J. HARTNESS.

Car or Boat Attachment for Balloons.

No. 168,486. Patented Oct. 5, 1875.

Fig. 1

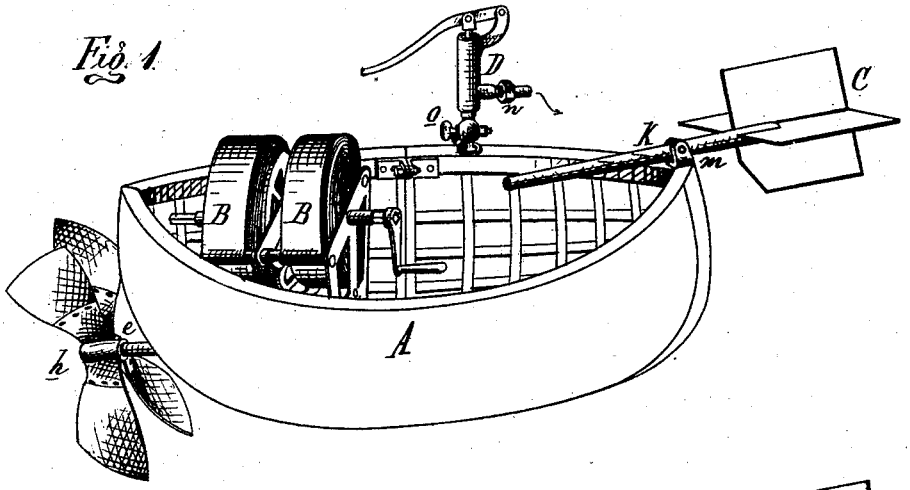


Fig. 2.

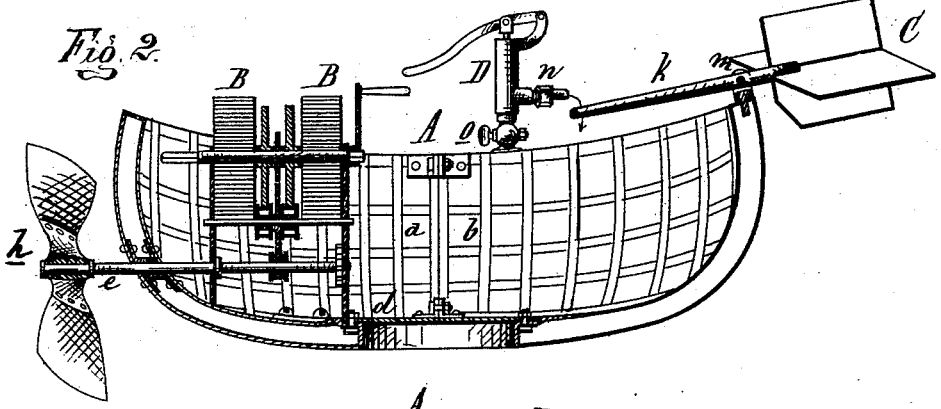
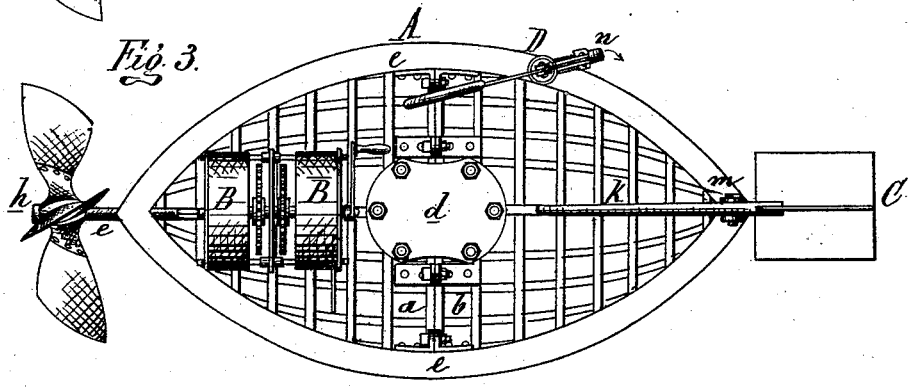


Fig. 3.



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JAMES HARTNESS, OF DETROIT, MICHIGAN.

IMPROVEMENT IN CAR OR BOAT ATTACHMENTS FOR BALLOONS.

