(No Model.) 2 Sheets—Sheet 1.

R. BUSTIN.

LIFE SAVING APPARATUS.

No. 544,956. Patented Aug. 20, 1895.

Fig. 1.

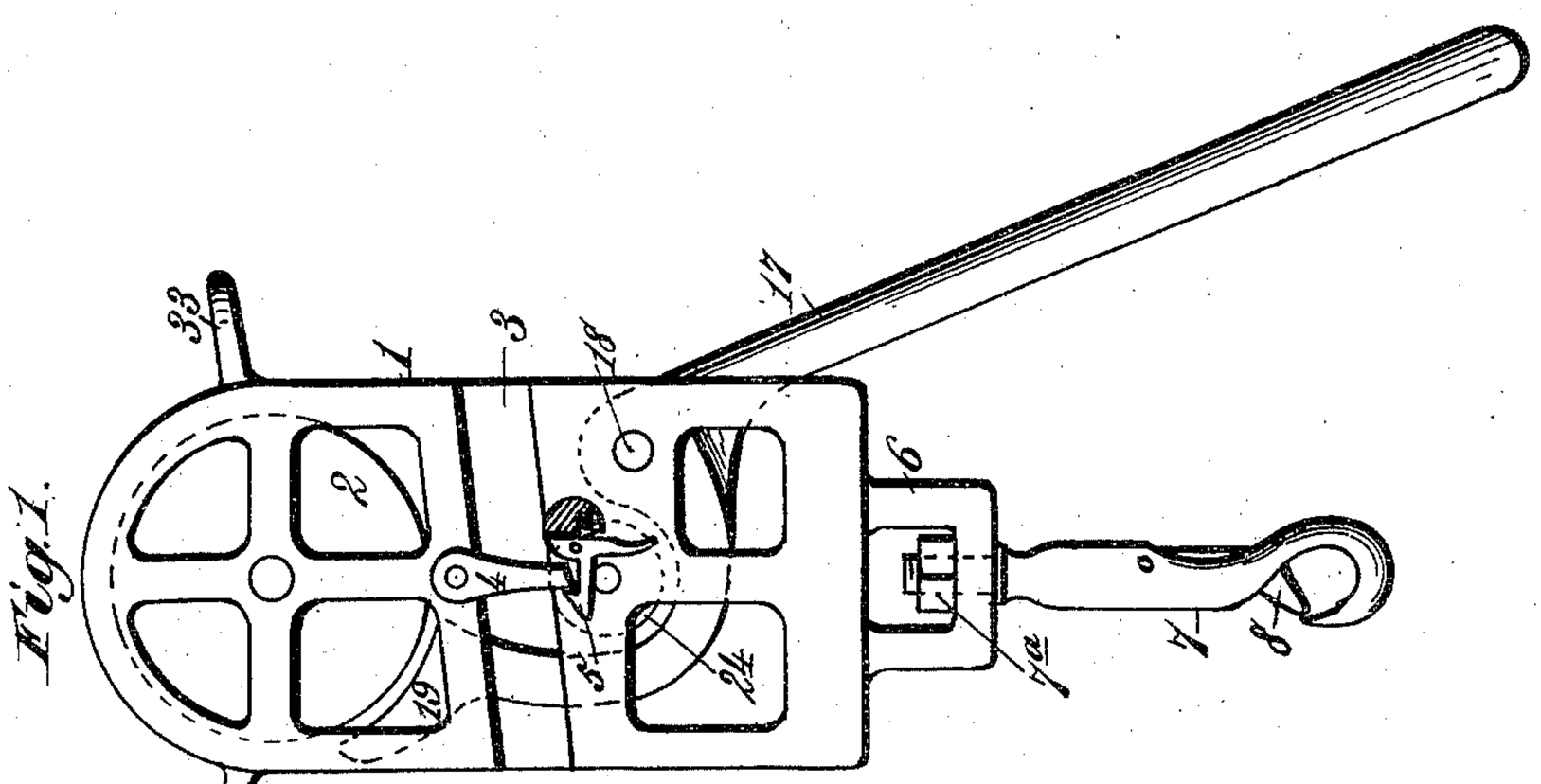


Fig. 2.

