P. PETERSON.

AERIAL NAVIGATION.

APPLICATION FILED SEPT. 2, 1911.

1,068,165. Patented July 22, 1913.

Fig. 1.

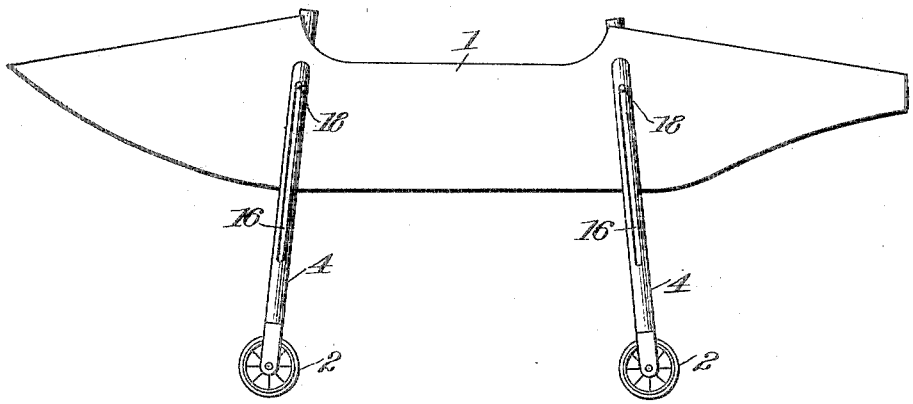



Fig. 4.

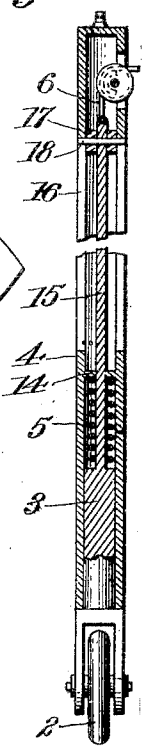



Fig. 2.

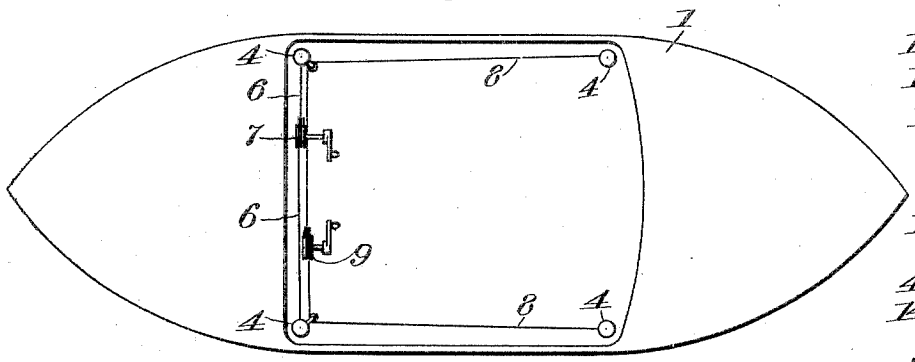
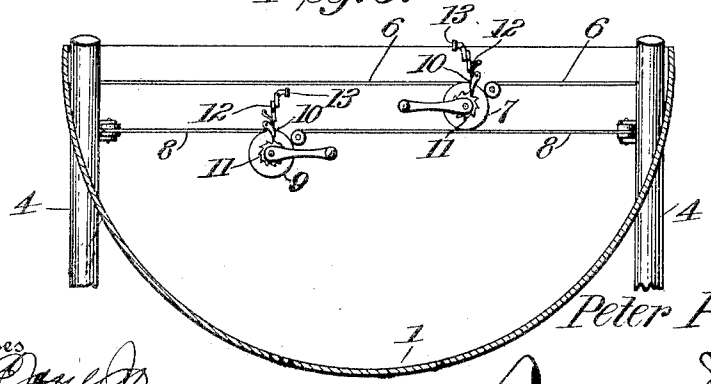



Fig. 3.




Witnesses

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# UNITED STATES PATENT OFFICE.

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## AERIAL NAVIGATION.

1,068,165. Specification of Letters Patent. Patented July 22, 1913.

Original application filed February 24, 1910, Serial No. 545,588. Divided and this application filed September 2, 1911. Serial No. 647,399.

*To all whom it may concern:*

Be it known that I, PETER PETERSON, a subject of Russia, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Aerial Navigation, of which the following is a specification.

