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Scharf

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(54) **ICE SHANTY MOVER**

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(52) **U.S. Cl.** **180/11**; 180/15; 180/19.1
(58) **Field of Search** 180/19.1, 19.3, 180/19.2, 16, 15, 11, 12, 13; 280/19.1

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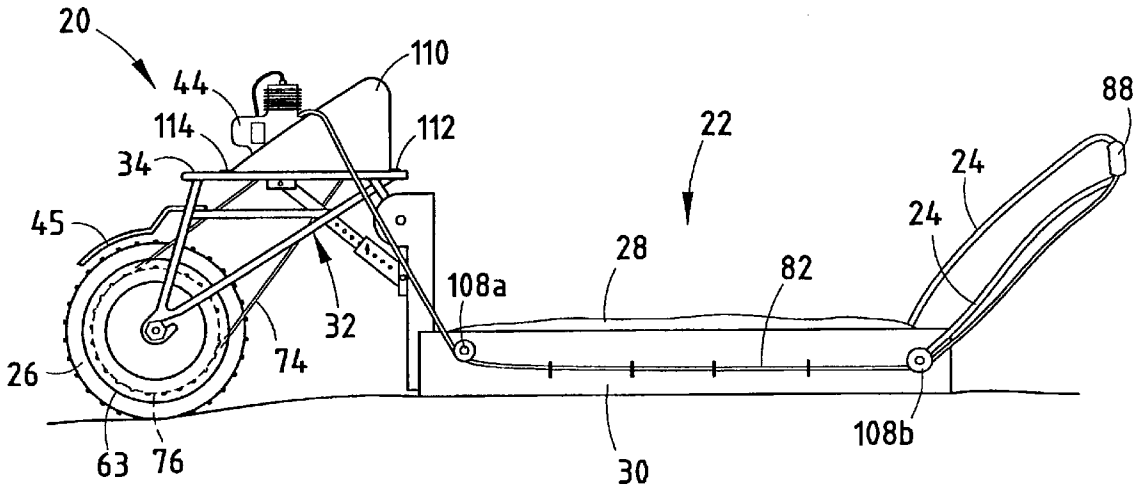
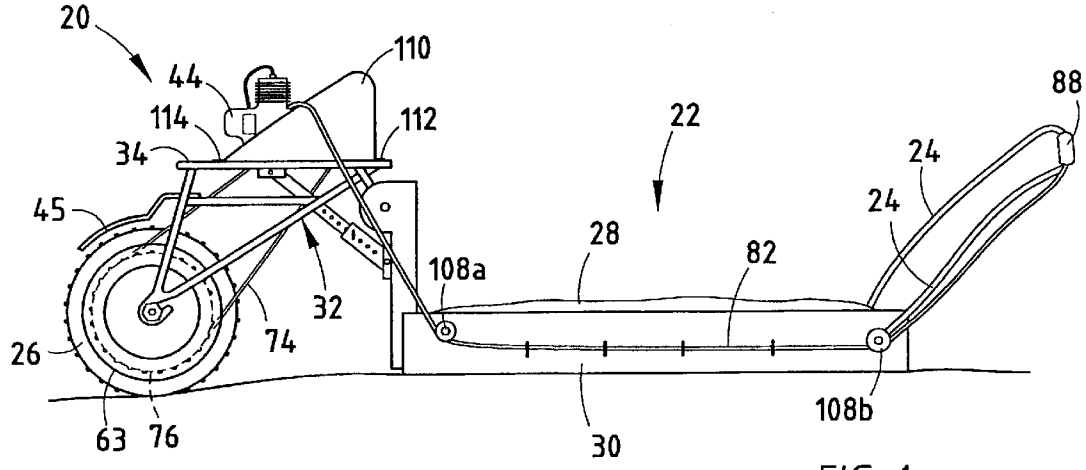
(57) **ABSTRACT**

An ice shanty mover includes a frame on which a motor and traction wheel are mounted. A series of chains and gears connect the traction wheel to the motor such that the traction wheel rotates when the motor is activated. A control cable extends forwardly from the motor to allow a user to control the speed of the motor while walking in front of the ice shanty. A front plate on the ice shanty mover engages a skirt on the ice shanty and pushes against the skirt causing the shanty to move. Steering is accomplished by a tow rope attached to either the shanty or the shanty mover.

20 Claims, 4 Drawing Sheets

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108a
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FIG. 1

