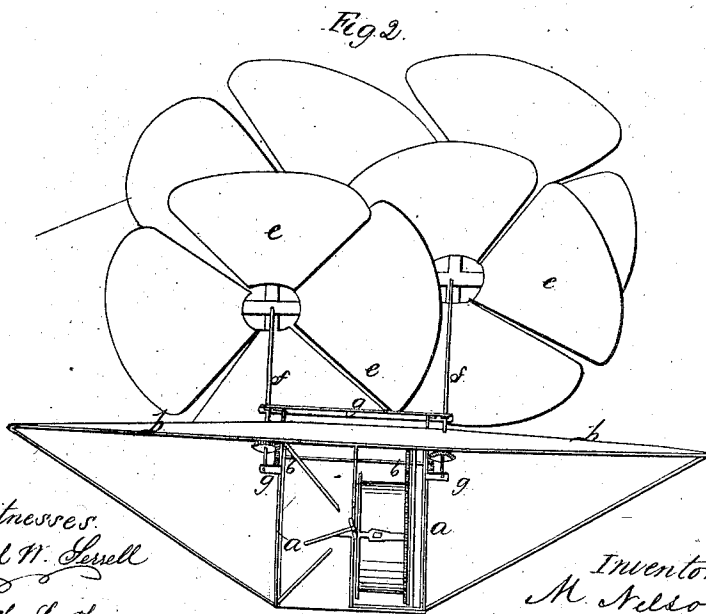
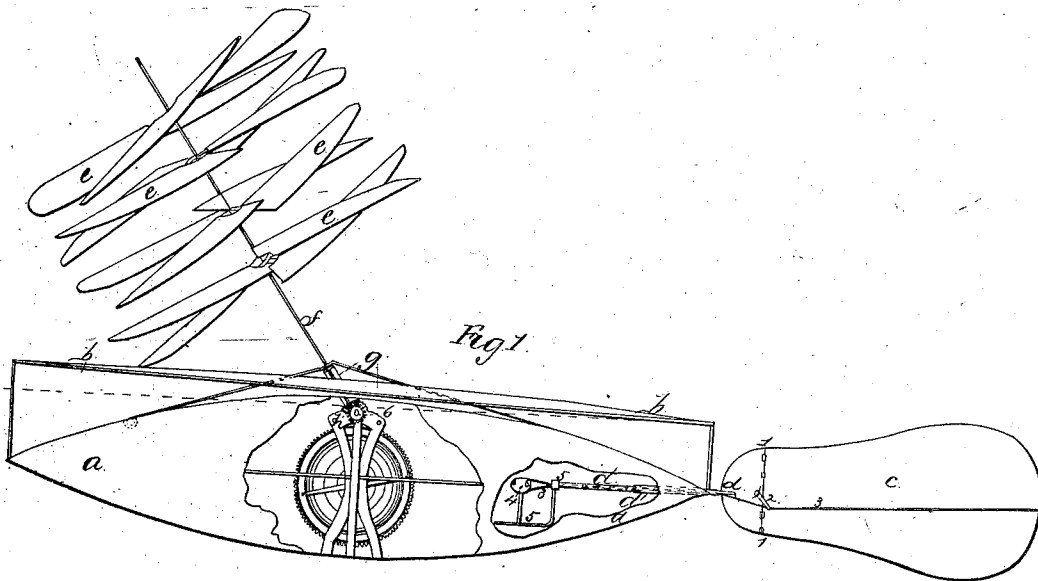


M. NELSON.  
AERIAL CAR.

No. 32,378.

Patented May 21, 1861.



Witnesses:  
Lemuel W. Serrell  
Chas. H. Smith

Inventor  
M. Nelson

# UNITED STATES PATENT OFFICE.

MORTIMER NELSON, OF NEW YORK, N. Y.

## BALLOON.

Specification of Letters Patent No. 32,378, dated May 21, 1861.

