

A. O. GARDINER.
 FLYING MACHINE.
 APPLICATION FILED MAY 3, 1911.

1,008,131.

Patented Nov. 7, 1911.

3 SHEETS-SHEET 1.

Fig. 1.

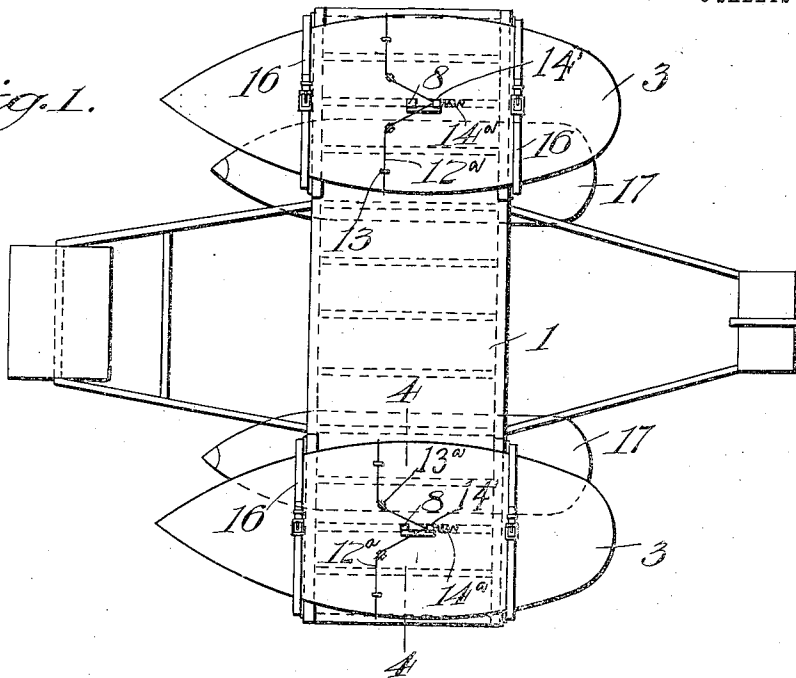
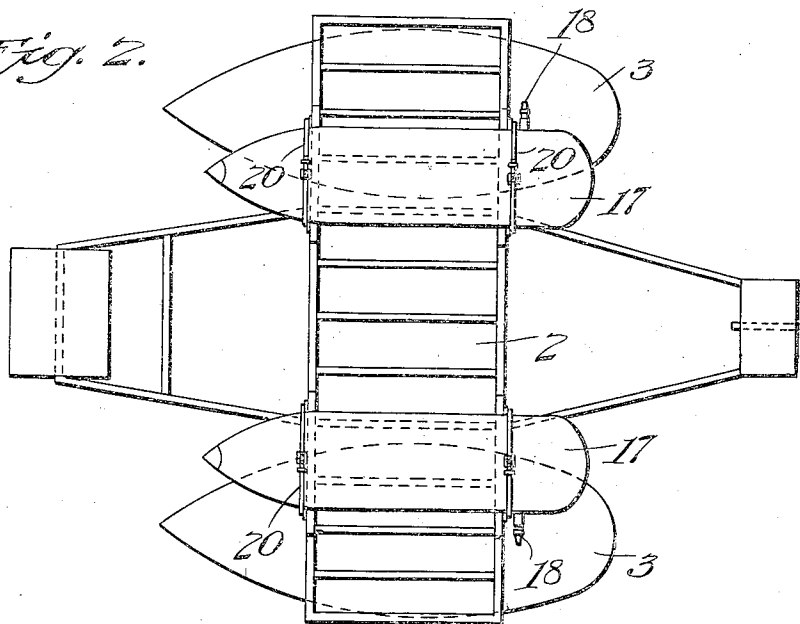


Fig. 2.



Inventor

Ameyl O. Gardiner,

Witnesses

T. K. Mordake

C. C. Hines.

By *Victor J. Evans*

Attorney

A. O. GARDINER.
FLYING MACHINE.
APPLICATION FILED MAY 3, 1911.

1,008,131.

Patented Nov. 7, 1911.
3 SHEETS—SHEET 2.

Fig. 3.

