Making Artificial Ivory.

The *Chronique Industrielle* gives the following description of a new process for making artificial ivory from the bones of sheep and goats and the waste of white skins, such as kid, deer, etc. The bones are macerated for ten or fifteen hours in a solution of chloride of lime, and afterward washed in clean water and allowed to dry. Then they are put with all the scraps of hide, etc., into a specially constructed boiler, dissolved by steam so as to form a fluid mass, to which is added 2½ per cent of alum.

The foam is skimmed off as it rises, until the mass is clear and transparent. Any convenient coloring material is then added, and while the mass is still warm it is strained through cloth of appropriate coarseness and received in a cooler, and allowed to cool until it has acquired a certain consistency, so that it can be spread out on the canvas without passing through it. It is dried on frames in the air, and forms sheets of convenient thickness. It is then necessary to harden it, which is accomplished by keeping it for eight or ten hours in an alum bath that has been used before.

The quantity of alum necessary for this operation amounts to 50 per cent by weight of the gelatine sheets. When they have acquired sufficient hardness, they are washed in cold water and let dry on frames, as at first.

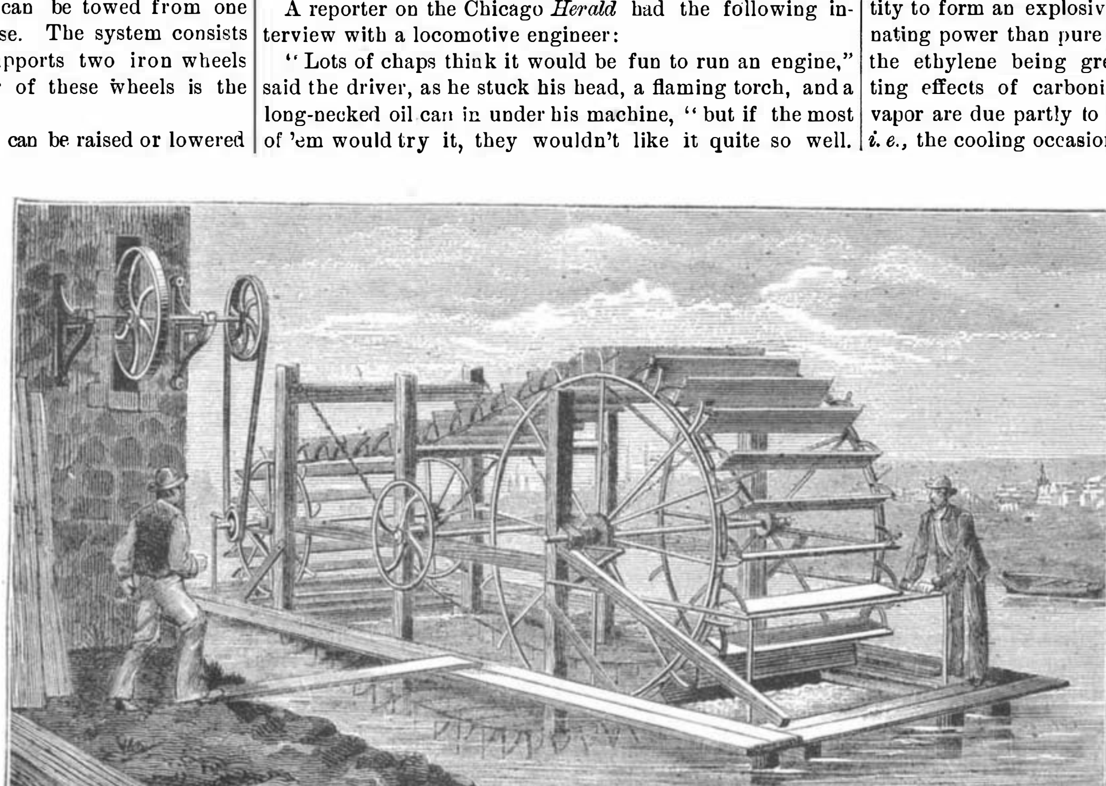
This material works more easily and take as fine a polish as real ivory.

ZSCHIESCHE'S HYDRAULIC MOTOR.

The utilization of the motive power developed by water courses has given rise to a large number of apparatus, such as turbines, overshot and undershot wheels, etc., that have in recent times reached a high degree of perfection, and leave but little to be desired as regards performance, strength, and ease of keeping in repair.

These apparatus possess but one inconvenience, and that is that they require a fall of water that is not everywhere met with, thus subordinating the selection of the mill site to the configuration of the water course. Mr. Zschiesche's new hydraulic motor, represented in the accompanying cut, requires no fall for operating it, but may be set up at any point whatever along a river that has sufficient velocity. The apparatus undoubtedly offers the inconvenience of being quite cumbersome, and of requiring the use of a motive wheel so much the larger in proportion as the velocity of the current is less, but, as the figure shows, it is mounted very simply upon a float, and can be towed from one point to another of a water course. The system consists of a wooden framework that supports two iron wheels of different diameters. The larger of these wheels is the motive one.

