IMPROVED WIND WHEEL AND WATER ELEVATOR.

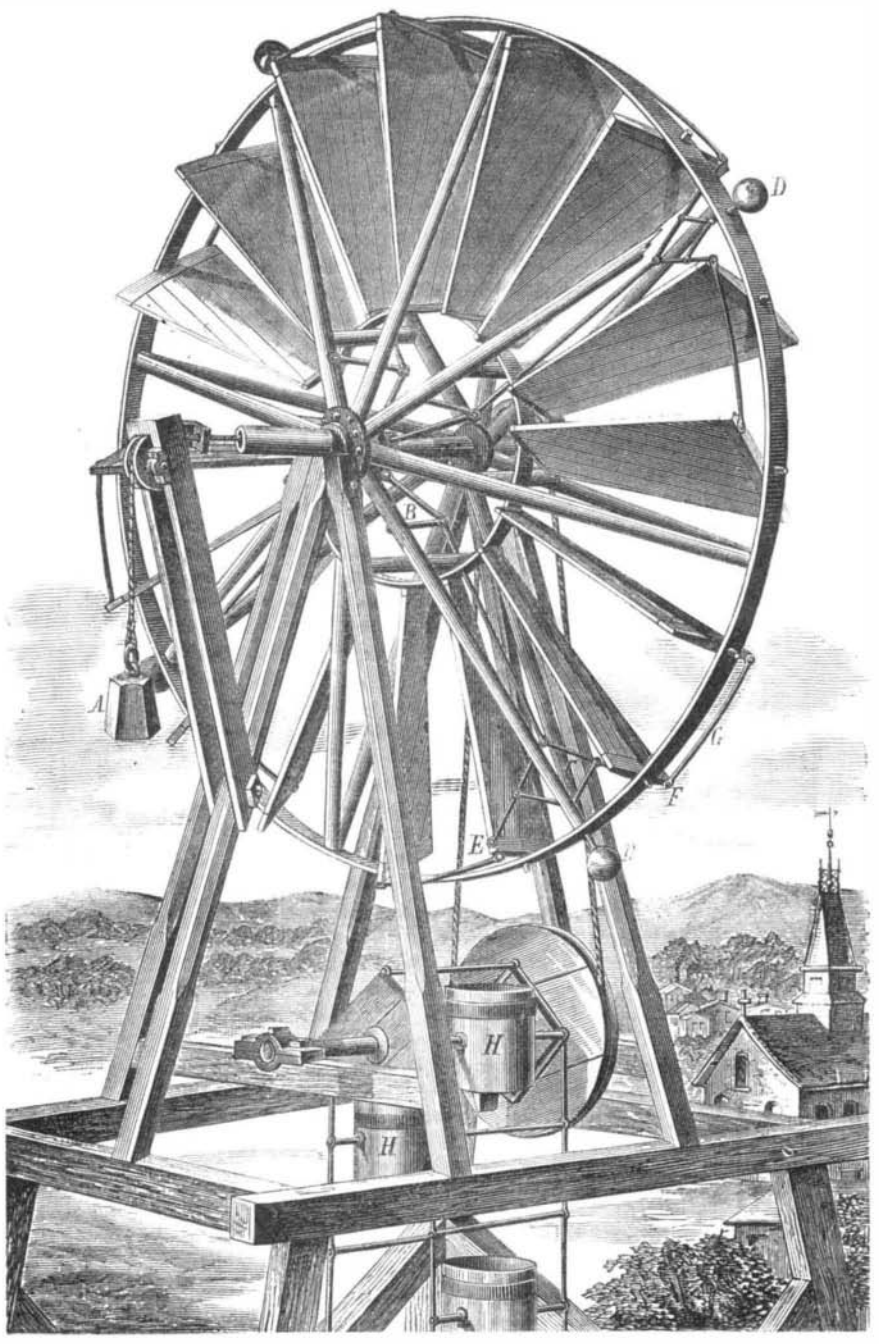
Irregularity of motion, oscillation of turning table and vane, unavoidable use of small wheels on the main shaft preventing the transmission of quick motion when the same is needed, liability to get out of repair, and excessive cost, are objections to the employment of wind power, which the inventor of the device herewith illustrated claims to have overcome. The fans are centrally pivoted to two circles, which constitute portions of the frame of the wheel, and the bearings for the main axle rest upon stationary posts. A is a weight attached to a rod which traverses the shaft and is pivoted in a sleeve which slides back and forth between the arms. To the sleeve are attached jointed rods which are connected with guides, at B, so that, as the sleeve passes back and forth, the rods are given an inward and outward motion. Near the outer extremity of the latter are placed systems of small rods, C, jointed together to form parallelograms, operating on the principle of lazy tongs. From each of these extend three arms, one passing through the outer circle and carrying a ball, D; the second pivoted to the inside corner of one fan, at E, and the third similarly secured to the outer corner of the other adjacent fan, at F. The rods, G, connect these fans with those next to them, so that one shifting rod, with its lazy tongs, governs a set of four fans, which move through the same space at the same time.