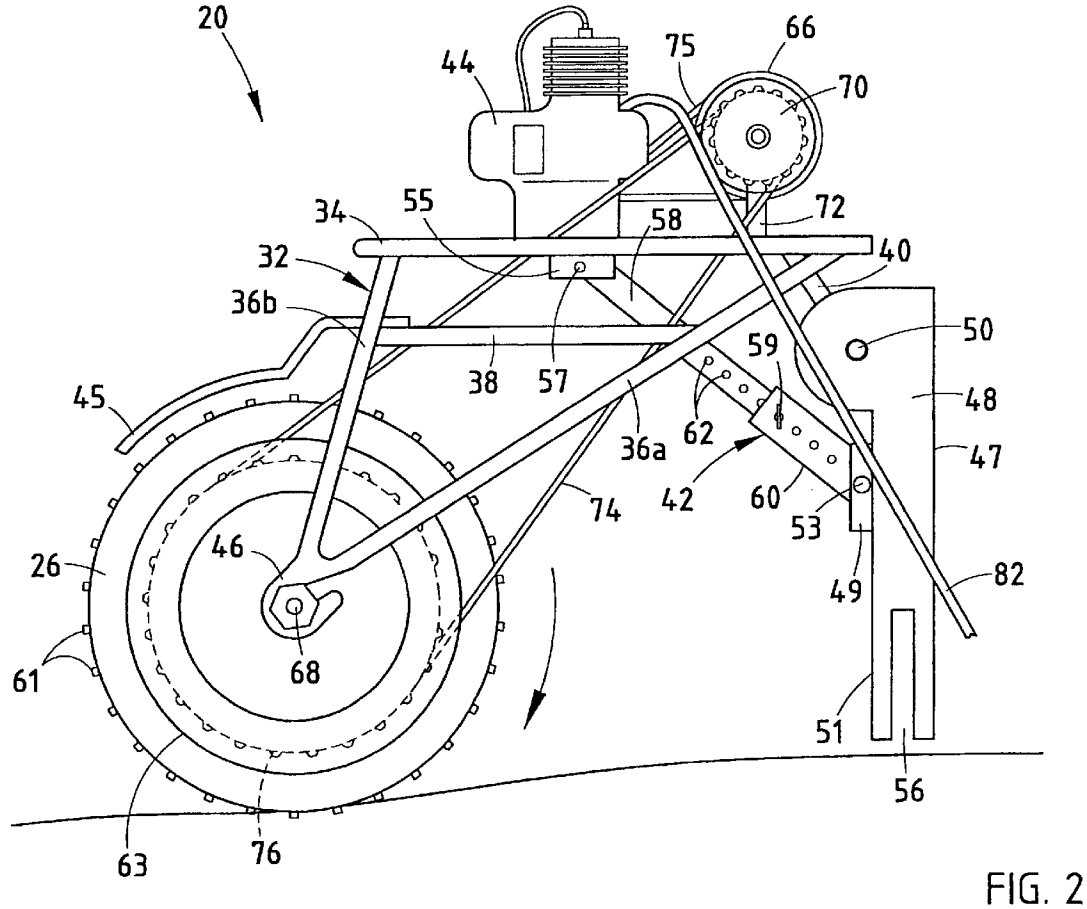
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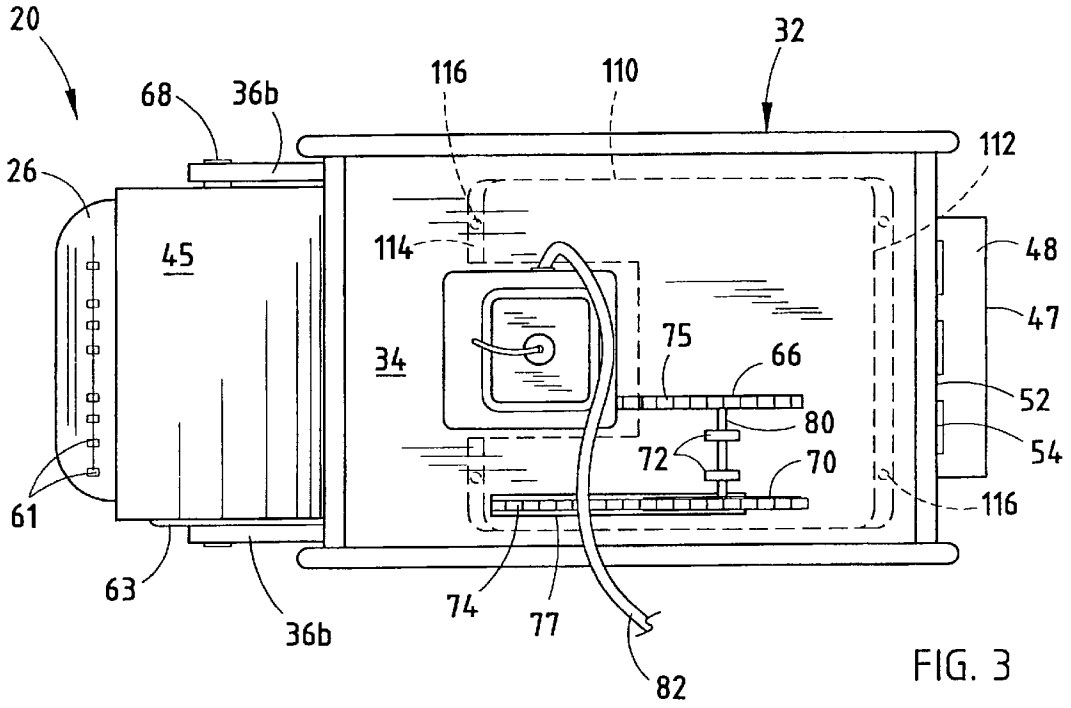
FIG. 2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36b
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FIG. 3

