Science and Art.

Gums and Resins.

The following are extracts from a lecture of Prof. P. L. Simmonds, published in the *Journal of the Society of Arts*:

East Indian Gum Kino.—This, one of the most useful indigenous gum resins of the East, is the produce of the *Pterocarpus marsupium* Roxburgh. The gum flows out on longitudinal incisions being made in the bark, which being fleshy and very thick, is easily done. It trickles down in a tenacious semi-fluid form, and is collected in a cocoa nut shell. On exposure to the sun in flat places it soon hardens into angular brittle shining pieces, of a bright ruby color, highly astringent, and soluble in hot water. The gum changes into a blood red color by alkalies, which, however, destroy its astringent properties. It is precipitated by the salts of iron, silver, lead, &c., and, with sulphate of iron, forms a fine ink. It dissolves readily in water, to which it imparts its own beautiful color.

Another variety of Indian Kino exudes during the hot weather from natural fissures and wounds in the bark of the *Butea frondosa* a very common leguminous tree. It is known in commerce by the name of Bengal Kino, or gum Butea, being closely allied to the Kino of Pterocarpus, in its chemical and medicinal properties. The natives of India use it for tanning, but as it imparts to the leather a red color it is considered objectionable by European and American tanners. Kino is commonly used in medicine for its astringent properties, especially in diarrhœa, chronic dysentery, and other such cases.

Amber.—The source of amber was long uncertain. By some it was considered a carbonaceous mineral, but it is now universally supposed to be a vegetable resin, the product probably of a Pinus. It is too well known in appearance to need description. It has several commercial uses. Being commonly translucent, and susceptible of a good polish, it is made into ornaments as necklaces. It is the base of an excellent varnish, and the source of succinic acid, which is employed in chemical investigations. The beautiful black varnish used by coach-makers, is a very carefully prepared compound of amber, asphaltum, linseed oil, and oil of turpentine. Amber often contains insects, flies, ants, spiders, &c., some of which are so delicately formed that they could not have occurred except in a fluid mass, such as volatile oil or natural balsam.

The chief supplies come from Prussia, where it is thrown up on the coast between Konigsberg and Memel. The imports in the last few years have averaged about 40 cwts. yearly. Large deposits of amber were found a few years ago in some lakes on the eastern coast of Courland, not far from the Gulf of Riga; and in January, 1854, a bed of yellow amber, apparently of great extent, was found on sinking a well at Prague, from which pieces weighing two and three pounds were extracted. The largest block known is in the Royal Cabinet at Berlin, and weighs thirteen pounds.

This fossil is also found in Madagascar, in Japan, on the shores of the Indian Archipelago, and in small quantities on the coast of China. It forms a considerable item of import in the Chinese ports, the greater portion coming from the eastern coast of Africa; its value there formerly was very great as an incense and for ornaments. Transparent yellow pieces are considered the best, and the price in the East, as here, varies according to size and quality; for its color ranges from black and yellow through red and white. A resin called false amber—no doubt a copal—is among the exports from Calcutta to Great Britain, to the extent of several tuns.

Filling Ice Houses.

As the time for gathering in the ice crop is at hand, the following instructions for packing it in, from the *American Agriculturist*, will be of interest to many of our readers:—

"It sometimes happens, that the best ice in the whole season is made in the month of December. It is always well to secure the first good ice that makes, say, one foot in thickness. This, if it be perfectly clear and free from frozen snow, is thick enough, and the sooner the crop is secured the better.

The first business is to cut the ice into suitable blocks for packing. When there is no machinery to be employed in handling the blocks, two feet by three will be found a convenient size for a house twelve feet square, as they will make a perfect fit in the packing. The ice should be first marked off with some sharp tool, and a crevice be made to be followed with a coarse saw—a cross-cut saw, with one handle out, or an old saw-mill plate with a handle added, will answer. The saw should follow the marker as closely as possible, to make straight-edged blocks.

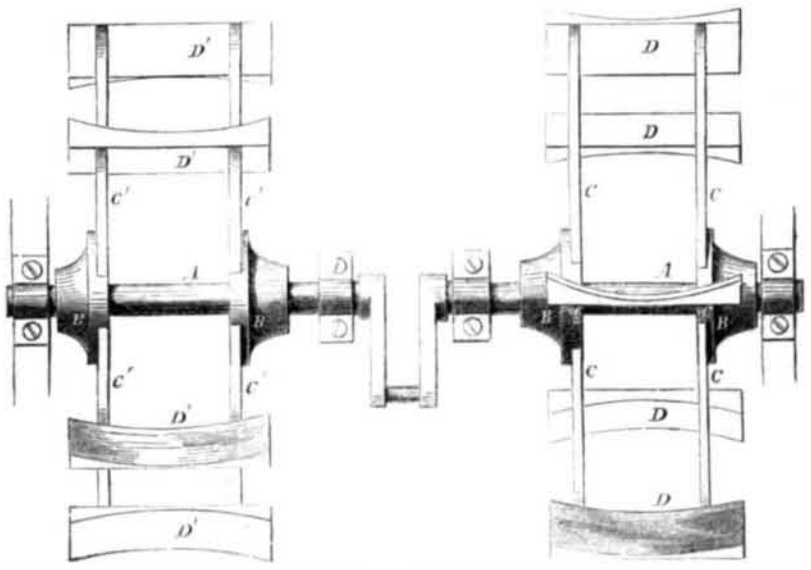
In selecting ice for cutting, take that which is perfectly clear and solid. Air or dirt, frozen in, will not keep so well. Care should be taken also to keep the blocks clean while laying them in. After the first layer of blocks is put down, and the sawdust or sea-weed is packed in solid at the sides, the small crevices around each block should be filled up with pounded ice or dry snow. If the weather is intensely cold, a very little water may be used at the cracks to make the union perfect. The more completely you can exclude air from the body of the ice, the better it will keep.

