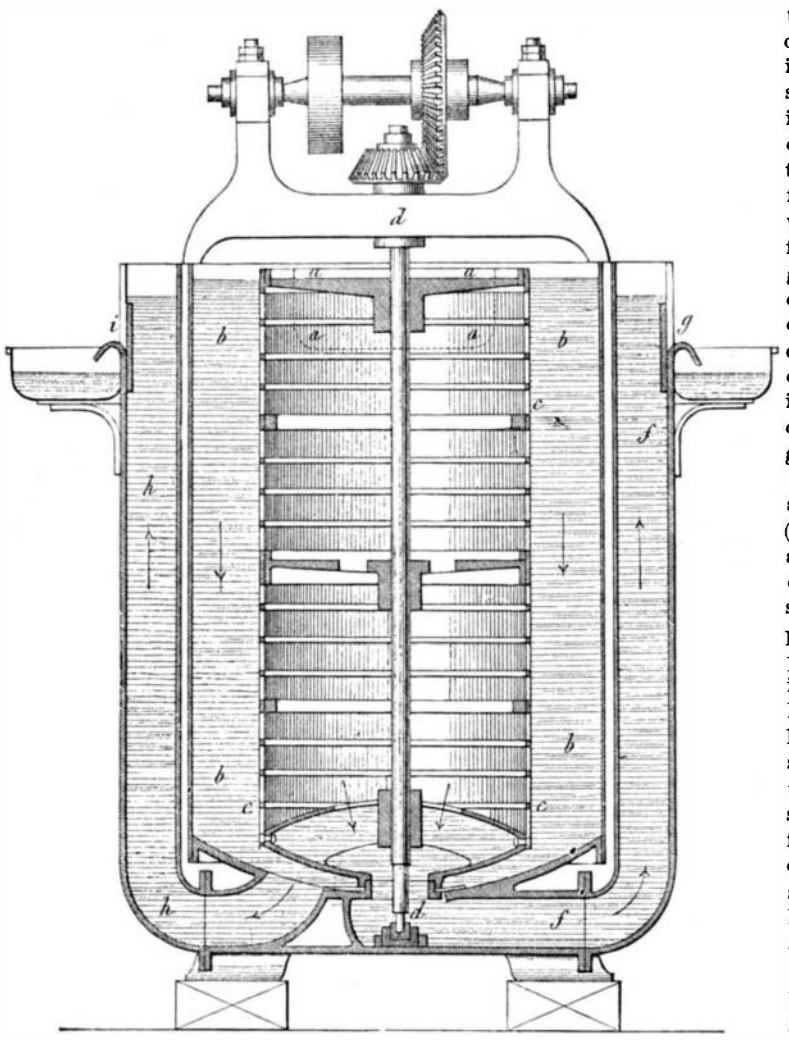
A NEW CENTRIFUGAL FILTER.

We extract from the Belgian *Bulletin du Musée* the annexed engraving of a new centrifugal filter, devised by MM. Autier and Allaire. The construction is based on the principle that, if a cylinder be rapidly revolved in a liquid in which solid particles are suspended, the liquid will be drawn into like rotation, and will revolve with a velocity, greatest next to the surface of the cylinder, and less as the distance from the latter is increased. The solid particles in the fluid will thus be thrown away from the immediate proximity of the cylinder, leaving the liquid there in a pure condition, when, by suitable pipes from that portion, it may be drawn off. The present apparatus consists of a cylindrical receptacle, *b*, into which the liquid enters at *a*, and in which is a vertical revolving cylinder, *c*, the surface of which is of metal, and is pierced with a number of apertures. The purified liquid enters these orifices, passes through the cylinder in the direction of the arrows to the tubes, *f*, and finally is drawn off at *g*, at openings the size of which may be suitably regulated by sliding covers. The solid particles, separated from the liquid, descend in the annular space, *b*, and escape by the tube, *h*, the aperture of which, at *i*, may also be regulated as above described.

It will be observed that this is a filter without filtering material, a fact of considerable advantage in industries like paper and sugar making, which require the filtration of large amounts of liquid. The filtering surface, moreover, never being in contact with the impurities, no opportunity is offered for the discharge orifice of the pure liquid to become choked or foul. The degree of filtration, of course, depends upon the length of time the liquid is kept in rotation, and this is easily governed by lessening, as desired, the escape of the contents of the apparatus at the orifices, *g* and *i*. A device of this sort might easily be driven by the engine of a factory or other works, and would require very little power.



A NEW CENTRIFUGAL FILTER.