In order to stop the windmill, the weight, A, is removed, when the balls tend to bring the portions of the lazy tongs to a position at right angles with the shifting rods, and hence the fans, to a right angle with the wheel. The fans, it is stated, move with equal facility in strong or light winds, no greater force being required to operate them than is necessary to overcome the friction of the different bearings. The power is, besides, through its application diagonally across from the inside corner of one fan to the outside corner of the other, transmitted to the best advantage. For large wheels, we are informed, hydraulic pressure is used to equalize the motion.

The water elevator consists of a series of buckets, H, which are pivoted, a little above their centers, between every two links of an endless chain or band which passes over two pulleys, one at the bottom and the other above the well. The bottom of the bucket swings in, and a projection thereon takes against the upper shaft as the vessel is carried over. This causes the latter to empty, with little splash, into the conduit provided, in which the water is conducted to any desired point.

It will be seen that the construction of the apparatus denotes considerable strength, as it is built on the plan of a wagon wheel, the fans serving as spokes. The inventor states that it is almost impossible to blow it to pieces.

The machine, combined with a pump and also with the elevator described, was exhibited at the Kansas State Fair, last fall, and received five first premiums, and also commendatory notice from the State Board of Agriculture.



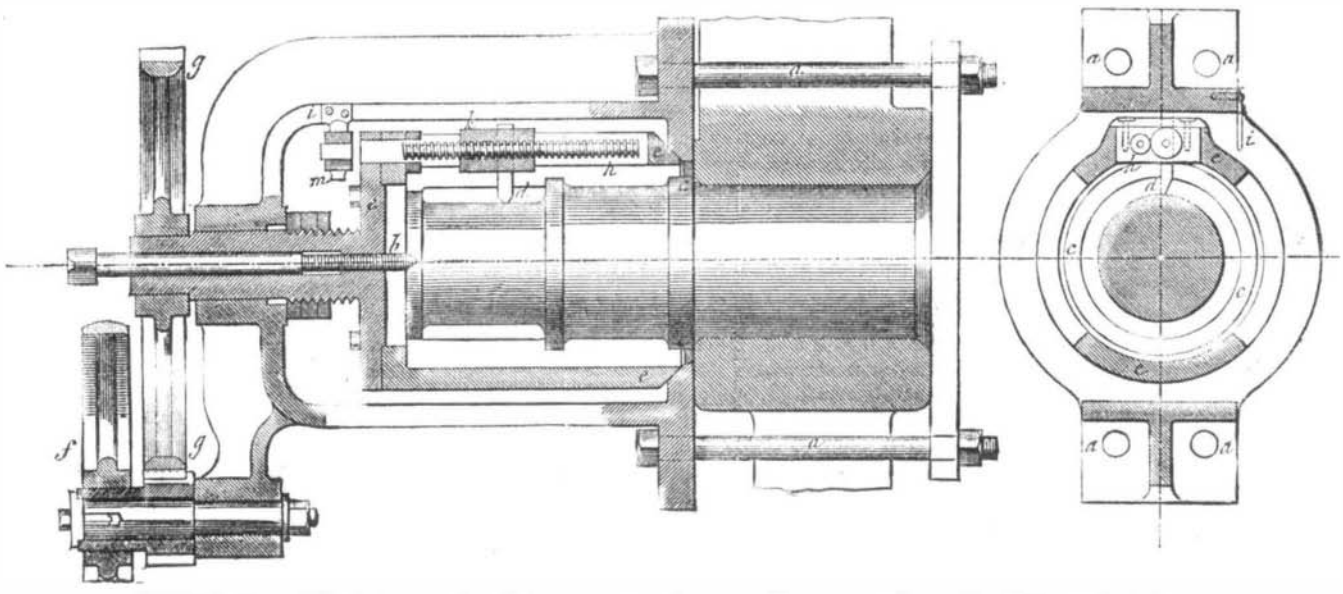
IMPROVED WIND WHEEL AND WATER ELEVATOR.

Patented March 17, 1874. For information pertaining to manufacturing or royalty, or relating to purchase of wheels, address the inventor, Mr. J. N. Dietz, Salina, Saline county, Kansas.

MACHINE FOR TURNING CRANK PINS AND JOURNALS OF LOCOMOTIVES.

In this apparatus, for the engraving of which we are indebted to the Belgian *Bulletin du Musée*, the tool is fixed immediately against the pin or journal by four strong screw bolts, *a*, and is set in motion by the driving pulley, *f*, to which a belt is carried; centering on one side is effected by the point, *b*, and on the other, by the ring of the pin and the annular piece, *c*.

