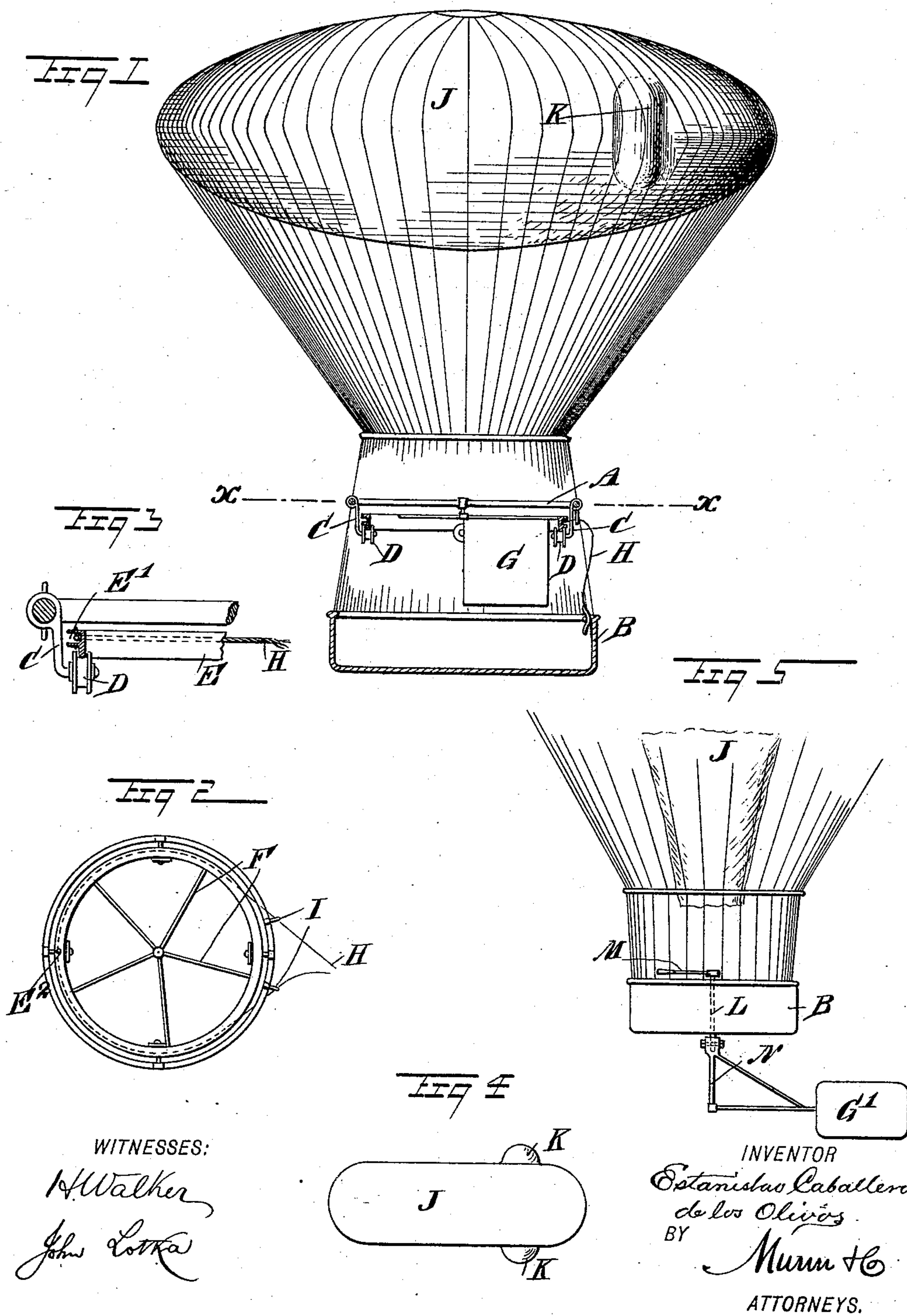


(No Model.)

ESTANISLAO CABALLERO DE LOS OLIVOS.
BALLOON.

No. 551,995.

Patented Dec. 24, 1895.



UNITED STATES PATENT OFFICE.

ESTANISLAO CABALLERO DE LOS OLIVOS, OF NEW YORK, N. Y.

BALLOON.

