P. PETERSON.

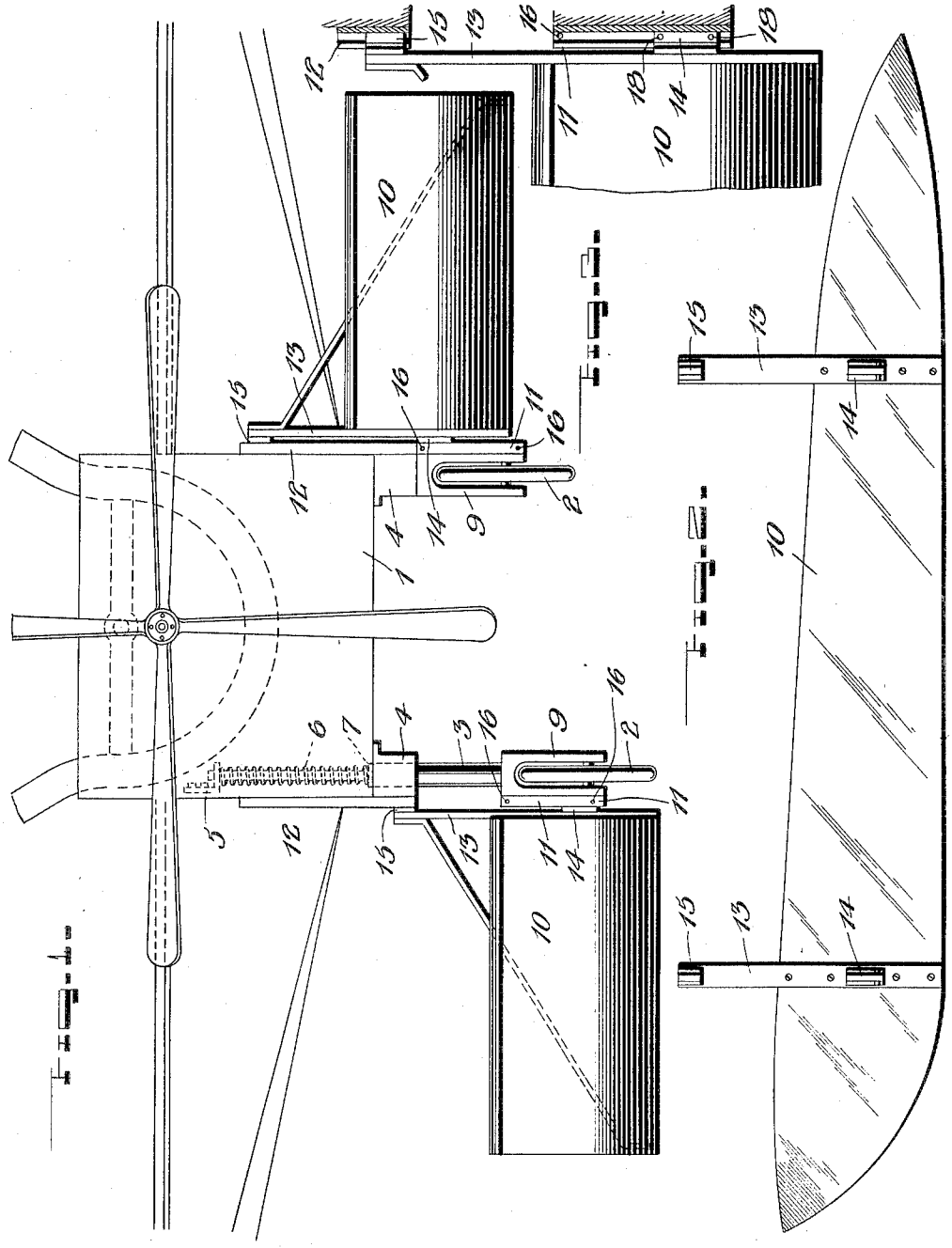
AERIAL NAVIGATION.

APPLICATION FILED MAR. 27, 1913.

1,068,166.

Patented July 22, 1913.