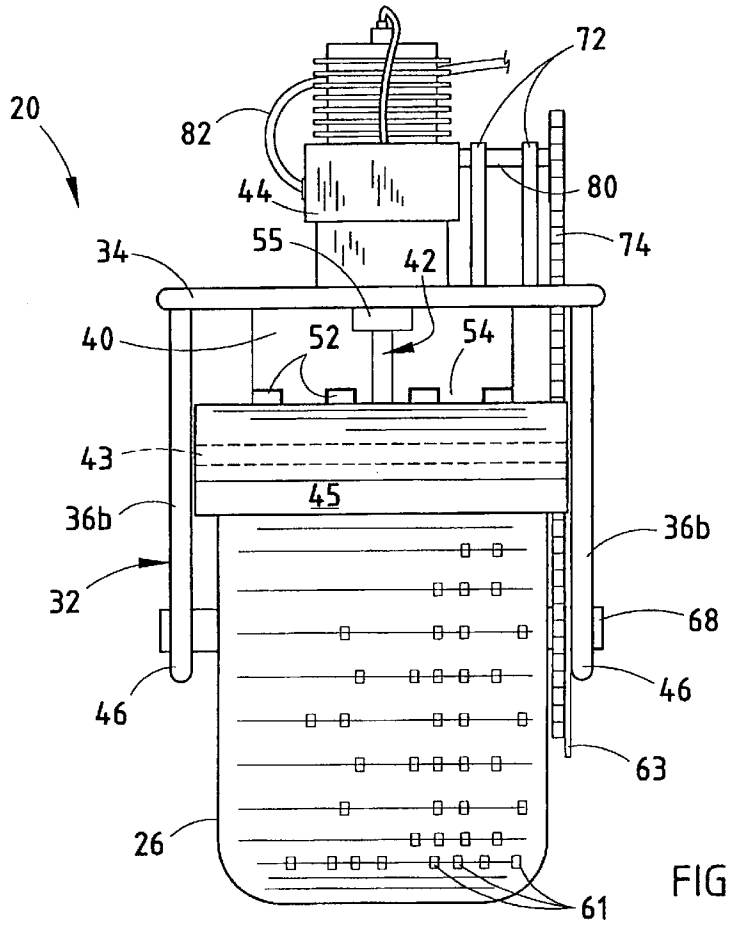
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FIG. 4

