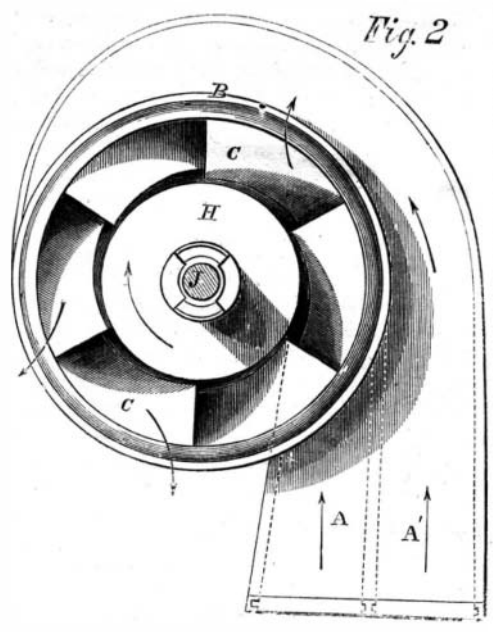
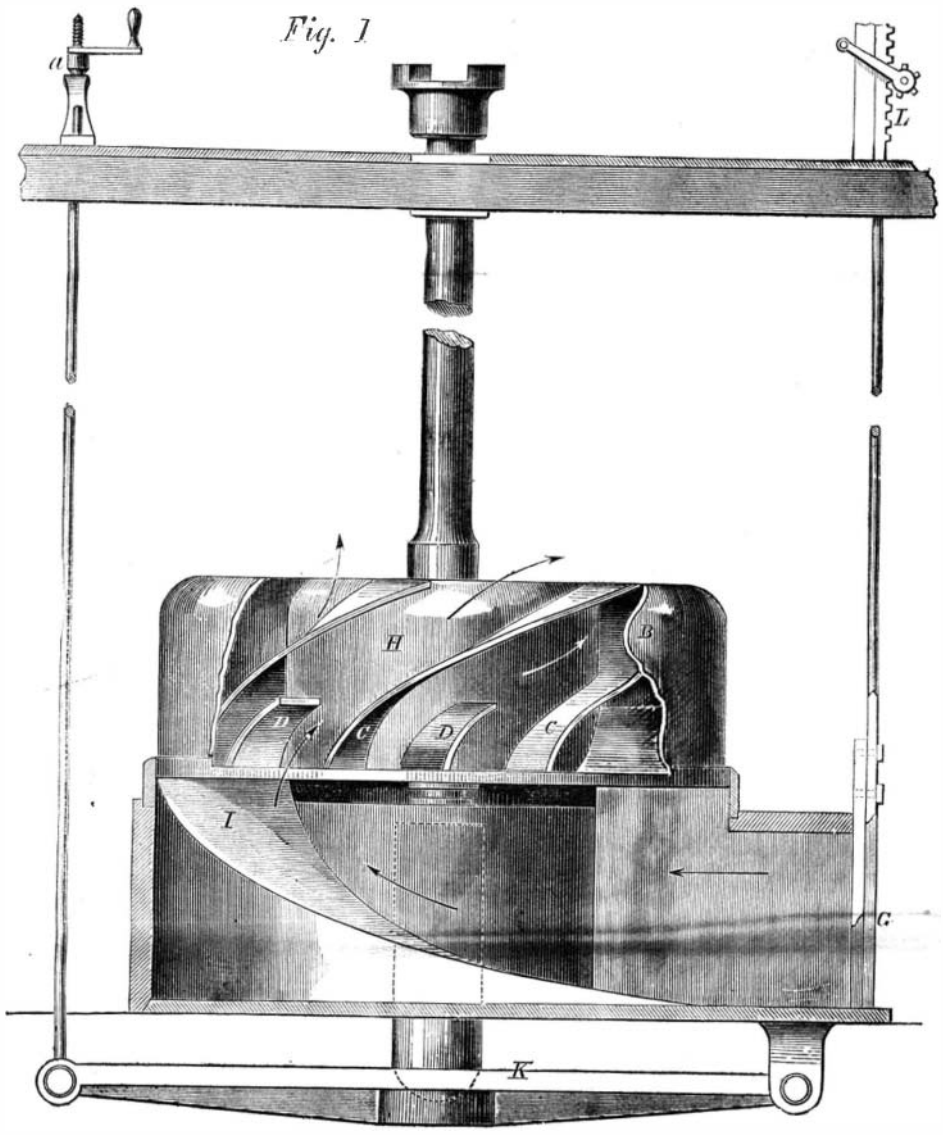
Improved Turbine Wheel.

In some parts of the country it is inconvenient to employ steam power on account of the expense of fuel and the abundance of water power which furnishes an economical substitute for steam. We illustrate this week an improved turbine wheel which possesses some features worth noting, and those who are about constructing mills would do well to examine into its good qualities.

