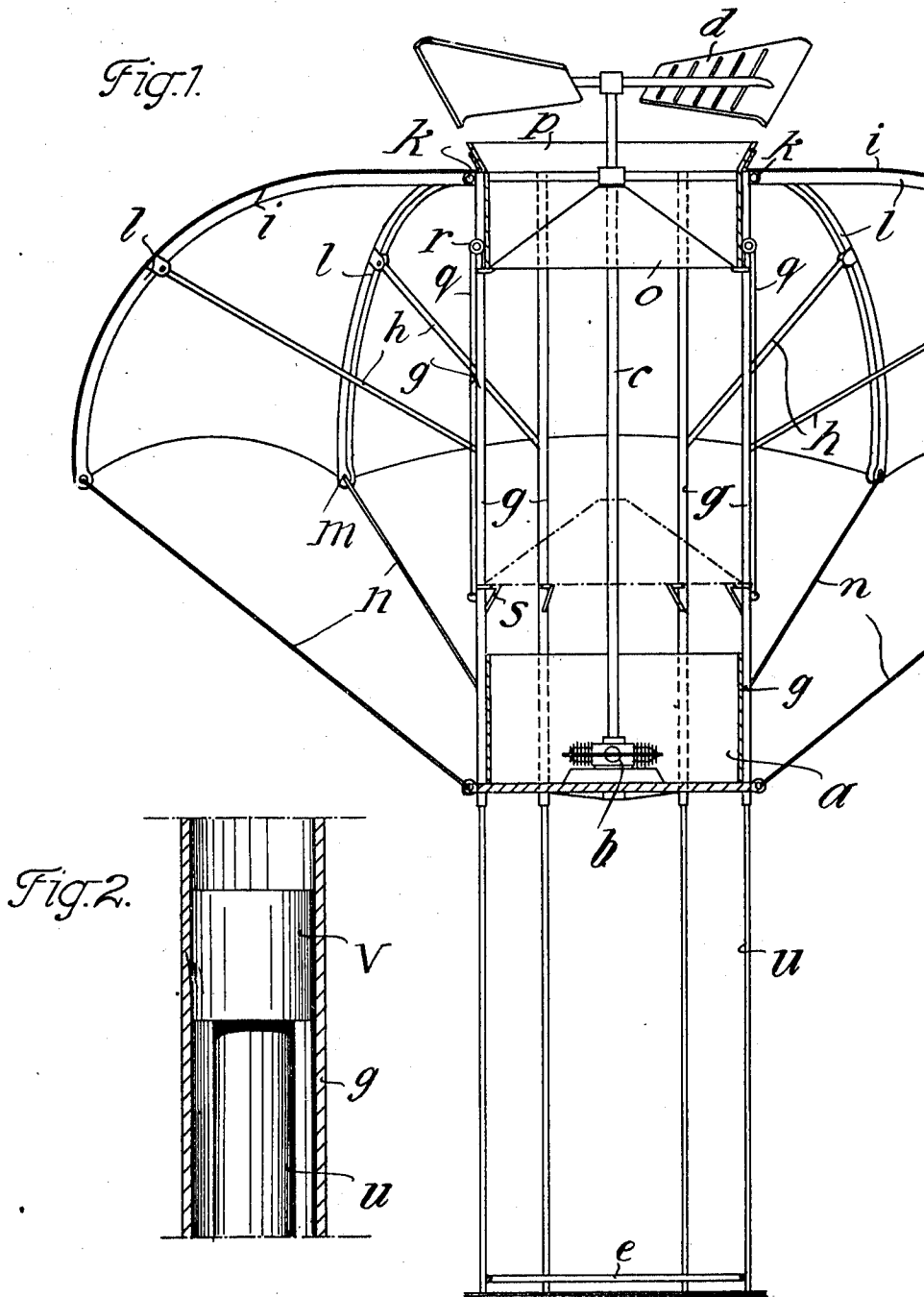


C. OSTERMAI.
AERIAL MACHINE.
APPLICATION FILED JUNE 5, 1911.

1,003,782.

Patented Sept. 19, 1911.



Witnesses:

John Luggen
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CLEMENS OSTERMAI, OF NEUKIRCHEN, NEAR MEISSEN, GERMANY.

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1,003,782.

Specification of Letters Patent. Patented Sept. 19, 1911.

