HB#1

# The Herring-Burgess Machine

CERTAINLY the finest machine that has yet been seen, from a point of fine workmanship and finish, is the new Herring-Burgess biplane, built by the W. Starling Burgess Co., of Marblehead, Mass. Five orders have been received for machines. A duplicate of the one shown at Boston goes to C. W. Parker, of Abilene, Kans., on March 15. The others will be turned out at the rate of one a week. Two will be of special design, and the others, duplicates of the present. One will be used in the Gordon Bennett meet. Sheds are being built, to house two machines, on Plum Island, near Newburyport, Mass., where there are many miles of flat open country.

The new biplane resembles greatly the well-known Herring-Curtiss, except that it has neither wheels nor "ailerons," the engine is set further to the rear, so that there is no notch in the planes for the propeller and the planes are set at a steeper angle. The curve is more efficient, lifting a given load at less speed and with less thrust. The travel of the center of pressure is only about 4 in., about one-third of that in its prototype. The controls are different, also, there being no steering wheel; levers being substituted, in addition to which are the foot controls. The control system is being patented so that full details are not disclosed.

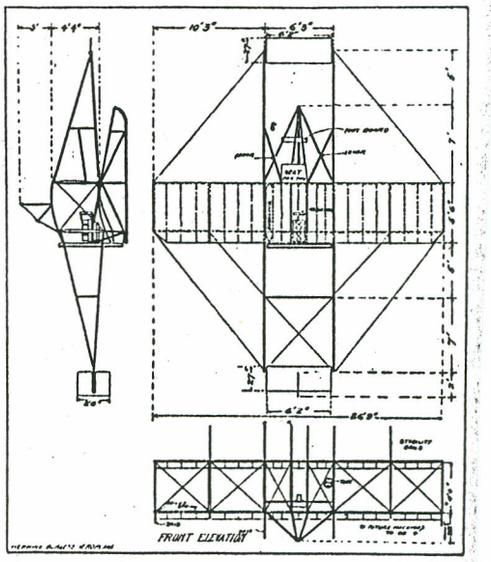
*Main Planes.*—These spread 26 ft. 9 in., with a depth of 56 in., spaced 4 ft. 4 in. apart. Succeeding machines will be spaced 4 ft. The ribs 25 to a plane, as well as the other parts of the machine, are of spruce. The small ones have three laminae and the main ribs at the 16 strut points have 12. The planes are covered with "Naiad" silk. Under the motor, between the central struts the whole lower surface is of aluminum sheeting. No turnbuckles are used throughout the machine, guy wires in the main cell being kept taut by the introduction of coiled springs, which absorb all shocks. The strut sockets are of tempered sheet tool steel, weighing but a half-ounce each. They are in two parts, one being fastened to the lateral beam and the other to the strut itself and are joined by a pin, which makes of the two parts a hinge, instantly detachable. All struts and cross-beams are fish-shaped. The hollow cross or lateral beams are hollow, as well as the larger spars running out to the rudders, and each section weighs but two pounds. Each lateral beam is in three sections and the main cell as a whole separates quickly into three sections, or each plane alone if desired. The planes are set at a very steep angle.

5'6"

*Other Surfaces.*—A single surface horizontal rudder 27 in. deep by 6 ft. 2 in. spread is to be used in place of the double surface rudder exhibited at the show. This is pivoted 12 ft. from the front edge of the main plane. In the rear, 12 ft. from the rear edge of the main cell, is pivoted a movable horizontal single surface 27 in. by 6 ft. 2 in., bisected by a vertical movable rudder 2½ ft. by 2 ft.

*Power Plant.*—A stock 25-horse-power Curtiss motor, in which the oiling system has been changed and the material and size of bearings been altered, drives direct a 4-bladed Herring propeller, 6 ft. diam. by 5 ft. pitch, which gives a thrust with this engine of over 200 pounds. Ignition is by Bosch and the radiator is an El Arco.

*Stability.*—The lateral equilibrium of the machine is partially automatic, banking itself on curves in proportion to the centrifugal force. The device was not shown at the Boston exhibition.