SPECIFICATION forming part of Letters Patent No. 551,995, dated December 24, 1895.

Application filed September 9, 1895. Serial No. 561,951. (No model.)

To all whom it may concern:

Be it known that I, ESTANISLAO CABALLERO DE LOS OLIVOS, of New York city, in the county and State of New York, have invented a new and Improved Balloon, of which the following is a full, clear, and exact description.

My present invention relates to balloons, and has for its object to provide improved means for directing the course of balloons.

To this end the invention consists of certain features of construction and combinations of parts, as will be hereinafter more fully described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is an elevation of the improved balloon, with parts in section. Fig. 2 is a sectional plan view on the line $x x$ in Fig. 1, showing the rudder-operating device. Fig. 3 is an enlarged detail of part of the said device. Fig. 4 is a plan of the balloon proper, and Fig. 5 is a broken elevation of a modification.

My invention comprises, first, an improved arrangement of the rudder. As ordinarily constructed, the said rudder is arranged at the rear of the basket and is pivoted upon an axis located eccentrically to the center of gravity of the balloon. According to my invention the rudder is so arranged that its line of action will pass through the vertical axis extending through the center of gravity. This I may achieve by the arrangement shown in Figs. 1, 2, and 3, in which a fixed ring A is shown supported above the basket B, the said ring carrying a series of depending brackets C, on which are journaled rollers D, the said rollers serving as a support for a rotatable ring E, which, as shown in Fig. 2, is provided with a series of radial arms F, to one of which is secured the rudder or sail G. The ring E is also provided with an annular groove E', in which is located a cord H which extends around the said ring and passes out through eyes I, secured to the ring A or some other fixed part, the free ends of the said cord being extended downward to the basket, so as to be within ready reach of the occupants thereof.

In order to prevent slipping of the rope or cord H in the peripheral groove E', the rope may be secured to the ring E at one or more points, as shown at E². It is understood that the ring E is arranged to rotate about a vertical axis passing through the center of gravity of the balloon J proper, so that there will be no eccentric action of the rudder and the direction of the balloon will be materially facilitated. In order to further this result, I prefer to arrange at the rear portion of the balloon integral or separate projections K, which are arranged on both sides thereof, so as to afford a greater resistance of the air at the rear portion of the balloon and thereby assist in keeping the front portion pointing in the desired direction.

Various modifications may be made without departing from the nature of my invention, and the action of the rudder or sail G may be made to take place through the vertical axis of gravity—that is, the vertical axis passing through the center of gravity—without necessarily arranging the said rudder to turn about a vertical axis.

It will be observed that in Fig. 1 there is no rudder-shaft proper. In the modification shown in Fig. 5 a vertical shaft L is provided, which extends through the basket B and is provided within the same with a handle M. At its lower end the said shaft carries a sail-frame N, to which is secured the sail or rudder G'. The connection of the sail-frame N and the shaft L is preferably a detachable one, so that the rudder may be attached after the basket has risen from the ground.

The shape of the balloon should be symmetrical in relation to its longitudinal plane, and the motors for driving the screws or other propelling mechanism also should be so disposed that their weight will be evenly distributed on each side of said central longitudinal plane.

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

1. A balloon provided with a rudder mounted to turn about an axis which intersects the vertical axis passing through the center of gravity of the balloon, substantially as described.

2. A balloon provided with a stationary ring

concentric with the vertical axis passing through the center of gravity of the balloon, a movable ring held to turn on the fixed ring, and a rudder secured to the movable ring,
5 substantially as described.

3. A balloon provided with a stationary ring concentric with the vertical axis passing through the center of gravity of the balloon, a peripherally grooved ring held to turn on
10 the fixed ring, a flexible connection located in the groove of the movable ring, stationary guides through which passes the said connection, and a rudder secured to the movable ring, substantially as described.

4. A balloon provided with a stationary ring 15 concentric with the vertical axis passing through the center of gravity of the balloon, hangers depending from said fixed ring, rollers journaled on the hangers and forming a circular runway, a movable ring, held to run 20 on said rollers, means for operating the movable ring, and a rudder secured to the movable ring, substantially as described.

ESTANISLAO CABALLERO DE LOS OLIVOS.

Witnesses:

JOHN LOTKA,
C. SEDGWICK.