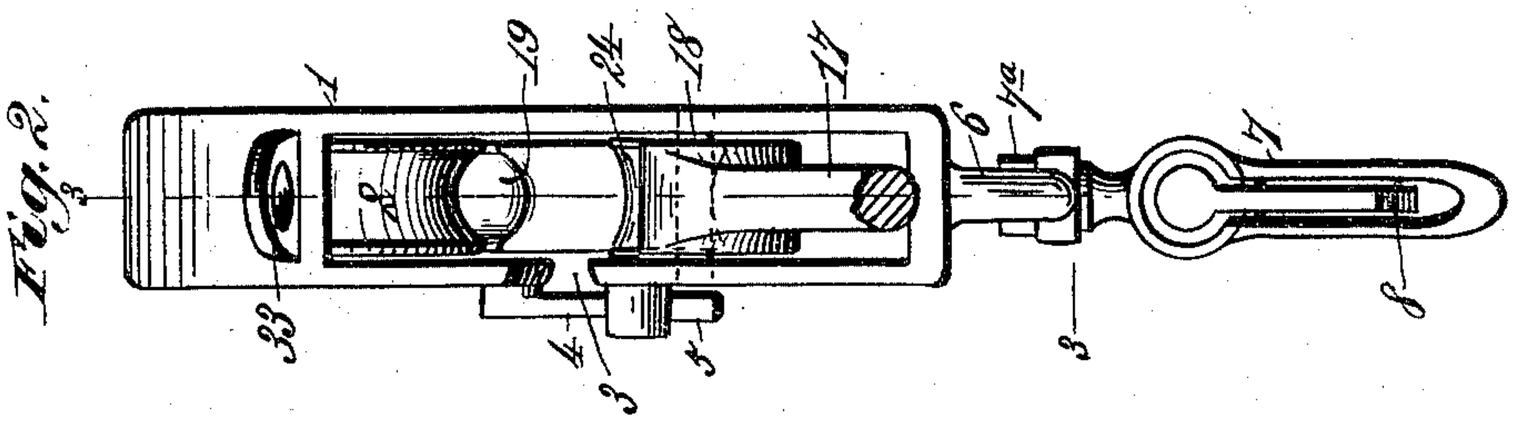
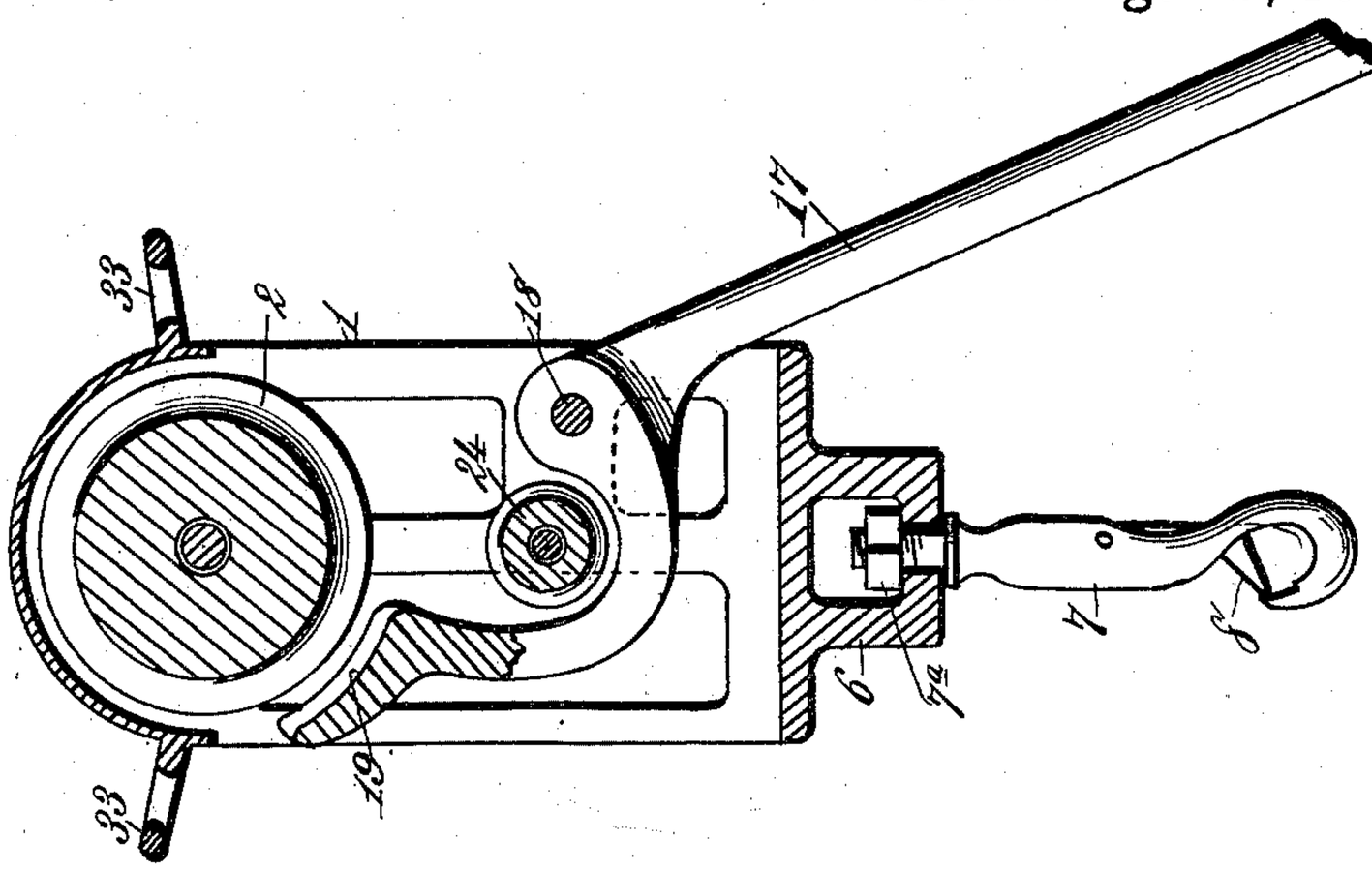


