

## AN IMPROVED AIR SHIP.

An air ship designed to be completely under the control of the operator, and to be easily steered and propelled in any direction, with, on, or against the wind, is shown in the accompanying illustration, and forms the subject of a patent issued to Mr. Herman A. J. Rieckert, of No. 124 Rivington Street, New York City. The most prominent feature of the construction is a balloon made in three compartments, the lower one stiffened by a framework and supporting the second compartment, on which is secured the third compartment, exposed to the action of the wind, and with its edges attached to the framework. A closed basket, the interior of which is partly shown, is supported on the under side of the balloon, and contains a motive power, preferably in bicycle form, for operating sidewise flapping wings and central wings. A suction wheel is mounted to rotate above the basket at its rear from the motive power located in the basket, communicated through a friction wheel, which can be readily thrown into and out of contact with the suction wheel, while a propeller wheel is secured on the shaft of the friction wheel, to be operated thereby. The steering device, located in front of the basket, consists of a vertical wing mounted to swing, and a disk wing pivoted on the vertical wing, ropes extending into the basket for operating the wings. Connected with the balloon is a

in shape, while the outer wings are placed in an inclined position, and have an outer frame and a central partition, between which and the sides of the frame are slats, on which are secured strips of canvas. These strips are bag shaped, the outer ends of each extending under the next following slat, so that when the wings move upward the bag parts of the canvas strips are opened downward, and when the wings move downward the bag parts are pressed up against the slats, whereby the wings will operate with their full power on the air. The central wings also have similar slats and canvas, and the arrangement is such that when the outer wings move upward the inner ones move downward, and *vice versa*. The balloon is also provided with the usual device for letting out gas in case a rapid descent is desirable, and it is designed that boats shall be secured to the bottom of the basket to sustain the entire device above water should it descend on a lake or ocean.

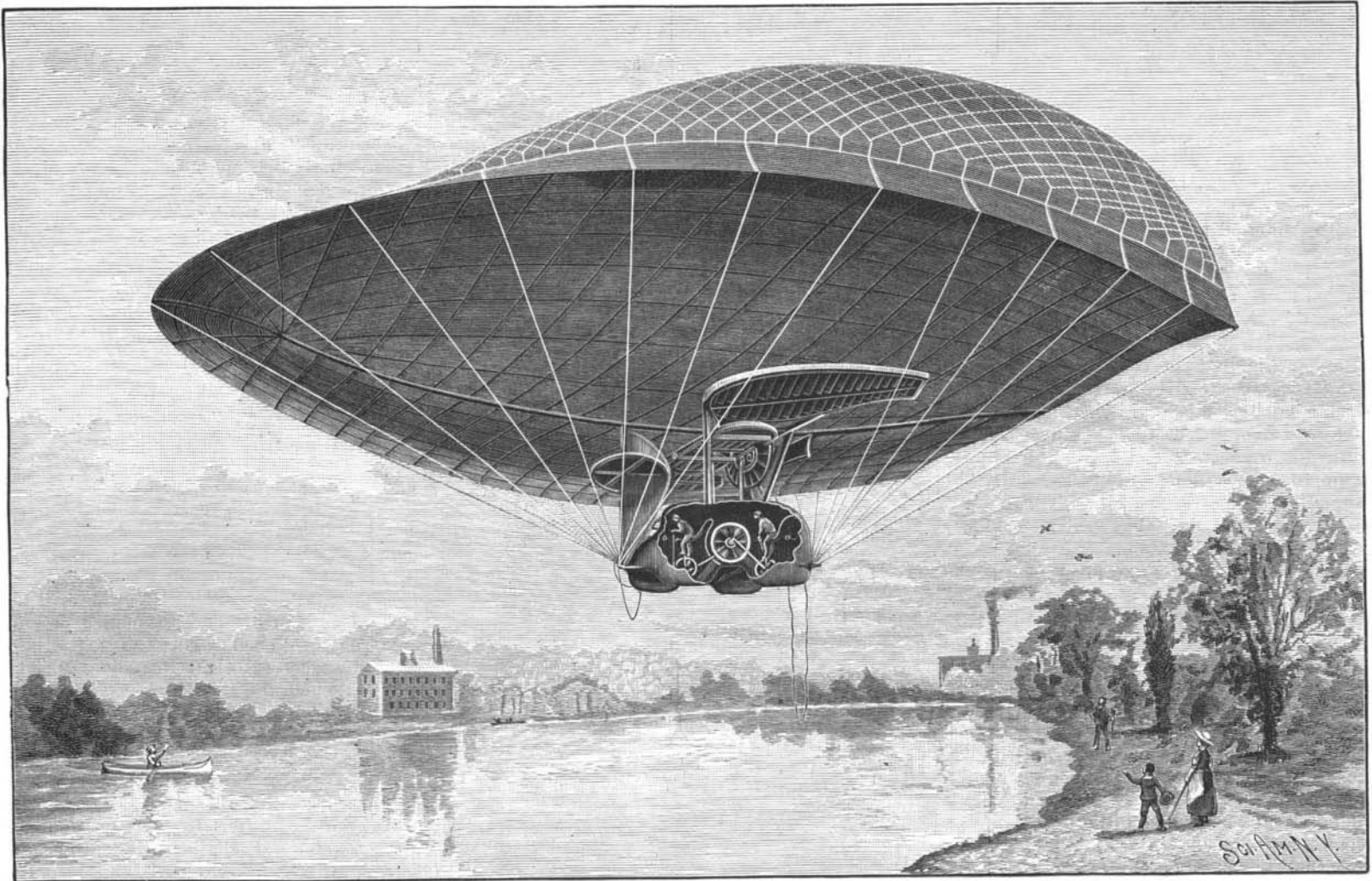
## Chance for Inventive Genius.

