On the Electro-Magnetic Motor of Fessel. By M. PLUCKER.*

It is known that Mr. Page, a physicist in North America, has recently endeavored to produce a motive power by an extended application of the force which attracts a mass of iron within an electro-magnetic helix. Th. Hankel, of Leipzig, has made the same attempt, and has established an important practical law, namely, that this force is as the square of the power of the current. M. Fessel has on his part constructed a model of a machine at my request, the value of which I am not for the moment able to appreciate in case it were made on a large scale, but which as a piece of physical apparatus explains and clears up the application of the force in question.

The model of Fessel is formed of two helices placed end to end in a horizontal position. They serve to conduct the current always in the same direction, but in such a way that it traverses alternately each of the two helices, and consequently only one at a time. In the interior of the helices is a bar of iron, which is alternately attracted from the one into the other by constantly maintaining the same polarity, and which thus executes a motion backwards and forwards. To the two extremities of the bar are fixed two slender horizontal shanks of brass, which rest upon two pulleys attached to the two extremities of the apparatus, and which thus support the whole weight of iron. One of these shanks sets a wheel in motion. A commutator is moved by an eccentric by means of a directing-rod, which is placed so as to be able to make the machine move backwards and forwards as in steam-vessels. In one of the machines the commutator has been fixed immediately to the axis.

Two couples of Grove's cells are sufficient to communicate to this apparatus a great rapidity. With six couples, the rapidity became such that it threatened to break the apparatus; and fearing this, I stopped the passage of the current.

I have just received from him the news that he has nearly completed the construction of a new apparatus, in which he has replaced the pulleys by oscillating shanks of metal rod, similar to the oscillating cylinders of the steam engines.—*Bibliothèque Universelle de Genève, December, 1851.*

For the Journal of the Franklin Institute.

Explosion of the Steamboat "Pocahontas." By A. C. JONES, Engineer.

To the Committee on Publications.

On February 18, 1852, the steamboat *Pocahontas*, in backing out from a wood yard on the Arkansas river, collapsed both flues of the middle boiler, scalding eighteen persons, of whom eight died within a few hours after. The three boilers are two years old, 28½ feet long, 38 inches in diameter, with 14-inch flues. By inspection, I found that half of each flue is torn from the after head; one flue is flattened vertically, and the other one horizontally; the end sheet of one is much laminated, and has been burned in turning the flanch on it. The iron is scant one-quarter inch thick;—this is entirely too light, particularly if they carried the steam

* From the Lond., Edinb., and Dublin Philosoph. Magazine, February 1852.