Aldehyde in the Distillation of Sugar.

The annexed interesting article is by Prof. Volckel, of Germany, and is selected from the Annals of Chemistry and Pharmacy :—

"In my memoir upon the products of the distillation of sugar, a volatile fluid is described under the name of "yellowish fluid;" it is the first that comes over during the distillation of sugar-vinegar, begins to boil at 86° Fah., and distils over for the most part between 140° and 149° Fah. Closer investigation showed that this fluid contained acetone, a volatile yellow-colored oil, and very probably aldehyde. The latter betrayed itself by its characteristic odor, and its behaviour with solution of potash and uitrate of silver and ammonia. Wood-spirit could not be detected in this fluid.

In the above memoir I left it undecided whether aldehyde really does occur amongst the products of the distillation of wood, until I should have the opportuuityof instituting some further experiments with this view. In fact, in my former investigation, the greater part of the yellowish fluid was employed in the endeavor to ascertain whether or no wood-spirit occurred amongst the products of the distillation of sugar; the smaller portion, which was specially intended for the search for aldehyde, was lost in consequence of the application of too strong a heat in driving off the water, during an attempted separation of the acetone from the aldehyde by means of finely-powdered chloride of calcium. The positive proof of the existence of a very small quantity of aldehyde amongst the products of the distillation of sugar did not appear to me, at that time, when I was still much occupied with the investigation of the other products of the dry distillation of sugar and wood, of such importance that I should again undertake a series of distillations of sugar, especially as the formation of aldehyde during the decomposition of orgauic bodies had already been demonstrated by Hess and Scanlan. I have however, since endeavored to fill up this gap in my previous investigations.

During the distillation of sugar vinegar, a yellow fluid, of penetrating aldehyde-like odor, is the first thing to pass over. This was rectified for further examination on the water-bath, with the addition of a small quantity of solution of carbonate of soda to neutralize any adherent acids; it was then deprived of water by chloride of calcium, and distilled, the matter first passing over being especially collected. This fluid has still a slight tinge of yellow. It mixes in all proportions with anhydrous ether. If this mixture be saturated with anhydrous ammoniacal gas, colorless crystals are produced in a short time, possessing all the properties of aldehyde-ammonia. Not the smallest doubt therefore can exist that aldehyde is formed during the distillation of sugar, although in very small quantity.

Aldehyde is also certainly present in small quantity in the products of the distillation of wood, and is perhaps the cause that wood-spirit, which has been freed by distillation upon lime from those oils, such as furfurole, which are volatilized with difficulty, and by these means rendered colorless, again acquires a color, and deposits a brown substance when causticpotash is dissolved in it.

The occurrence of a small quantity of formic acid in sugar-vinegar is probably intimately connected with the formation of aldehydes during the distillation of sugar. Thus both together contain the same equivalents of hydrogen and oxygen :—

1 equiv. aldehyde - - - - - $=C^4 H^4 O^2$
1 equiv. hydrate formic acid - - $=C^2 H^2 O^4$

$H^6 H^6 H^6$

The simultaneous formation of aldehyde and formic acid by the exposure of sugar to heat may therefore be as readily understood as the formation of the hydrates of carbon, acetic acid, assamar and furfurole.

The yellow color of the fluid passing over at 149° Fah., which both according to the previous and present investigations consists essentially of acetone and aldehyde, arises from the presence of yellow, volatile, readily-changeable oils, which distil over principally between 176° and 320° Fah., and possesses a different constitution from furfurole.

These oils are produced only in very smal quantity in the distillation of sugar. They polsess a strong penetrating odor, and are converted into brown substances, which are only sparingly soluble in potash, by the action of alkalies, or even of their carbonates. The true constitution of these volatile oils could not be ascertained, as the small quantity in which they were obtained admitted of no further separation.

In my previous investigation, only that portion of them which passed over between 284° and 302° Fah., which however is always much contaminated with furfurole, whose boiling point is 324° Fah., was submitted to analysis. In the present case, that portion of these volatile oils which distils between 176° and 212° Fah., was also analyzed.

