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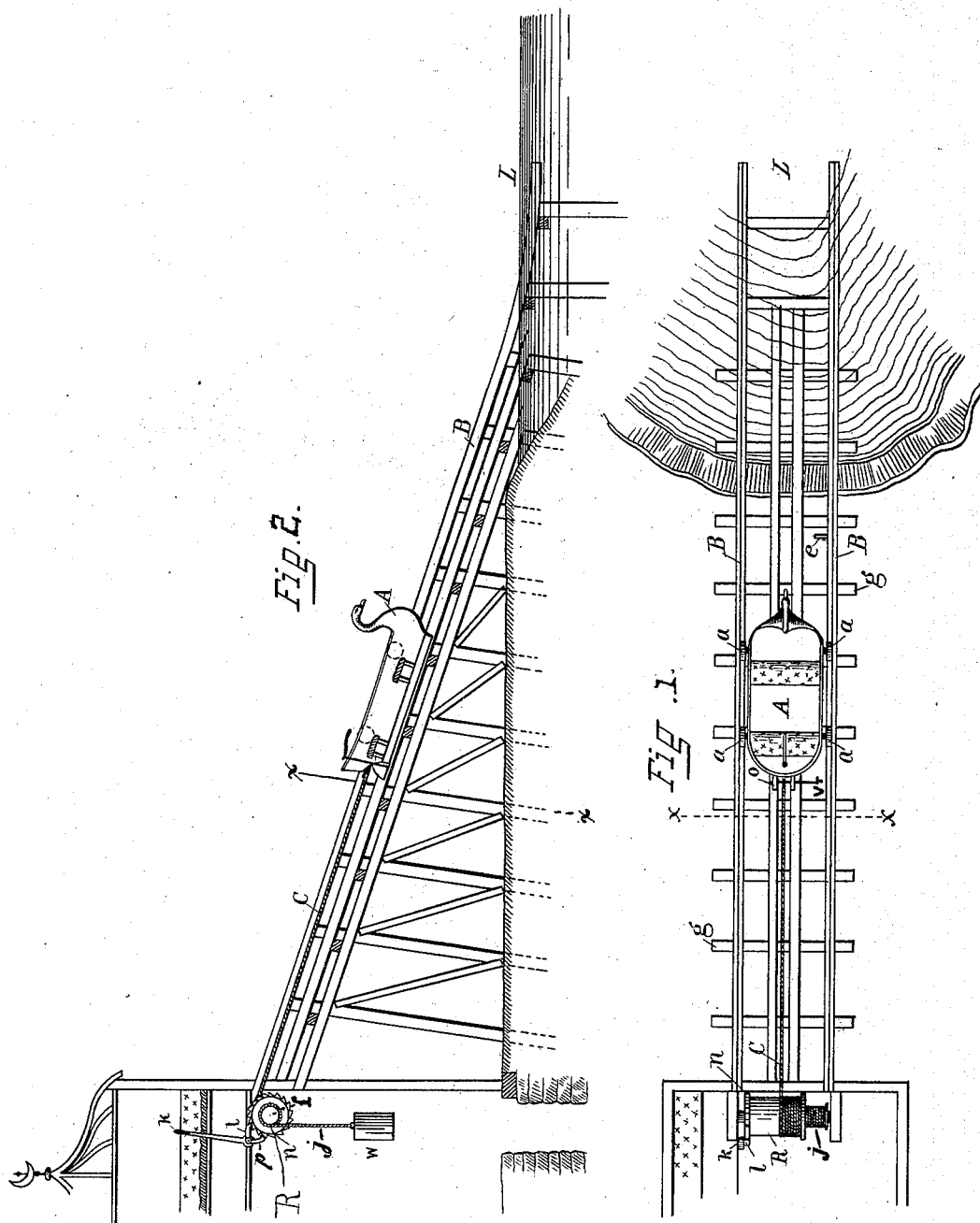
3 Sheets—Sheet 1.

R. A. HARRINGTON.

INCLINED RAILWAY AND WATER TOBOGGANING APPARATUS.

No. 384,843.

Patented June 19, 1888.



Witnesses,

James E. Arnold.
M. C. Arnold.

