Science and Art.

Iodine.

Iodine derives its name from *iodos*, a Greek word signifying ' violet-colored;" but the transcendent beauty of the color of its vapor requires further elucidation than simply saying that it has a "violet hue." If a little iodine be placed on a hot tile, it rises into a magnificent dense vapor, fit for the last scene of a theatrical representation. This remarkable substance was discovered by accident about forty years ago. At that period chemical philosophy was in great repute, owing principally to the brilliant discoveries made by Sir Humphrey Davy. So singular a substance as iodine was to Davy a source of infinite pleasure. He studied its nature and properties with the fondness and zeal of a child at a puzzle map. His great aim was to prove its compound nature; but in this he failed; and to this day it is believed to be one of the primitive "elements" of the world we live in. Iodine is found in almost every natural substance with which we are acquainted, although in very minute portions. The sea furnishes an inexhaustible supply of iodine. All the fish, the shells, the sponges, and weeds of the ocean yield it in passing through the chemical sieve. Whatever be the food of sea-weeds, it is certain that iodine forms a portion of their daily banquet; and to these beautiful plants we turn when iodine is to be manufactured for commercial purposes. The weeds cast up by the boiling surf upon the desolate shores of the sea islands, would, at first sight, appear the most useless things in the world; but they are not; their mission is fulfilled; they have drawn the iodine from the briny wave, and are ready to yield it up for the benefit and happiness of man. The inhabitants of the Tyrol are subject to a very painful disease, called goiter or cretinism; for this malady iodine is a perfect cure. Go and have your portrait painted "as you are." Photography tells the whole truth without flattery; and the colors used in the process are only silver and iodine.

SEPTIMUS PIESSE.

Improved Dredging Machinery.

Machines for deepening rivers, harbors, channels, &c., are in extensive use throughout the country. They generally consist of boats carrying a steam engine, which puts in motion a series of scoops or iron buckets, so arranged as to descend under water, scrape along the bottom, and remove the mud.—These dredges can only be used to advantage on smooth water; if there is a swell, the waves lift the boat and prevent the scoops from touching the ground, rendering the action of the machinery irregular, &c. There are many fine harbors and sea ways that might be opened or rendered safe for navigation provided their entrances could be deepened; but until the present time, owing to the reason just named, no dredge has been constructed by which the work could be done.

The invention herewith illustrated is a dredging apparatus, that works equally well whether the water be smooth or rough; the boat may rise and fall continually with the swell, but the excavation will proceed with the utmost regularity.

The hull, A, is constructed like any other sea vessel, except a well hole in the center, through which the scooping machinery works. The buckets, B, are constructed with a hinged bottom and a latch, which, when at a proper hight, is tripped by the vibrating spout, J, and the excavated material discharged into the well, forward of the machinery. The buckets are attached to the chain in a peculiar manner, which admits of their being readily detached, and hooks, for hard digging, supplied in the place of every alternate basket; the hooks serve to loosen the ground like pick-axes. The vibrating spout, J, is tilted at the proper moment by means of its connection through levers J' J' with wheel K.

If the material be such as will not readily level itself in the hull, a swing bucket is attached—but not here shown—to work in concert with the vibrating shout, J, by the same machinery, that will convey it to any part of the hull required.

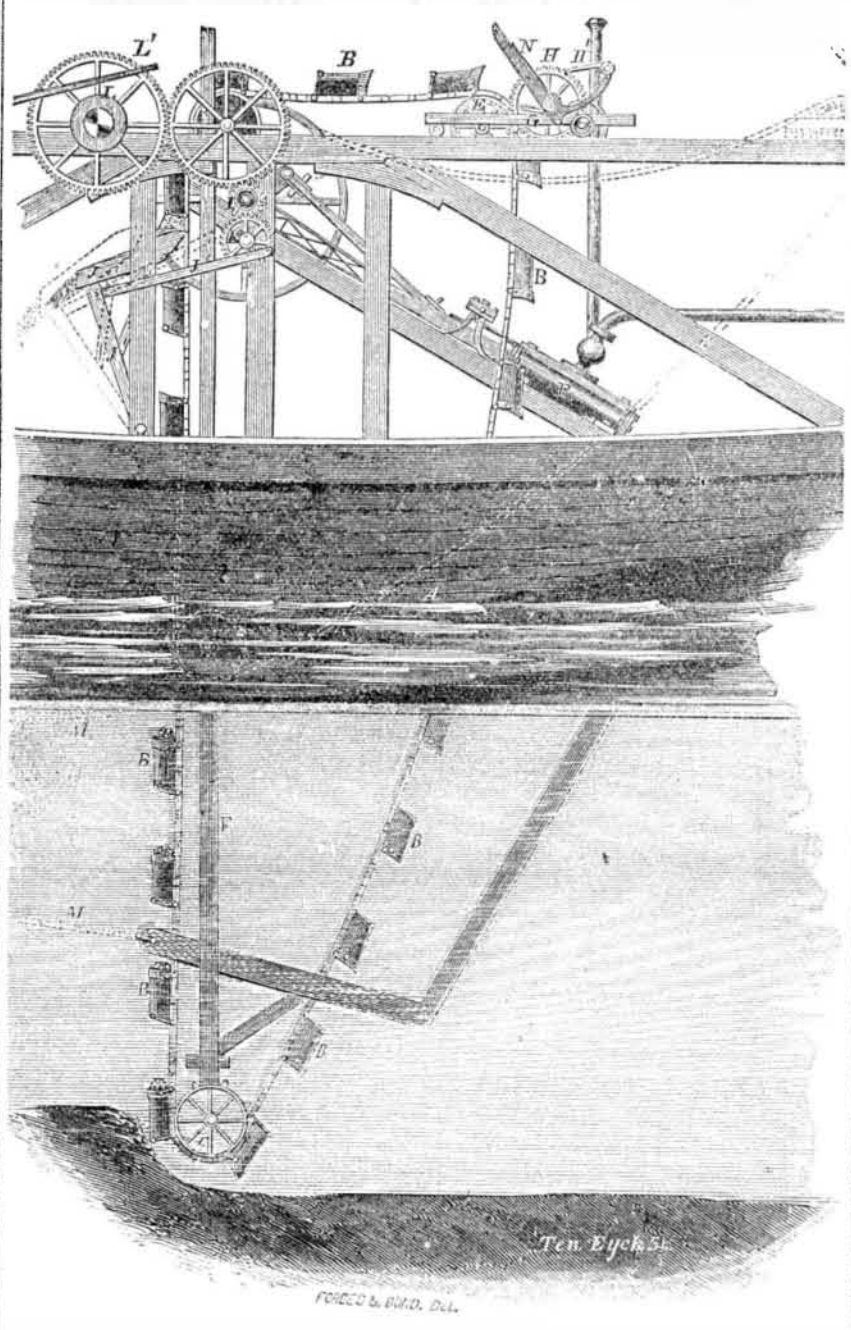
The pawl, H', which works in the wheel, H, is jointed to an arm of the pillow block, so that if by accident or otherwise the machinery should at any time have a backward motion, the pressure on the hull will disengage the wheel, H, and prevent any breaking of machinery which must otherwise take place.