2 SHEETS—SHEET 1.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 4.

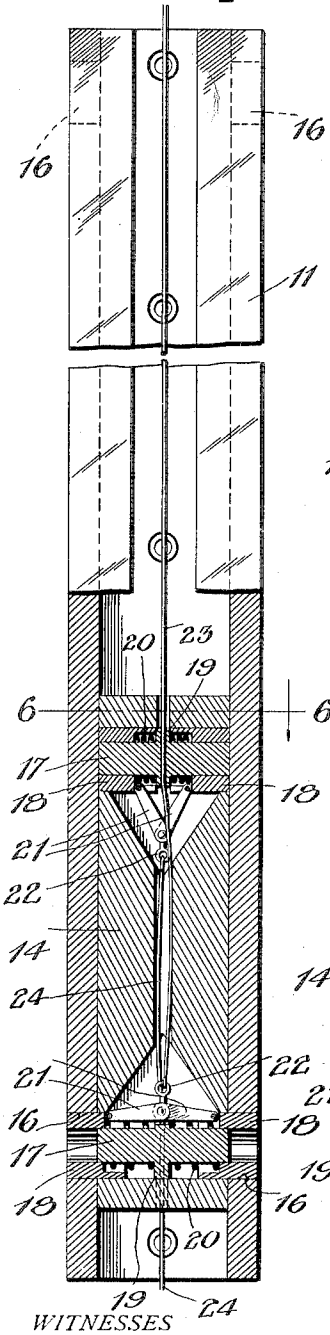


Fig. 5.

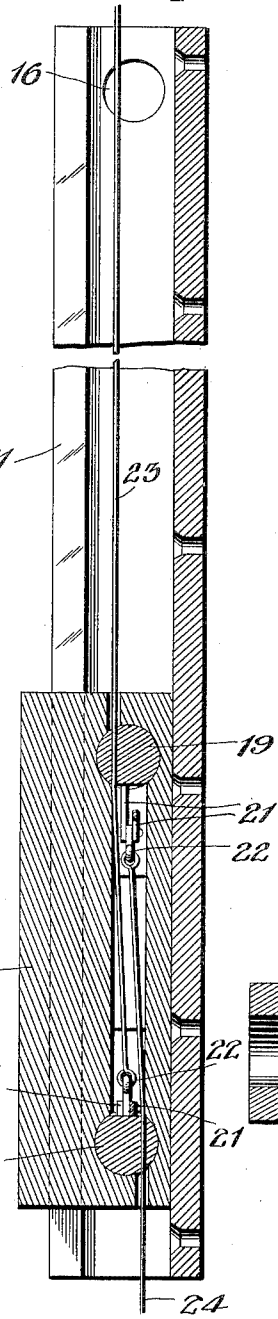


Fig. 6.

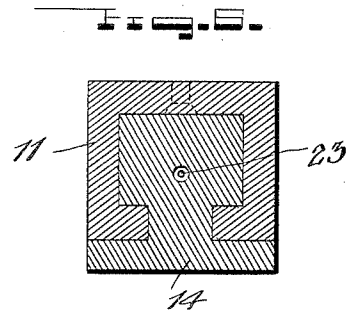


Fig. 7.

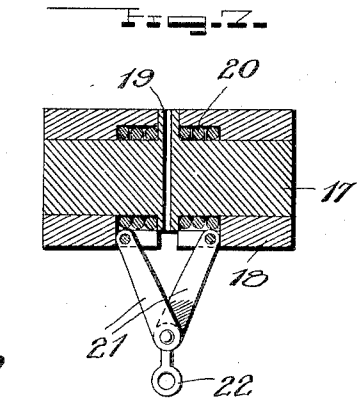
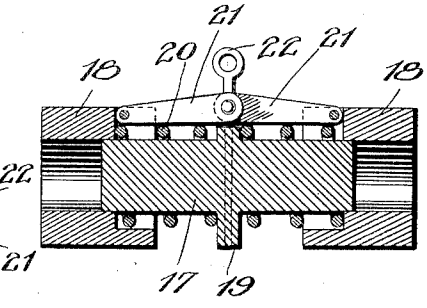


Fig. 8.



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AERIAL NAVIGATION.

1,068,166. Specification of Letters Patent. Patented July 22, 1913.

Application filed March 27, 1913. Serial No. 757,209.