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To all whom it may concern:

Be it known that I, CLEMENS OSTERMAI, a subject of the German Emperor, residing at Neukirchen, near Meissen, Germany, have invented a certain Improved Aerial Machine, of which the following is a specification.

The present invention relates to an aerial machine of the kind provided with a parachute which is brought automatically into action when the machine descends.

According to the invention the machine, which is only adapted for vertical ascent, is composed of a car and a rigid parachute, the latter being arranged about a funnel-shaped cylinder surmounted by a horizontal propeller. The cylinder and the car are connected and distanced by vertical stays, and the cylinder is closed by a hood which is loosely guided on said stays and adapted to descend thereon to admit air through the cylinder when the propeller is working. At the descent of the machine the hood automatically closes the cylinder and enables the parachute to act. The vertical stays are hollow and fitted with interconnected plungers which may be adjusted from the car to regulate the balancing of the machine and which also serve to absorb shocks at the landing.

The invention is illustrated by way of example in the accompanying drawings, Figure 1 representing a sectional view of the whole machine, and Fig. 2, a sectional view of part of a stay with its plunger.

A car *a* is connected by means of vertical hollow stays *g* to a funnel-shaped cylinder *p*. The latter is surmounted by a propeller *d* connected to a rotatable vertical shaft which is concentric with the cylinder *p* and supported in the car *a*. A star engine *b*, mounted in the car, drives the shaft and the propeller. A parachute *i* is arranged about the cylinder *p*. This parachute is supported on rigid ribs *l*, the inner ends of which are pivoted at *k* to brackets on the stays *g* and the outer ends *m* of which are connected by stays *n* to the car *a*. Stays *h* support the middle portion of the ribs on the stays *g* and may be adjusted on the latter for varying the arch. A conical hood *o* closes the lower end of the cylinder *p*. This hood is loosely guided on the stays *g* and is supported on cords *q* guided over sheaves *r*. The cords are weighted or spring-actuated

so as to have a tendency to hold the hood in closed position against the mouth of the cylinder. The hood may, however, be lowered on the stays which have stops *s* to limit its downward movement. Plungers *u* are slidably fitted with their heads *v* in the hollow stays *g*, as shown in Fig. 2, so as to project downward from the car *a*. These plungers are interconnected by a ring *e* and are supported on cords or the like which may be actuated from the car for varying the extension of the plungers. Such adjustment serves to regulate the balancing of the machine whose center of gravity is lowered when the plungers are extended. When a landing is effected the plungers take the thrust and deaden the shock by a compression of the air in the stays *g*, the heads *v* being fitted in the latter in an air-tight manner.

The operation of the machine, which is primarily intended for the purpose of making distant observations, is as follows:—The propeller *d* having been set in motion by the engine *b* it will cause the machine to ascend and the hood *o* to be lowered on the stays *g*, the air-current from the propeller being forced through the cylinder *p*. As soon as the propeller stops and the descent of the machine begins, the hood *o*, owing to the action of the cords *u* and to the vertical air-pressure, will be raised against the mouth of the cylinder and prevent the escape of air through the latter. The parachute then comes into play and modifies the speed of the descent.

In the normal position of the machine only a vertical ascent can be effected. If a lateral movement should be required, however, this may be effected by a displacement of the center of gravity so that the shaft takes up an inclined position.

I claim:—

1. An aerial machine comprising a funnel-shaped vertically disposed cylinder, a car suspended therefrom by means of rigid, vertical stays, a rigid parachute arranged about the cylinder, a rotatable shaft concentric with the cylinder, means for rotating the same, a propeller mounted on the shaft above the cylinder, a conical hood guided between the car and the cylinder so as to close the latter when the machine is supported on the parachute and so as to recede to admit air through the cylinder when the

propeller is at work for raising the machine, and means for adjusting the balance of the machine.

2. An aerial machine comprising a funnel-shaped vertically disposed cylinder, hollow stays suspended therefrom, a car connected to the lower ends of the stays, a rigid parachute arranged about the cylinder, a horizontally disposed propeller arranged above the cylinder, means for driving the propeller, means for closing the cylinder automatically, when the machine is sup-

ported on the parachute, means for opening the same to admit air when the propeller is at work for raising the machine, and interconnected plungers fitted airtightly in the hollow stays so as to project downward from the car, substantially as and for the purpose set forth. 15

CLEMENS OSTERMAI.

Witnesses:

PAUL ARRAS,
CLARE SIMON.