



THE NEW FLYING MACHINE.

We are now enabled to place before our readers the principal details of the new flying machine. It will be remembered that two very successful ascents were made with the machine, and sufficient was done to show that properly worked out the idea was the most practical of any then invented. The patent was secured a few months ago, in this country, by F. A. Lehmann, of Washington, and C. Ritchel, of Corry, Penn. The features claimed by the patentees are:—1st. Pivoting or journaling a propeller wheel upon the front end of the machine, whereby the machine can be made to move either backward or forward, or turn to the right or left, thus enabling the operator to move the machine in any direction desired. 2nd. The combination of a balloon, an operating mechanism, a propeller wheel to raise the machine, and a propeller wheel that is pivoted upon the front end of the machine, so that it can be turned in any direction, and which moves the machine in any desired direction. Fig. 1 is a side elevation of the devices for operating the lifting wheel; and Fig. 2 is a detail view of the device for operating the guiding and propelling wheel upon the front end of the machine.

The latter consists of a balloon of any shape, size, or construction, provided it has a lifting capacity sufficient to almost lift the apparatus together with at least one person, thus leaving very little for the lifting wheel to do. By thus giving the balloon such a lifting power all the more force may be applied to driving the machine back and forth and from side to side, and the descent will be more easy and gradual. Secured to the under side of this balloon, by means of suitable light strong rods and braces, is a frame of any desired construction or material, for the support of the operator and the driving machinery. Resting upon two of the cross bars of this frame is the seat upon which the operator sits, and this seat is so located in respect to the machinery as to enable him to apply his whole strength to the propulsion and management of the machine.

To the main driving wheel is secured a crank, by means of which the machinery is operated. This bevelled wheel meshes with a bevelled pinion, which is secured to the top of the vertical shaft Fig. 1. To the lower end of this shaft is secured a bevelled wheel, which is always in gear with one of the two bevelled wheels on the horizontal shaft H. These two wheels are placed loosely on shaft H, and gear at their lower edges with a bevelled wheel on the top of the shaft, to which the lifting propeller wheel is secured. Feathered upon the shaft H, on the outer side of each wheel, is a clutch, which may be thrown in gear alternately with either wheel by means of a hand lever, placed within easy reach of the operator. By throwing one clutch in gear the propeller will be made to revolve in one direction, and lift the machine upward, and by throwing in the other clutch the shaft H will revolve in the opposite direction, and cause the machine to move backward.

The shaft H may be made in one continuous piece, or may be jointed, as here shown, and have its forward end project through the front of the frame to receive the bevelled wheel S, Fig. 2. This wheel meshes with a similar wheel placed on the vertical shaft V, journalled in suitable bearings, which wheel communicates motion to the wheel secured to the inner end of the shaft to which the guiding and propelling fan is secured. The frame carrying the propelling fan and the gear is pivoted, P, to the supports extending from the balloon; hence the fan can be moved around to either side. A treadle is placed near the foot of the operator, to which is connected a rod, the front of which has a rack formed upon it for the purpose of engaging with the wheel W, secured to the top of the vertical shaft V, to which the bearings of the propelling fan are secured. The operator, by pressing with his foot upon the treadle, can turn the propelling fan to the front, or around to either side, or to any intermediate point between. The operator having started the main driving wheel, throws one of the clutches in gear, and the propeller (Fig. 1) causes the machine to rise upward, at the same time as the propelling fan causes the machine to move forward. By means of the treadle the operator causes the propelling fan to turn in any direction, and thereby makes the machine move straight ahead to either side, back, or turn completely round, as upon a pivot. By reversing the horizontal fan the machine will descend at any desired rate of speed, and the front propeller (Fig. 2) may be made to stand still if desired. Although the latter is shown as having only a horizontal shaft, the patentees may in some instances use a universal joint, and thus employ it for assisting the machine to rise vertically upward and to descend, as well as to move the machine backwards or forwards or around in a circle.

Correspondence.

To the Editor of THE SCIENTIFIC CANADIAN:

DEAR SIR,—Calling your attention to your article "Room for Invention," page 41, February number, let me assure you that the navigation of the air need not long remain undemonstrated; in these times science and mechanism can supply everything needful to a good, practicable air-ship, which will travel at great speed, and be perfectly under control. By giving these remarks publicity, you may assist science by attracting the needed capital to practically prove the feasibility of aerial navigation.

Communications addressed "Aeronautics," P. O. Lachute, P. Q., will receive attention.

[Our correspondent will find on this page something *à propos* to his communication.]—ED.