting the rescue may either push the life saving device or tow it by means of the lines **42**, **42'** over the solid ice of the lake to effect a more rapid approach to the victim. Upon reaching thin ice, the person effecting the rescue may climb into the body of the life saving device and further propel himself by means of pointed sticks until he reaches the victim.

Upon reaching the person to be rescued, the man effecting the rescue may pull the victim aboard and then through a stout line which is preferably attached to the ring **45**, the entire life saving device with its two passengers may be pulled from the disaster scene to the shores of the lake by persons on the shores.

Thus, I have described a device which is readily adapted for saving persons who have fallen through thin ice or may be additionally utilized to save persons who may be drowning, since the device is easily pushed or propelled over land as well as being adapted to be propelled through the water. If, as in the preferred form of construction, a flexible, hollow buoyant member **15** is provided, the life saving device may in its deflated condition occupy approximately half the height that it would occupy if it were in its completely inflated and assembled relationship. This does not affect the usefulness of the device, for, as known to those skilled in the art, various compressed products such as carbon dioxide are commercially supplied in cylinder form, which may be utilized to quickly inflate the hollow member **15**.

I claim:

1. A life saving device comprising a platform, a buoyant member mounted upon said platform, a plurality of skis mounted under said platform, each ski being mounted for free rotation about an axis at substantially right angles to the plane of said platform through an arc of 360 degrees.

2. A device as in claim 1 wherein said skis have a convex surface-engaging portion with an upturned end.

3. A device as in claim 1 wherein said skis have a convex surface-engaging portion with two upturned ends.

4. A device as in claim 1 wherein said buoyant member is hollow and capable of holding air.

5. A device as in claim 1 wherein said skis have a surface-engaging portion substantially parallel to the platform and a projection extending along the surface engaging portion substantially at right angles thereto.

6. A life saving device comprising a platform, a sealed hollow tubular member removably secured to said platform, a plurality of skis mounted under said platform, each ski mounted for free rotation about an axis perpendicular to the platform and the ski, each ski having a convex surface-engaging portion with a skate thereon.

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