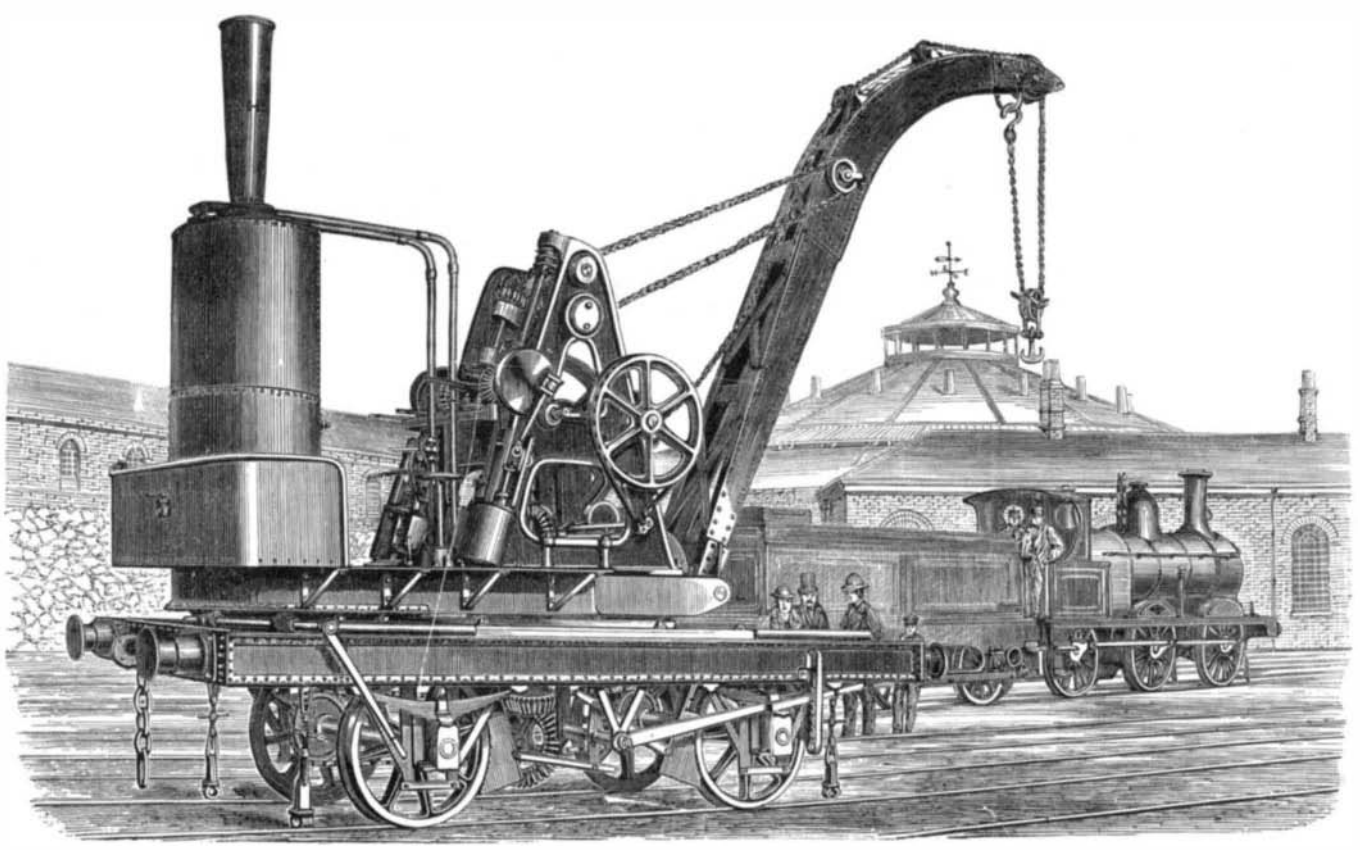
Chinese Fermented Drinks.

The ravages of the phylloxera among the vines of France have incited many attempts to discover a new kind of beverage to take the place of the juice of the grape. The Marquis de Villeneuve reports that in China a *pseudo* wine called *tsien-ia* is much used, which is concocted from a preparation of four plants, common in that country, and mixed together in certain proportions. The plants are dried and powdered, and made into a paste, which is sold in the form of balls or squares at the rate of about three pence a pound. One square or ball will make several pints of a fermented liquor, pleasant to the taste and much resembling wine, which is now sought after by Europeans and others living in China. A fictitious brandy is also prepared in the same way, and the manufacture is so simple that with a capital of $25 or $50 to purchase the apparatus, a man may make 25 gallons of "brandy" a day. The Marquis adds that the liquors possess no injurious matter.

PORTABLE CRANE FOR LOCOMOTIVE WORKS.

Our engraving shows an excellent adaptation of Messrs. Appleby's system of building cranes (heretofore described and illustrated in our pages) to the uses of locomotive shops and engine houses. The form is but little varied from that shown on page 95 of volume XXIX; but it has underneath the platform suitable gearing for propelling it automatically, and it can also be used for traction purposes. These cranes are now built of immense power and capacity with engines that are readily reversible, enabling the machines to be handled with facility; and they are coming into very general use, several of them having been employed in lifting and transporting heavy articles at the Vienna Exposition of 1873

Messrs. Appleby (of London, England) have certainly carried this branch of mechanical construction to a high pitch of excellence, and their cranes are already at work in the Machinery Department of the Centennial Exposition at Philadelphia, being employed in getting some of the heavy material into position.