0·2085 grm. of this fluid gave 0·479 grm. of carbonic acid and 0·182 grm. of water. In 100 parts—

Carbon - - - - - - - - - - - -	62·72
Hydrogen - - - - - - - - - - -	9·69
Oxygen - - - - - - - - - - - -	27·59

The whole quantity of this oily fluid, which was obtained from the products of distillation of 8 lbs. of sugar, amounted only to between 2 and 3 grms. The fluid is lighter than water, in which it is tolerably soluble, especially with the assistance of heat. It communicates a yellow color to water.

This oily fluid is also present in the products of the distillation of wood; with furfurole it is the cause of the yellow color of crude wood-spirit.

[For the Scientific American.]

Pure and Impure Gas.

In No. 24, present volume, of your paper, you gave us a very sensible article under the above. And in conclusion you say "cannel coal being free from sulphurets, is to be preferred for making gas, and if *our* gas companies do not now use the American cannel in place of bituminous they exhibit an amazing want of good sense and sound information, in relation to the best kind of coal to employ in their business."

I can tell you why *our* gas companies do not use the American cannel. What you say of its superiority for making light is eminently true. It contains much more hydro-carbon vapor and olefiant gas than the bituminous coal. Now the reason it is not used instead of the bituminous, I would perhaps best convey by giving a short conversation that took place last summer between the working superintendent of a western gas company and myself; to wit:

"What kind of coal do you use here for making gas?

Why, bituminous coal!

What do you pay for it per bushel?

Four and a half cents!

What do you get for coke per bushel?

Five cents.

How many bushels of coke will thirty bushels of bituminous coal leave after the gas is roasted out of it?

About forty bushels!

Do you know that the cannel coal found near you here on the banks of the Ohio makes a much more brilliant gas—easier and more copiously extracted than the bituminous?

Yes, I do, but it makes *scarcely any* coke, and would not be profitable to the gas company!

But the company might charge more for the gas, because it is so much more luminous, less offensive, and less corrosive than the other?

Yes, but the people grumble at the high price now, and would not be willing to advance!

Well, would not the increased consumption caused by supplying a better article remunerate the company for the change from bituminous to cannel?

I don't know, I guess the company know their own interest best!

Here the conversation stopped after I remarked that it would seem the company was a coke manufacturing concern instead of a gas-lighting company, inasmuch as the light was but the secondary consideration of their operations.

This is plainly the reason why *our* companies do not use the American cannel. It is rich in hydro-carbon vapor, and olefiant matter, but leaves no coke.

I still think your concluding remarks are right. If the gas companies were not too rapacious after big dividends to see the advantages they must ultimately derive from the increased consumption of a superior light, they would use the cannel altogether. In your city they use two-thirds cannel and one-third New-Castle, the light of which is superior, especiallyin proportion to the quantity of gas consumed, to any made from bituminous in the United States. This was the case in June last. Its specific gravity then was full 550, atmosphere being 1,000, which is considerable heavier than any other I used for ballooning purposes. In a balloon of 9,000 cubic feet capacity filled with the New York gas, it weighed 65 pounds more than the same quantity did from works using bituminous coal, I had therefore to ascend with but 15 pounds of ballast at New York, while at Zanesville and other places where the bituminous coal was used, I took 80 pounds of ballast.

The sulphurous and ammoniacal vapors issuing from gas burners, especially under high pressures, are very corrosive upon jewelry, and very destructive upon books, and indeed upon all fine textile fabrics. They are also very injurious to weak lungs. These evils would not exist if the American cannel coal was used for gas, with ordinary care of purification; and we have it in abundance, and so pure, on the banks of the Ohio, that a splint of the raw coal burns with a flame as brilliant as a wax candle, specimens of which I have in my possession now.

JOHN WISE.

Lancaster, Pa., Feb. 27th, 1854.

Decimal Coinage in England.

Dr. Bowring, on the eve of returning to China to hold an important official situation, is sparing no efforts to enlighten the good people of England in relation to the advantages of introducing the system of decimal coinage. The following is the conclusion of one of his speeches on this subject:

"The only change which a decimal system would effect in our currency would be as regards the copper coinage; it leaves the gold and silver untouched. I would take the pound sterling as the integer, as I feel the advantage of recognising a point of departure which is consecrated by the earliest records of this country, and which existed long before the conquest, as the groundwork of all accounts; this course having been adopted by every country which has yet adopted the decimal system. I therefore come to the conclusion that to leave the pound sterling untouched, and only operate upon the copper currency, is the true and intelligible, and commercial, and philosophical system. I propose that the pound should be divided into a thousand parts, and as far as regards names, that the names given should represent the value.

