

H. GERNSBACK.  
 APPARATUS FOR LANDING FLYING MACHINES.  
 APPLICATION FILED MAY 20, 1918.

1,392,140.

Patented Sept. 27, 1921.

Fig. 1.

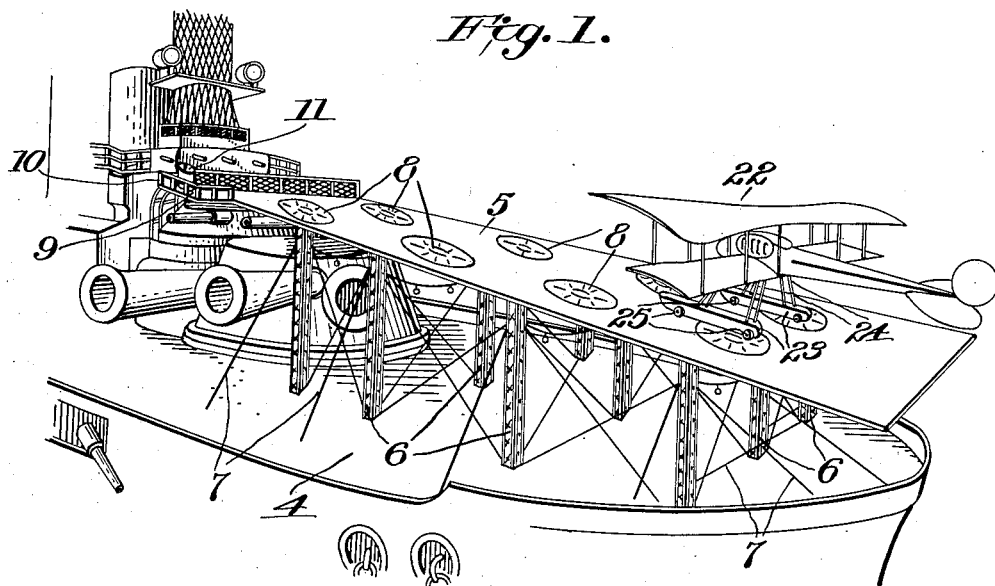


Fig. 2.

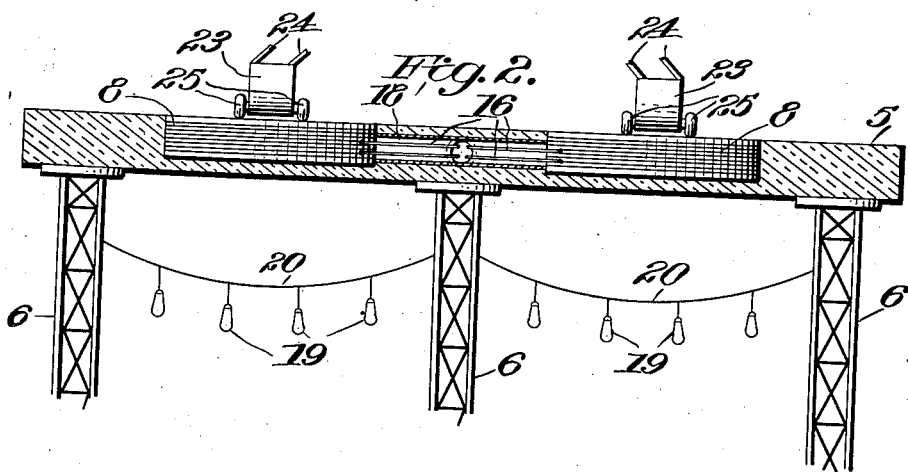
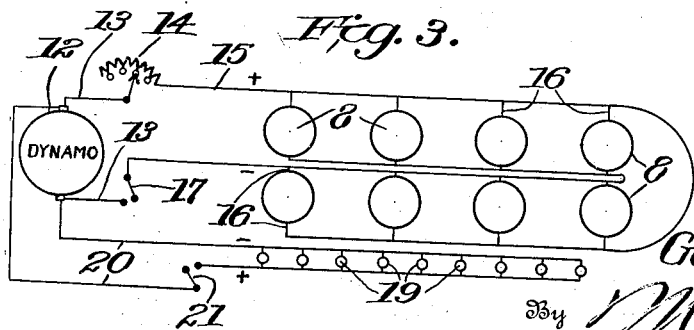


Fig. 3.



Inventor,

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 Attorney.

# UNITED STATES PATENT OFFICE.

HUGO GERNSBACK, OF NEW YORK, N. Y.

APPARATUS FOR LANDING FLYING-MACHINES.

1,392,140.

Specification of Letters Patent. Patented Sept. 27, 1921.

Application filed May 20, 1918. Serial No. 235,675.

To all whom it may concern:

Be it known that I, HUGO GERNSBACK, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Apparatus for Landing Flying-Machines, of which the following is a specification.

My invention relates to landing mechanism for aeroplanes or other flying machines and to the process of effecting the landing.

The main object is to provide a means whereby flying machines may alight from all directions gradually, smoothly and without shock to the machine or its occupant, and be held securely in place until lashed or otherwise fastened. Many theories and mechanisms are known which have resulted from unsuccessful attempts to satisfactorily accomplish this object. At the present time where a large open field cannot be used, the most feasible plan is to provide a run-way or platform which is necessarily so restricted in area, especially in width and usually in length too (this is especially true on ships) that the most experienced aviators consider it so difficult to control the machines while alighting as to be impractical. Many accidents now occur during bad weather in landing on these run-ways.