Its axle, which rests in bearings, can be raised or lowered by means of a windlass, and the same is the case with the smaller wheel. It will be seen that it is thus very easy to cause the wheels to plunge sufficiently deep into the current to secure a proper working of the apparatus, whatever be the level of the water.



ZSCHIESCHE'S HYDRAULIC MOTOR.

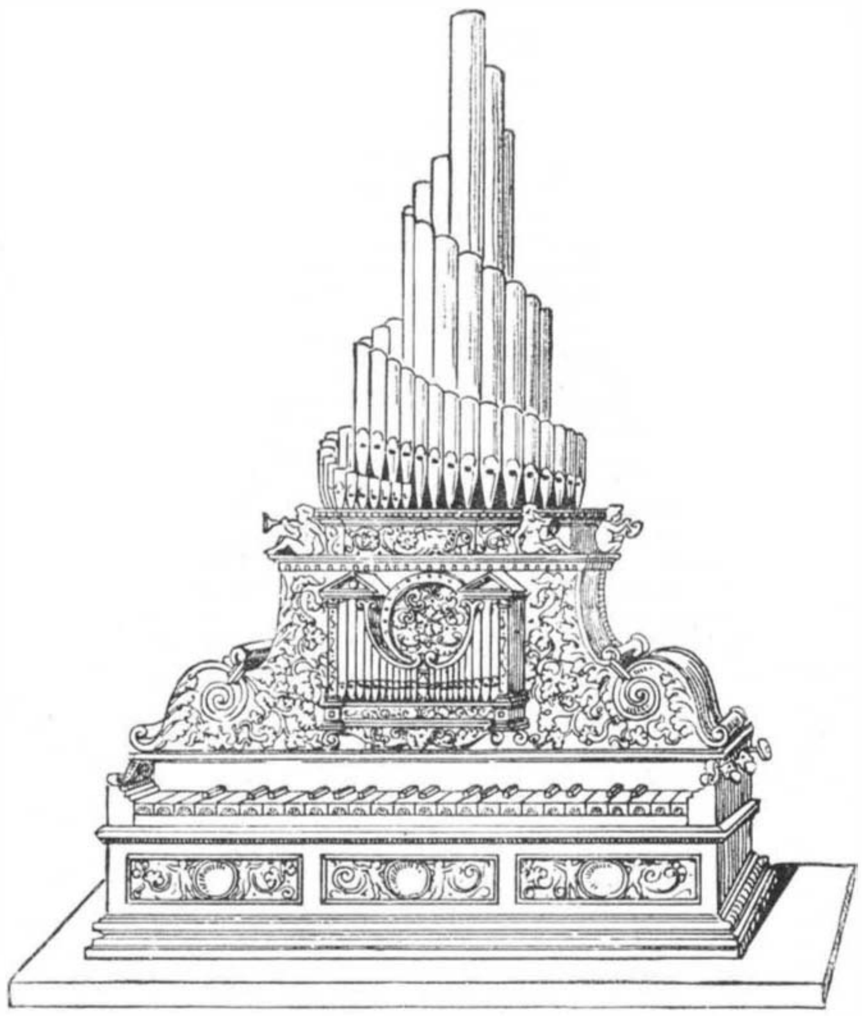
The spokes of the wheels terminate in hooks, which serve to carry the wheels along by means of two endless chains connected by paddles. The latter are each hinged upon an axis mounted upon the chains, and can be inclined at will in such a way that, whatever be the depth that the lower part of the motive wheel reaches, the paddles will always be perpendicular to the level of the water. The paddles are held in place by means of pins that may be transposed upon a quarter circle of iron.

The lower, movable part, which consists of two chains and paddles, dips entirely under water and is carried along by the current, the result being the revolution of the wheels that support the chains. The upper part is sustained by a roller.

The axle of the smaller of the two wheels is provided with a pulley that serves to communicate motion to the machines and apparatus of the building, partially shown in the foreground in our engraving. The problem in regard to the utilization of the motive power of water courses is greatly attracting the attention of engineers. Now especially, that dynamo electric machines have entered the domain of industrial practice, experiments of the kind that we have here noted are multiplying upon every side.—*La Nature.*

DESIGN FOR PARLOR ORGAN.

Our engraving shows a design of an organ made many years ago, in which all the pipes are said to have been made of silver We present it to our readers with the hope that it may serve as a suggestion leading to the production of something new and good in the form of musical keyed instruments. We are tired of the present stereotyped shapes of our pianos and organs. Will not somebody strike out in a new direction? A suitable design of so novel and popular a character that people must have it would be worth many thousands of dollars to the manufacturer who secured it.