Inventor,

Randall A. Harrington
By his Attorney *Benj. Arnold.*

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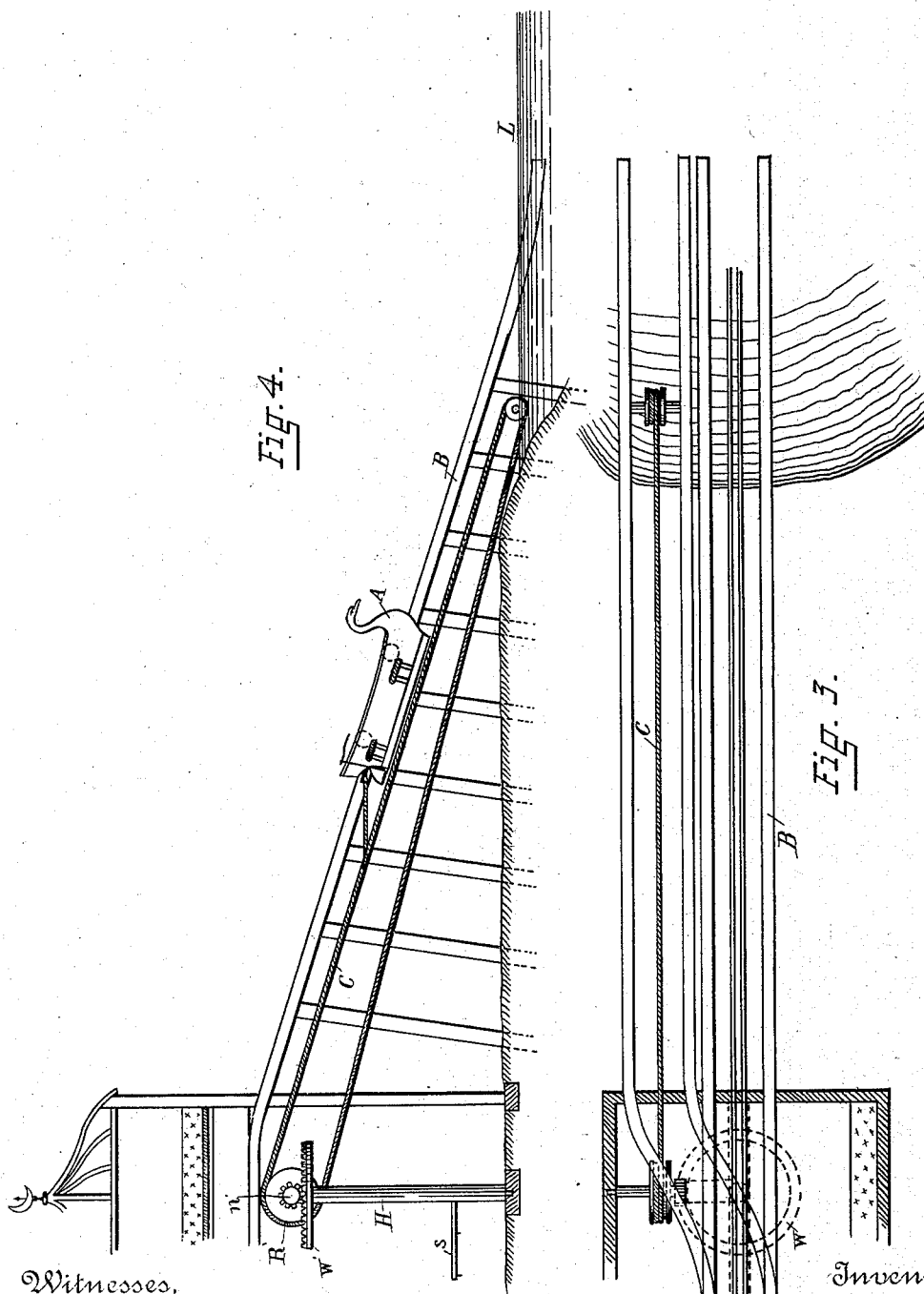
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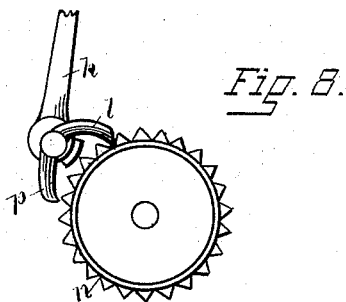
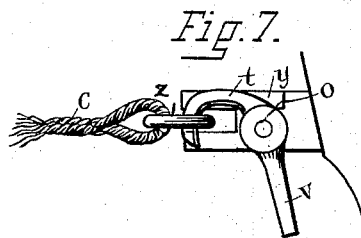
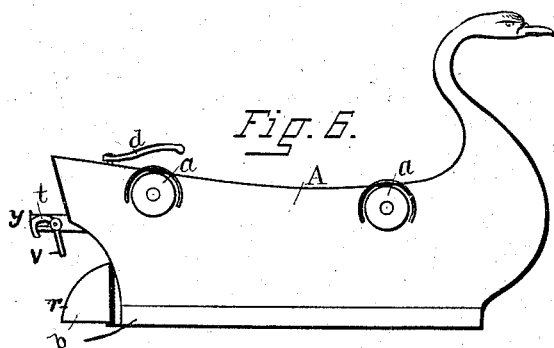
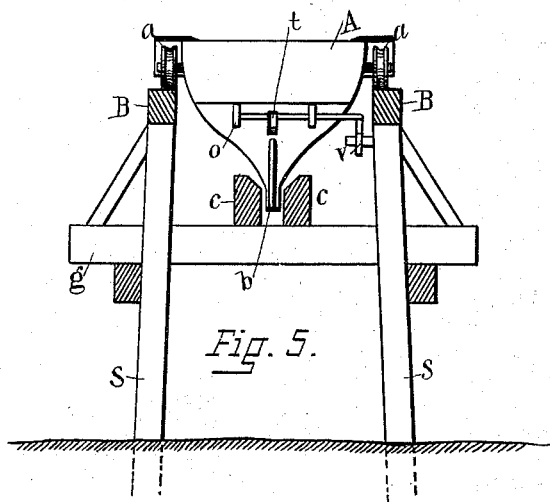
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UNITED STATES PATENT OFFICE.

