SCIENTIFIC MUSEUM.

Manufacture of Trifles.

A correspondent of an eastern paper thus writes of the manufactories at Waterbury, Conn. :—

"Has your father or grandfather got a pair of old gilded epaulets not marked 'Waterbury?' Open your jacknife, and see if 'Waterbury' is not cut into the blade. Turn over a large ancient, or small modern gilded, or even yellow button, and 'Waterbury' can be spelled around its margin. Look at your wife's—I mean—no matter—hooks and eyes, and see them grin 'Waterbury,' as they pull hard at each other. There's the end of your cane, the bitts in your horse's mouth, the tool you curry him with, the metal trimmings of your umbrella, the lock of your trunk, and all the unthinkable little bits of metallic civilization, comfort and ornament, that ever were used or seen, hailing from 'Waterbury.' Only think of a five story brick building, covering more ground than Greenfield Common, all full of heavy and light machinery, costing anywhere from twenty to fifty thousand dollars, with fifty men and boys making suspender buckles! Go to another, where steam puffs off from a thirty horse engine, and you hear a roaring and crashing, as if fifty thousand trip-hammers were pounding the Rocky Mountains, and you find men very busy in getting out those sixpenny pieces of iron that tip the ends of the handles of cheap knives and forks. There is another concern hissing and snapping, with its $5,000 worth of machines that pull in long coils of wire, and turn out the eyes used in the wood and horn buttons—nothing else—and so you may go from one great shop to another, till you break down in utter amazement at the millions so profitably invested in manufacturing just nothing at all."

Culture of Blackberries.

In New England they are making a great deal of the blackberry, which bids fair to take a high rank among the smaller fruits. Hovey's Magazine, in treating of this subject, says:—

"Since the introduction of the improved variety, about six or seven years ago; of which we have heretofore given several accounts, and whose cultivation has been so well detailed in our last volume by Captain Lovett, who has been one of the most successful growers of the fruit; it has been very generally disseminated; and, the past year, many remarkably fine specimens were exhibited before the Horticultural Society.

The liberal premiums offered for this fruit, by the Society, have had the good effect of producing very general competition; and so superior have been some of the specimens; so much larger than when first exhibited, evidently showing what care and attention will do for this as well as other fruits; that the Society have deemed it advisable to offer a high prize for a seedling, with a hope of a still further improvement; for, although what few attempts have been made in this way have not been attended with very favorable results, there is still good reason to believe that it will yield to the ameliorating influences of cultivation, as well as the strawberry, the gooseberry, or the raspberry.

So productive is this variety that, according to the authority we have quoted, a dozen of plants, when well established, yield sufficient fruit for a family of the ordinary number. Among the berries exhibited in public by Capt. Lovett and others, were some over an inch and a half long."

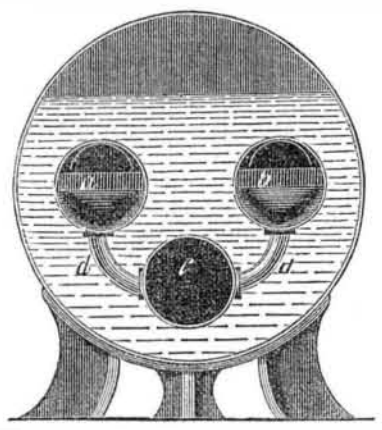
New Musical Instrument.

Mr. Freberhuyzer, a musician of Albany, has invented a new musical instrument, the materials used for its construction being sea shells. The exterior of the shell is not disturbed, and it retains all its rough attractions. The mouth-piece is fitted to a screw tube adjusted at the head of the shell. Along the sides the key holes are arranged at proper intervals, and the edges carefully lined. A valve lined with velvet, hinged at one corner, covers the mouth of the shell, and is compressed or opened as the character of the music requires. At the opposite and extreme corner of the mouth, the vent is left for the egress of the surplus air. The instrument, therefore, with the valves and keys closed, is air-tight, and the variations in the size and natural organization of the shell, furnishes the change in the tone of the instrument. The music is said to be powerful and agreeable.—[Exch.

