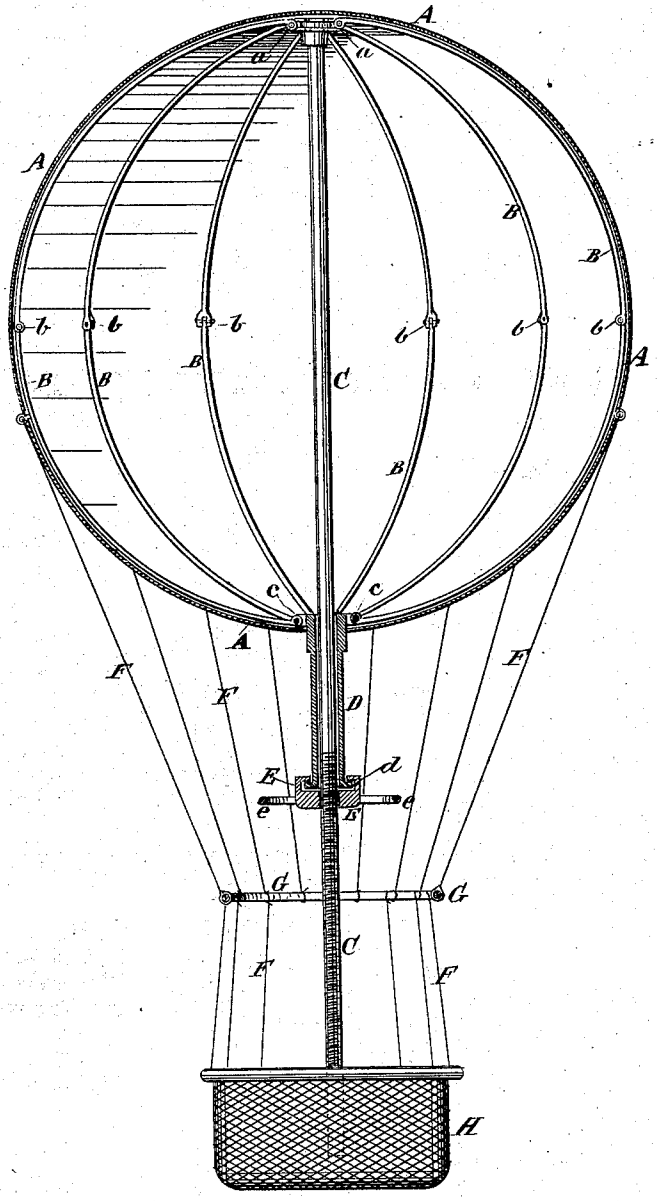
J. TRACY.
Balloon.

No. 205,319. Patented June 25, 1878.



WITNESSES.:

Chas. Nida
Chedgwick

INVENTOR:

J. Tracy

BY Munn & Co

ATTORNEYS.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D.C.

UNITED STATES PATENT OFFICE.

JAMES TRACY, OF WALTHAM, MASSACHUSETTS.

IMPROVEMENT IN BALLOONS.

Specification forming part of Letters Patent No. **205,319**, dated June 25, 1878; application filed December 11, 1877.

To all whom it may concern:

Be it known that I, JAMES TRACY, of Waltham, in the county of Middlesex and State of Massachusetts, 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 as to enable an aeronaut to vary the capacity and buoyancy of his balloon for sustaining it at any desired altitude, and for ascending or descending, without the use of hydrogen or other gas for the purpose, simply by varying the space of vacuum.

The invention consists in a balloon provided with ribs made of parts hinged together, said ribs being hinged with their upper ends to the upper end of a central shaft, and with their lower ends to a runner operated by a nut and hand-wheel on the threaded lower part of the central shaft, to expand and contract the balloon, as will be hereinafter described.

The accompanying drawing represents a vertical section of my improved balloon.

A is the cover, made air-tight, of any suitable material. B are the ribs, made in parts, hinged together at *b*, to give flexibility for contracting and expanding the balloon, and hinged with their upper ends, at *a*, to a disk on the central shaft C, and with their lower ends, at *c*, to the rim of the runner or sleeve D, surrounding the shaft C. The lower end of the sleeve D is provided with a flange, *d*, incased by or swiveled in an air-tight manner to the nut E, which works in the threads on the shaft C, as shown in the drawing. The nut E is operated by the hand-wheel *e*. F are the cords or lines, and G the steadying-ring for connecting the balloon with the car H.

The air is pumped out of the balloon, and the interior is vacuum. To increase or decrease the space of vacuum and the capacity and buoyancy of the balloon, it is only necessary to expand and contract it by turning the nut E up or down on the shaft C, the sleeve D and ribs B being moved thereby similar to the runner and ribs of an umbrella.

An air-pump may be connected with the balloon by a flexible tube to supply air for lessening its buoyancy when desired to descend, and increasing the same by rarefying the inclosed air for ascending.

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

The combination, with cover A, of the ribs B, whose sections are hinged together at *b*, hinged at *a* to a disk on a central shaft, C, and at *c* to the sleeve D, the latter being provided with a flange, *d*, swiveled to a nut, E, working on thread of said shaft, and operated by a hand-wheel, *e*, as shown and described.

JAMES TRACY.

Witnesses:

F. M. STONE,

J. S. WILLIAMS.