

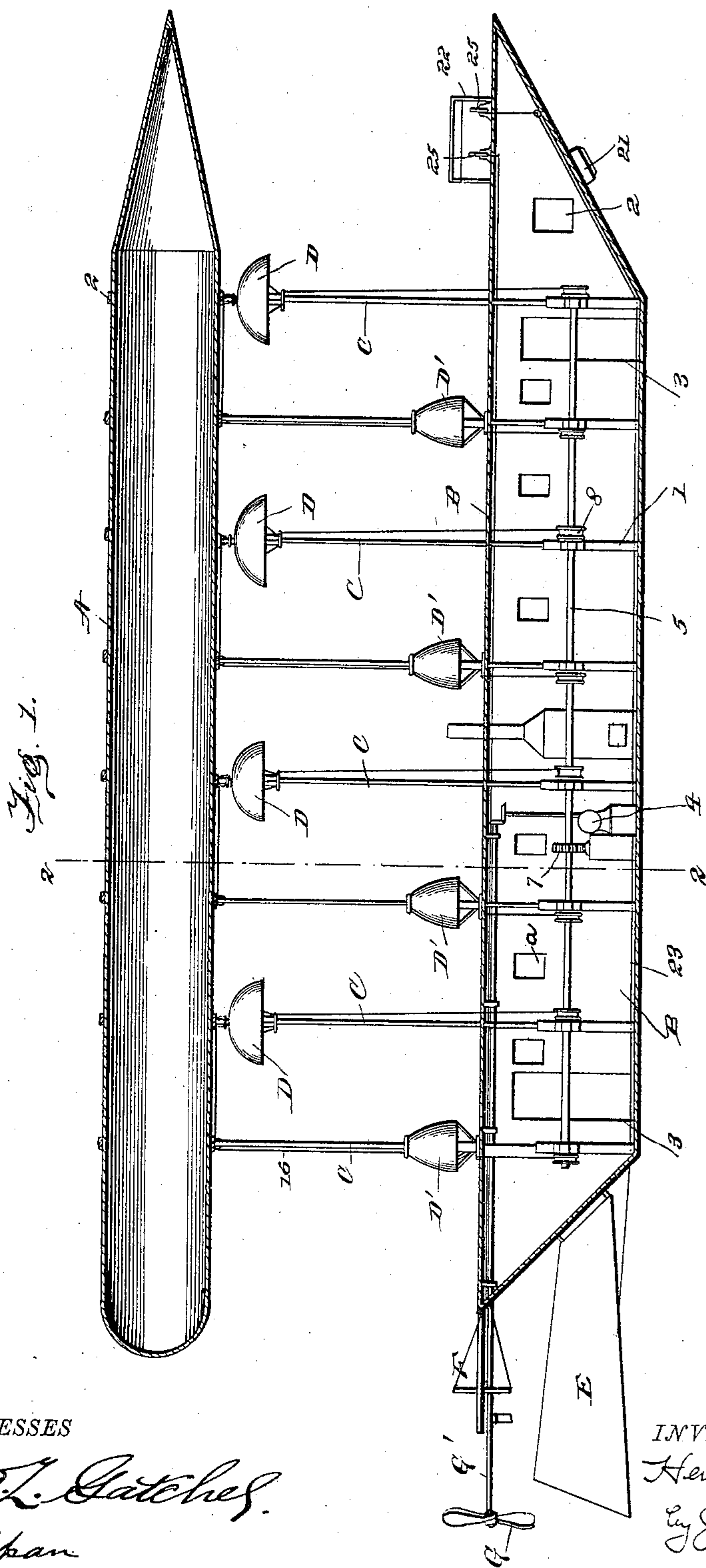
(No Model.)

2 Sheets—Sheet 1.

H. HEINTZ.
AIR SHIP.

No. 580,941.

Patented Apr. 20, 1897.