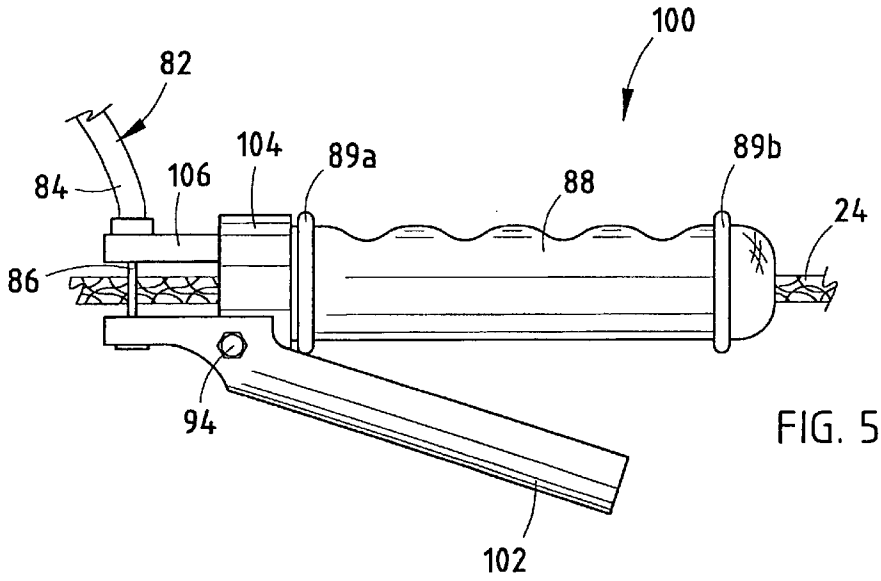


FIG. 5

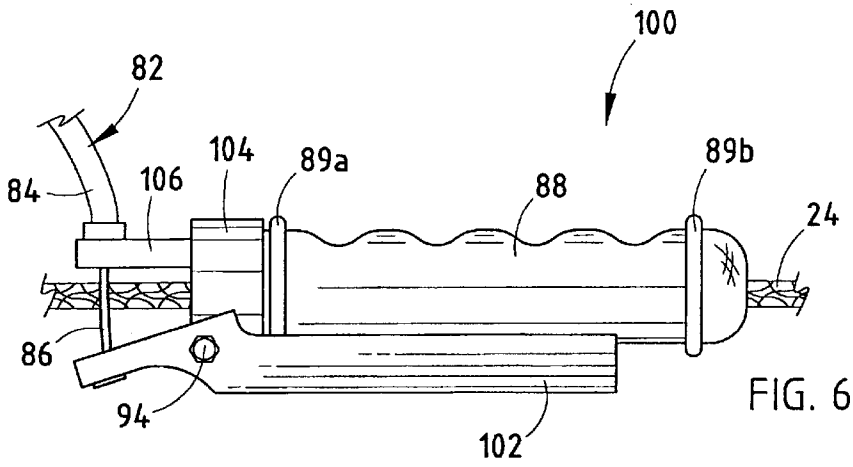


FIG. 6

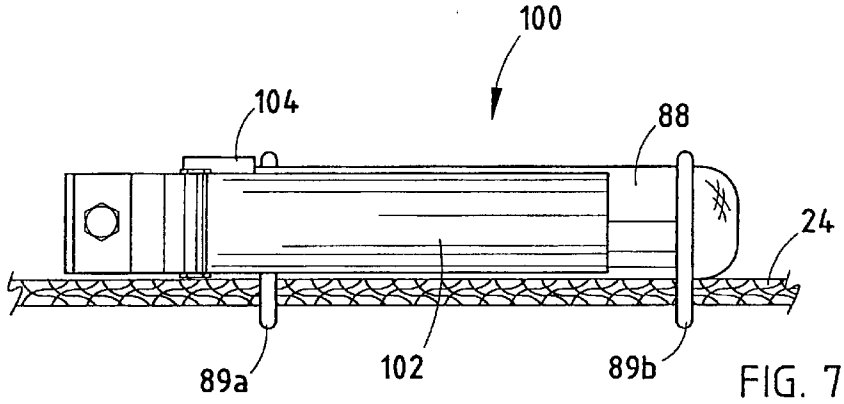
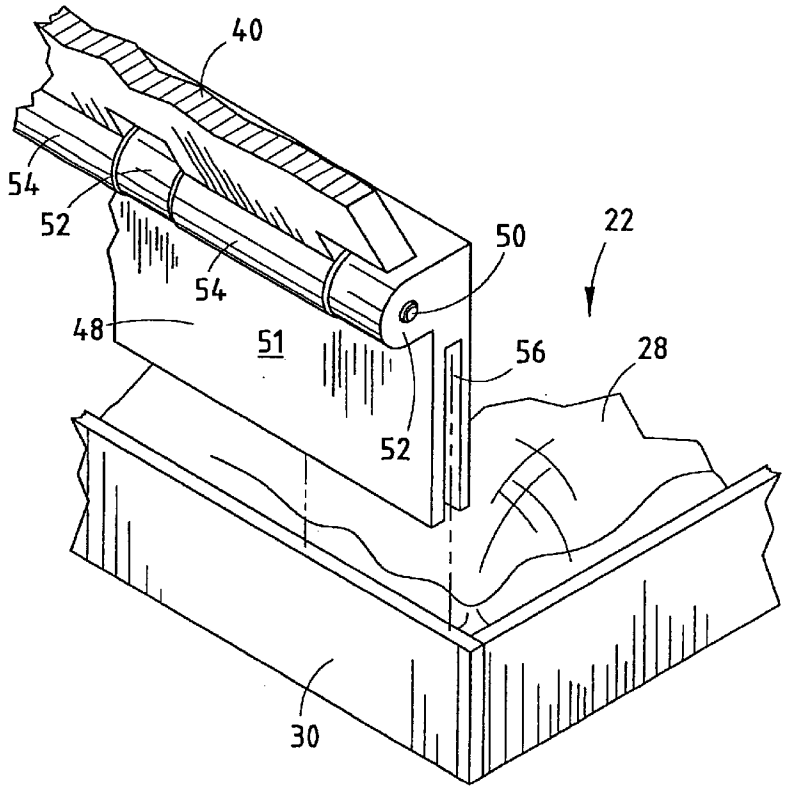


FIG. 7

FIG. 8



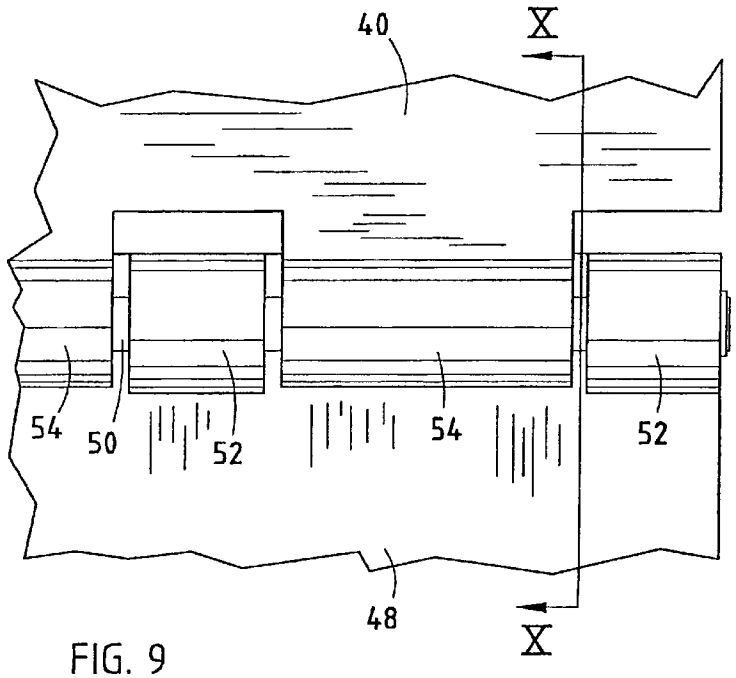


FIG. 9

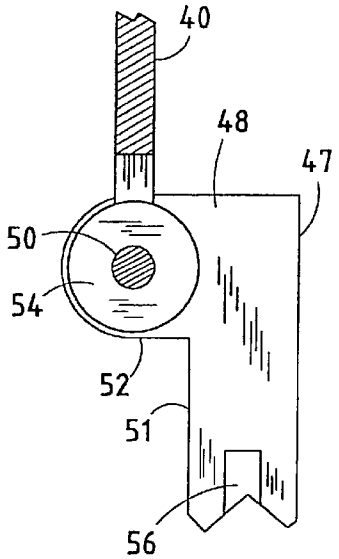


FIG. 10

ICE SHANTY MOVER

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention generally relates to ice shanties, and in particular, to devices for moving ice shanties.