I shall be very glad to suggest the substitution of the word 'mill' for farthing, and shall be very glad to see the word 'cent' taken for ten of these mills, and the word 'dime' for 100, that word having been received by the Americans, being in reality one of our oldest Saxon words. Its only effect upon the well-being of the people would be that instead of 48 farthings for every shilling they would get, 50, and instead of 24 for every 6d, they would have 25. Therefore, I venture to ask from this great community its assistance in accomplishing an object the progress of which I shall, from that farthest region in which I shall be placed, look on with great interest, and respecting which the Chancellor of the Exchequer said to me, only the day before yesterday—'Prepare public opinion, and you shall have the decimal coinage.'"

Special Notice.

The correspondence of this office is immense, and we are every dayin receipt of letters which indicate merely the town the writer resides in, the county and state being omitted. This is very annoying, and we earnestly solicit those who write us in future to give not only their own names but also the name of the town, county, and State, to which they desire their letters to be addressed. This insures a prompt reply, and saves us from a perplexing annoyance.

Combustion and Evaporating Power of Boilers.

MESSRS. EDITORS.—Permit me to propound through the columns of the "Scientific American," the following question, which is of considerable importance to the engineering world :—

If a given quantity of carbon, and an equivalent quantity of oxygen combine together at a low temperature, say 1000 degrees, will the amount of heat thus produced be the same as if the carbon and oxygen were combined at a temperature of 2000 degrees, the carbonic acid the result of the combustion weighing the same in both cases? Will not the temperature of the carbonic acid in the latter case be double that of the former.

For example, if I have two boilers of the same construction and size, with the exception that the fire space of one is twice as large as that of the other, the larger using natural draught, and the smaller a blast, both boilers evaporating an equal weight of water in a given time, will the evaporating power of a given quantity of coal be the same in both boilers.

A. K. R.

New York March, 1st. 1854.

[The *quantity* of heat produced by the perfect combustion of coal is the same, whether the combination of the carbon with the oxygen to produce carbonic acid, takes place under a high or low degree of heat. The great object in the combustion of fuel under boilers is to make the water absorb the greatest amount of the heat generated by combustion in the shortest possible time. The example presented for solution is not one that will lead to any satisfactory result. The great question is, what is the proper amount of fire space and heating surface to absorb the greatest amount of the heat in a given time, under any condition. One boiler may have a fire space ten times larger than another of the same size, and yet not generate as much steam in a given time from the same quantity of fuel. To generate steam fast, the heat must be intense; this is the reason why a blast is necessary in locomotives.

The Fast Line.

An intelligent German mechanic, of this city, has authorized John S. Selby, the actuary of the Maryland Institute, to obtain for him a sufficient space in the Crystal Palace Exhibition, at New York, for the display of a steam power, which he will prove to be capable of propelling a vessel across the ocean in thirty-six hours. The actuary has complied with his request.—[Baltimore Sun.

MESSRS. EDITORS.—The above appeared in the Boston "Star Spangled Banner," in March 26, 1853. Can you give me any information respecting it; by so doing you will oblige

Yours, J. B.

[All nonsense, sir. It would require a vessel to move with an average velocity of 83⅓ miles per hour to cross the ocean from New York to Liverpool in thirty-six hours. Those wonderful inventions which are so often heralded in some of our papers, cannot be trusted. We never saw the engine or apparatus referred to, in the Crystal Palace.

Marine Locomotives.