Fig. 1, is an elevation of the wheel, showing the casing partly in section; Fig. 2 is a plan. Water is applied simultaneously to the two opposite sides of the wheel through the double chute, A A' (Fig. 2), so that whether admitted in large or small quantities, it will act uniformly on both sides of the shaft, thus reducing the friction and wear, and causing the wheel to work with greater uniformity. The arrows indicate the course of the water. It is deflected upward by the scroll, I, and entering the wheel from below, its direct force is first applied to the lower ends of the buckets, C, and then to the short intermediate buckets, D; from whence it diverges upward and inward. The continued upward pressure caused by the gravity of the descending column is exerted against the oblique upper ends of the long buckets, C, until it has passed beyond the reach of the pressure of the descending column; after which it flows away with perfect freedom and without any disadvantageous reaction. The position of the buckets on the lower side of the wheel is such as to obtain the direct force of the water to the fullest extent, while at the upper side, where the greater obliquity of the buckets, C, causes them to approach nearer together, the absence of the intermediate buckets, D, affords space sufficient to admit of an unobstructed discharge. The upward convergence, of the hub, H, and casing, B, together with the depression of



the outer edges of the buckets causes the centrifugal action to be made use of. The main shaft may constitute the spindle of the mill, being attached directly to the running stone; it rests on a lever, K, for regulating the stones in the customary manner by means of a screw, *a*. L represents the rack and pinion to regulate the gates, G. The wheel can be cheaply constructed and may be made to run at the proper speed for mill-stones with from 4½ to 12 feet head, without intermediate gearing. This wheel was patented through the Scientific American Patent Agency on Jan. 6, 1863; further particulars can be obtained by addressing Elias Dohner, at Lancaster, Pa.



DOHNER & BRUCKART'S PATENT TURBINE WHEEL.

The Frog Market.

There is a frog market in Pittsburgh, and quite a large amount of business is done in it too. The frogs are brought from all parts of the adjacent country, and disposed of to restaurant-keepers and others, at prices which, considering that it costs nothing to raise them, and but little to catch them, must prove highly remunerative. Some are considerably larger than spring chickens, and are held at the lively price of twelve cents each. The regular price to restaurant-keepers is $8 a hundred, which is an increase of twenty-five per cent on the prices of last year. This seems a stiff figure for frogs, but we were assured that, if the present demand for them continues, they cannot be had at $10 a hundred, a week hence. They are brought to market alive, and, with their sage-looking heads and big, dreamy eyes, look as though they heard and understood everything passing around them.—*Pittsburgh Chronicle.*

[Frogs are very excellent eating, but we think that the chickens about Pittsburgh must be very small, or else the frogs are very large.—EDS.

A NICE COUNTRY.—Down on the Amazon are spiders with bodies two inches and legs seven inches long, that catch and suck birds; butterflies that are mistaken for humming-birds; green snakes just like a creeping plant, and a lovely coral snake with bands of black and vermilion separated by clear white rings; monkeys with white hair all over them; monkeys only seven inches long; and owl-faced apes, sleeping all day and lively all night.

THE CAUSES OF FIRES.

We have noticed with much concern that people generally are extremely careless with combustible substances, or those that generate fire spontaneously. A large number of fires of "unknown origin" may be traced to the recklessness exhibited in the use of matches, in the tossing aside of ignited cigar-ends, in keeping materials together that develop heat by contact, such as oily waste, damp shavings, and carboys of chemicals, in fact the whole array of natural, artificial, or mechanical appliances for creating heat. That "fire is a good servant but a bad master" is a truism, the force of which is amply attested daily, and such being the case, it behooves all persons to be more watchful of their habits lest they transgress in this respect.

It is not an uncommon thing to see a young man go into a store with a fragment of a cigar in his mouth, which he presently throws on one side, regardless of where it may fall. That simple but foolish act may cost some men their fortunes and others their lives, and yet it is of almost daily occurrence. It was only a short time since that we had positive proof of the mischief of such a proceeding. Some person did precisely what we have narrated above—threw a cigar-end down in an office not very far distant, which alighted in a corner of the room on a raw edge of the cocoa-matting that covered the floor. This "stump" ignited the matting, which burned slowly for a long time until attention was called to it by the sense of smell. Had no person been at hand to discover the cause and extinguish it, there would doubtless have been another "mysterious" fire on record, as the furniture and other surroundings afforded excellent food for flames. In the cotton factories in New England several accidents have occurred from the spontaneous ignition of the greasy waste accumulated from time to time, and stringent penalties are now enforced, we believe, against such practices. Sawdust is a prolific source of danger when gathered in great quantities, as are all bodies incapable of being thoroughly ventilated. Perhaps cigar-smokers think to dispose of their rejected ends by casting them aside as convenience suits, but such a practice, although possibly harmless in forty-five cases, is in the other five unquestionably a source of disasters that ought not to occur. Rats are said to have caused conflagrations by carrying combustibles to their nests in the walls of houses, and children frequently obtain matches and do themselves lasting injury by sucking the prepared ends and by building fires in barns and other dangerous places. The careless use of combustible materials is greatly to be deprecated and ought to be stopped.

NOW IS THE TIME TO FORM CLUBS.

With the present number another volume of this journal closes. We appeal to our friends in all sections of the country where mail facilities exist, to endeavor to form clubs for the coming year. We feel justified in asserting that no other journal in this country furnishes the same amount of useful reading, and especially at the extraordinarily low price at which it is furnished. Friends, send in your clubs; at least renew your on subscriptions promptly.