2. Description of the Prior Art

The sport of ice fishing is often enjoyed by taking advantage of ice shanties. Ice shanties provide privacy and a certain protection against the elements to ice fishermen. Ice shanties come in a variety of different shapes and sizes. Some ice shanties are designed to accommodate multiple users, while other shanties are smaller and only can accommodate a single user. Moreover, some ice shanties are fixed structures, while other ice shanties can be raised and collapsed in a manner similar to a tent.

In order to enjoy the advantages of ice shanties, it is of course necessary to move the ice shanty to the desired location of the frozen lake or other body of water. It may also be desirable to move the shanty to different locations on the frozen lake depending on the success in fishing, weather changes, and the relative thickness of the ice. After the user has finished ice fishing, the ice shanty must also be moved back to shore. The movement of the ice shanty can often be a tiresome and challenging task. This task is often aggravated by inclement weather, along with the build up of snow on the frozen lake. In the past, this tiresome task of moving the ice shanty is often been ameliorated by towing or pushing the ice shanty with a snowmobile or automobile. These two techniques, however, are problematic because they can only be employed when the ice is thick enough to support the heavy weight of a snowmobile or automobile. In the past, therefore, an ice fisherman who desired to fish when the ice was not thick enough to support a heavy vehicle was forced to tow his or her ice shanty by hand. As mentioned, this can be an extremely challenging task. Accordingly, it would be desirable to provide an easy and convenient method for moving an ice shanty which could be implemented when the ice is not thick enough to support an automobile or snowmobile.

SUMMARY OF THE INVENTION

The present invention provides an ice shanty mover which enables an ice shanty to be easily moved across icy or snowy surfaces. The ice shanty mover of the present invention is relatively lightweight and therefore can be used during times when the ice is not thick enough to support a heavy vehicle.

An ice shanty mover according to one aspect of the present invention includes a frame on which a motor and a traction wheel are mounted. A chain connects the motor to the traction wheel such that the traction wheel rotates when the motor is activated. A control cable is attached to the motor and includes a hand grip at an end opposite the motor. The length between the motor and the hand grip is sufficient to extend from the motor to the front of the ice shanty so that a person walking in front of the ice shanty can grasp the handle. The control cable allows a person to control the speed of the motor. The ice shanty mover further includes an ice shanty engaging plate which is adapted to selectively abut against the ice shanty and push the ice shanty when the traction wheel rotates.

The ice shanty mover of the present invention provides a lightweight, easy to use method for moving ice shanties. Moreover, the ice shanty mover of the present invention is detachable from the ice shanty, can be used to push multiple shanties, is compact enough to be easily stored and light enough to be easily carried. These and other benefits, results, and objects of the present invention will be apparent to one skilled in the art, in light of the following specification when read in conjunction with the accompanying drawings.

BRIEF DESCRIPTIONS OF THE DRAWINGS

FIG. **1** is a side, elevational view of an ice shanty mover according to one embodiment of the present invention illustrated attached to a folded-down ice shanty;

FIG. **2** is a side, elevational view of the ice shanty mover of FIG. **1** illustrated without a top cover;

FIG. **3** is a plan view of the ice shanty mover of FIG. **2**;

FIG. **4** is a rear, elevational view of the ice shanty mover of FIG. **2**;

FIG. **5** is a plan view of a handle and control switch illustrated in a first position;

FIG. **6** is a plan view of a handle and control switch of FIG. **5** illustrated in a second position;

FIG. **7** is a side, elevational view of the handle and control switch of FIG. **5**;

FIG. **8** is a perspective, fragmentary view of an ice shanty engaging plate on the ice shanty of FIG. **1**;

FIG. **9** is a fragmentary, rear elevational view of a hinge on the ice shanty engaging plate of FIG. **8**; and

FIG. **10** is a sectional view taken along the line X—X of FIG. **9**.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The present invention will now be described with reference to the accompanying drawings wherein like reference numerals correspond to like elements in the several drawings. An ice shanty mover **20** is depicted in FIG. **1** shown attached to an ice shanty **22**. Ice shanty **22** is a collapsible ice shanty and can be setup and folded down in a manner similar to a tent. Ice shanty **22** includes a rigid, outer skirt **30** which surrounds an interior tent-like structure **28** where the fabric fits when the shanty is disassembled. In order to move ice shanty **22**, ice shanty mover **20** is placed at one end of the ice shanty. Ice shanty mover **20** includes a front plate **48** which is adapted to engage skirt **30** in a manner described in more detail below. Ice shanty mover **20** further includes a traction wheel **26** which engages the ground and provides the motive force for moving ice shanty **22**. When using ice shanty mover **20**, the user walks in front of ice shanty **22** and steers the movement of the ice shanty by way of a tow cable or rope **24** attached to either ice shanty **22** or ice shanty mover **20**. By pulling toward the right or left on tow cable **24**, ice shanty **22** can be steered while being pushed by ice shanty mover **20**. Tow cable **24** includes a handle **88** to which a control switch **100** is attached. Control switch **100** is in communication with a motor **44** on ice shanty mover **20** by way of a throttle or control cable **82**. Control switch **100** allows a user to control the speed of movement of ice shanty mover **20**.