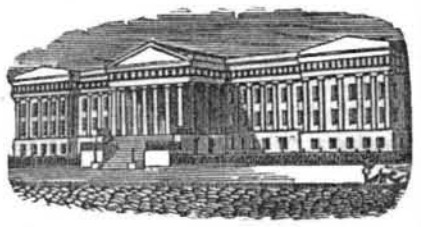
Since we published an illustrated description of Mr. Frost's Marine Locomotive on page 180, we have received quite a number of communications from correspondents on the subject, the majority of them condemning the project as impracticable, and some presenting plans of their own, which they consider far superior. Every inventor naturally thinks a great deal of his own invention, and cannot view it in the same light as a person who has no personal interest in the matter. We have expressed no views favorable to Mr. Frost's project, because we could not do so upon any Scientific or engineering principle whatever.

Steam Fire Engine.

A Committee of gentlemen, from Louisville, Ky., appointed to examine and report on the working of the Cincinnati Fire Engine, after having witnessed its performance, determined to recommend one of such engines for Louisville.

Notice—Water Wheels.

We shall next week commence to publish a series of articles on Re-action Water Wheels, which will contain much practical information.



[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING FEBRUARY 28, 1854.

SCYTHE FASTENINGS—S. B. Batchelor, of Lowville, N.Y.: I claim the continuous rectangular slot or opening, in combination with the ring and screw, by which I am enabled to attach any common scythe to my snath, as set forth.

[This is a simple and useful device.]

MACHINE FOR SPLITTING HOOPS—J. W. Chittenden & Wm. C. Mead, of Vevay, Ind.: We claim the feed rollers, the griping anvil, and bending rollers, or their equivalents, arranged and constructed as described, in combination with a trip hammer, as described, for the purpose of racking or splitting apart timber, (previously checked) for hoops.

SALT KILNS—John P. Conger, of Newark, N. J.: I am aware that tubes have been used for the purpose of heating water for other purposes; therefore I do not claim the invention of tubes, but the application of them to the making of salt, I believe has never been made before, and by means of my new kiln, I am able to make more in any given time, and with a vast deal less amount of fuel.

I claim the arrangement of a salt kiln having two small fires with short arches over the grates at each end, and the flues thereof meeting in the middle of the kiln, and passing into tubes leading through the feed trough placed immediately above and along the kiln, as set forth.

SEED PLANTERS.—Lewis W. Colver, of Louisville, Kentucky: I claim the combination of the loosely hinged stocks, with their teeth, shoes, and a seeding apparatus, as described, and for the purpose of mellowing the soil, opening the furrows, dropping and covering the seed at one operation, as set forth.

CHURNS—R. W. Davis, of Rodgersville, N. Y.: I claim the manner described, of dividing the end pieces, and hanging them eccentric to the axis of the dasher in combination with the arrangement of the blades, so that the dasher may be adjusted by the resistance of the cream in revolving through it, so as to present six centripetal cutting or agitating blades to the cream, and then after the butter is produced to be adjusted by reversing the motion of the dasher, and through the resistance of the butter, so as to present but two centrifugal gathering blades for gathering the butter, working it into rolls, and expelling the buttermilk therefrom, as described.

[This is a good improvement.]

MACHINE FOR PULVERIZING ORES—A. K. Eaton, of New York City: I claim a rotating dish or mortar to hold the ore to be pulverized, and the water, mercury, or other liquids with which it may be advisable to mix the same, in combination with a vibrating rubber or pestle, which is made to traverse the bottom of the mortar, as set forth.

SNOW PLOWS FOR RAILROADS—Abijah Hall & Sylvanus Sturtevant, of South Paris, Me.: We claim so shaping, proportioning, and placing the notched shares of the snow plow that they will extend down within the inner sides of the rails nearly to the cross ties, without coming in contact with the chairs, for the purpose of removing snow and ice from the immediate vicinity of the inner sides of the rails, and by means of their mould-boards, discharging the same at a proper distance outside of the rails, substantially in the manner herein set forth.

DIES FOR MAKING SEAMLESS METAL TUBES.—Timothy D. Jackson, of New York City: I claim a die for drawing seamless metal tubes, constructed with an eye, whose periphery is formed of a series of narrow friction rolls, which produce a substantially equable extension of every part of the circumference of the tube being drawn, as set forth.

