

—“‘Evolution of Sound’ Evolved” is a review of the article entitled “The Nature of Sound,” in “The Problem of Human Life,” by Marcellus Thompson, professor of natural sciences in Garfield University, Wichita, Kan. To this work is appended an account of some original experiments in electricity which Professor Thompson conducted when a candidate for the master’s degree at the University of Michigan. This work has been warmly received, as witness testimonials from John W. Langley, professor of general chemistry in the University of Michigan; Alfred Fairhurst, professor of natural sciences in Kentucky University; B. J. Radford, associate editor of the *Christian Standard*; John B. De Motte, professor of physics in DePauw University; O. P. Hay, professor of biology in Butler University; David S. Jordan, president of Indiana State University; A. E. Dolbear, professor of physics in Tufts College; C. Williams Parks, professor of physics in Rensselaer Polytechnic Institute.

LETTERS TO THE EDITOR.

*.*Correspondents are requested to be as brief as possible. The writer’s name is in all cases required as proof of good faith.

The editor will be glad to publish any queries consonant with the character of the journal.

On request, twenty copies of the number containing his communication will be furnished free to any correspondent.

A Belated Dandelion.

THE day before Thanksgiving I found in full bloom a fine dandelion-head measuring one and one-half inches in diameter; yet the record of temperatures for the November just past shows a lower average than that of any November in Kansas since 1880.

E. B. KNERR.

Atchison, Kan., Dec. 5.

Is Man Left-Legged?

LAST Sunday, while walking on the beach at Nahant, we tried some experiments bearing on the subject. We found that, walking either forward or backward with the eyes shut, we bore to the right, but in running either forward or backward we bore to the left. This last fact surprised us somewhat at first; but we thought it might be explained from the fact that, the left leg being the stronger, there would be a stronger spring from the left foot in running, which would make the right leg take the longer step. We should be glad to hear if others have tried these experiments, whether with the same or different results.

FRED’K A. LOVEJOY.

FRANCIS H. ALLEN.

West Roxbury, Mass., Dec. 8.

INDUSTRIAL NOTES.

The Crocker-Wheeler Electric Motor.

THE Crocker-Wheeler Electric Motor Company of this city are now putting on the market a series of electric motors which show a considerable advance in design, construction, and efficiency. Two of their smaller motors are shown in the illustrations on this page. Fig. 1 shows a $\frac{1}{4}$ -horse-power motor belted to a small three-piston suction and force pump, which is capable of lifting a thousand gallons of water per day a height of a hundred feet, and other quantities a correspondingly greater or less height. When desired, the motor is connected to the pump by toothed or friction gearing instead of by a belt.

By means of an automatic attachment to the ordinary float in the water-tank, the electric current is cut off from the motor when the tank is full, thus stopping the pump until enough water has been used from the tank to allow the float to fall, thus starting the motor and pump again by switching on the electric current. This cycle of operations being entirely automatic, the water-supply is never exhausted, and no more electric energy is absorbed than is just sufficient to pump enough water to supply the demand.

Fig. 2 shows one of the new Crocker-Wheeler arc motors with fan, and a regulator which effects any desired change in the speed and power of the machine by simply moving the armature out of

the field. By this simple device the necessity of a switch, complicated windings, and attendant evils are entirely overcome.

The motors are built of very few pieces, and are strong and durable. They are designed with a broad base and a low centre of gravity, in order to render them perfectly steady and quiet in their operation. In their care they require a minimum of attend-

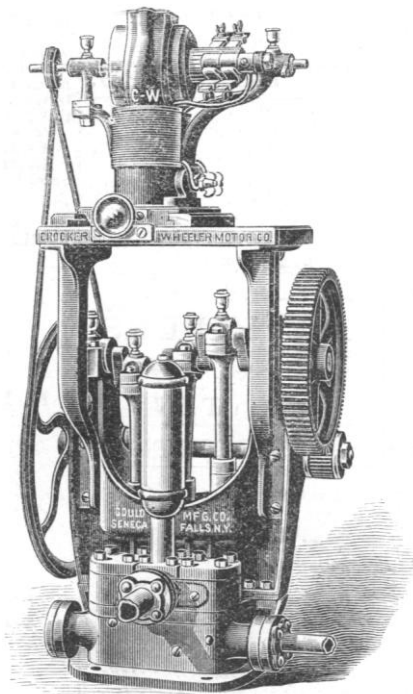


FIG. 1. — NEW C-W. ELECTRIC PUMP.

ance. They are arranged to be controlled by either of three methods of regulation, — for constant load, for variable speed, and for constant speed, — any one of which is obtained by attaching the corresponding regulating fixture.

The motors are arranged so that they can be reversed by simply inverting the brush-holders upon the clamping-rods, so that the upper brushes are placed below, and the lower ones above. By

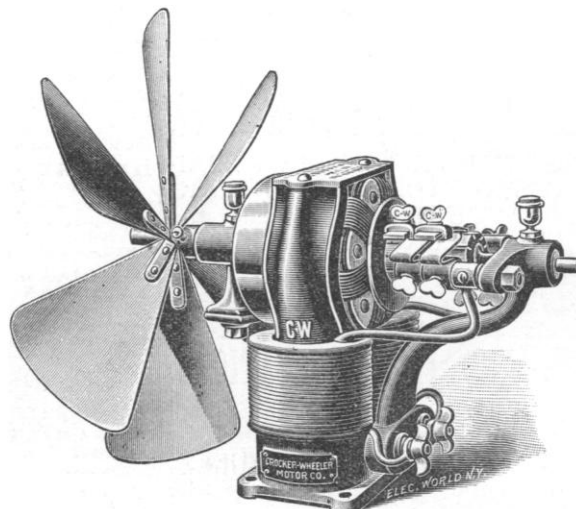


FIG. 2. — NEW C-W. ELECTRIC FAN.

this device the machines can be run either right-handed or left-handed without taking apart or changing any connections. They are wound for every kind of circuit, and those of different windings are always compared to see if the same efficiency and proportion of ampère-turns are maintained. On the smallest size, about 2,500 ampère-turns are used to magnetize the field, the total loss in the machine due to resistance never being permitted to exceed about 47 watts.