R. GILARDONE.

AEROPLANE TRACK.

APPLICATION FILED APR. 27, 1910.

1,066,203. Patented July 1, 1913.

Fig. 1.

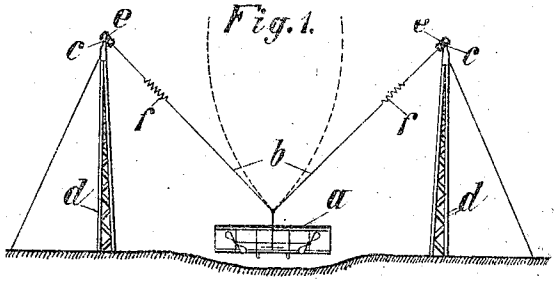


Fig. 2.

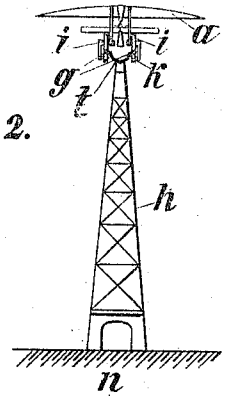


Fig. 3.

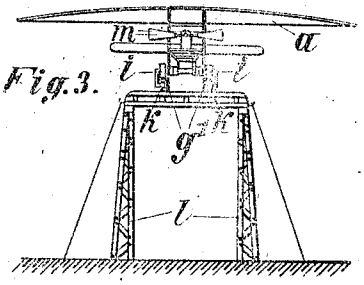


Fig. 4.

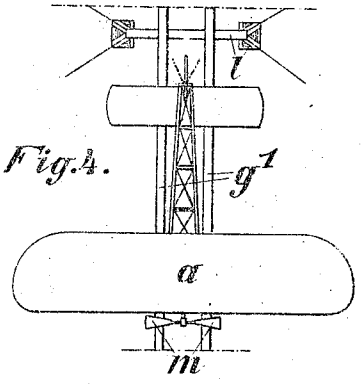


Fig. 5.

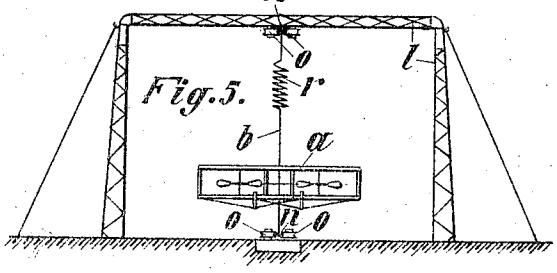


Fig. 7.

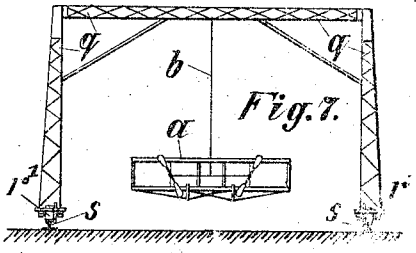


Fig. 6

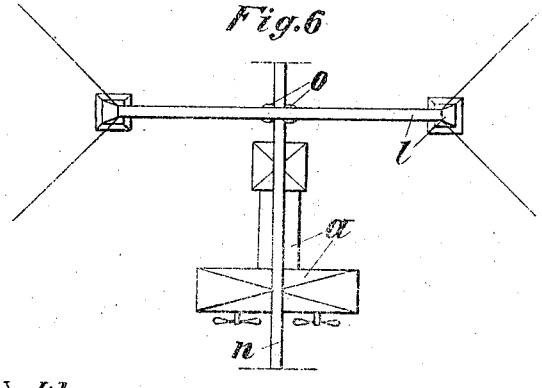
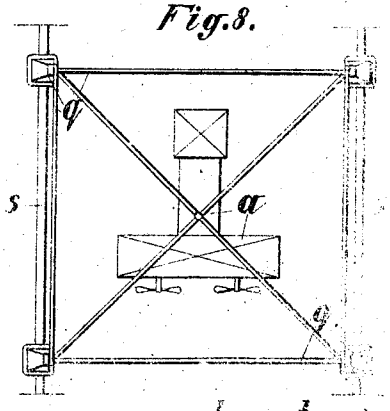


Fig. 8.



Witnesses.

D. F. Schilling.

Kenneth Romanes

Inventor,

Richard Gilardone

by Paul E. Schilling

his attorney

UNITED STATES PATENT OFFICE.

RICHARD GILARDONE, OF MUTZIG, GERMANY.

AEROPLANE-TRACK.

1,066,203. Specification of Letters Patent. Patented July 1, 1913.

Application filed April 27, 1916. Serial No. 557,952.

To all whom it may concern:

Be it known that I, RICHARD GILARDONE, a subject of the German Emperor, and residing at Mutzig, Alsace, Germany, have invented certain new and useful Improvements in Aeroplane-Tracks, of which the following is a specification.

The present invention has reference to improvements in aeroplane tracks and relates more specifically to improvements in contrivances for aiding a beginner in learning the manipulation and operation of a flying machine, and the invention essentially consists in means for suspending or supporting the aeroplane at rest or during its flight out of contact with the ground and the track superstructure.

The aeroplane, under which term I comprise flying machines with gliding action of whatever type, can be used for free flight, within certain limits, and also for merry-go-round or passenger quick-service purposes. In free flight the aeroplane has limited up and down and lateral movement, while in guided propulsion it has only a forward movement, in which friction in the guide parts is greatly reduced owing to the aeroplane's tendency to rise.