QUARTZ CRUSHERS.—Smith W. Bullock, of New York City, (assignor to Stillman, Allen, & Co., of same place): I claim the application of gear wheels solely for the purpose of causing the crushing wheels to turn on their axis faster (or make more revolutions) than they otherwise would in rolling around in the trough, the point of contact, (or pitch line) of said gear wheels being on a line drawn from their common center to a point upon the crushing wheels within its outer diameter (or periphery) thereby giving the periphery a slip or sliding motion upon the quartz.

RAILROAD CHAIR MACHINES.—Michael M. Gray, of Philadelphia, Pa.: I claim operating the sliding former or mandrel upon the base or pedestal, to keep it firm and cool, and cutting, curling, and swedging the plates of metal to be formed into the chairs while in a stationary position, and at a proper heat, on the top of this sliding former, instantly in the manner and by the means as described, to produce the chairs uniform in shape and cheaply, of low priced or red shortiron without fracture.

SEED PLANTERS.—Thomas D. Henson, & George Rohr, of Charleston, Va.: We claim the construction, use, and application of a revolving longitudinal shaft, having series of right and left or double obliquely set beaters, and cleaning spikes for the purpose as specified.

FUSIBLE DISCS IN STEAM BOILERS.—Wm. Burnett, and John Absterdam, of Boston, Mass.: We claim placing in a pipe which is connected with a steam boiler a fusible plug or disc, said plug or disc being so far removed from said boiler, but so connected with the water therein that when the water is sufficiently high, the plug or disc will be in contact, or so surrounded with water cooler than that in the boiler as to prevent it from being fused, but when the water in the boiler shall fall below a proper hight, the steam will enter, and come in contact with said plug, or so surround it as to cause it to melt, the same being for the purpose specified.

ZINC WHITE FURNACES.—James Renton, of Newark, N. J.: I do not claim to have invented any mode of treating the oxyds or other substances, after they are evaporated, but I claim, 1st. The combination of any number of ore tubes and spaces, placed side by side, and communicating with each other through openings in their sides, the ore tubes being exposed to a degree of heat sufficient to evaporate the oxyds, or other substances contained therein, and make them pass through the openings into the spaces, the said spaces being protected from the heat by the ore tubes, and serving either to collect and condense the oxyds or other vapors, or to convey them to any other suitable receptacle substantially as set forth.

2nd. The hood or trunk furnished with suitable openings for the admission of air, and placed over the air tubes, F, and tubes or spaces, M, substantially as described, for the purpose of receiving, leading off, and cooling the oxyds, or other vapors escaping from the ores, as described.

[If we mistake not this is a very useful improvement made by the inventor of the wrought-iron furnace, illustrated in No. 22 of this volume.]

TABLE TO HOLD BANK NOTES WHEN CUT—F. G. Johnson, of Brooklyn, N. Y.: I do not claim the movable cutting board, neither do I claim the depressable needle screws, but I claim the combination with a table of the movable cutting board, and the depressable needle screws, combined together as specified, for the purpose of cutting bank notes.

AIR ENGINES—A. S. Lyman, of New York City: I claim first, the mode of preventing the waste of the compressed air, liquid carbonic acid, or other driving power by interposing between it and the outer cylinder of the engine, a reservoir of water or other suitable liquid, as described.

Second, I claim the mode of applying the heat to the generating power through the agency of water or other liquid, as specified, thus avoiding the possibility of burning and scaling the metal, and also greatly increasing the extent of heating surface.

Third, I claim the mode of preventing the loss of power otherwise caused by the expansion of the air, liquid carbonic acid, or other driving power, in passing through the repository and refrigerator, and being cooled and condensed before the working piston has completed its stroke, in the manner described, that is, by moving the generating plunger downwards, as the working piston recedes from it, thus enlarging the heating chamber, as fast as the air or other fluid expands.

Fourth, I claim the combination of the generating cylinders with the opposite ends of the working cylinder direct, thus dispensing with contracted passages and pipes, causing the piston to move as rapidly as the working fluid moves.

Fifth, I claim the construction of the heat repositories and restorers of small glass tubes or glass rods, arranged as specified.

Sixth, I claim the combination of the heater, the repository and the cooler, as described, the heater being above the repository, and the cooler below it, so that as the heat rises, it does not tend to destroy the effect of the repository, but rather renders it more perfect.