Having finished the first layer, sweep off clean, and put in the next, which cement together with the pounded ice like the first. Continue this process until the last layer, which cover with sawdust, or straw, or sea-weed if more convenient, eighteen inches in thickness. If the ice-house is properly made and good ice put in it in this manner, you will find it very little diminished next May, when you open it to get the first block for the refrigerator.

A subscriber asks if an ice-house cannot be filled by pouring in water from time to time and letting it freeze. This might, perhaps, be done on a small scale, should there be a long-continued succession of freezing days. But the operation would be very tedious, and, in the end, even if successful, more expansive than cutting ready-formed ice."

[We would add that to freeze water solid in the inside of a house, so as to fill it from top to bottom, strong stone walls would be rifted by the expansion of the water into ice.

GLOVER'S PATENT PADDLE WHEEL.



Glover's Paddle Wheel.

This figure is a plan view of the improvement on the Paddle Wheels of steamboats and ships for which a patent was granted to A. M. Glover, of Waterborough, S. C., on the 12th of June, 1855.

The nature of the improvement consists in making the face of the paddle concave, by embracing the arc of a circle between its ends while the back of the paddle is a plane surface or straight line between its ends.

H is the shaft of the wheel. C C represent the arms on one side, and C' C' the arms on the other side. D D represent the plane faces of the paddles, and D' D' the concave faces. The advantage claimed for the paddles so constructed is concentrating to a focus the force upon the water when the wheel is propelling forward; and by having the backs of them plane they are protected from the slip that would ensue if they were concave also; for backing a vessel they are equally as efficacious as common paddles, while angular paddles are not. The patentee states that this form of paddle wheel is the result of many experiments instituted to secure speed without expending an excess of power, and that it is an important improvement, deserving the consideration of all who are interested in steam navigation.

He informs us that in a series of experiments made with a model there was a gain of 20 per cent. of speed obtained with these paddles over the common kind, thus proving, the inventor believes, that it is the most effective and simple paddle wheel yet brought before the public. He is desirous of making a liberal arrangement with steamboat owners and others to have his paddle wheel introduced. He has applied for patents in Europe, and is at present staying at the Metropolitan Hotel, this city, wheer he may be found, and will give full explanation on every point respecting which information may be desired. The paddles may be made either of metal or wood.

More information may also be obtained respecting these paddle wheels by addressing Messrs. Moore & Glover, Charleston, S. C.

A Bridge from New York to Brooklyn.

The subject of a bridge over the East River, to unite the cities of New York and Brooklyn, has oftentimes been talked of, and various plans have been proposed to effect this object. A suspension bridge has been the only apparently feasible one proposed, and yet it has been considered impracticable, because, on the New York side of the river, a tower of about 200 feet high would have to be erected, to allow the curve of the bridge to clear the tallest masts of ships sailing under it. This would require a grade of roadway up to it, starting from Broadway (the highest street,) gradually rising above the tops of the highest stores.

Drawings have been exhibited to us of a new plan for a bridge over the river, devised by Samuel Nowlan, C. E, to overcome this difficulty. It is designed that a bridge should start with its first high piers from the foot of Fulton street, New York, and stretch over the river on successive arches, to Brooklyn Hights—requiring no grading on that side. It is intended to be an arched bridge, having iron pillars resting on double stone piers, laid on submarine foundations; the lineal arches are to be 300 feet span, 120 feet above the water line, and the transverse arches between the piers 100 feet span; thus making the roadway very wide for two tracks of cars connected with the Brooklyn railway. On the New York side, instead of raising a graded way from the central street of the city, Mr. Nowlan, ingeniously, proposes to raise a graded iron suspension road along the river side, commencing at Maiden Lane, running transversely up to the elevated porch of the bridge at the foot of Fulton street. Not a single street would be obstructed by this arrangement, nor would any of the docks, as the whole of the suspension roadway, underneath, is intended for dock stores for goods while being shipped and unshipped—something much needed in this city. A similar roadway can be erected from Peck Slip to the porch of the bridge, thus providing two roads to it. Such a bridge would no doubt cost a great sum, but it is the most ingenious plan yet proposed for such a structure over the East River.

Remedy for Burns.

We know of nothing better to apply to wounds caused by burns than the tincture of the stinging nettle (*Uotica ureas*). Any person can prepare it, by taking the whole plant, rubbing it to pieces, and then putting it into alcohol, letting it stand for a few days in a cool place. No matter how severe the burn may be, cover the wound with a linen cloth soaked in this tincture, and notwithstanding it may aggravate the pain for a few minutes, it will soon disappear, and but little soreness will be felt afterwards.

Corns.—The best cure for these troublesome things that we have ever tried. is to soak the feet in hot water for a quarter of an hour, so that the corn becomes soft, and then trim it off as close as possible, and not cause pain.—Then take the tincture of the Arbor Vitæ, placed upon a little cotton, and apply to the corn, and after a few applications the corn will not only disappear entirely, but will not be likely to return again.

A gentleman writing to the *American Agriculturist*, states that he thoroughly cured a fine young mare afflicted with the heaves, by feeding her on cornstalks, and that the disease never returned. The writer quotes Judge Buel's opinion as to cornstalks being a remedy, that distinguished agriculturist having had a horse afflicted with that disorder, which disappeared after being so fed.