To all whom it may concern:

Be it known that I, PETER PETERSON, a citizen of the United States, 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 the type of flying machines designated as hydro-aeroplanes.

It is the object of this invention to provide an aeroplane with a plurality of pontoons for traveling upon the surface of water, and to so attach the pontoons that the aeroplane may take off and land equally as well from either the water or the earth. In carrying out the objects of this invention the pontoons are so constructed and arranged that they may be raised above the landing devices when the aeroplane is to be used upon or over the earth and lowered below the landing devices when the aeroplane is to be used upon or over the water. The advantages of such a construction are obvious as the position of the pontoons may be changed while the aeroplane is in flight, so that a landing may be made on either earth or water to suit the exigencies of the case.

While the preferred forms of this invention are illustrated upon the accompanying sheets 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 front elevation of the embodiment of this invention. Fig. 2 is a view in side elevation of one of the pontoons. Fig. 3 is a view in front elevation illustrating the attachment of a pontoon. Fig. 4 is an enlarged detail view in front elevation partly in section with parts broken away of the attaching device. Fig. 5 is a similar enlarged view in central vertical section of Fig. 4. Fig. 6 is a transverse sectional view taken on the line 6—6 of Fig. 4 looking in the direction of the arrow. Fig. 7 is an enlarged detail view in longitudinal vertical section of a locking member in retracted position. Fig. 8 is an enlarged detail view in longitudinal vertical section of Fig. 7 in the extended position.

While the application of this invention embodies the particular construction of the starting and landing devices of my former Patent No. 1,006,592 of October 24th, 1911, yet it is to be understood that it may be as readily applied to other forms of aeroplanes as well.

As illustrated in Fig. 1, the car or body 1 supported beneath the aeroplane is provided with wheels 2 carried upon shafts 3 arranged in pairs on either side of the body 1 at the front and rear. In this particular case the shafts 3 are mounted to reciprocate through bearings 4 and 5 attached to the body and each shaft is surrounded by a compression spring 6 between the upper bearing and shoulder 7 upon the shaft, so that upon making a landing a shock absorber is provided. As disclosed in my prior patent it is preferred to provide each shaft with a means for retracting it against the spring and holding it in the retracted position until it is desired to begin the flight, so that after the engine has been started the forward springs may be released which gives the forward end of the device an upward impetus and then the rear springs released giving the entire device an upward impetus. The springs remaining in released position during flight act as a shock absorber in making a landing.

The pontoons 10 are preferably of the shape shown in side elevation in Fig. 2, and are provided with a means at each end for attaching the pontoons to the corresponding landing devices on each side. The outer side of each bracket 9 supporting the wheels 2 from the shaft 3 is provided with a track 11, illustrated in enlarged detail in Figs. 4, 5 and 6, and the body or car is provided with a similar track 12, so that when the wheels are retracted the upper track forms a continuation of the lower one. The attaching means for the pontoons comprise vertical braces 13 provided with lugs 14 and 15 adapted to be embraced by and travel in tracks 11 and 12 respectively and so arranged in relation to each other and to the tracks that the lugs will be engaged thereby in either position of the wheels or pontoons.

The lower lugs 14 are provided with means for securing the pontoons to the track 11 upon the wheel brackets 9, so that the pontoons may be lowered below the center of the wheel when the device is to be used as an hydroplane traveling on water and secured in this position irrespective of the relation of the wheels 2 to the car or body 1, or the pontoons may be raised so that their under side is raised to or above the center