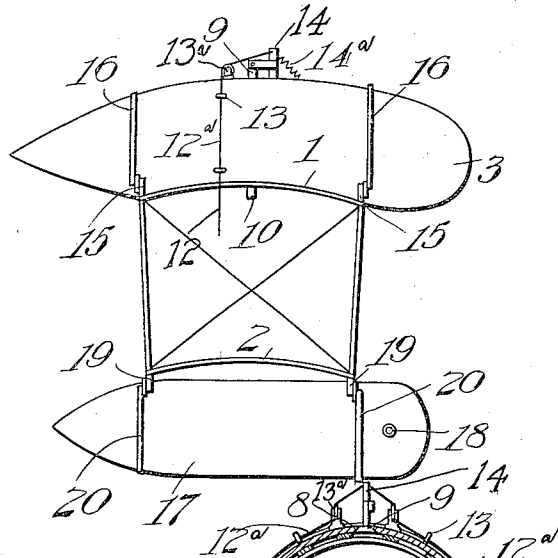
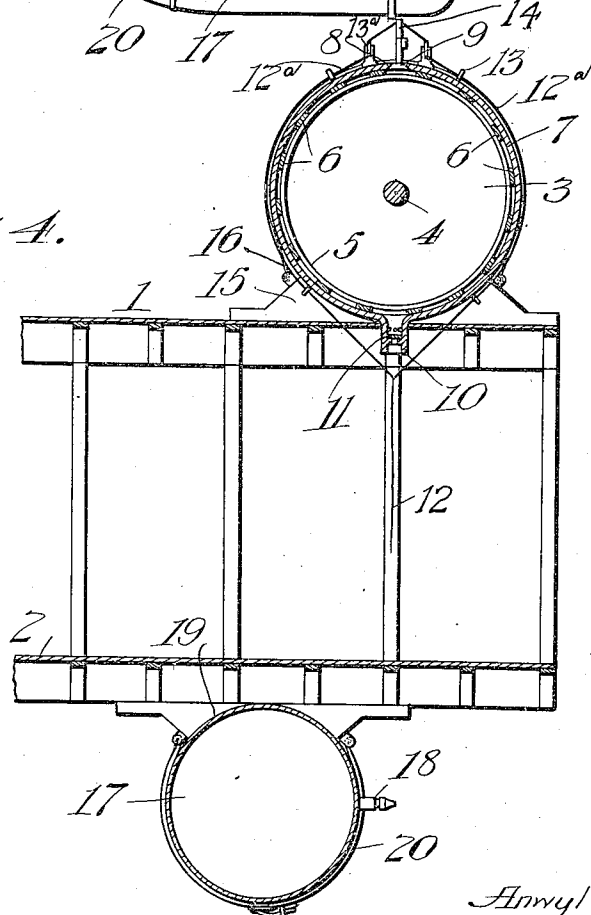


Fig. 4.



Witnesses

J. L. Mocham

C. C. Hines.

Inventor

Ameyl O. Gardiner,

By Victor J. Evans

Attorney

A. O. GARDINER.
FLYING MACHINE.
APPLICATION FILED MAY 3, 1911.

1,008,131.

Patented Nov. 7, 1911.
3 SHEETS—SHEET 3.

Fig. 5.