Ice shanty **22** includes a frame **32** made up of a top platform **34**, a pair of side supports **36***a, b* extending downwardly from each side of top platform **34**, a hinge support **40**, and an adjustment bar **42** (FIGS. **2–4**). Side supports **36***a, b* extend downwardly from top platform **34** at an angle and meet at an axle support **46**, which is disposed slightly rearwardly from top platform **34**. A horizontal reinforcement beam **38** may be provided between side

supports **36***a* and **36***b* to add additional strength and stability to frame **32**. A rear cross bar **43** extends between side supports **36***a* on each side of ice shanty mover **20** and provides support for a tire cover **45** (FIG. **4**). Tire cover **45** extends rearwardly over a portion of traction wheel **26** and functions in a similar manner to a fender.

Hinge support **40** extends forwardly at an angle from the bottom side of top platform **34**. Hinge support **40** includes a plurality of cylindrical projections **54** through which a transverse bore is defined (FIGS. **8–10**). A pivot pin **50** is inserted through the transverse bore defined in cylindrical projections **54**. Pivot pin **50** also passes through a transverse bore defined in a plurality of upper projections **52** on front plate **48**. Upper projections **52** and cylindrical projections **54** are configured to fit together like teeth such that pivot pin **50** can be inserted through their transverse bores. Front plate **48** and hinge support **40** are thus hingedly connected such that front plate **48** is free to swing about an axis defined by pivot pin **50**. Front plate **48** generally defines a recess **56** extending upward from the bottom of front plate **48**. Recess **56** is dimensioned to receive a portion of the skirt **30** surrounding tent structure **28** on ice shanty **22**. By inserting skirt **30** into recess **56**, ice shanty mover **20** securely and firmly engages ice shanty **22** while it pushes ice shanty **22**. Alternatively, a front surface **47** of front plate **48** can be positioned behind skirt **30** to simply push ice shanty **22** if skirt **30** is too large to fit into recess **56**.

Front plate **48** is pivotally attached to adjustment bar **42** by way of a pivot mount **49** attached to a back surface of front plate **48** (FIG. **2**). Pivot mount **49** includes a pin **53** inserted through concentric bores defined in pivot mount **49** and one end of adjustment bar **42**, respectively. Adjustment bar **42** comprises an inner beam **58** and an outer beam **60**. Outer beam **60** includes a hollow interior dimensioned sufficiently large to receive inner beam **58**. Outer beam **60** is pivotally attached to front plate **48**. Inner beam **58** is pivotally attached to the underside of top platform **34**. Inner beam **58** is pivotally attached to top platform **34** by way of a pivot mount **55** through which a pin **57** is inserted. Pin **57** is inserted in an aperture defined on the upper end of inner beam **58**. Inner beam **58** extends into the hollow interior of outer beam **60** a sufficient distance to allow adjustments to be made to the length of adjustment bar **42**. Length adjustments to adjustment bar **42** are accomplished by a locking pin **59** which is selectively insertable through a plurality of adjustment holes **62** defined on inner and outer beams **58** and **60**. By selectively aligning adjustment hole **62** on inner beam **58** with a selected adjustment hole defined on outer beam **60**, and then inserting locking pin **59** therethrough, the length of adjustment bar **42** can be varied as desired. By varying the length of adjustment bar **42**, ice shanty mover **20** can be used with a variety of different ice shanties **22** having skirts **30** of varying height. Furthermore, adjustment bar **42** can be adjusted to alter the height of traction wheel **26** to accommodate varying depths and wetness of snow. Also, adjustment bar **42** can be used to lift traction wheel **26** off of the ground when ice shanty **20** is not in used.

Traction wheel **26** is rotatably mounted on an axle **68** supported by axle supports **46** (FIGS. **1–4**). Traction wheel **26** can be any variety of types of wheels. As but some examples, traction wheel **26** could be a small automobile snow tire, a tractor wheel, a tire with chains mounted on it, a cleated wheel, or any other type of wheel which provides traction on snowy and icy surfaces. Also, to provide even more traction, it is contemplated that two or more traction wheels **26** could be used on ice shanty mover **20**. Such a plurality of wheels would all be mounted on axle **68** which would be lengthened accordingly. The additional wheels would provide additional surface area contacting the ground, and thereby increase the traction of ice shanty mover **20**. In the illustrated embodiment, traction wheel **26** includes a plurality of cleats **61** disposed around the periphery of traction wheel **26**. A drive gear **76** is mounted around axle **68** in any conventional manner such that the rotation of drive gear **76** will cause traction wheel **26** to rotate. Drive gear **76** is rotated by a chain **74** which is ultimately powered by motor **44** in a manner described below. In the illustrated embodiment, a chain guard **63** is also mounted around axle **68** on a side of drive gear **76** opposite traction wheel **26** (FIG. **4**). Chain guard **63** serves to prevent a user's clothing or other loose items from becoming entangled with drive gear **76** and chain **74**.