Fig. 3.



Witnesses.
Robert Ewatt.
Wilbey Woodward

Inventor.
Robert Bustin
By James L. Norris.
Atty.

(No Model.) 2 Sheets—Sheet 2.

R. BUSTIN.

LIFE SAVING APPARATUS.

No. 544,956. Patented Aug. 20, 1895.

Fig. 6.

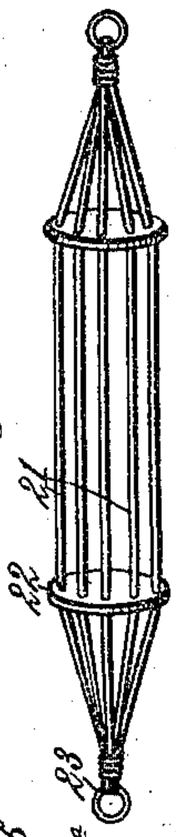


Fig. 7.

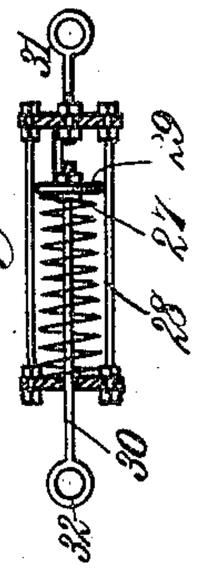


Fig. 4.