Seventh, I claim the partial isolation or separation of the upper part of the outer case, containing the heating liquid from the lower part containing the cooling liquid, by the introduction of bad conducting material between them.

Eighth, I claim the combination of the external heater with the internal heater, and the combination of the external refrigerator, as set forth.

[This is a very ingenious invention, and we are somewhat curious to see it tested. The inventor is sanguine of success; we shall see how far his hopes are to be realized; surely he is treading on delicate ground. Foreign patents are in progress through our Agency.]

MACHINES FOR MAKING BED PINS.—Wm. McBride, of Bristolville, Ohio: I claim attaching to a common turning lathe a sliding cutter stock, and providing such stock with two peculiarly shaped cutters, one stationary and the other movable, the stationary cutter being of such shape that it forms the tapering part of the pin, while the movable cutter is of a proper shape and construction to form a round head on the pin, and simultaneous therewith cut off the pin from the block ready for being discharged, as described.

I also claim making all the pins of a set, of a uniform length by employing a spring plug or gauge, as described, and by the same means effecting their discharge, after having been turned, headed, and cut off, as described.

[A notice of this invention is published on page 28 of this Vol Sci. Am.]

COTTON PICKER CYLINDERS—James Pitts, of Lancaster, Mass.: I claim constructing the screen so that the periphery of the metal intervening between any two immediately adjacent orifices shall be of a length equal to or greater than that of the staple of cotton or other fibrous material to be picked, in order that the fiber shall not lap around the said periphery and become connected, attached, or tied by its ends, as stated.

I also claim the improvement of constructing the cylinder screen of a hollow perforated metal cylinder without arms or ribs, and with open hollow cylindric journals at its two ends, as stated, in order that the cotton may be drawn out of one journal by the suction draught and any obstruction removed by a person's hand and arm introduced through the other journal, as specified.

SOCKET FOR BENCH HOOKS—Joseph Sawyer, of South Royalston, Mass.: I claim the improvement in the sockets of bench hooks, the hook being secured to the socket by the same screw and nut which fasten the whole to the bench.

ORGANS—Wm. Sumner, of Worcester, Mass.: I claim the employment of a wind chest having a main passage for the wind, and branches leading therefrom and governed by valves, as specified, and connected and combined with the keys, as specified.

I also claim, in combination with a wind chest operating on the plan, as described, the employment of auxiliary bellows, connected and combined with the main bellows and pedals, as described.

HARVESTERS—Solyman Bell, of Marseilles, Ill.: I claim the pins in the sickle, or their equivalents in combination with the scores in the guards, or their equivalents, so constructed and operated as to remove the leaves and stalks, and prevent the guards from becoming clogged, so as to obscruct the motion of the sickle.

TOOL REST FOR TURNING LATHES—Geo. A. Rollins, of Nashua, N. H.: I am aware that the tool post of a lathe has been fixed on a plate or platform that could be inclined by means of a screw, therefore I do not claim such.

I claim combining with the tool post and tool holder a separate rest block, in combination with making the said rest block and the post, respectively, with a convex and concave vertical bearing surfaces, the tool holder with a head or dovetail and the tool post with a curved trapezoidal or dovetail groove, as specified, whereby the cutting tool may not only set to any angle of inclination, but the said tool and rest simultaneously confined in position by the downward action of the screw of the tool holder, against the tool, as described.

SEED PLANTERS—John S. Snyder & Joseph Young, of Wheatfield Township, Pa.: We claim the sliding section in the bottom plate, in combination with the tubes and revolving perforated plate, as described, for rendering the machine capable of hill or drill planting at pleasure, and ensuring a regularity of deposit, as set forth.

I also claim the aperture in the frame, in combination with the inclined form of the plate, for carrying off the surplus grains, and collecting them in the bucket, as specified.

BANK LOCKS—Linus Yale, of Newport, N. Y.: I do not claim as new the pins, or the sliding shaft, or the covering, the key chamber with the broad head.

I claim them as arranged in connection with the cog, which prevents their being adjusted and turned by a burglar without the proper key.