The State Grange of Illinois, through its executive committee, headquarters at Joliet, offers \$10,000 to be paid to any one who will invent a machine or device to attach to reapers that will bind wheat and oats with straw.

Said device may work and twist its straw direct

of infant life. Hearing, therefore, is the only special sense which is not active at this time. The child hears by the third or fourth day. Taste and smell are senses at first most active, but they are not differentiated. General organic sensations of well-being or discomfort are felt from the first; but pain and pleasure, as mental states, are not noted till at or near the second month.

The first sign of speech in the shape of utterance of consonant sounds is heard in the latter part of the second month; these consonants being generally "m," "r," "g," or "t." All the movements of the eyes become co-ordinate by the fourth month; and by this time the child begins to have the "feeling of self," *i. e.*, he looks at his own hands, and looks at himself in the mirror. The study of the child's mind during the first year shows conclusively that ideas develop and reasoning processes occur before there is any knowledge of words or of language; though it may be assumed that the child thinks in symbols, visual or auditory, which are clumsy equivalents for words. By the end of the year the child begins to express itself by sounds, *i. e.*, speech begins. The development of this speech capacity is, according to Preyer, in accordance with the development of the intellectual powers. By the end of the second year the child's power of speech is practically acquired.



AN AIR SHIP WITH BALLOON DESIGNED TO BE READILY PROPELLED IN ANY DIRECTION.

filling receptacle, communicating with its three compartments, this receptacle having an inlet pipe adapted to be connected with the gas supply, while three outlet pipes lead to the compartments, and apertured slides held in the receptacle control the inlet of gas and the outlet of air. In the basket are wheels mounted to be rotated by crank arms and treadles, an eccentric being secured on the shaft of the central fly wheel, a rod extending upward from which is connected with a lever, by which the suction wheel is operated, while the flapping side and central wings are operated from the rod. Combined with the main flywheel is a starting device, consisting of a friction wheel adapted to engage the periphery of the flywheel, while the shaft on which the friction wheel is secured carries a propeller wheel, its shaft having a pivotal bearing, with the free end of which a lever is pivotally connected, to throw the bearing up or down to alternately engage or disengage the friction wheel.

The different compartments of the balloon are covered with the usual material, preferably silk, and the top compartment is made to shift and assume different positions according to the direction and strength of the wind, our illustration showing its position at a normal pressure of the wind or at a normal velocity of the air ship. A sidewise pressure of the wind causes the top compartment to shift to the right or left, while the central compartment is almost stationary, shifting very little. On the under side of the lowest compartment is a transverse offset directly above the propeller wheel, the offset causing the air thrown out by the propeller wheel to exert a pressure against the front part of the lower compartment, so that the balloon will rise more easily. The inner wings are rectangular

from the reaper, or it may be a separate machine that will twist the straw and wind on large spools that may be rereeled on smaller spools by the farmer and set in place in the reaper when wanted. Said money to be paid as soon as the device is proved to be a success. Should more than one person claim the above \$10,000 on his invention, the committee reserve the right to choose the one that to them seems most practical. The said patent to be issued for the use and benefit of the Illinois State Grange and legally transferred by the said patentee. This offer holds good until July 8, 1889, and is signed by the following officers of the Grange:

J. M. THOMPSON,  
Master Illinois State Grange, Joliet, Ill.  
J. R. SHAVER, Ottawa,  
GEORGE R. TATE, Smithton,  
J. H. VANARSDALE, Peoria,  
Executive Committee.

## Growth of the Child's Mind.

In the last volume of the "Education Series," on "The Development of the Intellect," Mr. H. W. Brown has presented a conspectus of the observations of Professor Preyer on the mind of the child. This conspectus shows chronologically the gradual development of the senses, intellect, and will of the growing child, and presents in a condensed form the result of a great number of careful observations. Many of these results are already well known, but the presentation of them in a systematic and complete way has not heretofore been done.

It is recorded that sensibility to light, touch, temperature, smell, and taste are present on the first day

Professor Preyer's most striking and important conclusion, in his own opinion, is that the normal infant can form concepts and perform logical operations without the aid of words, or gestures, or symbols of any kind. He also shows what was known before, that the infant understands spoken language before he can produce the sounds he hears; and finally that the child, before he begins to speak, forms all the sounds that occur in his future speech. Professor Preyer thinks that by his observations he "has bridged over the only great gulf between the child and the brute animal."

The learned professor does not believe in stimulating the infant imagination by fairy stories or religious myths; but he believes in "Æsop's Fables," and has his son repeat one to him every morning. Such are some of the advantages of being the son of a physiologist.—*Medical Record*.

## Tubercular Meningitis.

An interesting note is taken from a paper by Dr. Skeer, of Chicago, on the diagnosis of tubercular meningitis. The symptom is "a small circle which forms in the iris near to and completely surrounding the pupillary margin. At first it is very indistinct, and resembles a wreath of white clouds, the edge of which extends at first to the free border of the iris. In from twelve to thirty-six hours the whole margin of the iris will be involved, having become of a yellowish or whitish brown color, and appearing irregular, thickened, and somewhat granulated." Dr. Skeer considers that when in a case of cerebral meningitis the wreaths of white clouds appear in the iris, the question of diagnosis is settled beyond a doubt.