A chain **74** connects drive gear **76** to a secondary gear **70** mounted on top platform **34**. Chain **74** passes through an elongated opening **77** defined in top platform **34**. Secondary gear **70** is rotatably mounted on an axle **80** supported by a pair of supports **72** attached to the top surface of top platform **34**. Secondary gear **70** is mounted at one end of axle **80**. On an opposite end of axle **80**, a first gear **66** is mounted. First gear is connected to motor **44** by way of a power chain **75**. When motor **44** is activated, power chain **75** rotates first gear **66** which in turn causes secondary gear **70** to rotate. The rotation of secondary gear **70** causes chain **74** to rotate traction wheel **26** in the direction illustrated in FIG. **2**, which in turn causes ice shanty mover **20** to move. The diameters of secondary gear **70**, first gear **66**, and drive gear **76** can all be adjusted as desired to deliver the appropriate speed, power, and torque to traction wheel **26**. In the illustrated embodiment, secondary gear **70** has a smaller diameter than first gear **66** which reduces the ratio between the number of revolutions of traction wheel **26** and motor **44**. Increasing the diameter of gear **70** would further reduce the number of revolutions of traction wheel **26** per revolution of motor **44**.

In the preferred embodiment, motor **44** includes a conventional torque engaging clutch such that power chain **75** is not activated unless motor **44** achieves a certain minimum number of revolutions per minute. In this manner, ice shanty mover **20** will not move while motor **44** is running unless the speed of motor **44** has been increased by the user as described below. Motor **44** can be a motor of any size provided it is capable of delivering sufficient power to push a shanty. A two cylinder motor, such as from a conventional chainsaw, is believed to be sufficient. Other types of motors can, of course, be used, such as a battery powered electric motor, among other examples.

The speed of motor **44** is controlled by a control switch **100** mounted on a handle **88** (FIGS. **5–7**). Control switch **100** is attached to a throttle or control cable **82** which is in turn attached to motor **44**. Throttle cable **82** includes an outer sleeve **84** and an internal cable **86** which is movable inside of outer sleeve **84**. Control switch **100** comprises a control bar **102** which is pivotably attached to a ring or sleeve **104** mounted around handle **88**. An extension bar **106** extends outwardly from ring **104** and provides a place for mounting throttle cable **82**. Outer sleeve **84** of throttle cable **82** is mounted to extension bar **106**. Extension bar **106** includes an aperture (not shown) through which internal cable **86** passes. Internal cable **86** extends through another aperture defined in control bar **102** and is mounted on an opposite side to control bar **102**. Control bar **102** is pivotable about a pivot axis **94** defined by a pivot pin rotatably secured to ring **104** in any conventional manner. The squeezing of control bar **102** toward handle **88** (FIG. **6**) causes internal cable **86** to be

moved through outer sleeve **84**. The movement of internal cable **86** with respect to outer sleeve **84** controls the speed of motor **44**. When control bar **102** is in a relaxed position (FIG. **5**), the speed of motor **44** is not sufficient to activate the torque engaging clutch. In this manner, control switch **100** effectively acts as a deadman's switch. In other words, only by squeezing control bar **102** toward handle **88** will ice shanty mover **20** begin to move. If a user of ice shanty mover **20** slips or falls, or otherwise loses his or her grip on handle **88**, control bar **102** will return to its relaxed position thereby causing ice shanty mover **20** to stop moving. Control switch **100** thus acts as a safety switch to prevent ice shanty mover **20** from pushing an ice shanty **22** into the user who is walking in front of the ice shanty. It is contemplated that control switch **100** can assume a variety of different configurations from that illustrated. As but one example, control switch **100** could take the form of a button that must be pushed to increase the speed of motor **44** such that the torque engaging clutch is activated. Alternatively, control switch **100** could be completely separate from handle **88**.

Handle **88**, in the illustrated embodiment, is secured to tow cables **24** by a pair of rings **89***a* and *b* attached to opposite sides of handle **88**. Rings **89** have a larger diameter than the diameter of handle **88** such that rope **24** can be threaded through them. The diameter of rings **89***a* and *b,* however, is small enough such that rope **24** preferably is gripped securely enough such that handle **88** does not slide on rope **24**.

In the illustrated embodiment, the steering of ice shanty **22** as it moves is accomplished by a tow cable or rope **24** which is attached to ice shanty **22**. In an alternative embodiment, tow cable **24** can be attached directly to ice shanty mover **20**. In such an alternative embodiment, it is preferred that tow cable **24** is attached to opposite ends of axle **68**. In either embodiment, the pulling of tow cable **24** either right or left will enable the user to steer ice shanty **22** as it is moved across the ice.

Control cable **82** is sufficiently long to extend from motor **44** to the front of ice shanty **22**. In the illustrated embodiment, control cable **82** extends underneath a pair of cable guides **108***a* and **108***b* attached to skirt **30** of ice shanty **22**. Such an arrangement requires attachment of cable guides to ice shanty **22**, which may be undesirable. As an alternative, therefore, cable **82** can simply be draped over tent structure **28** of ice shanty **22** and attached to handle **88**. Alternatively, cable **82** could be replaced by a rigid arm that extends over tent structure **28** and includes a handle and switch for controlling ice shanty mover **20**.