RANDALL A. HARRINGTON, OF PROVIDENCE, RHODE ISLAND.

INCLINED RAILWAY AND WATER-TOBOGGANING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 384,843, dated June 19, 1888.

Application filed January 24, 1888. Serial No. 261,809. (No model.)

To all whom it may concern:

Be it known that I, RANDALL A. HARRINGTON, of Providence, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Inclined Railway and Water-Tobogganing Apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The subject of this invention is the construction of a wheel-toboggan slide or inclined railway way so combined with a lake or other body of water that the momentum acquired by the car in its run down the railway shall serve to carry it a considerable distance on the surface of the water; also, the mode of constructing a wheel toboggan or car to run on the inclined railway and also to float on the surface of the water in which the railway terminates.

It further includes the mode and means for returning the car to the starting-place at the top of the railway after the trip has been made.

In the drawings, Figure 1 shows a plan view of an inclined railway and car, also of a part of the lake L. Fig. 2 is a vertical longitudinal section of the railway and car, taken through near the middle of the structure. Fig. 3 shows a plan view of the railway with two tracks where the empty cars are returned on a side track, and an independent motive power. Fig. 4 is a vertical longitudinal section taken through the middle of the return-track, Fig. 3. Fig. 5 shows a vertical cross-section of the railway structure on the line *xx* in Fig. 1. Fig. 6 shows a side elevation of the car alone. Fig. 7 is an enlarged view of the devices for securing the cable to the car and for casting it off when required. Fig. 8 shows the arrangement of the two pawls *l p* and the lever *k*.

The inclined railway structure consists of two lines of timbers, B B, each line being supported by a row of posts, *s s*. The rails upon which the wheels *a a* of the car run are laid on the beams B B near their inner edges. Cross-ties S are placed a little lower down and securely fastened to the posts *s s*. Upon these

ties two lighter lines of joists, *c c*, are fastened at a little distance apart and parallel to the rail-beams B above. The structure may be otherwise braced, according to its size, but sufficiently to make it firm.

The car shown in Fig. 6 is made in many respects like a boat, having higher sides than a toboggan, and is water-tight throughout. The front or bows are also made high to prevent the water from coming in over that end when the car strikes in the water. It can be made ornamental by carrying the bows up in the appropriate form of the head and neck of a swan.

The car has two wheels, *a a*, on each side, so placed that their tops come about even with the upper edges of the car. These wheels may be held on two shafts or axles passing through the car from side to side; but I prefer to put them on studs fastened firmly to the sides of the car, so as to avoid the inconvenience of having the axles crossing the car inside.

The bottom of the car is made in the shape of a boat, having a keel, *b*, that lies between the two center strips, *c c*, which assist in guiding the car and preventing the wheels from leaving the track-rails. A rudder, *r*, is also attached in the usual position and provided with a tiller inside the car, that its course may be controlled after leaving the railway.