The feeding windlass wheel, L, is geared into the main cog wheel on the driving wheel shaft, I, and is provided with a lever pawl, L', to hold the machine to the work when not in gear; the lever pawl is so arranged to throw the wheel, L, out of gear if a backward motion of the machinery takes place, thus preventing breakage, as before mentioned.

The lower pair of wheels, C, are attached to the ways, F, which are so arranged as to move freely up and down to accommodate the motion of the boat in a sea way. While the machine is in operation the loaded buckets on the perpendicular part of the chain are kept in motion equal to that of the sea, so that the loaded part of the chain is not slackened at any time by the motion of the hull. The sag of the empty buckets on the back part of the chain is a perfect compensation movement to the upward motion of the waves or downward motion of the hull.

The crotched chain, M, is fastened to the ways, F, uniting into one, and passing over pulleys in the stern of the hull, and attached to a weight or spring, so that when the buckets come in contact with any unyielding obstruction, the ways are allowed to rise, and the buckets pass over it without damage to the machinery.

IMPROVEMENT IN DREDGING MACHINES.



The propeling power required is so much greater than is necessary for the excavating machinery that it is economy to employ separate engines with the same boiler. The propeller engine is situated below, (not seen in the engraving,) and works a screw propeller.

When the excavating machinery is not wanted for use the gear wheel, H, is thrown in gear by the handle, N, and the buckets raised up above the bottom of the hull by means of the locomotive gearing on the car, G, which terminates in the pinion, *o*, working in a rack on the frame work, by which it is drawn back to the situation shown by the dotted lines.

This kind of machine will work in any sea when the wind is not so severe as to drag anchor. The usual motion in a sea-way in good weather, if the material be hard, is of great advantage in working the buckets through it.

The boat is propelled from place to place by a screw at the stern. The sinks in the hull into which the mud is dumped, have trap doors bottoms. When the boat is loaded she steams off to the proper place; the traps are then opened and the load falls out. The interruption of the work by thus retiring to discharge, is partly compensated by the less number of men required; lighters and tug boats are also dispensed with—the vessel is a perfect combined steamboat and dredger.

The boat is intended to be capable of carrying at least one hundred tuns, and long enough not to be too much affected by short swells, so that it may be profitably worked when lighters cannot be kept alongside, which is the main object of the machinery.

The inventor says that a compartment may be constructed of boiler iron to fit in the well and sink holes, when the scoops are drawn up. Thus the dredge may be converted into a seaworthy screw steamer, and sent to Europe with freight enough to pay expenses, in perfect safety, and be ready for dredging operations immediately on arrival.

The inventor is Mr. D. S. Howard, of Corpus Christi, Texas, who will give further information.

C. H. Haswell, Civil and Marine Engineer, No. 6 Bowling Green, N. Y. is agent for Mr. Howard. See advertisement in another column.

Life Preservers.

We lately saw two life preservers, simple, effectual, and low priced. One, invented by J. B. Davis, of this city, consisted of an elliptical ring of cork, covered with canvas, in shape somewhat similar to a life-boat, but much smaller; on one of the inner sides were fastened two straps, to be kept loose when not in use, and on the two outsides, in the middle, were two small paddles. A person seizing one of these in the water, it immediately throws itself over his head. The loose straps can then be stretched across and fastened to the opposite inner side, thus making a support under the arms; the paddles can then be disconnected, and the individual is enabled to steer himself to the nearest point of safety.

Another life preserver is Tewksbury's Patent Marine Seat. This in shape strongly resembles a sand glass on a large scale, only substituting tin for the glass. Being air-tight and hollow, with a wooden frame, a buoyancy of 36 lbs. is obtained, and as many as three persons can be supported by one of them. This a paratus, when not used in the water, serves for a light and portable seat on the deck and in the cabin of a ship. They are 15 inches diameter top and bottom, and stand 16 inches high. They are now nearly unanimously adopted by steamers and packets from Boston and other Eastern ports, and numerous other boats are supplied with sets of them. If ships were not furnished with life-preserving apparatus, every individual is enabled to possess one of these as his own private property which will assuredly prove a "friend in need."

Remedy for the Striped Bug.

It is said that if black pepper be dusted over the vines of cucumbers and water melons, while the dew is on them, that it will effectually banish these destructive pests—striped bugs.

One million tuns of iron are now manufactured annually in the United States.