In order to make my invention more readily understood, I will now describe it with reference to the accompanying sheet of more or less diagrammatical drawings, in which—

Figure 1 shows a cross-section through the track with suspended aeroplane. Fig. 2 shows a tower supporting the aeroplane, with the guide rails in section. Fig. 3 shows a girder bridge, with two guide rails in section, supporting the aeroplane. Fig. 4 represents a top view thereof. Fig. 5 shows a bridge for suspending the aeroplane, with the guiding cables or rails in section. Fig. 6 shows a plan view thereof. Fig. 7 represents a rear view of a girder frame, running on parallel metals or rails shown in section, centrally of which frame the aeroplane is suspended, and Fig. 8 represents a top view thereof.

Referring to Fig. 1, the aeroplane *a* is suspended by means of ropes *b* from cables *c* which are supported on masts or towers *d*, set up in pairs on either side of the proposed course of flight. The cables are of square cross-section and carry trucks *e* to which are connected the ropes *b*. The wheels of the trucks are suitably provided with roller bearings. Upon the aeroplane motor being started and the aeroplane being driven forward, the trucks are dragged along the cables. The aeroplane can rise and can also swing out laterally of the median line, as shown by the dotted arcs. In order to prevent sudden shocks to the machine upon settling down, there are interposed in the ropes strong springs or other resilient members *f*. Since, in this manner, the aeroplane is prevented from coming into contact with either the ground or the towers, there is no danger connected with its operation even to the beginner. The course, by the arrangement of the cable towers, is so laid out, that the pupil has to pass through straight as well as curved stretches.

In Fig. 2 the aeroplane, or a number of them, rides on rails or ropes *g* held by forked supports *t* on top of the tower *h*. Wheels *i* and rollers *k*, journaled in brackets depending from the main frame, clutch the rails or ropes from above and below and prevent the machine from falling off.

According to the construction shown in Figs. 3 and 4, the lower part of the aeroplane frame is likewise in the form of a truck or carriage, the wheels *i* and *k* running on angular (U) rails g^1. These latter are carried by girder bridges *l*, spaced apart along the course. By regulating the velocity of flight and by skilful operation of the rudder or the planes, the pressure and the friction between the wheels and the rails can be reduced to a minimum. This form of construction is especially adapted to passenger traffic and for merry-go-round purposes. By raising the rails g^1 and lowering the aeroplane relative to the truck, the propeller shaft may likewise be lowered, for instance into the plane of the truck axles. The rails may also be arranged below the cross-girders, the side-girders being moved farther apart, and the aeroplane then be hung up by means of trucks traveling on the depending rails.

The machine, according to Figs. 5 and 6, is hung up by one or more ropes *b* held between ropes or cables *n* which are guided between rollers *o*. These latter are journaled in pairs on the cross-girders of bridge *l* and also on the ground, and the cables are traveled from a central station at the velocity the aeroplane is to attain. As soon as the proper velocity obtains, the aeroplane may be caused to rise by judicious steering.

the rope or ropes b slacking correspondingly. In this construction, the rails or cables may also be held stationary, and trucks provided, interconnected by a rope or ropes and suspending the aeroplane. The ropes b may be held taut by interposed springs r, or they may hang loosely, limiting the up and down movement of the aeroplane, and preventing at the same time dangerous jars.

According to the construction of Figs. 7 and 8, the aeroplane is suspended by ropes b from a trestle or girder frame q. The four corner pillars are carried by rollers r^1 which run on rails s laid out on the ground. The aeroplane has free play within this frame and in its flight drags it along.

The number of rollers and rails may obviously vary. In place of single rollers, two- or four-wheeled trucks may be used.

In operating the described constructions in passenger traffic or as merry-go-rounds, where the aeroplanes are positively guided and the propulsion is to be by means of the commonly used propellers, explosion motors or electromoters may be used. In the latter case the ropes and rails effectively serve as current conductors.

What I claim is:—

1. In an experimental apparatus of the class specified, an elevated track structure, a pair of oppositely-disposed trucks arranged to travel thereon, and an aeroplane having flexible connections with said trucks and self-contained driving and steering means, whereby said aeroplane may be driven forward in the direction of the track and directed both vertically and laterally within the limits of said connections.

2. In an experimental apparatus of the class specified, an elevated track structure, a pair of oppositely-disposed trucks arranged to travel thereon, and an aeroplane having flexible connections with said trucks and self-contained driving and steering means, whereby said aeroplane may be driven forward in the direction of the track and directed both vertically and laterally within the limits of said connections, said connections having resilient elements included therein.

3. In an experimental apparatus of the class specified, an elevated track structure comprising two oppositely-disposed series of towers and a cable connecting the tops of the towers of each series, a pair of oppositely-disposed trucks arranged to travel along said cables, a pair of ropes connected to said trucks, and an aeroplane connected to the free ends of said ropes and having self-contained driving and steering means, whereby said aeroplane may be driven forward in the direction of said track and directed both vertically and laterally within the limits of said ropes.

4. In an experimental apparatus of the class specified, an elevated track structure comprising two oppositely-disposed series of towers and a cable connecting the tops of the towers of each series, a pair of oppositely-disposed trucks arranged to travel along said cables, a pair of ropes connected to said trucks, and an aeroplane connected to the free ends of said ropes and having self-contained driving and steering means, whereby said aeroplane may be driven forward in the direction of said track and directed both vertically and laterally within the limits of said ropes, said ropes having resilient elements included therein.

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

RICHARD GILARDONE.

Witnesses:
JOSEPH ROHMER,
AUGUST OOSTERMAN.