This invention relates to improvements in aerial navigation, and more particularly to a device to be used in conjunction with the general type of aerial craft known as heavier-than-air flying machines.

It is the object of this invention to provide a craft of this character with means upon the framework which will impart to it an initial impetus in an upward direction after the propellers have been set in motion and also act as a shock absorber when making a landing.

This particular device was originally disclosed and claimed in my prior application, Serial Number 545,588, and this application is a division thereof.

The advantages of this invention are obvious. The device is so arranged that the forward end, or bow, of the craft may be given an upward impetus when first started, then as headway is gathered and the planes take effect the rear, or stern, may be given the upward impetus to clear the whole craft from the ground, and both of these means will act as shock absorbers in making a landing, either together or separate in accordance with the manner the bow and stern engage the ground.

While the preferred form of this invention is illustrated upon the accompanying sheet of drawing, yet it is to be understood that minor detail changes may be made without departing from the scope thereof.

Figure 1 is a view in side elevation illustrating the application of this invention to the body of a flying machine. Fig. 2 is a top plan view illustrating the controlling means. Fig. 3 is a view in front elevation of a detail of the controlling means. Fig. 4 is an enlarged detail view partly in section illustrating the starting spring and shock absorber.

This device is illustrated as applied to the car body or frame work of the flying machine or aeroplane described in my former application, however, it is to be understood that this device may be applied to the frame work of any other flying machine or aeroplane as well and with but minor detail changes to accommodate it to the particular form of frame work or body. As this device is attached to the body or frame work and is not related in any way to the form of planes used, the illustration of the planes has been omitted from the drawing.

For traveling upon the ground, the body 1 is supported upon two pairs of wheels 2 arranged on each side of the center line, each wheel being carried upon a shaft 3 slidably mounted within a hollow brace 4 rigidly secured to the body or frame work 1. A compression spring 5 engaging the brace and shaft normally retains the shaft in extended position. The inner ends of the shaft of the forward pair of wheels are connected by a controlling cord 6 passing over pulleys to a drum 7, whereby the shafts may be withdrawn within the hollow braces and place the springs under compression. The springs of the rear pair of wheels may be compressed in the same manner by controlling cords 8 passing over pulleys to a separate drum 9. As shown in detail in Fig. 3, these controlling drums 7 and 9 are provided with a pawl 10 and ratchet 11, whereby the drum will be locked as the springs are compressed and may be released by the pivoted levers 12 and push button 13. As illustrated in detail in Fig. 4, it is preferable to construct the hollow brace 4 with a centrally perforated diaphragm 14, and the shaft 3 with a smaller extension 15 passing through the diaphragm, and place the spring 5 between the diaphragm and shoulder formed upon the shaft. In order to prevent the shaft 3 from turning within the brace 4 an elongated slot 16 is provided upon opposite sides of the hollow brace and the upper end of the extension 15 is provided with a guide block 17 sliding within the brace 4. A guide pin 18 is carried by the block which extends from both sides thereof and travels within the slots 16.

Before beginning the flight, the springs are all placed under compression by winding up upon the drums, the engine is started and the springs in the forward pair of wheels are released which will give the forward portion of the machine an upward impetus and thereby aiding in leaving the ground. Then the springs in the rear wheels should be released and the entire machine will be given an initial impetus in leaving

the ground. In making a landing, as the compression has been released from the springs of the wheels, the same will act to absorb the shock of the machine engaging the ground.

What I claim is;—

1. In a device of the character described, a flying machine body or frame work, a plurality of wheels mounted thereunder, springs between the wheels and frame work normally supporting the weight of the machine when upon the ground, means for contracting the springs, means for holding the springs in contracted position, and means for releasing the springs.

2. In a device of the character described, a flying machine body or frame work, a plurality of wheels mounted thereunder, each wheel carried upon a shaft slidably mounted upon a brace secured to the frame work, a compression spring between each shaft and each brace, means for contracting the springs, means for holding the springs in contracted position, and means for releasing the springs.

3. In a device of the character described, a flying machine body or frame work, a plurality of wheels arranged in pairs mounted thereunder, each wheel carried upon a shaft slidably mounted upon a brace secured to the frame work, a compression spring between each shaft and each brace, means for simultaneously contracting the springs of each pair, means for holding the springs in contracted position, and means for simultaneously releasing the springs of each pair.

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Witnesses:

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