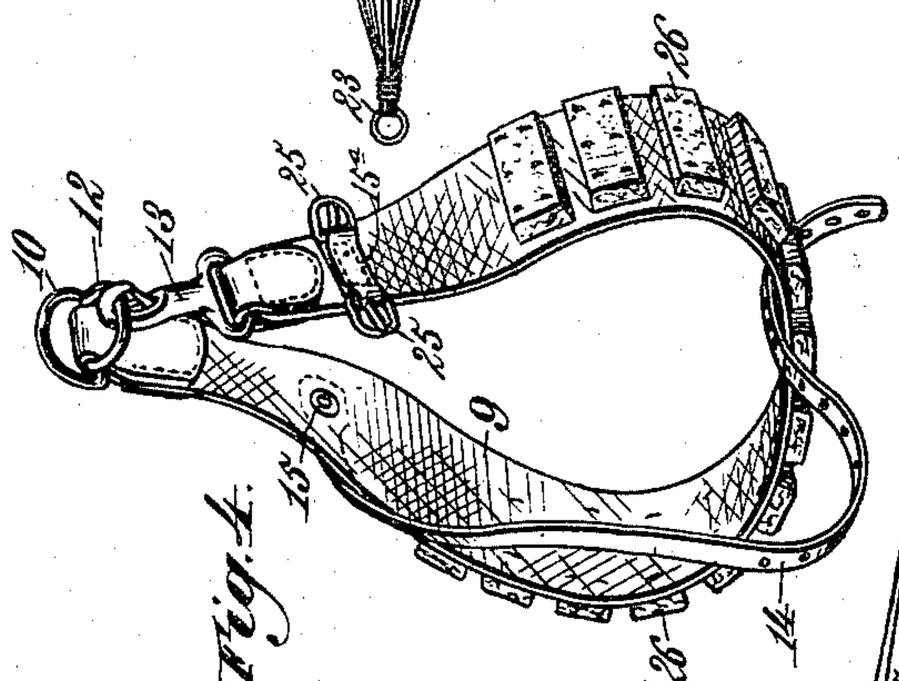
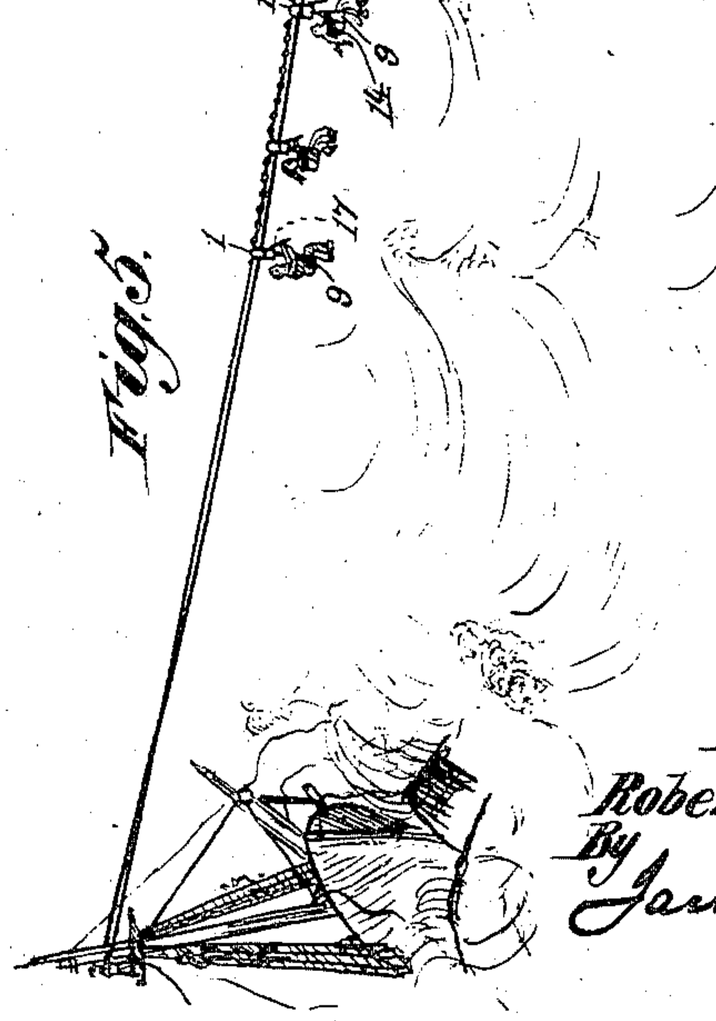


Fig. 5.



Witnesses.
Robt Everett.
Albert S. Worthington

Inventor.
Robert Bustin.
By James L. Norris
Atty.

UNITED STATES PATENT OFFICE.

ROBERT BUSTIN, OF ST. JOHN, CANADA, ASSIGNOR OF ONE-HALF TO ROBERT KELTIE JONES, OF SAME PLACE.

LIFE-SAVING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 544,956, dated August 20, 1895.

Application filed April 17, 1895. Serial No. 546,123. (No model.)