*To all whom it may concern:*

Be it known that I, MORTIMER NELSON, of the city and State of New York, have invented and made a certain new and useful  
5 Improvement in Balloons; and I do hereby declare that the following is a full, clear, and exact description of the nature of my said invention, reference being had to the annexed drawing, making part of this specification, wherein—

10 Figure 1. is a side elevation of my said invention and Fig. 2. is a cross section of the same.

Similar marks of reference denote the  
15 same parts.

The nature of my said invention consists in revolving fans, applied to balloons and arranged in such a manner that they can be used for communicating a vertical ascending movement, or a forward propulsion.

20 In the drawing I have represented a car *a.* with tapering ends and above this car is an awning or parachute *b.* standing at a slight upward inclination as represented.

25 The surface of the car *a.* and parachute *b.* are covered with canvas, oil silk or other suitable material; as is also the rudder *c.* that is formed of a frame hinged at 1. 1. to a plate at the end of the pipe *d.* 2. 2. are braces projecting from said plate, and 3. 3. are cords attached at the end of the rudder, leading over pulleys at the ends of these  
30 braces 2. 2. thence through the pipe *d.* to the wheel 4. It will now be seen that this rudder can, by the wheel 4. and cords, be turned at an angle to the pipe *d.* and this pipe *d.* being sustained in a cylindrical journal or case *d'.* allows the whole rudder to be revolved by the lever 5. and set to give  
40 upward, downward or sidewise direction to the balloon or car.

*e. e.* are a series of fans attached to vertical shafts *f. f.* which shafts set in a frame *g.* and are driven by the gear wheels *h.* and  
45 revolved by suitable power. The frame *g.* is fitted to move upon the cross shaft 6. as a center so that the shafts *f.* and fans can stand either vertical or at an inclination, and for the purpose of moving and sustaining this frame *g.* cords or ropes leading fore and aft to suitable attachments, are to be  
50 provided. It will now be seen that when the

shafts *f. f.* stand vertically that the revolution of them will tend to raise the balloon or car and that when they are inclined forward their action on the air will give propulsion to the car as well as a certain amount of sustaining power.

I would here remark that my apparatus is applied to the car of a balloon with a gas  
60 bag, but I do not limit the application of any of the parts herein set forth to any particular character of balloon but intend to use the same wherever available.

The forward inclined position of the fans  
65 produces propulsion in consequence of the fans acting like inclined planes sliding forward on the air as they revolve or "screw" their way upward, thus producing sustaining power and forward propulsion.

70 I have discovered that by making the framework, containing my motive power, of aluminum, a sufficient strength can be obtained, and the great weight usually in such parts so much removed that the sustaining  
75 power has not as much weight to lift as would be the case in any engine or other mechanism made of iron, steel or other metals and heretofore proposed for such purposes. The shafts, rods, wheels and other  
80 parts when made of aluminum will lessen the weight still more.

If only one fan *e.* were made use of, it would be difficult to steer the car because the car might revolve partially in one direction and the fan in the other. I therefore  
85 make use of pairs of fans, (two, four, or more may be applied fore and aft of the car or near the ends,) said fans revolving in opposite directions, the angle of the wings  
90 being reversed, so that the resistance is balanced and there is no tendency to turn the car.

The parachute *b.* at an upward inclination gives sustaining power to the car in moving  
95 through the air and forms a buoyant sail.

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

1. The employment with a balloon of one or more pairs of fans *e. e.* revolving in opposite directions for the purposes and as  
100 specified.

2. Arranging the shafts *f. f.* carrying the fans so that they can be inclined to the

body of the car or balloon for the purposes set forth.

3. The awning or parachute *b.* arranged at a slight inclination in relation to the car  
5 or the movement of the balloon and forming a buoyant sail, in combination with the fans or propellers *e. e.* for the purposes specified.

In witness whereof I have hereunto set my signature this first day of October, 1860.

M. NELSON.

Witnesses:

LEMUEL W. SERRELL,  
CHAS. H. SMITH.