

UNITED STATES PATENT OFFICE.

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AIRPLANE-LAUNCHING GEAR.

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This invention relates to airplane launching gear, and has for its principal object means for attaining flying speed in the shortest possible space.

Heretofore airplanes get into the air by running on level ground until flying speed is attained. When conditions are not favorable, because of heavy load, for example, getting into the air is often attended with considerable difficulty, and sometimes with disastrous results. It is well understood that a plane will carry a heavier load than it can pick up off most flying fields.

These long runs, necessary to attain flying speed, require large fields. Such fields are available only at considerable distances from the business centre of large cities. But even if it were possible to find a tract of ground close in, the acreage cost would be prohibitive.

These distantly located flying fields make airplane delivery far less attractive to business than it should be, for the field is the end of swift movement of the package or letter. Between the field and the business centre of the city the movement is relatively slow. The airplane cannot, therefore, compete on advantageous terms with the railroad or the automobile except in the long hauls.

In order that the swiftly flying air service may be of the greatest possible value, it is necessary that the termination of the flight shall be as near as possible to the business interests it serves.

Successful landings in very restricted space, as small fields, the tops of large buildings, the decks of "mother ships," etc., is provided for in Patent No. 1,634,904. The object of the invention of this application is to insure an equally successful take-off from the same "field."

With this and other objects in view the invention consists of the novel details of construction and combination of parts hereinafter disclosed and particularly pointed out in the claims.

In the schematic drawings herewith, Figure 1 is an elevation, Figure 2 a front-view at the point Y of Figure 1, and Figure 3 a detail.

In the figures, A is a platform from which the plane may take-off; B the inclined runway for the wheels; C the runway for the tail-skid; D a centre pivot which would be

located in the middle of the field; E a circular track upon which the outer end of the runway may be turned about to face the wind; and F a motor for so moving it, or for other useful purpose, as, for example, pulling the plane up the incline, but means for this purpose are so well-known that no illustration is believed necessary for complete understanding of the present invention.

B² is a flange-cover or wheel-guard to prevent the wheels from accidentally lifting off the runway. A similar arrangement for the tail-skid is provided in flanges C² under which the lugs C² of the tail-skid move. Both flanges B² and C² end at about the point XY of the runway (Figure 1).

With the plane on the launching platform the usual blocks or other acceptable means would be employed to hold the plane while the engine is warmed up.

The tail-skid is held up by the elevation of the tail-skid runway C, above the wheel runway B, so that the wings will have less attack angle and, therefore, the least resistance in the downward plunge which gives the plane its initial acceleration. As the plane nears the bottom of the launching way the tail-skid runway gets lower and lower so that the wings have an increasing lift angle, automatically, with no change in the elevator required of the pilot. The pilot simply holds the stick at climbing angle from the start, while the contour of the tail-skid runway gives the correct air attack angle at the several stages of the launching. The result is that the plane flies off the runway the moment flying speed is attained, and the plane continues to climb.

When, in this method of launching, to the normal gravitational acceleration of the plane (32.2 feet), there is added the power acceleration of the motor itself, it is readily seen that flying speed is easily attained before the end of the first second. This brings the structural dimensions of the launching gear well within practical limits.

The tail-skid runway not only serves to set the correct angle of attack at successive stations of the launching way, but it also guides the plane transversely straight down the launching way so that the wheels do not bind on the side rail-guides.

What I claim, is—

1. In airplane launching gear, the combi-

nation of an inclined runway, and an airplane tail-skid support-guide thereon of varying elevation in respect to the level of the wheel-runway.

5 2. In airplane launching gear, the combination of an inclined runway, and a lateral guide thereon for an airplane tailskid.

3. In airplane launching gear, the combination of a runway, and a lateral guide thereon for an airplane tailskid. 10

In testimony whereof I have affixed my signature.

CHARLES FRANCIS JENKINS.