

No. 688,135.

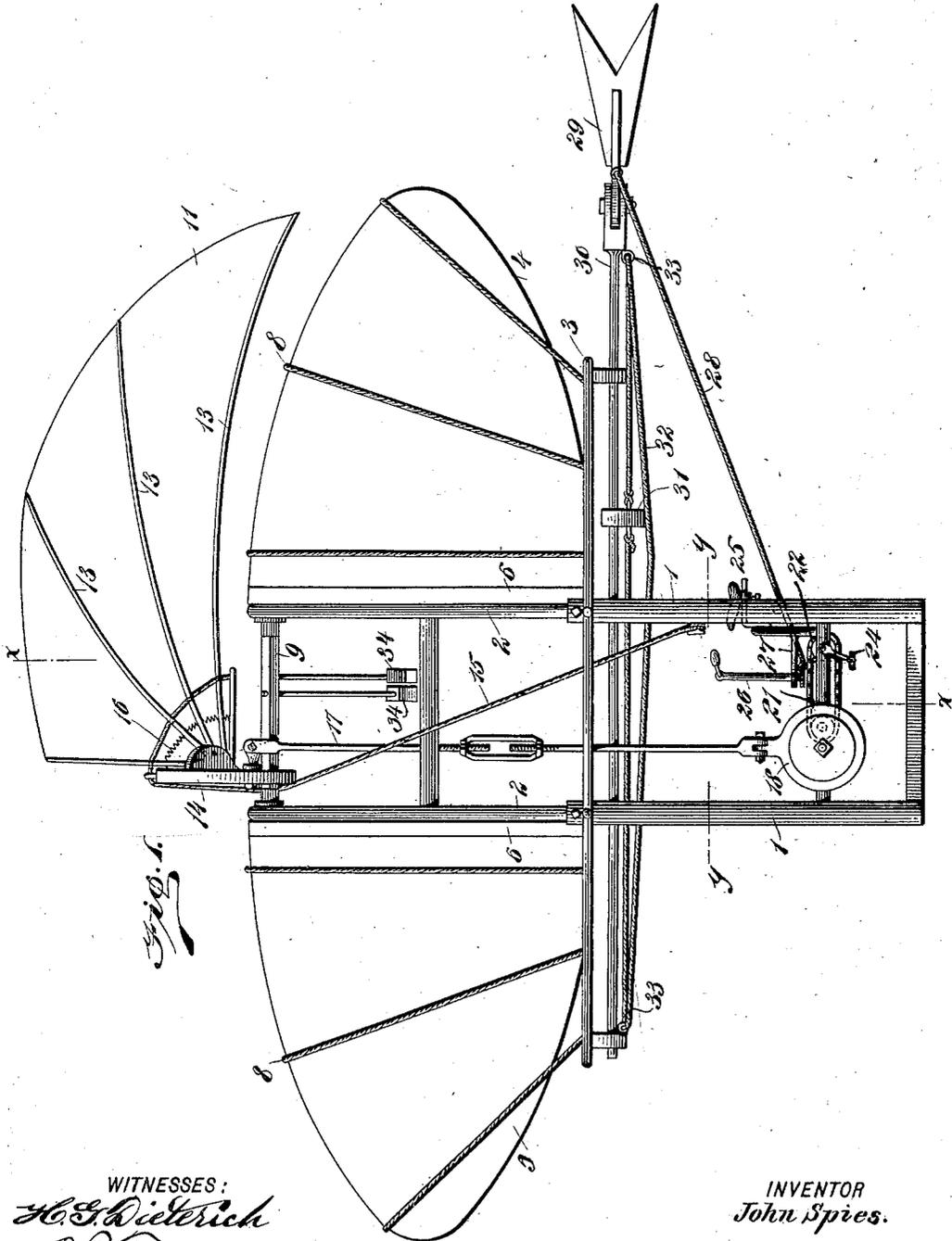
Patented Dec. 3, 1901.

J. SPIES.  
AIR SHIP.

(Application filed Sept 22, 1900.)

(No Model.)