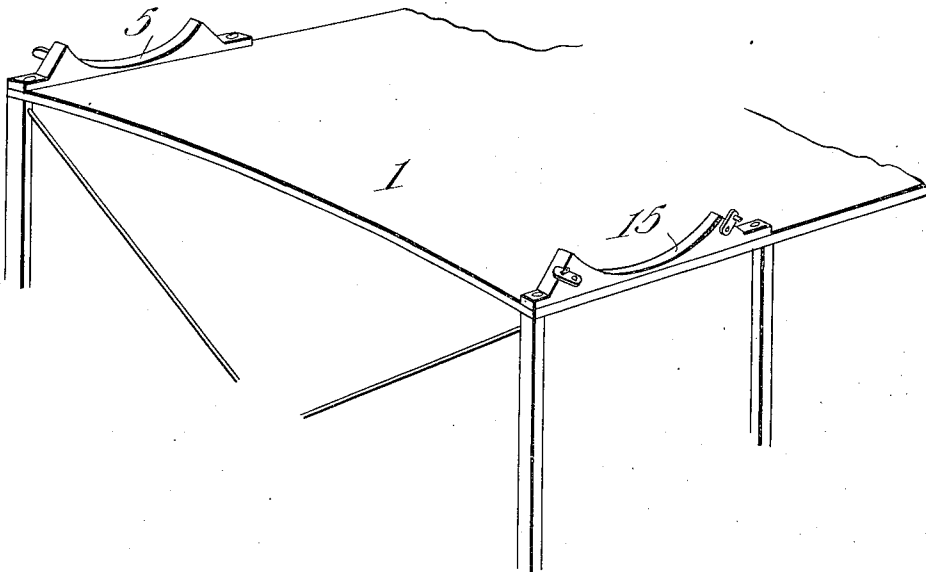
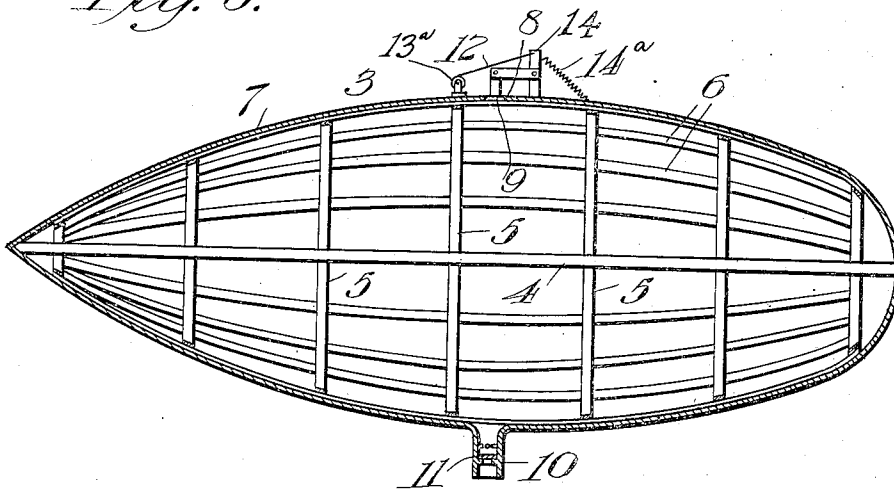


Fig. 6.



Inventor

Annyl O. Gardiner,

Witnesses

T. L. Moore

C. C. Hines,

By *Victor J. Evans*

Attorney

UNITED STATES PATENT OFFICE.

ANWYL O. GARDINER, OF OAKLAND, CALIFORNIA, ASSIGNOR OF ONE-HALF TO
DIEDRICH KNABBE, OF OAKLAND, CALIFORNIA.

FLYING-MACHINE.

1,008,131.

Specification of Letters Patent.

Patented Nov. 7, 1911.

Application filed May 3, 1911. Serial No. 624,686.

To all whom it may concern:

Be it known that I, ANWYL O. GARDINER, a citizen of the United States, residing at Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Flying-Machines, of which the following is a specification.

This invention relates to flying machines of the heavier-than-air class.

10 One object of the invention is to provide means for partially sustaining the weight of the machine in the air, increasing the lateral stability of the machine, and decreasing the liability of the loss of the lateral bal-
15 ance.

Another object of the invention is to provide means for sustaining the machine upon the surface of a body of water, and allowing it to alight thereon and ascend therefrom at the will of the aviator.

20 Another object of the invention is to provide attachments for the purpose described which may be applied to existing types of heavier-than-air machines.

25 The invention consists of the features of construction, combination and arrangement of parts, hereinafter fully described and claimed, reference being had to the accompanying drawings, in which:—

30 Figure 1 is a top plan view of a biplane machine equipped with my invention. Fig. 2 is a bottom plan view of the same. Fig. 3 is a side elevation of the machine. Fig. 4 is a transverse section on the line 4—4 of
35 Fig. 1. Fig. 5 is a fragmentary perspective view of one of the main planes. Fig. 6 is a longitudinal section through one of the gas bags.

40 In the present instance, I have shown the application of my invention to a biplane flying machine, of which 1 designates the upper and 2 the lower main plane or supporting surfaces.