To all whom it may concern:

Be it known that I, ROBERT BUSTIN, a subject of the Queen of Great Britain, residing at St. John, New Brunswick, Canada, have invented new and useful Improvements in Life-Saving Apparatus, of which the following is a specification.

My invention relates to life-saving apparatus, my purpose being to provide means so greatly simplified in construction and operation that the passengers and crew upon a vessel which takes the ground at some distance from the shore in a heavy sea having such weight that the ship is in danger of breaking up in a short time may be easily and rapidly brought to dry land by the life-line ordinarily used in such cases, the escape by way of such a line being rendered so simple and speedy by my invention that the danger of a loss of life by a sudden breaking up of the wreck before the present life-saving methods can be carried out is practically prevented. In short, I aim to provide means whereby any number of persons can be carried from a wrecked ship to shore almost immediately after the life-line is secured at both ends.

It is one essential feature of my invention that I provide means of the utmost simplicity both in construction and operation, whereby any required number of travelers may be placed in very rapid succession upon a life-line immediately after said line is made fast at both ends, the life-belt attached to said traveler being capable of adjustment upon the person almost instantaneously and with such simplicity that neither instructions nor assistance is required to enable a shipwrecked person to use the invention. It is well known that in very many cases of wreck not only passengers having little knowledge of the sea, but even old sailors may under some circumstances wholly lose their presence of mind and become incapable of helping themselves or others. It is especially necessary, therefore, that in life-saving apparatus of this nature the manipulation or adjustment should be of the most simple character, and, as far as practicable, independent of special knowledge and cool judgment. It should also be capable of rapid use and permit the passage of a number of persons in close succession in contradistinction to the method now in use, in which one person is brought from a wreck in a breeches buoy, which must be returned to the wreck by the outhaul of the whip-line and then dragged back by the inhaul with the second rescued person, and so on. I may add that many cases occur in which persons who are to be removed from a wreck become wholly unmanageable, and instances are not wanting in which syncope has been induced by sudden fright under similar circumstances. For these reasons it is essential that my invention shall comprise means of the utmost simplicity and capable of the most speedy and secure attachment, whereby the person to be rescued shall be as secure in passing from the wreck to the shore as if inclosed within the "breeches buoy."

It is one purpose of my invention, therefore, to combine with the life-belt a strap or auxiliary belt, permanently and pivotally connected to said life-belt at a single point, and ordinarily retained on its outer surface by means of loops or keepers, from which said auxiliary belt may be withdrawn by a single quick movement, turned upon its point of pivotal attachment, and buckled or otherwise secured around the body of the person who is to leave the wreck, whereby such person is so securely fastened within the life-belt that escape therefrom shall be impossible until the land is reached.

It is a further purpose of my said invention to provide means by which a traveler with a life-belt attached may be placed upon the life-line or hawser after the latter has been attached to any part of the wreck, said adjustment being made instantaneously and permanently maintained.

It is one object of my said invention also to provide a simple form of friction-brake adapted to be controlled by the person in the life-belt and to check the speed of the traveler upon the life-line or hawser should the inclination of the latter be so great as to require it.

Finally, it is one important purpose of my said invention to provide suitable means whereby a sudden list of the wreck or a con-

tinuous surging of the hull may be permitted without danger of snapping the hawser or tautening it so suddenly and with such force as to injure or remove an occupant of a life-belt. It is also essential to provide a construction whereby either a single traveler or a number of travelers, each having a life-belt attached, may be operated by an "inhaul" and "outhaul," whereby any number of said travelers may be returned to a wreck after those who are rescued are free from the life-belts, the whole series of said travelers being connected temporarily together for this purpose.

For these purposes my invention consists in the novel features of construction and new combinations of parts hereinafter explained and then particularly pointed out and defined in the claims which conclude this specification.

To enable others to clearly understand and to practice my said invention I will now describe the same in detail, making reference to the accompanying drawings, in which—

Figure 1 is a side elevation of a traveler detached from any hawser, but showing the riding friction-brake. Fig. 2 is a front elevation of the same. Fig. 3 is a vertical section taken from front to rear and substantially in the central line of Fig. 2. Fig. 4 is a detail perspective showing one of the life-belts detached from its traveler. Fig. 5 is a diagram showing the operation of the invention. Fig. 6 is a detail view of a preferred form of tension device. Fig. 7 is a detail section of a modified form of tension device.