To return the empty car to the top of the railway after it has made a trip, a cable, C, and a horizontal drum, R, around which the cable is wound, are placed at the top of the railway. The drum R has journals in its ends which are supported in bearings made in the frame-work. One part of this drum R is made smaller than the part that receives the cable, and on this smaller portion, *f*, a rope, *j*, is wound, to which a weight, *w*, is attached. By this arrangement the loaded car in going down the railway draws off the cable from the drum and winds up the rope *j* and weight *w* on the small part of the drum, so that it will be in readiness to draw the empty car up again after a trip has been made by the weight *w* unwinding the rope *j* from the drum and winding the cable up. A ratchet-wheel, *n*, is made fast on one end of the drum R, and two pawls, *l p*, are pivoted to the frame and provided

with an upright lever, *k*, for the purpose of throwing either one of the pawls out of the ratchet-wheel when the car is started. The cable *C* has a ring, *z*, secured to its end to attach it to the car. A short shaft, *o*, is held in bearings in two projecting arms on the rear end of the car, and a hook, *t*, is fastened to this shaft between its bearings. The curve of the outer part of the hook *t* is made nearly in a circle, the center of which is the center of the shaft *o*. This form of the hook is to facilitate the drawing of it out of the cable-ring while there is a strain upon it. At the same time the cable has no tendency to draw the ring off, as it is pulling directly from the center of the shaft; but when the car is about to enter the water at the lower end of the railway the handle *v*, attached to the outer end of the shaft *o*, strikes against the stud *e*, made fast in the frame, (see Fig. 1,) and turns the hook up out of the ring. A forked bar, *y*, is attached to one of the arms that hold the shaft *o*, and in this fork the cable-ring lies while the hook is in it, the lower arm of the fork preventing the ring from falling off, and the upper arm keeps the ring from rising when the hook is turned up out of it in casting off.

The lower end of the railway should have the curve of an inverted cycloid, so as to approach more and more to a line level with the surface of the water, that the car may glide into it without too much disturbance.

Supposing the car to be at the top of the railway, held there by the cable-ring on the hook *t*, and the cable *C* wound up on the drum *R*, which is held by the pawl *p* in the ratchet-wheel *n*, with the weight *w* at the lowest position. Then, the passengers having taken their seats in the car, the pawl *p* is thrown out of the ratchet-wheel by means of the upright lever *k*, and the drum is free to turn and allow the car to run down the railway, unwinding the cable from the drum and winding up the rope *j* with the weight *w*. When the car comes to the lower end of the railway, the handle *v*, Fig. 2, strikes against the stud *e* and throws the hook *t* out of the cable-ring, leaving the car free to glide off on the water.

The keel of the car may be made in a curve or the rudder set so that the car will make a detour of the lake and return to the foot of the railway by the momentum received in descending. The weight *w*, raised by the descent of the loaded car, is held in that position by the pawl *l* until the ring *z* is put on the

hook *t*, when by a reverse motion of the upright lever *k* the pawl *l* is thrown out of the ratchet-wheel *n*, and the drum is free to be turned back by the weight *w*, which, by winding up the cable *C* on the drum *R*, will draw the car, after having been relieved of its load, up to the top of the railway, where it will be held by the pawl *l*, which drops on the wheel when the other pawl, *p*, is thrown out.

In Fig. 3 and 4 I show the mode of returning the empty cars on a side track independently of the descending car by using an endless cable operated by such motive power as may be found convenient, as horse-power, steam-engine, &c. In this plan the endless cable *C* is carried around a grooved pulley, *R'*, secured to a shaft held in bearings in the frame. A pinion-gear, *n'*, is fast on the end of this shaft, and is driven by a large gear-wheel, *w'*, fast on the upper end of the upright shaft *H*. A horizontal draft-bar, *s'*, is inserted in the shaft *H*, to which a horse can be attached to operate the cable; or a steam or other engine can be used by making the usual connections.

The empty car is attached to the cable in any convenient way, and when it arrives at the top of the track is disconnected from the cable and switched onto the descending track. This plan has the advantage of not imposing the work of drawing up the empty car on the descending car, and greater speed can be attained with less elevation.

Having thus described my improvements, what I claim as my invention is—

1. The combination of a descending railway-track and another track furnished with a cable for drawing up the empty cars, a motive power to operate said cable, and a body of water, substantially as set forth, and for the purpose specified.

2. The combination, with an inclined railway-track terminating in a body of water, and a car fitted to go from one to the other, of the drum *R*, cable *C*, rope *j*, weight *w*, ratchet-wheel *n*, and pawls *l* *p*, with lever *k*, substantially as and for the purpose set forth.

3. The shaft *o*, hook *t*, forked bar *y*, arm *v*, and stud *e*, in combination with the cable *C*, ring *z*, and car *A*, substantially as described, and for the purpose set forth.

RANDALL A. HARRINGTON.

Witnesses:

FRANK MOSSBERG,
BENJ. ARNOLD.