Specification forming part of Letters Patent No. **168,486**, dated October 5, 1875; application filed March 6, 1875.

To all whom it may concern:

Be it known that I, JAMES HARTNESS, of Detroit, in the county of Wayne and State of Michigan, have invented an Improvement in Car or Boat Attachments to Balloons, of which the following is a specification:

The nature of this invention relates to certain improvements in the construction of a car, such as is usually attached to balloons, so that said car may serve the purpose of a life-boat when necessary, and that will be provided with suitable devices for propelling it, whether immersed in water or the atmosphere, and apparatus for giving direction to its motion in the air.

The invention consists, first, in the peculiar construction of the car or boat, which is made in two sections, so arranged that they can be bolted together, so as to make a perfect whole; second, in providing said car or boat with a suitable pump and connections, so arranged that the gas, at will, may be drawn from the balloon, and condensed within the walls of the boat or car, thereby avoiding the necessity of carrying ballast, and also avoiding a waste of gas, such as arises when gas is discharged from the balloon to decrease its bouyancy; also, in combination with said car or boat, a propelling apparatus; also, in combination therewith of a device for giving direction to the motion of the balloon, as more fully hereinafter described.

The invention is more especially designed to be an improvement upon a patent for improvements in balloons, as granted to me, bearing date the 19th day of May, 1874.

Figure 1 represents a perspective view of my device of car or boat. Fig. 2 is a longitudinal vertical section through the boat or car from end to end. Fig. 3 is a plan view.

Like letters refer to like parts in each figure.

In the drawings, A represents the boat or car, which may be made, preferably, in two sections, *a b*, in such manner that when the two sections are properly secured together a perfect whole will be the result. This boat or car may be made with any suitable frame, covered with any suitable material, which is gas or water tight. Outside this covering, which fits the frame, is provided another cover of flexible material, *c*, which is also impervious to the action of water or gas. This latter cover is loosely attached, and so arranged that it can be inflated with gas, when desired, under pressure. In the bottom of this boat there is an opening equal in area to that of the space inclosed by the guide-poles *e*, as described in said aforesaid Letters Patent, so that the boat or car may be placed, before the various sectors of the balloon are placed, in position. After being so placed the two sections *a b* are bolted together. This hole or opening is provided with a cap, *d*, so arranged that after the ascension has taken place sufficiently far as to allow the boat or car to clear the top of said guide-poles, the cap may be bolted to place, thereby making the boat or car water-tight at that point. B represents one or more coil-springs, placed near the stem of the boat or car, and connected by suitable gearing with the propeller-shaft *e*, so that when moved up the recoil of the springs will give motion to said shaft, to which, on its outboard end, is secured the propeller-wheel *h*. C is a rudder or guide, constructed somewhat like a four-wing valve, secured to a stem or shaft, *k*, the latter being secured in a crotch, *m*, at the stem or bow of the boat, in such manner that the rudder may be turned to the right or left, or be elevated or depressed, at will, to cause the boat or car to turn to any desired direction, or to ascend or descend at will. D is a pump, one of which should be provided for each sector of the balloon described in said aforesaid Letters Patent; or, in case the balloon is of the ordinary construction, but one pump is necessary. This pump is provided with a coupling, *n*, which is designed to connect with a hose or pipe, (not shown,) the opposite end of which communicates with the interior of the balloon. It is also provided with a stop-cock, *o*. When it is desired to descend, or to diminish the buoyancy of the balloon, the gas is, by means of the pump, drawn from the balloon, and forced into the space between the inner and outer coverings of the frame of the car or boat, where it may be compressed and held in store, being prevented from escaping by the stop-cock.

When it is desired to increase the buoyancy

of the balloon the stop-cock may be opened, when the gas will escape, and escape into the balloon, and being released from the compression hereinbefore described, its expansion will restore it to its previous lifting power.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The boat or car A, made in two sections, *a b*, provided with two water and air tight coverings, so arranged as to leave space between the two for the purposes of inflation, and provided also with cap *d*, substantially as described, and for the purposes set forth.

2. The combination, with the boat or car A, made in two sections, *a b*, and provided with two water and air tight coverings, of the pump D, connecting with the space between said coverings, and having the stop-cock *o* and coupling *n*, adapted to be connected with the interior of a balloon, substantially as and for the purpose set forth.

JAMES HARTNESS.

Witnesses:
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