

NEW PLANE HAS RADICAL FEATURES

By CLIFTON ROCK.

AN airplane with two staggered wings, a "gear shift" with eleven "speeds," no stabilizer, heretofore considered by airplane engineers an absolute necessity for safety operation, and many other revolutionary features is the subject of a recent experimental design recently tested by Donald A. Hall, designer of Colonel Lindbergh's Spirit of St. Louis.

Secrecy has surrounded the project since the beginning of work on plans more than a year ago. This secrecy was merely due to the experimental nature of the undertaking and a wish not to permit conjecture to overweigh scientific investigation.

Designed for Mahoney-Ryan.

Hall designates the new plane as a low-winged tandem monoplane; it was designed for the Mahoney-Ryan Aircraft Corporation of this city.

Since the plane itself was completed early last Summer it has been subjected to severe tests to prove its advantages or disadvantages. Briefly, the advantages are instant response to manipulation, extreme ease and speed in manoeuvrability, great strength and the utmost stability.

J. J. Harrigan, one of the oldest test pilots now active, who conducted

Designer of the Spirit of St. Louis
Devises Craft With "Gear Shift"

the trials of the new monoplane, says:

"In the fourth speed of the elevator occurs the action of all controls and the resulting manoeuvrability put this plane in the single-seater pursuit or fighter class, and, with a suitable power plant, this plane would outmanoeuvre any single-seater pursuit airplane. The radii of turns are even smaller than for a pursuit plane."

The elevator in the rear, regarded as a tandem wing, is perhaps the chief peculiarity of the plane; it has a span of fifteen feet and a breadth of thirty-nine inches, amounting to a movable wing which combines the stabilizer and is about half the span of the main wing spread.

The low wing, which has been the subject of much recent experimentation by airplane engineers, has many advantages, its designer holds. It has a large angle of incidence, perhaps accounting for the fact, or at least greatly aiding it, that the plane may be stopped almost instantly upon landing. This plane in landing comes down in a steep glide, eliminating the long glide of the usual

airplane. This makes landing possible in a very small space, and to the observer it seems that lighting on top of an ordinary sized office building would be perfectly possible.

The "speeds" for manoeuvrability and controllability, which have been alluded to, are described by Hall as follows:

"There is a variable leverage ratio between the control stick and the large wing elevator with a total of eleven speeds, available by means of a lever at the right of the pilot. This variable elevator control was designed for use in the experimental model only and is not necessary for ordinary flying, although it would have a very good use in special types of airplanes such as pursuit, or fighters, and training planes.

"Many unusual stunts have resulted from accidental experimentation in the higher speeds, the pilot, Harrigan, relates. On one occasion he lost control of the plane upon coming out of a fog bank at an altitude of about 200 feet. In the ordinary plane a whip-stall would have resulted and, were the plane flying even at an altitude several hundred feet higher, it

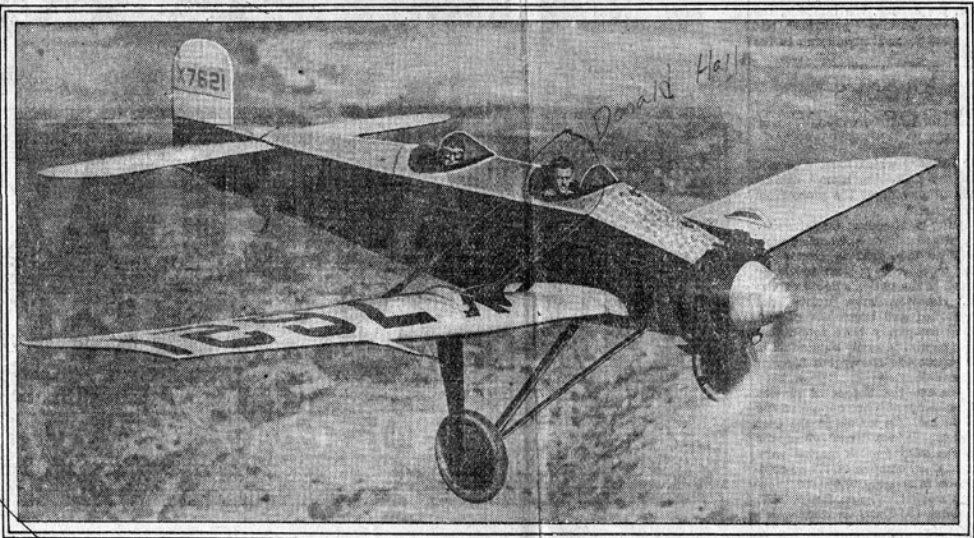
might have ended in a crash, but this monoplane, uncontrolled, recovered itself almost instantly and resumed its normal attitude of flight.

"An extremely tight loop can be made," reports Hall. "If a slow loop is attempted, the ship half rolls at the top of the loop, thus doing an Immelman turn automatically. In a forced landing in a small field the ship can be ground looped just after touching the ground, stopping almost instantly without any danger of rolling over on one side. This is a manoeuvre due to the exceptionally wide tread of landing gear.

Comes out of a Dive.

"At any throttle the plane, if forcibly stalled, will go into a moderate dive, then, when the pilot lets go of the stick, it will come out after a short period, attaining a normal attitude of flight. This normal attitude will be level flight, a climb or a glide, depending upon the throttle opening."

The weight of the monoplane fully loaded and with crew is but 1,630 pounds. The model is powered with a Warner Scarab seven-cylinder air-cooled engine. The craft's speed, as established upon the navy three-kilometer speed course at the Coronado Strand, near San Diego, was found to average 119 miles per hour, which is good for the power plant installed.



A New Tandem Low Wing Monoplane Designed by the Designer of Colonel Lindbergh's Spirit of St. Louis.