CARRIER FOR LATHES—Jacob Zook, of Harrisburgh, Pa.: I claim the combination of the projections on the carrier plate, with the vibrating arms and eccentrics attached to the same pivots or their equivalents, situated and adjustable in, and combined with the auxilary disc and bar, arranged and operating substantially in the manner, and for the purpose herein set forth.

I also claim giving a limited elastic play longitudinally to the bar in the disc, by means of the slats and springs, or their equivalents, as herein described, in order that the pressure of the eccentrics againts the article to be turned may be equalized in case their bearing points should by tue irregularity or eccentricity of the article, be at uuequal distances from the ceuter of revolution which is determined and fixed by the conical point of the driving shaft.

VULCANIZING INDIA RUBBER AND OTHER GUMS—L. O. P. Meyer, of Newtown, Conn.: I claim the heating or curing of the material commonly known as the hard compound of vulcanized caoutchouc or other vulcanizable gums, by means of the immersion of the material in or under water or other suitable liquid during the process of heating or curing as herein described.

FORCEPS SAW-SETS—James F. Brodhead, of Rondout, N. Y. (assignor to Thomas Ritch, of Napanock, N. Y.): I claim the forceps saw-set, in the movable bed or anvil operating conjointly with the levers, enabling the operator to set the tooth of the saw from its point, instead of from its base, as is usual in other forceps sets, as herein set forth.

PRINTING PRESSES—Stephen P. Ruggles, of Boston, Mass.: I claim, first, in combination with the curved arm for carrying the inking rollers to and from the form, the spring plates with the guides at each end of the rollers for causing said rollers to pass over the form in a plane parallel to the form, their general motion being in the arc of a circle as described.

I also, claim hanging the platen and the intermediate ink roller to the same rock shaft by their respective arms, so that the vibration of the platen shall throw the intermediate roller first to the grooved ink rollers and then to the inkbearer, for the purpose of receiving and distributing the ink from the ink trough at every vibration of the platen as described.

ADDITIONAL IMPROVEMENT.

PLOWS—David Swartz, of Tonis Brook, Va.: Original Patent, dated June 22, 1852.: I claim and desire to have added to my letters Patent of June 22d, 1852, attaching the comb or rake to the rear end of the mould board by a crooked cam lever or bar swivel in combination with the hand lever, whereby it can be conveniently raised and lowered by rotating it upon its axis, of connection as set forth.

RE-ISSUES.

CARDING BY WHICH VARIEGATED SLIVERS ARE PRODUCED, Jonas Holmes, and Ephraim French, of Lee, Mass.: Original Patent, dated May 18, 1852, we do not claim the making of doffing cylinders with strips or rings of card filting extending around them, and placed at intervals apart from each other, nor the using such in connection with a card cylinder, nor the giving of such doffers, when so used endwise motions, as such have been heretofore employed in the manufacture of roving of one color.

But we do claim as our mode of manufacturing variegated roving, or that composed of separate masses of fibrous material of different colors laid together, as described, our said mode being a combination of processes, which consist in feeding or disposing the fibrous material upon the main card cylinder in strands bands layers or masses of different colors, and so that they shall be disposed side by side of each other and around such cylinder, as specified, and removing such fibrous material from the said main cylinder, by a doffer or doffers, when constructed and made to operate therewith, as specified.

GRASS AND GRAIN CUTTING MACHINE—William F. Ketchum of Buffalo, N. Y.: Original Patent dated Feb. 10 1852, I claim, first, sustaining the outer end of the rack piece in the manner set forth.

The shield plate in combination with the shoe and cutter bar, for the purpose aforesaid.

DESIGNS.

CAST IRON LEGS FOR PIANOFORTES—Frederick Starr, of Rochester, N. Y.

CAST IRON PEDAL LYRE FOR PIANOFORTES—Frederick Starr, of Rochester, N. Y.

Recent Foreign Inventions.

MANUFACTURE OF SOAP.—P. A. Louniere of London, and L. M. DeMeckenhein of Birmingham, England, patentees. In this invention essential oils, obtained by distillation from schist or coal, wood, and turf, are employed as adulterants, by mixing them with the saponified matter; and pure pine-resin, that is, the juice of the pine from which turpentine is extracted, is employed in its native state, to form a saponified solution, by dissolving it in a concentrated lye, at a low temperature, to prevent the evaporation of the essential oil. This solution is added to, and mixed with soap and essential oils before the adulterations just mentioned are effected. Also, rice or potato starch may be used; being first converted into gelatine by mixing it with boiling lye. This is afterwards added to the soap as an adulterant.