DESIGN FOR A PARLOR ORGAN.

The Fun of Running an Engine.

A reporter on the Chicago *Herald* had the following interview with a locomotive engineer:

"Lots of chaps think it would be fun to run an engine," said the driver, as he stuck his head, a flaming torch, and a long-necked oil can in under his machine, "but if the most of 'em would try it, they wouldn't like it quite so well. 'Tain't everybody can run a locomotive, either, though I s'pose it's like running a daily newspaper, which I've heard tell everybody can do. Now, a nervous man has no business in a cab; no more has a careless one, or a stupid cuss. To run an engine a man must feel his responsibility, and keep his head level. I don't believe half the people know what it is to run an engine. Now, there's the machine; that's the first thing, and it has to be in good order, and stay so. A locomotive has to stand wear and tear and weather that'd knock a stationary engine into smithereens. And no matter what emergency rises—freezing of pipes, or starting of flues, a loosening of packing, or heating of journals—we've got to know just what to do, and do it right quick, too; then when we're running there's the time cards and pretty often a new one; and the train orders—they are a life and death and reputation to us, and to read 'em correct and live up to 'em gives us no end of anxiety.

"Bet I've read a train order over a dozen times an hour—I am always so afraid of making a mistake or forgetting. You know the consequence of even a little mistake, sometimes. Then there's the signals to watch, the conductor's gong overhead, steam to keep up, time to make, whistle posts and crossings to look out for, bad spots in the road to be careful on, and along with all this there's the track ahead of ye which your eyes mustn't leave for more'n five seconds. There's the brakes, too—one is always worrying about them. I don't s'pose everybody knows, either, that we have to be mighty careful when we come to the top of a grade. You see in going up she labors hard, and as soon as she begins to descend she makes a rush, and there's the danger of breaking your train when the rear cars are still dragging on the up grade. This danger is especially great on freights, but no good engineer fails to shut off some of his steam when his engine reaches a summit. It isn't every fool can run a locomotive."

Ethylene.

Before the Chemical Society on the 17th of April, Dr. P. F. Frankland read a paper on the influence of incombustible diluents on the illuminating power of ethylene. The present communication forms a sequel to a paper read by the author on the illuminating power of ethylene when burnt with combustible non-luminous diluents (Chem. Soc. Jour., Jan., 1884). In all cases the gases were consumed from a Referee's burner. Great care was taken to insure the purity of the ethylene and the diluents—carbonic anhydride, nitrogen, oxygen, and atmospheric air—employed. The author records his observations in a series of tables and curves. He sums up the principal results as follows: Mixtures of ethylene with the incombustible diluents carbonic anhydride, nitrogen, aqueous vapor, and atmospheric air, possess a lower illuminating power than pure ethylene. In all mixtures of ethylene with either carbonic anhydride, nitrogen, or aqueous vapor, the intrinsic luminosity of the ethylene is reduced. In mixtures of ethylene with atmospheric air, the intrinsic luminosity of ethylene remains unimpaired until the air forms about 50 per cent of the mixture.

Mixtures of ethylene with oxygen in insufficient quantity to form an explosive mixture possess a greater illuminating power than pure ethylene, the intrinsic luminosity of the ethylene being greatly increased. The disilluminating effects of carbonic anhydride, nitrogen, and water vapor are due partly to dilution and partly to refrigeration, *i. e.*, the cooling occasioned by the introduction of inert gas into the flame; this refrigeration is proportional to the specific heats of the gases, but in the case of the carbonic anhydride and aqueous vapor it is augmented by the absorption of heat which takes place in the dissociation of the aqueous vapor and in the reduction of the carbonic anhydride to carbonic oxide. Of the four diluents, carbonic anhydride, nitrogen, aqueous vapor, and atmospheric air, the first is the most and the last is the least prejudicial to the illuminating power; nitrogen and atmospheric air, however, become more equalized in their effects as the proportion in which they are present increases, complete disillumination of the ethylene being effected by the same proportion of each.

Bartholdi's Statue of Liberty.

A representation of this statue, as it will appear in place on its pedestal in New York harbor, has been published, as a large colored lithograph, by Messrs. Root & Tinker, of this city. The picture showing the proportion of the statue to the pedestal, with some view of the surroundings, gives a good idea of the whole as a work of art. The pedestal will be 177 feet 9 inches high, and the statue is 151 feet 2 inches, making the top of the torch 328 feet 11 inches above high water level.

THE latest novelty in advertising is a patent medicine manufacturer advertising for bald men who are willing to have advertisements painted on the tops of their heads, "for a high pecuniary recompense."