3 Sheets—Sheet 1.



*Fig. 1.*

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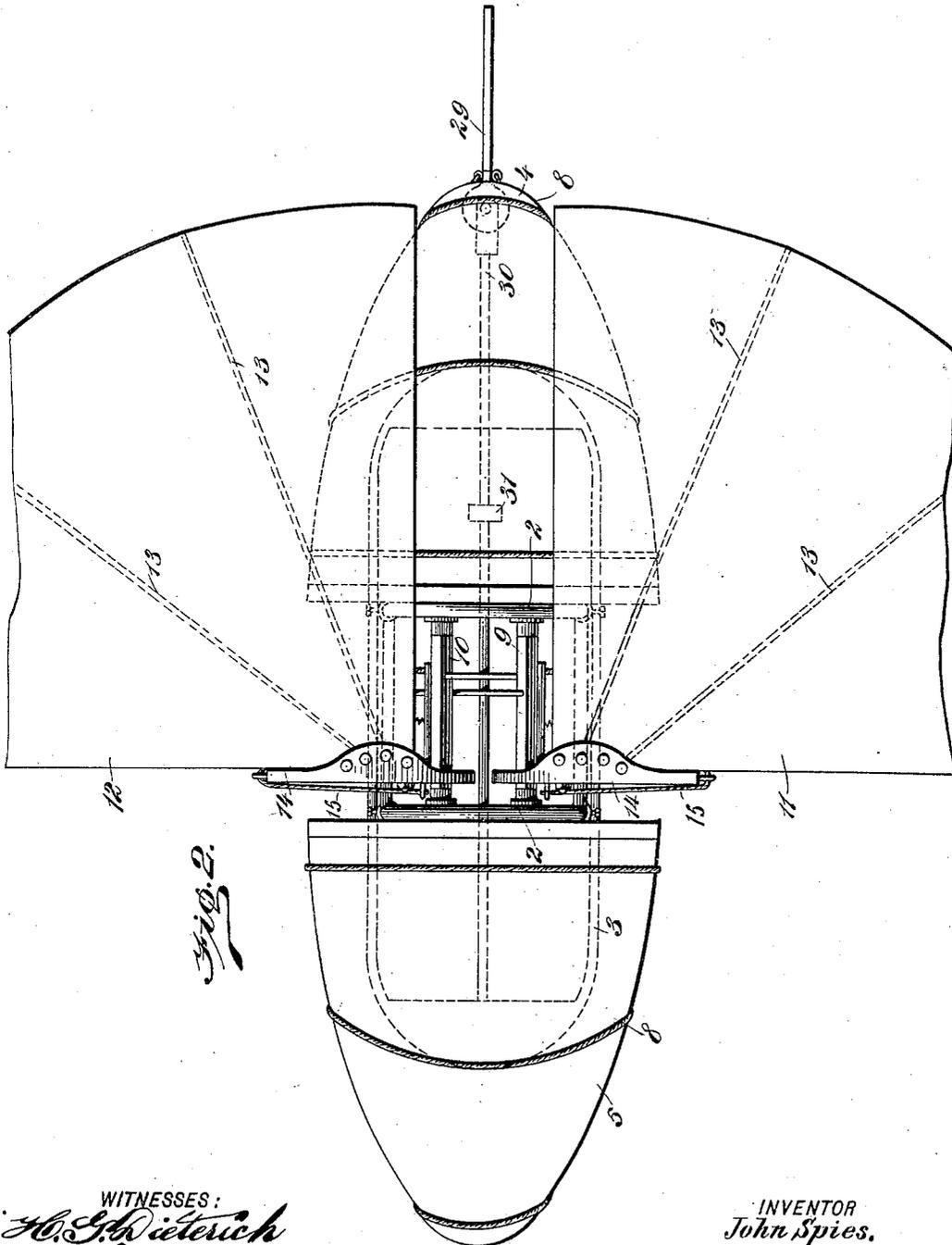


Fig. 2.