[Anthony Williams, of Cornville, has invented a new musical instrument, the materials used for its construction being corn stalks. The outside maintains all its original roughness; it is perforated with a number of holes, and it has valves lined with soft leather; his neighbors have given it the name of "corn-stalk flute." He discourseth sweet music with it. "Old Hundred," &c.

On Boilers.---No. 28.

FIG. 55.



TATHAM'S BOILER.—This engraving is a transverse section of an improvement in boilers invented by J. & D. Tatham, of Rochdale, Eng., and for which they secured a patent in July last, (1851.) The boiler is constructed with three flues traversing its length. Furnaces are placed in two of these flues, *a b*, beyond which point they are contracted, and are entirely stopped up at the extreme end. A series of transverse passages, *d d*, form communications from the flues, *a b*, to the third flue, *c*, by which the products of combustion pass into that flue. A considerable addition of heating surface is obtained, while the heat, at the same time, is more diffused in its application.

Another improvement exhibited in this figure, is in the arrangement of the furnace-bars, which, on examination, it will be seen, are placed transversely to the length of the furnace, instead of longitudinally, as usual, The advantage of this arrangement is in the substitution of new bars for the back bars when worn out; they being more subject to the injurious effects of the fire than those in front. The necessity of renewing the whole of the bars when the back parts are worn out, is thus obviated.

FUEL.—A correspondent in Wisconsin asks of us, "what is the quantity of fuel consumed in the production of steam, such as a piston working with a force of 50 lbs. to the square inch, what will be the consumption of fuel to guarantee steam to work the piston with a force of 100 lbs. to the square inch?"

Here no reference is made to expansion or anything else, of course the consumption of fuel will just be double for the 100 lbs. to that of 50 lbs., for the very reason that the fuel has just double the resistance to overcome when we take the fuel as the unit of power. The value of fuel in boilers depends upon the quantity of water which the fuel, according to its weight, will evaporate in a given time. Every cubic inch of water transmitted in the form of steam to the cylinders produces a force represented by a ton raised one foot high; 33,000 lbs. is nearly 15 tons, therefore if 15 cubic inches of water are converted into steam per minute, or 900 cubic inches per hour will produce a mechanical force equal to one horse. The question to ask about the consumption of fuel is, what quantity of fuel will evaporate a certain amount of water in a given time. An engine working at 100 lbs. pressure is of double power to one working at 50 lbs. on the square inch. If, then, it takes takes 7 lbs. or whatever the quantity of fuel may be, for one horse power per hour, it certainly will take the double quantity for two horse power.

The following is a receipt for making cement for the seams of boilers:—

Take 16 parts of iron filings, free from rust; 3 parts powdered sal-ammoniac (muriate of ammonia); and two parts of flower of sulphur; mix all together intimately, and preserve the compound in a stoppered vessel, kept in a dry place, until it is wanted for use. Then take 1 part of the mixture, add it to 12 parts of clean iron filings, and mix this new compound with so much water as will bring it to the consistence of paste, having previously added to the water a few drops of sulphuric acid. Instead of filings, turnings, or borings of cast-iron may be used; but it must be remarked, that a cement made entirely of cast-iron is not so tenacious and firm as if of wrought-iron; it sooner crumbles and breaks away. It is better to add a certain quantity, at least one-third of the latter to the former.

Palm Oil.

This oil is obtained, in Guinea and Guyana, by expressing, as also by boiling, the fruit of the *evoira elais*. It has an orange color, a smell of violets, a bland taste, is lighter than water, melts at 84° Fah., becomes rancid and pale by exposure to air, dissolves in boiling alcohol, and consists of 69 parts of oleine, and 31 of stearine, in 100. It is employed chiefly for making yellow soap. It may be bleached by the action of either chlorine or oxygen gas, as also by that of light and heat.