In carrying out my invention, I overcome the objections noted and use a means which exerts a tractive force on the flying machine while still in motion to gradually retard or brake its momentum and attract and hold it securely for lashing to a support, and preferably employ said means as a plurality of separated units so that the tractive force will not concentrate at a single point, but will be divided among the separated units. Further, electro-magnets are used as the attracting means and are mounted in a glass platform or landing space, serving both as an insulator for the magnets and as a means which may be illuminated by the use of search or other lights to assist in effecting landings during darkness. The landing surface of the platform or space is to be lubricated or treated so that a flying machine may slide or travel thereon without unnecessary friction, wear and noise.

In accompanying drawings, one practical embodiment of the invention is shown.

In said drawings, Figure 1 is a perspective view showing the application of my im-

provement to a fragment of a battleship and with a hydroplane disposed on the landing platform;

Fig. 2 is a transverse sectional view across the platform, showing fragments of its support and of the hydroplane, and

Fig. 3 is a diagrammatic view of the electric wiring used.

In the embodiment shown, the improvements are associated with a battleship, being supported from the main deck 4. A landing run-way or platform 5 is used, being supported from the deck by means of posts 6 braced by suitable guys 7. This platform is capable of being supported in any suitable manner, either on a ship, or elsewhere, permanently or detachably or collapsibly.

Said platform may be made of any preferred material, in the instance shown however being made of transparent glass. Embedded in the glass, preferably in transverse pairs and with their upper surfaces flush with the upper surface of the glass, are electro-magnets 8. In practical use, these electro-magnets for example, may be 50 or 60 inches in diameter and capable of attracting 200,000 pounds. The electro-magnetic field will extend to within 2 or 3 feet above them.

Platform 5 has a lateral extension at 9 with its outer edges surrounded by a barrier 10. This enlargement supports a controller 11 which is operable to energize or deenergize the electro-magnets 8. In the present instance, the current for the electro-magnets is supplied by the dynamo in the boiler room of the battleship. Reference should now be had to Fig. 3.

Referring to said Fig. 3, the dynamo is shown at 12 having leads 13 supplying current through a rheostat 14 to wires 15 which are bridged by conductors 16, wiring the electro-magnets 8 in parallel. An electric switch 17 is preferably provided in one of the wires 13. Rheostat 14 and switch 17, essentially make up the controller at 11.

Since the platform 5 is transparent, suitable search lights or lamps may be disposed beneath it so that when lighted, they will present an illuminated area for the guidance and aid of the aviator in landing upon the platform 5. The various wires are contained in conduits 18 embedded in the platform, as shown in Fig. 2. The lights or lamps referred to are suggested at 19, lead-

ing from conductors 20, suspended from the standards 6 or other suitable parts. In Fig. 3, it will be seen that the lamps 19 are arranged in parallel and that the conductors 20, may lead from the dynamo 12, and one of them have a switch 21 therein.

To cooperate with the landing apparatus, the flying machine of which a conventional type is shown at 22, may have iron or other suitable metallic bars 23 capable of being attracted by the magnets 8. These bars are supported from the machine in any suitable manner as by means of struts 24. In landing, the bars 23 may slide over the platform and magnets, and to this end, their under surfaces are preferably lubricated. If desired however, these bars may be mounted on rollers or wheels 25 adapted to ride on the upper surface of the platform. It will be noticed, that the bars 23 are in the locations usually had by the pontoons of a hydroplane. If the pontoons are carried by the flying machine, metallic strips or other means to provide metallic surfaces to be attracted by the magnets, may be secured to their under surfaces.

In use, when a flying machine is about to land or alight on the platform 5, the operator at the controller 11, manipulates it to energize the magnets 8 to the desired extent. When the flying machine approaches the platform and is about to land, its power is shut off. However, before it lands, it travels over and above the platform 5 while still possessing momentum. To realize the tractive effect of the magnets, the machine must travel within two or three feet above them. The tractive effect of the magnets is to draw the bars 23 directly to the magnets but this action is counteracted as the bars will not travel in a straight path to the magnets in view of the momentum of the machine. Be-

fore finally landing, the machine usually passes over two or three sets of the magnets before its motion is finally arrested. When arrested, it will be realized that the electro-magnets attract the bars and securely hold the flying machine on the platform. The flying machine may then be lashed or otherwise secured to the platform or adjacent structure, after which, the controller is operated to cut off the supply of electricity and deenergize the electro-magnets. If the landing be effected during darkness, switch 21 is closed before the magnets are energized in order to illuminate the landing for the aid and guidance of the aviator. It is well, when passing over the magnets, for the bars 23 to be disposed where magnetic attraction is weakest and then cause the bars to travel in an inclined position toward and closer to the inner sets of the electro-magnets.

I claim:

1. Landing apparatus having a platform of glass provided with a recess, an electro-magnet disposed in said recess with its upper surface flush with the upper surface of the platform, means to support the platform, means to energize said electro-magnets including wires, and means embedded in the platform through which the wires pass to the magnets.

2. Landing apparatus including a platform of glass, a plurality of electro-magnets embedded at intervals in said platform, means for controlling the energizing of said magnets, and means for illuminating the platform.

In testimony whereof, I have affixed my signature in the presence of two witnesses.

HUGO GERNSBACK.

Witnesses:

EDWARD WOOD,  
DOROTHY KAUTROWITZ.