In the preferred embodiment, ice shanty mover **20** includes a cover **110** which conceals first gear **66** and second gear **70** (FIG. **1**). Cover **110** provides protection against loose clothing becoming entangled with these gears and chains **74** and **75**. Cover **110** is illustrated in phantom in FIG. **3**. Cover **100** also serves to prevent control cable **82** from becoming entangled with first gear **66** and second gear **70**. Cover **100** includes a front flange **112** and rear flange **114**. Front and rear flanges **112** and **114** lie flat against top platform **34** and define a series of attachment apertures **116** (FIG. **3**). Attachment apertures **116** allow screws or other fasteners to be inserted therethrough and secure cover **110** to top platform **34**. It will of course be understood that cover **110** can assume a variety of different shapes and configurations other than that illustrated in FIGS. **1** and **3**.

While the present invention has been described in terms of the preferred embodiments discussed in the specification, in will be understood by one skilled in the art that the present invention is not limited to these particular preferred embodiments, but includes any and all such modifications that are within the spirit and scope of the present invention as defined in the appended claims.

The embodiments of the present invention in which an exclusive property or privilege is claimed are defined as follows:

1. An ice shanty mover, comprising:

a motor;

a traction wheel;

a frame on which said motor and said traction wheel are mounted;

a chain connecting said motor to said traction wheel; and

a control cable attached to said motor at a first end and attached to a hand grip at a second end, said control cable being of sufficient length to extend from a back side of an ice shanty to a front side of the ice shanty;

a control switch attached to said hand grip and adapted to control the speed of said motor; and

an ice shanty engaging plate having at least one vertically oriented, generally flat surface adapted to selectively abut against said ice shanty and push said ice shanty when said traction wheel rotates, said ice shanty engaging plate having a first end mounted to said frame and a second end opposite said first end which is free.

2. The ice shanty mover of claim **1** wherein said motor includes a torque engaging clutch, said torque engaging clutch adapted to cause said chain to move only after said motor exceeds a certain number of revolutions per minute.

3. The ice shanty mover of claim **1** further including a ratio reducing gear disposed between said motor and said traction wheel, said ratio reducing gear adapted to reduce the ratio between the number of revolutions of said traction wheel and said motor.

4. The ice shanty mover of claim **1** further including a second traction wheel disposed adjacent the first traction wheel.

5. The ice shanty mover of claim **1** wherein said control switch is adapted to stop said motor when said control switch is not depressed.

6. The ice shanty mover of claim **1** further including a hinge attached to said frame and said ice shanty engaging plate and a recess defined in said plate dimensioned to receive a skirt portion on the ice shanty.

7. The ice shanty mover of claim **6** wherein said frame is pivotable about said hinge.

8. The ice shanty mover of claim **1** further including a cover attached to said frame, said cover disposed above said traction wheel.

9. The ice shanty mover of claim **1** wherein said traction wheel is a tire.

10. The ice shanty mover of claim **7** further including an adjustment bar whereby the pivoting of said frame about said hinge can be selectively locked in different pivot positions.

11. An ice shanty mover, comprising:

a frame having a front and a rear end;

a traction wheel rotatably mounted on said rear end of said frame;

a motor mounted on said frame that rotates said traction wheel;

a hinge pivotally mounted about a horizontal axis to said front end of said frame, said hinge having a first end mounted to said frame and a second end opposite said first end which is free, said free end defining a recess

dimensioned to receive a portion of a skirt on the ice shanty whereby rotation of said traction wheel pushes said hinge against the skirt of the shanty and thereby moves the shanty.

12. The ice shanty mover of claim **11** further including at least one steering cable mounted to said frame, said steering cable mounted to opposite sides of said frame and having sufficient length to extend around the ice shanty.

13. The ice shanty mover of claim **11** further including at least one control cable having first and second ends, said first end mounted to said motor, said second end mounted to a controller, said controller adapted to control the speed of said motor, said control cable being of sufficient length to extend from a back side of an ice shanty to a front side.

14. The ice shanty mover of claim **13** further including a locking mechanism disposed between said frame and said hinge, said locking mechanism adapted to allow said hinge to be locked in different angular pivot positions relative to said frame.

15. The ice shanty mover of claim **14** wherein said motor includes a torque engaging clutch adapted to rotate said traction wheel only when said motor exceeds a certain rotational speed.

16. An ice shanty mover, comprising:

a frame having a top board and a pair of downwardly extending parallel support bars;

an axis rotatably mounted between said pair of parallel support bars;

a traction wheel mounted to said axis;

a motor mounted on said top board, said motor including a torque engaging clutch that causes rotation of a gear attached to said motor only after said motor has achieved a certain minimum number of revolutions per minute;

a chain attached to said gear and to said traction wheel such that rotation of said gear causes rotation of said traction wheel; and

a front, vertical plate having at least one generally flat surface adapted to engage an ice shanty and push said ice shanty when said traction wheel rotates said plate having a first end mounted to said frame and a second end opposite said first end which is free.

17. The ice shanty mover of claim **16** wherein said front plate is hingedly attached to said frame.

18. The ice shanty mover of claim **16** further including at least one control cable having first and second ends, said first end mounted to said motor, said second end mounted to a controller adapted to control the speed of said motor, said control cable being of sufficient length to extend from a back side of an ice shanty to a front side of the ice shanty.

19. The ice shanty mover of claim **18** wherein said controller includes a safety switch that must be activated at all times in order to have said motor turn said traction wheel.

20. The ice shanty mover of claim **19** wherein said vertical front plate is pivotally attached to said frame, and said ice shanty mover includes a locking mechanism for locking said front plate in different pivoted positions relative to said frame.

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