W. F. PEARSON.
Balloon.

No. 202,750. Patented April 23, 1878.

Fig: 1.

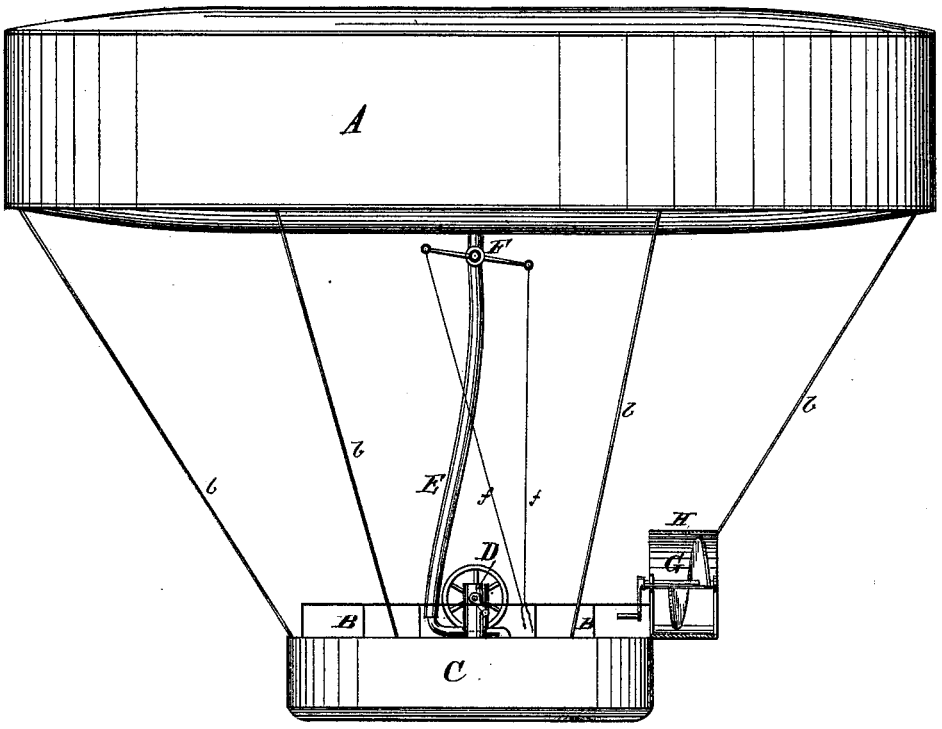
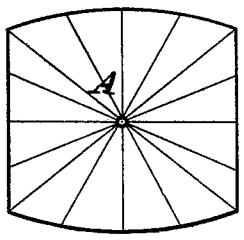


Fig: 2.



WITNESSES:
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UNITED STATES PATENT OFFICE.

WILLIAM F. PEARSON, OF HOUMA, LOUISIANA.

IMPROVEMENT IN BALLOONS.

Specification forming part of Letters Patent No. **202,750**, dated April 23, 1878; application filed January 5, 1878.

To all whom it may concern:

Be it known that I, WILLIAM F. PEARSON, of Houma, in the Parish of Terre Bonne and State of Louisiana, have invented a new and Improved Balloon, of which the following is a specification:

The object of my invention is to so improve the construction of balloons, and the mode of operating the same, as to enable an aeronaut to descend without waste of gas, and ascend without throwing out sand-bags or other ballast, as has been done heretofore in air navigation, and to keep his air-ship better poised during propulsion.

The invention consists in the combination, with the same, of a gas condenser and receiver, with pipe and valve connections, and in the combination, with an oblong balloon, and with a similarly-shaped gas-receiver placed directly underneath the car, of a screw propeller, as will be hereinafter described.

In the accompanying drawings, Figure 1 represents a side view of an air-ship embodying this my invention. Fig. 2 is a cross-section of the balloon of the same.

Similar letters of reference indicate corresponding parts.

A is the balloon, being an oblong vessel, of silk or any other suitable material, tapering to an edge or point at both ends, and of about the proportion, between its length, width, and height, as 5, 3, and 1, as shown in the drawing. B is the car, suspended from the balloon A by ropes *b*, in the usual manner. C is the receiver, placed immediately underneath the car B. D is the condenser. E is a large pipe, connecting the balloon A and the receiver C together and to the condenser D. F is a valve, with levers to open and close the pipe E, by pulling the cords *f*. G is the screw-propeller, and H the casing in which it revolves.

The buoyancy of the balloon being proportional to the volume of air which it displaces, or the capacity to which it is inflated with gas, it is evident that by withdrawing a portion of the gas from the balloon and compressing it to a greater density into a much smaller volume, the same result will be attained as if the gas were allowed to escape, and this without any waste of gas, as the compressed gas will only serve to increase the load on the balloon, with the trifling addition of its absolute weight when confined in the receiver. Therefore, when the aeronaut wishes to descend, he opens the valve F and pumps the gas from the balloon A by the condenser D into the receiver C, (the volume of which is constant,) in volumes suitable for the distance to which he wishes to descend, and then again closes the valve.

When he wishes to ascend he only opens the valve F, and allows a suitable quantity of compressed gas to rush from the receiver C, through the pipe E, into the balloon A, to increase the inflation of the latter to the degree desired, which reached, he again closes the valve F.

G is a screw propeller revolving in the open cylinder-casing H, to move the air-ship forward.

The car B should be suspended as near to the balloon A as practicable, (with the propeller in the line of resistance,) in order to give as little leverage as possible to the resistance during propulsion, which otherwise would tend to disturb the equilibrium.

By the shape of the balloon shown, (its area of cross-section being very small compared to its length,) the area of the said resistance is greatly reduced without affecting the buoyancy. The air-ship may be further equipoised by suspending a ballast below the car.

The propeller G is constructed with a rearward increasing pitch of the screw to increase its propelling capacity. The balloon is braced, as shown in Fig. 2, to strengthen it against the expansion of the gas.

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

1. The gas-condenser D and receiver C, with pipe and valve connection E F, in combination with the balloon A, for regulating its buoyancy by the expansion and compression of a constant quantity of gas, substantially as specified.

2. The combination of the screw-propeller G with the oblong balloon A, and the similarly-shaped receiver C, placed directly underneath the car B, substantially as specified.

WILLIAM FLETCHER PEARSON.

Witnesses:

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A. BOURG.