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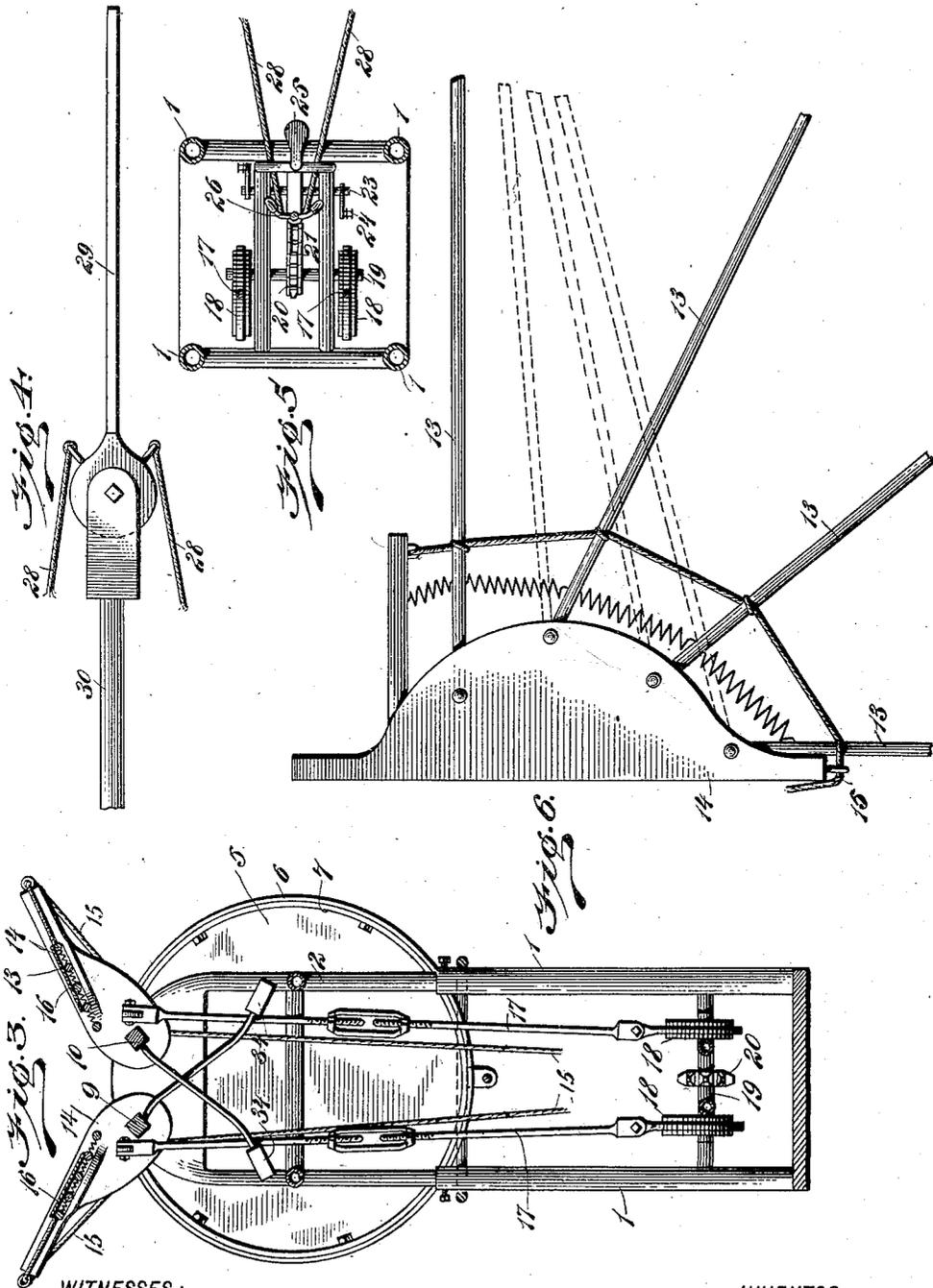
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# UNITED STATES PATENT OFFICE.

JOHN SPIES, OF PHILADELPHIA, PENNSYLVANIA.

## AIR-SHIP.

SPECIFICATION forming part of Letters Patent No. 688,135, dated December 3, 1901.

Application filed September 22, 1900. Serial No. 30,753. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN SPIES, a citizen of the United States, and a resident of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and Improved Air-Ship, of which the following is a full, clear, and exact description.

This invention relates to improvements in air-ships, and the object is to provide a device of this character that in its principle of locomotion shall resemble that of a bird—that is, it shall have the lightness and strength, with the wings or propelling devices located at the most desirable point to effect the moving of the machine and having a simple means under the direct control of an operator for shifting the gravity-point, directing motion up or down.

I will describe an air-ship embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of an air-ship embodying my invention. Fig. 2 is a plan view thereof. Fig. 3 is a section on the line  $xx$  of Fig. 1. Fig. 4 is a plan showing the rudder connection. Fig. 5 is a section on the line  $yy$  of Fig. 1, and Fig. 6 is a plan of one of the wing-frames.