The reference-numeral 1 in said drawings indicates the frame of that part which I term the "traveler," as it is adapted to move upon the hawser, which is made fast to a wreck and to an anchor upon the shore. It consists of two parallel parts of skeleton form in order to secure the least weight that is consistent with the necessary strength, and in the upper and partly-inclosed end of the frame is a pulley or sheave 2, having a grooved periphery and adapted by its form to ride upon the manila hawser, such as is commonly used by the life-saving stations in this country. The frame is preferably constructed of a suitable metal, such as brass, and is cast in one piece. In one of its parallel sides, between the periphery of the pulley 2 and the bottom of said frame, is formed a transverse opening 3 of such width as to readily permit the hawser or life-line to enter, in order that the sheave or pulley 2 may engage with and rest thereon. This opening 3 is closed by a gate of any suitable form—such, for example, as a pivoted device capable of closing any required part of said opening 3, its end being fastened by a spring-pressed latch.

As one of many different forms of the gate and latch may be employed without any departure from my invention, I have shown a single form only in Figs. 1 and 2, consisting of a single pivotally-mounted device 4, capable of being thrown across the opening 3, and a spring-pressed latch 5 upon the exterior of the frame, adapted to engage the gate and hold it in such position as to retain the hawser.

Upon the lower end of the frame is a hanger 6, in which is swiveled the shank of a snap-hook 7, the latter being confined therein by means of a nut 7^a, screwed on the threaded end of the shank. While the hook may be of any preferred form, I have shown a pivoted latch 8, set in a countersunk recess in the rigid member, so that there shall be no projecting points to foul lines or clothing.

Connected to the snap-hook 7 is one end of the life-belt 9. This belt is of any suitable width and length and is usually formed of strong webbing, although any other suitable material may be used. At one end said belt is provided with two loops 10 and 12, the former being engaged with the snap-hook 7, while the latter furnishes means by which the other end of the life-belt, which is furnished with a strong snap-hook 13, may be attached, so that it will assume substantially the form seen in Fig. 4. In this form it may either pass beneath the thighs and support the user in a sitting position, as shown in Fig. 5, or it may, when necessary, encircle the body beneath the arms, as the circumstances of each case may require. In order to provide an extremely simple attachment for this purpose which may be applied to and removed from the person with great ease and rapidity, I provide the life-belt with an auxiliary belt or strap 14 of any proper material, and fasten the same to the life-belt 9 by a single pivotal attachment 15, which may consist of a simple rivet. This attachment will usually be located near one of the ends of the belt shown in Fig. 4, and from said point the strap 14 will lie on the exterior of the life-belt, or it may be otherwise disposed—as, for example, by simply looping it through the belt 9. At a point on said belt substantially opposite the pivotal attachment 15 a transverse piece 15^a is secured, a buckle 25 being provided at each end to afford a fastening for the free end of the strap 14, so that no care is required in fastening the same, as it may be carried around the occupant of the belt in either direction. The construction is such, however, that by a single rapid movement of the hand the auxiliary belt or strap may be entirely released, and it may then be carried around the body under the arms of a person sitting in the belt, and its ends connected by either of the buckles, or any other suitable fastening, whereby the body may be "trussed," so to speak, in a position which renders escape from the life-belt impossible. The ease and rapidity with which this attachment may be made, removes the difficulty of dealing with such cases—a difficulty which is said to have been sometimes fatal to numbers of persons detained upon a wreck which was rapidly breaking up. The excessive time and

labor required to bring panic-stricken and practically demented persons safely to land gave the heavy and powerful surf time to destroy the mooring of the sea end of the hawser. Had it been possible in such cases to strap the unfortunates into life-belts by a few seconds of simple work and to ship the travelers carrying said belts upon the hawser or shore-line, it is undoubtedly true that all on board might easily have been saved.

