When the machine was performing no work, or was unloaded, and emitted water by one hole only, it made 115 turns in a minute. This gives a velocity of 46 feet *per* second for the hole. This is a curious fact: for the water would issue from this hole at rest with the velocity of $37\frac{1}{8}$. This great velocity (which was much less than the velocity with which the water actually quitted the pipe) was undoubtedly produced by the prodigious centrifugal force, which was nearly 17 times the weight of the water in the orifice.

The empty machine weighed 80 pounds, and its weight was half supported by the upper pressure of the water, so that the friction of the pivots was much diminished. It is a pity that the author has given no account of any work done by the machine. Indeed it was only working ventilators for a large hall. His theory by no means embraces all its principles, nor is it well-founded.

We think that the free motion round the neck of the feeding pipe, without any loss of water or any considerable friction, may be obtained in the following manner: AB (Fig. 14.) represents a portion of the revolving horizontal pipe, and CE *e c* part of the feeding pipe. The neck of the first is turned truly cylindrical, so as to turn easily, but without shake, in the collar C *c* of the feeding pipe, and each has a shoulder which may support the other. That the friction of this joint may not be great, and the pipes destroy each other by wearing, the horizontal pipe has an iron spindle EF, fixed exactly in the axis of the joint, and resting with its pivot F in a step of hard steel, fixed to the iron bar GH, which goes across the feeding pipe, and is firmly supported in it. This pipe is made bell-shaped, widening below. A collar or hose of thin leather is fitted to the inside of this pipe, and is represented (in section) by LKM *m k l*. This is kept in its place by means of a metal or wooden ring N *n*, thin at the upper edge, and taper-