APPLEBY'S LOCOMOTIVE CRANE.

Dangerous Soap.

We have remarked of late the introduction into the market, under high sounding names, of various strong potash combinations intended for laundry and cleansing purposes. One of these preparations, which appears to contain more caustic potash than any other ingredient, lately caused the death of a child who accidentally ate a little of it; and we have found the same stuff strong enough to remove old hard paint from wood work when merely wetted by the same and allowed to rest thereon for perhaps an hour or two. We advise our readers to let such preparations severely alone; they are ruinous to clothes, and, except to cleanse kitchen floors or other grease-soaked places, should not be used. Even the ordinary low grade soaps are heavily charged with soda and impurities, which, the manufacturers say, they are obliged to add in order to hold their own with fraudulent dealers who adulterate still more heavily; and these soaps are also highly destructive to fabrics. It is much better economy to purchase a good quality, even a superior quality, of white soap for household purposes; for the extra cost of the soap will, in the end, be more than saved in the lessened wear of clothes, of oil cloths, and of paint. It is hardly necessary to add that strong alkali soaps should never be used on the skin, as their effect is corrosive and harmful. The object of using soap for the toilet is simply to overcome the natural oil which exudes from the body, and render it possible for the water to combine therewith; and a very little of the mildest soap is ample for this purpose.

Turmeric.

We are aware that the coloring matter of turmeric (the *curcuma longa* of the pharmacopœia) has been more than once recommended as a substance likely to be useful in photographic work; but we hardly think it has received proper consideration, or that it has been utilized to the extent which its varied qualities would seem to warrant.

Our attention was recently attracted to the subject in consequence of a desire to protect, by a yellowish varnish, the very thin foreground of a negative we wished to print. For this purpose we added a few drops of a tincture of turmeric to a little plain collodion, and poured it over the whole plate. When dry, portions covering the better-exposed parts of the plate were scraped off, and the negative exposed under paper in the ordinary way. On examining the process of printing, we were somewhat surprised to find that, although the yellow film was exceedingly feeble, its actinic qualities were so great that, when the unprotected parts of the negative were fully printed, the parts covered by it were altogether untouched, and that, even after an exposure of two hours to full sunshine, there was no trace of decomposition of the silver chloride. This circumstance naturally prompted us to make a series of experiments, the result of which leaves no doubt in our minds that a solution of the coloring matter of turmeric should find a place in every photographic laboratory.

A convenient solution may be readily prepared as follows: Four ounces of well dried turmeric (*radix curcumæ*), which may be obtained from any chemist, is to be well bruised, or reduced to coarse powder, and moistened with alcohol. After standing for an hour or two, the damp mass is packed into a percolator (a lamp chimney with a piece of muslin tied over the smaller end answering well) and some more alcohol poured over it. If the packing has been properly done, the spirit last added will displace that which had been absorbed by the turmeric, and cause it to flow through the muslin at the rate of two or three drops per second. When the operation is fairly started, sufficient spirit should be added to give a bulk of four ounces of percolate, which will be a very strong solution of curcumin, capable of giving a fine yellow color to collodion, varnish, or any alcoholic solution.

A drachm of this solution added to an ounce of plain collodion, and poured over a plate of glass, gives a yellow film of great beauty, which, although it hardly seems to stop out any material quantity of white light, is so non-actinic that, when used in the window of the dark room, plates of the most sensitive description may be manipulated with perfect freedom from fog. The cause of this is quite evident from a slight spectroscopic examination, which shows that the violet is altogether absorbed, the green and red alone being transmitted. We know that some emulsion makers prefer a red, or rather ruby, light in their dark rooms. This can very readily be got with the turmeric, it being only necessary to add to the collodion a few grains of boracic acid, which, when the film is dry, and especially if heated, destroys its power of transmitting the green, giving a pure red light.

It is well known that the color of turmeric, in common with many other vegetable coloring matters, is gradually decomposed by light; but our experiments would seem to show that when enveloped in the collodion film, or when mixed with ordinary photographic varnish, it is much more durable than when in contact with the starch and other *matériel* of the turmeric root; and, even should it be found unsuitable for permanent use, it will assuredly be valuable as a temporary expedient.

But an alcoholic solution of curcumin is of more use than merely to exclude the actinic ray from the dark room; it is one of the best organifiers for a washed emulsion pellicle that we have yet tried. We added it to the extent of ten drops to the ounce of emulsion just previous to pouring into the dish; and as the curcumin is very