The frame of the machine consists of upper and lower sections. The lower section consists of tubes 1, suitably connected at the bottom, and the upper section consists of tubes 2, which telescope into the tubes 1. The object in making the frame in telescopic sections is to adapt it to balloons of different sizes and also permit the rider and operating mechanism to be adjusted relatively to the balloons as occasion may require. A horizontal frame 3, consisting of tubing, is connected to the upper ends of the tubes 1, forming the lower portion of the frame, and this horizontal frame provides a rest for the two balloons 4 5. These balloons 4 and 5 are each made in the shape of a half-oval, which at the base end are provided with hoops 6, which engage over hoops 7, attached to the frame 2. The balloons may be held in posi-

tion with relation to the frame 3 by means of ropes or similar connections 8. The balloons are to be of such size as to bring when filled with gas or hydrogen the whole machine, including the operator, to a condition of rest lightly on the ground.

Mounted in the upper portion of the frame 2 are rock-shafts 9 10, upon which the wings are mounted. The wings 11 and 12 each consist of a series of ribs 13, to which is secured a covering of silk or similar light material. These ribs 13 are pivotally connected to arms 14, mounted on the rock-shafts. The wings may be extended or opened by means of ropes 15, which extend from their connections with the ribs through eyes at the outer and inner ends of the wing-carrying arms and thence downward and secured at the lower end to the lower frame within easy reach of the operator, as will be hereinafter described. By drawing downward on these ropes the wings will be spread; but upon releasing the ropes springs 16, connecting with the ribs 13, will move the wings to a closed position.

From the arms 14 rods 17 extend downward to connections with eccentrics 18, mounted on a shaft 19, supported in the lower frame. These rods 17 preferably consist of two sections connected together by a turnbuckle, so that the length of the rods may be adjusted as desired. On the shaft 19 is a sprocket-wheel 20, from which a chain 21 extends to a sprocket-wheel 22 on a crank-shaft 23, having pedals 24, and arranged above this crank-shaft is a seat 25 for the operator. This seat is shown in the form of a saddle, similar to that of a bicycle.

A steering-bar 26 has a bearing in a bracket 27, and from arms on the lower end of this steering-bar ropes 28 extend to connections with a rudder 29, mounted to swing in a horizontal plane. This rudder 29 is pivotally connected to a rod 30, supported by the frame 3. Removably mounted on the rod 30 is a device for shifting the gravity of the machine. It consists of a weight 31, to the opposite sides of which the ends of a shifting-rope 32 are attached. This shifting-rope extends through eyes 33 at the ends of the rod 30. As this rope 32 is directly over the operator, it is obvious that the operator by

drawing upon the lower stretch of the rope may shift the weight 31 to any desired point on the rod, thus changing the up or down direction of the machine—that is, when the machine is moving forward it may be caused to move upward at any desired angle by shifting the weight 31 toward the rear, and of course by shifting the weight toward the front the machine may be caused to gravitate down, and obviously it may be caused to move to the right or to the left by shifting the rudder 29.

In operation a person seated on the saddle 25 by operating the shaft 23 will cause the movement of the eccentric-shaft, and through the rods 17 motion will be imparted to the wings in the manner of that of the wing movement of a bird. The upper movement of the wings will be facilitated by means of balance-weights 34, connected to arms extended from the rock-shafts 9 and 10. If desired, the whole frame may be provided with a covering of some light material, such as silk, and this would add somewhat to the buoyancy of the machine.

With a machine constructed in accordance with my invention the danger of accidents is reduced to a minimum, as should either one of the balloons break the operator could still keep his balance by shifting the balance-weight under the sound one. Further, should the balloons leak the wings would cause the device to fall slowly, and if the balloons and wings should be disabled the covering of the space between the balloons and fastened to the frame or wings would act as

a parachute and break the strength of the fall.

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

1. In an air-ship, a frame consisting of upper and lower telescopic sections, a horizontal frame attached to the lower section, and balloons attached to the upper section and resting on the horizontal frame, substantially as specified.

2. In an air-ship, a frame, rock-shafts supported in the upper portion of the frame, counterbalance-weights attached to said rock-shafts, arms on the rock-shafts, ribs pivotally connected to the said arms, means for spreading the ribs, and spring connections for closing the ribs, substantially as specified.

3. In an air-ship, a main frame consisting of upper and lower telescopic sections, balloons attached to the upper section, counterbalanced rock-shafts in the upper section, arms on the shafts, wings connected to the arms, an eccentric-shaft in the lower section, means for operating the shaft, eccentrics on the shaft, and adjustable rod connections between said eccentrics and said arms, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN SPIES.

Witnesses:

EDWARD HARYAN,  
SAMUEL THOMPSON.