Back of six of the eight front struts of the main cell are masts 3 ft. in height, from which vertical triangular sails or vanes run back to points along the rear lateral beam. Each of these is held, when the machine is on the ground, by rubber bands, in a plane at right angles to the lateral beams. When the machine heels over on turning, or skids, the pressure against these vanes automatically tends to right the machine. It would be possible to equip these with a device by which the aviator could move them as might be required.

*Control.*—Steering right and left is by a lever in either hand working independently. Fore and aft control is by a foot lever on the right side, and left foot controlling the throttle. The spark is fixed. Both these foot levers are mounted on friction bearings, capable of adjustment, so that the rudder will retain the angle at which it is set by the foot if the foot is taken off. The same applies also to the engine. The arms may rest on two brace spars running from the strut on either side of the aviator to the vertical struts in the outrigger framing.

*Mounting.*—The machine rests on the central skid. Under the two middle struts of the main cell are two skids raised a few inches from the ground, while at each extremity of the main planes is another small skid. At present, the machine is designed to slide on the ice on the long central skid. In starting, the machine is tied to a post by a rope ending in a butterfly hook. When the aviator is ready, he pulls a string which allows the wings of the "butterfly" to fly back slipping the rope. The weight of the entire machine, without operator, no fuel or supplies, is 360 pounds

For teaching, a motorless duplicate will be used, using a falling weight to be released by the operator. As the student becomes more and more familiar with the machine, the height of the drop will be increased. A tank of water, equal in weight to the engine, will be installed.

## Herring-Burgess Machine's First Flight.

Hamilton, Mass., Feb. 28.—The first trial flight of the new Herring-Burgess aeroplane took place late this afternoon over the frozen surface of Chebacco Lake, with A. M. Herring as aviator, after waiting all day for the rain to let up.

The machine was hooked to the butterfly releasing device which was secured to a stake, the Curtiss engine started on the first turn, and after a slide on the ice of about 80 ft. under its own power, the machine easily took the air and traveled on even keel with the light wind at an elevation of 45-50 ft. for about 140 yds. A turn to the left was made to try the stability device. It was the first time the stability device and the releasing scheme, both of which worked satisfactorily, had been tried out in flight.

# A Newly Discovered Right of Way

By Charlemagne Sirch

DURING this period of aeronautic progress the question of ownership of the air has already been the subject of debate. The rights of the landlords, based on Blackstone's musty law "Who owns the land owns to the heavens above," have recently been the basis of speculative fiction in which this circumambient gaseous area has already been segregated for commercial purposes into its components of linear and of gaseous content—the former as an aeronautic right of way and the latter as a source of nitrates in the manufacture of fertilizer now being conducted as a great enterprise in Sweden.

As a result the landholder, having made a fortune from the timber on his land and perhaps another from the mineral beneath or the soil on top, is rubbing his palms hopeful of a new source of income. On the other hand the aeronaut or aviator is tacitly under suspicion as a trespasser. He boldly makes his flights through air space assumed to be the property of the landlords who for the present prefer the outlaw to go unhung.

The purpose of this paper is to remove this menace of aerial privacy and to "nail the Stars and Stripes" on a newly discovered territory. Imprimis, by the common law the possessor of a piece of land—of a city lot 50x150 ft. in its dimensions, for example—owns all land beneath and air space above to the zenith. Hereby no landowner, supposing him to be cognizant of his rights in *Cujus est solum, ejus usque ad caelum* can lay claim to more than his right and title to this column of air space 50x150 feet in cross-section and extending to the "heavens above."

I respectfully recommend that we grant this right.

Now I beg to point out that a segment of a spherical body like the earth has lines constantly diverging from the center. These lines at the surface after passing through the boundary lines of the above mentioned city lot continue diverging while the air space belonging to the landlord is contained within perpendicular lines of his surface area. The angle S between the vertical boundary of the land and the projected divergent radius presents abundant linear dimensions in every direction for aeronautic purposes.

Having duly explored sufficient of this newly discovered air space to calculate its extent I now take pleasure in repeating the Peary business with the Stars and Stripes and present this vast region to all aeronautic pilots, pirates, and quasi-trespassers present and to come to be used as an aeronautic highway in perpetuity, world without end. Amen.