The tool, *d*, which acts on the cylindrical surface, is placed on the circumference of a tool carrier, *e*, which is rotated by the pulley, *f*, through the cog wheel, *g*. The advance motion of the tool, parallel to the axis of the pin, is gained by means of a screw, *h*, at the rear extremity of which is fixed a wheel, *m*. Each time that this wheel strikes a shoulder, *i*, the screw turns, and the support, *k*, advances with the tool. The working of the apparatus is readily understood from the illustration.



MACHINE FOR TURNING CRANK PINS AND JOURNALS OF LOCOMOTIVES.

Treatment of Gold Fish.

Seth Green says this as to the proper care and treatment of gold fish: Never take the fish in your hand. If the aquarium needs cleaning, make a net of mosquito netting and take the fish out in it. There are many gold fish killed by handling. Keep your aquarium clean, so that the water looks as clear as crystal. Watch the fish a little, and you will find out when they are all right. Feed them all they will eat and anything they will eat—worms, meat, fish wafer, or fish spawn. Take great care that you take all that they do not eat out of the aquarium; any decayed meat or vegetable in water has the same smell to fish that it has to you in air. If your gold fish die, it is attributable, as a rule, to one of three causes—handling, starvation, or bad water.

Asiatic Handsaws.

Handsaws in America and England have the teeth pointed from the handle, while in Asiatic countries and in Greece they are made with teeth pointed the other way. The latter must be operated by pulling them, the former by pushing. In delicate work, and where very fine small saws are used, the Eastern saw is the best. The Orientals differ from us in setting the teeth of the saw also. They turn a group of a dozen one way, and the next group the other, while we alternate, one on one side, the next on the other.

Improvements in Bleaching.

M. Pierre Isidore David, a French chemist, has invented the following processes:

Chlorine in the gaseous state is produced in a closed receptacle by one of the ordinary methods, for example, by the action of an acid on chloride of lime diluted with water, and is conveyed by a tube into a chamber containing the articles to be bleached, the sides of such chamber being constructed of a transparent material in order to permit the entrance of light, which assists considerably the process of decolorization. After an interval, varying with the nature of the articles to be bleached, he sends into the chamber a rapid current of carbonic acid gas, obtained by any of the well known processes. The apparatus in which the carbonic acid is generated communicates, however, with a vessel containing liquid ammonia, the fumes of which combine with the carbonic acid, and are conveyed into the chamber, where the two gases neutralize the hydrochloric acid, and accelerate the decolorization of the materials contained therein. The ammonia should be contained in a vessel of such a shape that the evaporation surface of the liquid can be augmented or diminished according to the quantity of chlorine employed.

In the second process, permanganate is obtained by the action of peroxide or binoxide of manganese on lime aided by heat, preferably in the following manner: One part by weight of peroxide of manganese and three parts of quick lime in powder are mixed together and submitted to a red heat for about three hours. When the heat has been continued for one hour, however, a rapid current of carbonic acid is passed through the mixture and continued till the completion of the process, the object being to superoxidize the compound. The permanganate of lime thus prepared is placed in a closed receptacle, which communicates by a tube with the bleaching chamber, commercial sulphuric acid is gradually added, and "ozonized oxygen" is evolved. In order to accelerate the evolution of this gas, the inventor adds a vegetable acid in quantity equal to the oil of vitriol, acetic acid being preferably used.

In the third process, M. David employs phosphorus and acetic acid. The production of ozone by means of phosphorus in a moist atmosphere is well known, but the quantity thus obtained is very small. By causing air which has been previously forced through acetic acid to bubble through the water containing the phosphorus, the patentee has discovered that the quantity of ozone is considerably increased. The ozone is conveyed to the bleaching chamber in the same manner as before described, the air being forced through the liquids by means of a fan or any other of the well known methods of obtaining a current either by pressure or exhaust.

The fourth process consists in the use of chalk, alum, and sulphuric acid. A saturated solution of alum is prepared at a temperature of 140-160° Fah., into which powdered chalk is thrown, about equal in weight to the alum employed; sulphuric acid is then added, and the gas evolved is conveyed by a tube to the bleaching chamber, where it effects the desired object.

It will be seen that in three of the four processes chlorine is dispensed with, and the formation of hydrochloric acid avoided. When the articles are removed from the bleaching chamber, it is desirable to expose them for a time to the action of the atmosphere in order to remove the characteristic smell of ozone. These processes are claimed by M. David to be applicable to the decolorization of raw or worked materials, especially those which from their shape or nature do not admit of immersion in liquid; they are also specially adapted to the bleaching of books, papers, and engravings. Oils and fatty matters may be decolorized by them; alcoholic liquids may be "improved" or "aged," as it is called, by the oxidizing properties of the ozone; fermentation may be arrested and unpleasant flavors removed; and they may be speedily converted into vinegar or acetic acid. M. David asserts that his processes will be found more economical than those at present adopted.