WITNESSES

Thos. L. Gatches.
John Appan

INVENTOR,

Henry Heintz.
By John Wedderburn
Attorney

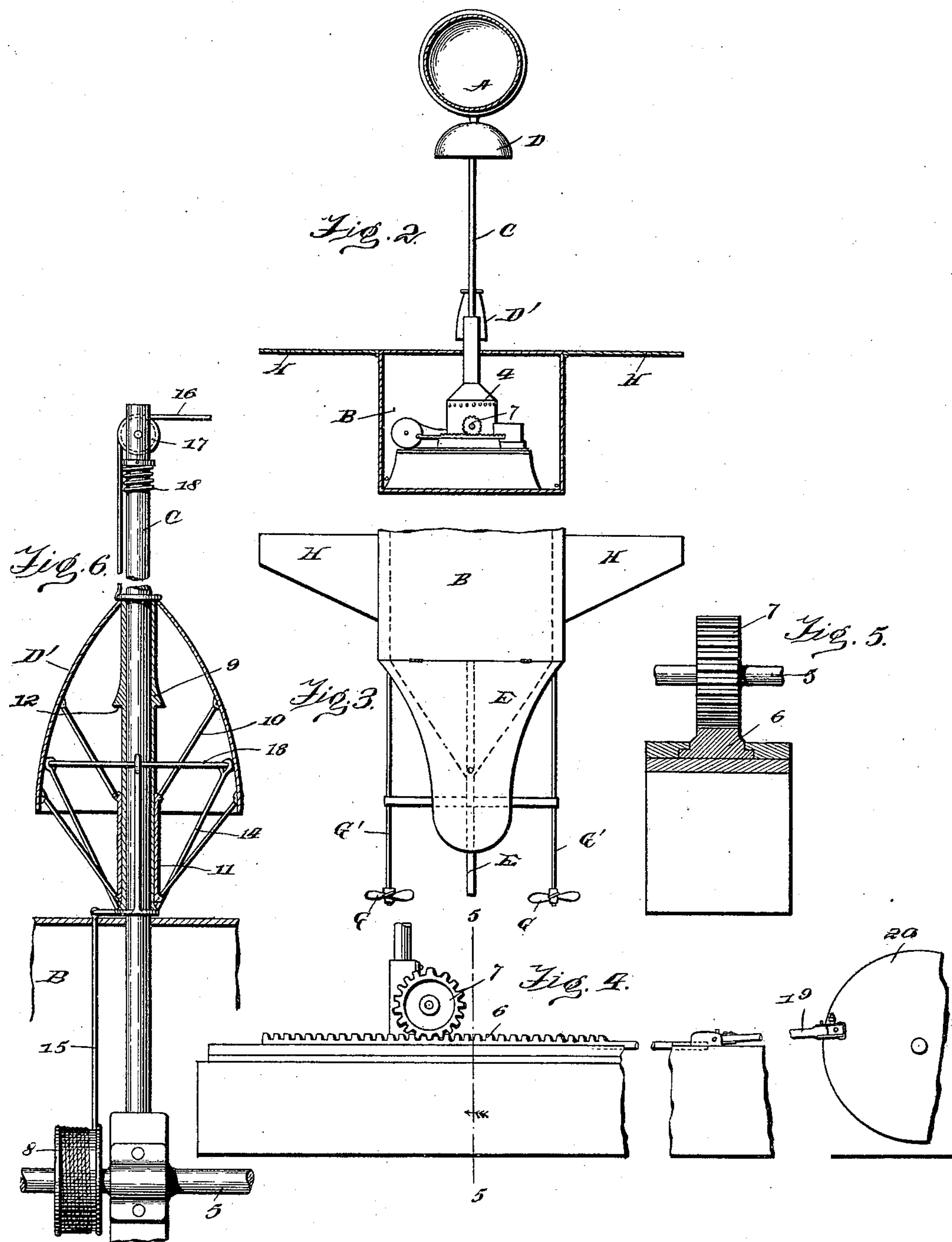
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UNITED STATES PATENT OFFICE.

HENRY HEINTZ, OF ELKTON, SOUTH DAKOTA.

AIR-SHIP.

SPECIFICATION forming part of Letters Patent No. 580,941, dated April 20, 1897.

Application filed October 1, 1896. Serial No. 607,561. (No model.)

To all whom it may concern:

Be it known that I, HENRY HEINTZ, a citizen of the United States, residing at Elkton, in the county of Brookings and State of South Dakota, have invented certain new and useful Improvements in Air-Ships; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in air-ships; and it consists, essentially, of a cigar-shaped or cylindrical balloon and a structure suspended therefrom and adapted to receive passengers, freight, and motive power. Screw propelling-wheels are used for supplying the power to propel the ship, and reciprocating parachutes are employed for elevating the otherwise unbalanced weight of the structure.

In the accompanying drawings, forming a part of this specification, Figure 1 is a vertical longitudinal section, partially in side elevation. Fig. 2 is a transverse section taken on the line 2 2 of Fig. 1. Fig. 3 is a top plan of the rear end portion of the vessel. Fig. 4 is a fragmentary longitudinal section. Fig. 5 is a vertical transverse section taken on the line 5 5 of Fig. 4. Fig. 6 is a detail section of one of the parachutes and accompanying parts.