In most cases the hawser or shore-line is secured well up upon the lower mast of the wreck, and even when drawn taut there will be, under ordinary circumstances, more or less inclination which may cause the traveler to run at a perilous speed. To check the same when necessary, I provide a friction-brake, consisting of hand-lever 17, the fulcrum 18 thereof being between the parallel sides of the frame 1. From the fulcrum the lever is curved to form a sufficient mass of metal to bring the center of gravity below the periphery of the pulley 2, and its end is provided with a shoe 19, grooved to correspond substantially with the hawser. The handle projects downward and forward and lies in front of a person who sits in the life-belt 9. A moderate force applied to this lever will diminish or check the movement of the traveler almost instantly.

When a ship takes the ground in a heavy sea, and especially when the tide is making, it is possible that the hull may roll or move otherwise, thereby causing the top hamper to vibrate. In such a case a three-inch manila hawser will sometimes snap, and the surging of the same, even if it holds, may be very dangerous to those who escape by it to the shore. In order to maintain the tension and permit the movements of the vessel to be made without injury to the hawser, I provide the tension device shown in Figs. 5 and 6. This device may consist of one or more powerful coiled springs 20, (a plurality of such springs being preferable,) secured at one end to the anchor and at the other end to the hawser. I prefer, however, on some accounts, to use the form shown in Fig. 6, which consists of a series of elastic strands 21, usually formed of highly elastic rubber and passed through heads or spreaders 22. The strands are then brought together and connected to an eye 23, or other suitable fastening device. A structure of this type will give a large degree of elastic yield, sufficient to protect the hawser from dangerous strains and prevent it from surging with such violence as to cause danger to those in the life-belts.

Should the traveler become inverted upon the hawser or shore-line from any cause, provision is made by which it may still move thereon with the minimum friction. For this purpose I mount a grooved roll 24, of less diameter than the pulley 2, upon the lever of the friction-brake, between its fulcrum and the brake-shoe. The lever is substantially balanced upon its fulcrum, so that in case of inversion it will simply turn so far as to bring the roll 24 on the shore-line.

The belt 9 is preferably provided with a series of cork floats 26, formed and attached in any suitable manner, whereby the belt may, upon occasion, serve as a life-preserver. These floats will ordinarily be of the same kind as those used upon the life-belts of the men employed in the life-saving stations. I may also substitute for the tension device heretofore described the form shown in Fig. 7, in which a coiled spring 27 is arranged within a cylinder 28 and compressed between one end of said cylinder and a movable head 29, having a spindle 30, which passes through the spring in the line of its axis and through the head or end of the cylinder 28. The other head is provided with a fastening 31, and the end of the spindle has a like fastening 32, whereby said tension device may be secured to the shore-anchor and to the hawser.

The travelers are each formed or provided with rigid loops 33 on opposite sides of the pulley 2 to form means for the interconnection of a series of the travelers by short chains having snap-hooks or other suitable means of fastening, as seen in Fig. 5. These loops 33 also will serve as a means for attaching the inhaul and outhaul, as also shown in Fig. 5.

What I claim is—

1. In a life-saving apparatus, the combination with a traveler adapted to carry a life-belt or other support, of a pulley inclosed between the sides and adapted to ride on the shore-line, or hawser, one of the sides having an opening to admit said hawser, and a friction-brake consisting of a lever fulcrumed between the sides of the traveler and having a shoe upon one end adapted to compress the hawser against the pulley, the other end of said lever hanging below and in front of said traveler frame, substantially as described.

2. In a life-saving apparatus, the combination with a shore-line or hawser, of a tension-device consisting of a series of elastic strands arranged in apertures in separating heads, or spreaders, their ends being brought together and secured to a fastening device, substantially as described.

3. In a life-saving apparatus, the combination with a traveler adapted to move upon a shore-line, or hawser, of a life-belt attachable to and detachable from said traveler, and an auxiliary belt or strap pivotally connected to the life-belt at one point and normally lying in loops or keepers, on the outer face of the same, whereby a person sitting in the life-belt may be securely strapped therein, substantially as described.

4. In a life-saving apparatus, the combination with a traveler having a detachable life-belt and provided with pulley journaled between its sides and adapted to run upon a

hawser, or shore-line, of a lever fulcrumed between the sides of the traveler and having its end bent, or curved, to pass beneath an auxiliary pulley and rise upon the rear side thereof, said end being provided with a shoe to bear against and press the said shoe against the hawser, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ROBERT BUSTIN.

Witnesses:
JAMES L. NORRIS,
GEO. W. REA.