The palm-tree, growing on the coast of Africa, furnishes, at the base or origin of its leaves, clusters of a yellow succulent fruit. Each of these bears some resemblance to a grape-shot. The bunches are of different sizes, and the fruit composing them of different shapes, as may be expected from their reciprocal pressure, although naturally round, when not exposed to it. The pulp of this fruit is soft, and of a bright yellow color—it is from this that the oil is obtained. Within it lies inclosed a hard and thick-shelled stone, of a dark color, within which is contained a firm white kernel, of a pleasant oily flavor. This kernel also affords an oil, which is not yellow, but white—and not fluid, but concrete even in Africa.

The yellow palm-oil is quite fluid while in Africa, and that it is not until it has been exposed to the cold of our temperate regions that it becomes solid—whereas the oil of the kernel is always concrete, or nearly so. Both of the white and the yellow oil are obtained by expression. The latter is procured in immense quantities in Africa, where it is partly consumed by the negroes along with their rice and pepper, or fried with their fish; and partly exported to Europe, where its principle use is in the manufacture of soap and candles.

Palm oil is excellent for chapped hands and for softening the skin. It is but little used in our country yet, lard and tallow being much cheaper here. The time will come when it will be more extensively used among us, both for soap and candle. It makes a most excellent salve when combined with rosin, by heat in a clean vessel. The introduction of palm oil into Europe and its application to the useful arts has been the means of conferring incalculable benefits upon all classes.

Singular Explosion.

On Sunday of last week, at 10½ P. M., an immense globe (reservoir of wind) at the Iron Works at Hudson, exploded. The report was heard some distance off, and, for a time, created much excitement. The upper part of it was blown off, and it is thought that the globe is entirely ruined. It originally cost $11,000, and from its position, being near the line of the Hudson River Railroad, it was looked upon as a curiosity. No person was injured, but the damage done is estimated from $15,000 to $20,000. Negligence on the part of some of the workmen is assigned as the cause of the explosion.

Black Rain.

On Friday morning, says the "Kilkenny Moderator," (Ireland,) between six and seven o'clock, a heavy shower, which lasted for upwards of twenty minutes, fell over the city and a considerable district adjoining. The rain proved, upon examination, to have been of almost an inky blackness, and had all the appearance of being impregnated with soot or charcoal. In the last year of the cholera we were visited by a similar shower, and in the popular superstitions the appearance of that dreadful disease was largely attributed to the circumstance.

Pyroligneous Acid.

This acid is made by the distillation of wood in close vessels. The retorts are of cast-iron, 6 feet long, and 3 feet 8 inches in diameter. Two of these cylinders are heated by one fire, the flame of which plays round their sides and upper surface; but the bottom is shielded by fire-tiles from the direct action of the fire. Two cwts. of coal are sufficient to complete the distillation of one charge of wood; 36 imperial gallons of crude vinegar, of specific gravity 1·025, being obtained from each retort. The process occupies 24 hours. The retort-mouth is then removed, and the ignited charcoal is raked out for extinction into an iron chest, having a groove round its edges, into which a lid is fitted.

Steam on the Erie Canal.

The steamboat Jacob Hinds, says the Lockport Democrat, passed through this village last Thursday, having in tow four of the largest class of boats that can now navigate the canal, they were heavily loaded with railroad iron, and as eighty-four tons was the smallest that any of them had, the aggregate amount must have been at least three hundred and twenty-six tons. With this heavy line of boats to drag, the steam tug moved ahead at the rate of between three and four miles an hour, notwithstanding the obstacles which the narrow and shallow water of the old canal in many places presented. It made no swell to wash the banks, but moved on smoothly, hardly breaking the stream with a riple.

Sickness on the Mississippi River.

We learn from the St. Louis papers, that there is unusual sickness and mortality among the immigrant passengers on the steamboats running from New Orleans to that city.—Complaints are made that the boats are too crowded. For instance, 321 German immigrants, who came to St. Louis on the steamer Pawnee, have signed an affidavit that there were four hundred and seventy-six passengers on board, all of whom were landed at quarantine, eight of them laboring under severe attacks of illness.

These foreigners come to a strange country, and the change of food, water, and climate, after a long voyage, is certainly enough to cause cholera at any season of the year.