In said drawings, B indicates the car or structure, and A the balloon or buoyant structure. The plurality of upright posts C are secured at their lower ends within sockets 1, fastened to the said vessel, and are provided at their upper ends with loops 2, fastened to the said balloon. The said car is provided with windows *a* and doors 3, while near the center of the same is a motor 4. The said motor is geared to longitudinal shafts G', that extend beyond the rear end of the car B and are provided with propelling-wheels G. The said motor 4 is also geared to the shaft 5 in such a manner as to impart a reciprocating rotary motion thereto. The gearing consists of a longitudinally-reciprocating transverse rack 6, intermeshing with a gear-wheel 7 upon the said shaft 5. The shaft 5 is mounted in bearings upon the sockets or supports 1, adjacent to which these supports 1 are provided with a winding-pulley 8.

The upright posts C serve as guides for the lifting-parachutes D and D'. The said parachutes are carried by a sleeve 9, which slides upon the posts C, and the brace-rods 10 of said parachutes are connected at their inner ends to the sliding collar 11 upon the sleeve 9. The upward movement of the sliding collar 11 is limited by the sliding collar 12 upon the sleeve 9, while the downward movement thereof, and consequently the extent to which the parachute is closed, is controlled by a ring 13, supported upon the sleeve 9 by means of the rods 14. The lower end of the sleeve is connected by a cord or cable 15 with the winding-pulley 8 upon the shaft 5. The said parachutes are arranged in pairs—that is to say, two parachutes are connected together by means of a cord or cable 16, fastened to the upper end of the sleeve 9, extending upwardly and around a pulley 17 at the upper end of the posts C, then around a similar pulley on an adjacent post, and then connected with the sleeve of the parachute upon this post.

The lower cables 15 of the parachutes in a pair are connected with the winding-pulleys 8 in such a manner that the rotation of the shaft winds up one of the cables and unwinds the other. In this way it will be seen that the rotation of the shaft elevates one of the parachutes and lowers the other. The opening and closing of the parachutes are controlled by the resistance offered by the atmosphere.

To prevent the parachutes from stopping suddenly when they are at the upper limit of their movement, a spring-cushion 18 is situated at the upper end of the posts C to come in contact with the upper end of the sleeve 9. As a convenient construction for imparting the reciprocating movement to the rack-bar said rack-bar is connected by means of a pitman 19 with a rotatable disk 20, geared to said motor 4.

The forward end of the car is provided with a search-light 21 and with a pilot-house 22. In said pilot-house is situated the mechanism controlling the motor and also the steering devices. The said steering devices consist of two rudders E and F. The rudder E is pivoted so that it can be moved horizontally and thus control the lateral movement of the vessel, while the rudder F moves vertically

and serves to elevate or depress the forward end of the vessel. These rudders E and F are connected by cables 23 and 24 with wheels 25 in the pilot-house, or by other convenient devices by which they can be moved.

It will be understood, of course, that the balloon practically balances the vessel, and that by the use of the parachutes the vessel can be elevated to any desired altitude, while to assist in supporting the vessel while in motion horizontal plates H are fastened to the side of the ship to serve to increase the floating capacity thereof.

As the balloon has a floating capacity nearly equal to that of the entire mechanism, the whole may be easily raised in the air, and its descent will be very slow, even if the entire mechanism is stopped. It is thus possible to easily start and stop my device. It may be made to navigate the air in any direction, up or down or horizontally, against the wind, or with it.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an air-ship, the combination of a balloon having sufficient floating power to very nearly raise the whole ship, posts depending from the same, a body fastened to the lower end of said posts with parachutes surrounding said posts, means for reciprocating said parachutes, and means for causing them to open on the downward motion and close on the upward motion, substantially as described.

2. In an air-ship, the combination of a balloon having sufficient floating power to very nearly raise the whole ship, posts depending

from the same, a body fastened to the lower end of said posts with parachutes surrounding said posts, means for reciprocating said parachutes and means for causing them to open on the downward motion and close on the upward motion, rudders attached to said ship, screw-propellers for giving motion thereto, and means for operating said devices, substantially as described.

3. In an air-ship, the combination with a car provided with buoyant propelling and steering devices, of a motor for operating the propelling devices, and a series of reciprocating parachutes connected with and operated by said motor, substantially as described.

4. In an air-ship, the upright posts and pairs of parachutes mounted to slide upon said posts and connected together at their upper ends, and a motor for raising and lowering said parachutes, substantially as described.

5. In an air-ship, a plurality of upright shafts provided at their upper ends with pulleys and cushions, parachutes upon said shaft, devices for raising and lowering said parachutes, said parachutes consisting of a sleeve, a sliding collar upon said sleeve, a stop to limit the movement of said collar in one direction, and a ring carried by said sleeve to limit the closing of said parachutes, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

HENRY HEINTZ.

Witnesses:

A. L. SLOSS,

EDWIN E. POWDERLY.