45 Arranged upon the wings of the plane 1 are buoyant bodies 3, each shown in the form of a substantial cigar-shaped body having its pointed end facing forwardly. These bodies or gas bags are accordingly arranged on opposite sides of the longitudinal center
50 of the machine, and they are of such length as to project beyond the front and rear edges of the plane. Each buoyant body or bag is preferably composed of a central longitudinal rod or shaft 4, supporting a series

of disks or hoops 5 arranged at spaced in- 55
tervals thereon, the peripheries of the disks being connected by truss strands 6 of wire or other suitable material. Over the skele-
ton frame thus formed is arranged an in-
closing casing 7 of balloon fabric or other 60
suitable material. In practice, each buoyant body is filled with a gas lighter than air and the two bags form auxiliary surfaces of sufficient area to assist in sustaining a portion
of the weight of the machine when in the 65
air, thus increasing the sustentation qualities of the machine and at the same time reducing the amount of power required to sustain the same at any given speed. In addition, the bodies operate as resisting mediums
70 to prevent tilting of the machine laterally from said gusts of air, and thus promote the lateral stability of the machine and decrease the liability of the loss of the lateral balance. 75

As shown, each bag is provided at its top with a gas vent 8 normally held closed by a spring-actuated valve 9, and at its bottom with a filling neck or inlet 10, which may be provided with any suitable type of 80
check valve 11.

For controlling the valve 9, an operating cord 12 is provided, said cord having branches 12^a passing through suitable guides 13 and over pulleys 13^a to a lever 14 con- 85
nected with the valve, so that, when the cord is pulled upon, the lever will be rocked to force the valve open for the escape of the gas or buoying medium to the atmosphere. The spring 14^a is connected with 90
the lever and normally operates to hold the same in valve-closing position.

In practice, the bags are preferably curved to conform to the curvature of the planes, and said bags are adapted to seat within 95
partially circular cradles or supports 15 mounted on the planes and to be securely bound thereto by straps 16, by which they will be removably held in position.

Arranged upon the under side of the 100
lower plane 2, on opposite sides of the longitudinal center of the machine, are pontoons or floats 17, consisting of cylinders having forward pointed ends, said cylinders being of a length to project beyond the front 105
and rear edges of the plane and of greatest length in line of flight of the machine. These cylinders may be made of inflatable

material and are provided with valved in-
lets 18 for the introduction of a buoying
gas thereinto. They are adapted to engage
cradles or seats 19 similar in construction
5 to the cradles 15 and are secured thereto
by straps 20. If desired, however, the cyl-
inders or pontoons may be made of metal
or other inexpensive material and filled
with water or other fluid to increase or vary
10 the weight of the load of the machine, as
desired, to adapt it to ride over easily upon
the surface of a body of water. The pon-
toons or floats adapt the machine to alight
upon and arise from the surface of a body
15 of water, and may be inclined to the hori-
zontal to serve as hydroplanes. While
shown in the present instance as mounted
upon the lower main plane, the pontoons
may, of course, be mounted upon the chassis
20 or wheel base of the machine, and any ordi-
nary type of launching and landing gear
may be employed in connection therewith.

Having thus described the invention, I
claim:

25 1. In a flying machine, a supporting sur-
face having laterally-extending wings,
cradles upon the wings, gas-filled buoying
bodies resting in the cradles, and fastenings
connected with the cradles and enveloping

the bodies to detachably hold the same in 30
position.

2. In a flying machine, a supporting sur-
face, gas-filled buoyant bodies mounted upon
said surface on opposite sides of the longi-
tudinal center of the machine, each of said 35
bodies being provided with a vent valve, a
lever connected with said valve, a spring
for normally holding the lever in valve-
closing position, guides upon the sides of
the body, a controlling cord, and branches 40
leading from said controlling cord through
said guides to the lever.

3. In a flying machine, the combination
with a frame and a supporting surface, of
hollow buoyant bodies mounted upon the 45
base of the frame on opposite sides of the
longitudinal center of the machine, and hol-
low gas-filled bodies mounted upon the sup-
porting surface on opposite sides of the lon-
gitudinal center of the machine and later- 50
ally beyond the plane of the first-named
buoyant bodies.

In testimony whereof I affix my signature
in presence of two witnesses.

ANWYL O. GARDINER.

Witnesses:

D. KNABBE,

W. N. BARRON.