of the wheels and secured in this position when the device is to be used as an aeroplane traveling over the earth, and retained in this position irrespective of the relation of the wheels 2 to the car or body 1, so that the pontoons will in no way interfere with the making of a start or landing upon the earth. To accomplish this result the lower lugs 14 are provided with one or more transverse locking members adapted to engage in orifices 16 in the side walls of the track 11 arranged near the top and bottom thereof. As illustrated, it is preferable to employ two of these locking members, one adapted to engage in the lower orifice 16 and the other in the upper orifice 16 of the track 11. Each locking member preferably comprises a core 17 having reciprocably mounted sleeves 18 on each end adapted to engage in the extended position in the orifices of the track 11. It is preferable to provide the adjacent ends of the sleeves 18 with a cut away portion and to provide a central annular shoulder 19 upon the core 17 with coil springs 20 arranged about the core between the annular shoulder 19 and adjacent ends of the sleeve 18, so that in the retracted position of the sleeves the coil spring will be received within the cut away portion. The springs will normally extend the sleeves to engage the orifice in the track. To retract the sleeves a centrally pivoted toggle 21 is provided with the free ends pivotally attached to the inner ends of the sleeves with a pivoted operating connection 22 mounted upon the central pivot point of the toggle 21. The inner portion of the lug 14 is cut away to allow for the breaking of the toggle joint in retracting the sleeves and a central orifice is provided for the passage of wires for this purpose. The upper toggle preferably depends from the lower side of the upper locking device while the lower toggle preferably extends above the lower locking device. A wire 23 extends upward from the lower toggle to the interior of the car body passing over suitable pulleys to a suitable securing means. A wire 24 extends downward through the orifice in the lug 14 from the upper toggle about suitable pulleys to the interior of the car or body to suitable securing means.

When the pontoons are secured in the lowermost position, as indicated upon the left hand side of Fig. 1, and in enlarged detail views in Figs. 4 and 5, the lower locking members are in engagement with the track so that to raise the pontoons to the position shown on the right hand side of Fig. 1, the wires 23 are pulled upward which will first retract the sleeves 18 of the locking members from engagement with the tracks then raise the pontoons until the upper locking members register with the upper orifices 16 and the coil springs of the upper locking members will then cause the sleeves 18 thereof to engage in these orifices. When in this position it is desired to lower the pontoons the lower wires 24 are pulled which will retract the upper locking members from engagement with the tracks and lower the pontoons until the lower locking members engage in the lower orifices 16 of the tracks and secure the pontoons in the lowermost position.

What I claim is:

1. In an aeroplane, a plurality of pontoons arranged on each side of the center of the aeroplane, landing devices, tracks upon the landing devices for attaching the pontoons, means for positioning the pontoons above and below the landing devices, and means for retaining the pontoons in either position.

2. In an aeroplane, a car or body, a pair of landing devices reciprocably mounted on each side of the car or body, a track upon each device, an extension of said track upon the car or body, a pontoon arranged on each side provided with means slidably engaging both tracks, means for raising and lowering the pontoons in said tracks, and means engaging the lower tracks to retain the pontoons in either position.

3. In an aeroplane, a car or body, a pair of reciprocable landing devices on each side thereof, a track upon each device and a corresponding track upon the car or body forming an extension thereof, a pontoon on each side, lugs upon each pontoon slidably engaging each track, a transverse locking member in each lower lug adapted to engage in apertures provided in the track, means to raise and lower the pontoon, and means actuated by the raising and lowering of the pontoon to actuate the locking member.

4. In an aeroplane, a car or body, a pair of reciprocable landing devices mounted on each side thereof, a track upon each landing device and a corresponding track upon the car or body, a pontoon on each side, lugs carried by each pontoon adapted to be embraced by and travel upon each pair of tracks, the track upon each landing device provided with apertures in its side walls in proximity to each extremity, a locking device mounted transversely in the lower pontoon lug comprising spring pressed reciprocable sleeves adapted to engage on either side of the lug in the track apertures, and means for retracting said sleeves and moving the pontoons upon the track independent of the relation of the landing device to the car or body.

5. In an aeroplane, a car or body, a pair of reciprocable landing devices mounted on each side thereof, a track upon each landing device and a corresponding track upon the car or body, a pontoon on each side, lugs carried by the pontoon adapted to be em-

braced by and travel upon each pair of tracks, the track upon each landing device provided with apertures in its side walls in proximity to each extremity, a pair of locking devices mounted transversely in the lower pontoon lug each comprising spring pressed reciprocable sleeves adapted to engage the upper and lower apertures in the tracks respectively, means for releasing the lower locking members and positively raising the pontoon in relation to the landing device until secured thereto by the upper locking device, and means for releasing the upper locking device and positively lowering the pontoon in relation to the landing device until secured thereto by the lower locking device.

PETER PETERSON.

Witnesses:
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THEO. NAGEL.