AIR ENGINES.—Wrede Fabian, of Sweden, patented in England. In this engine, a mass of gas is moved backwards and forwards between two different chambers in such manner, that it does not undergo any change in its volume. During the transport from the one room to the other it is alternately heated and cooled, by which means its elasticity is alternately increased and diminished. This gas is in constant communication with the one end of a common working cylinder, on whose piston it will consequently exercise an alternately stronger and weaker pressure, and cause it to move backwards and forward in the same way as steam-engine pistons move.

This is opposition to the Ericsson, from a countryman of the Captain's; but he is too Fabian in name, and Fabian by nature, to astonish the world by such an invention.

STEEL PENS—J. Alexander, of Birmingham Eng., patentee. This invention has two objects, 1. Communicating magnetism to steel pens, for the purpose of diminishing the tendency to corrosion therein. 2. The construction of pen. holders, in which two metals capable of generating a voltaic current by contact with the moist hand are so placed, that on grasping the penholder in writing, they shall cause a voltaic current to pass through the hand of the writer.

SMELTING IRON—Wm. Ireland, of Leek Staffordshire, Eng., patentee. This invention consists—1. Of an improved method of feeding the furnace or cupola, by which any flame is prevented from appearing at or above the charging-door during the time of charging, and until the time of blowing down. This is accomplished by filling the furnace or cupola with fuel to about two feet above the tuyere, previous to putting in any metal, and by then arranging the pigs of metal, or portions of the same, one upon another, crosswise, so that all the ends shall face the tuyere, filling up the interstices so made with small parts of scrap metal and coke. 2. Of improved shape or construction of the furnace or cupola, in which it is made much higher than previously, and has a taper form on the inside above the contraction, to prevent the metal sticking or crusting to the sides. The contraction is also made of a peculiar shape, having a large space below it, so as to afford room for a very large quantity of fused or melted metal. If the said space be larger than is required, the inventor introduces a false bottom in segments, so that the parts can be put in through the mouth of the furnace. He introduces hot air by means of a common fan or blower, with suitable pipes and communications.

Central Africa.

The discovery, by Dr. Barth, of a magnificent river in Central Africa, named Benue, forming the upper course of the Chadda, tributary to but larger than the Kowara, commonly called the Niger, flowing through the most fertile and extensive kingdom of Adamana, has been followed up by intention on the part of the British government to send an expedition up the river, and a steam vessel, built for the express purpose, will be ready the ensuing month. The plan of the expedition is to arrive at the mouth of the Kowara (Niger) before the 1st of July, and to steam at once up the river with the waters. It is estimated that the kingdom of Adamana will be reached in three or four weeks after leaving the Bight of Benin. It is a well grounded opinion, if anything can open up the vast interior of Central Africa to European commerce, it will be the magnificent river discovered by Dr. Barth. The country is covered with splendid herbage, and is densely populated.—Ivory is in great abundance, and exceedingly cheap. Elephants are found in great numbers, and various articles of commerce largely exist. The chief articles of import are muskets, robes, glass, pearls and salt. The current medium of barter is narrow strips of coarse cotton, called gebbega. There is no desert to be passed over, as in Northern and South Africa, and the absence of these natural barriers to civilization and commerce render the probabilities of opening up an extensive trade with Central Africa not only practicable but comparatively easy.

Apples Without Seeds or Cores.

A correspondent of the Memphis "Whig" gives the following recepit for obtaining apples, without seeds and cores: Take the ends of the limbs of an apple tree, where they hang low, so as to reach the ground, dig a small hole for each end under the tree, bend it down and bury it in the hole, confining it down so that it will remain. Do this in the winter, or beginning of spring. The end of the limb thus buried will take root and put up sprouts of scion, which when they become sufficiently large to "set out dig up at the proper season, and transplant them in the orchard where you wish them to remain. When they get large enough to bear, they will bear apples as above.

The truth of the above statement is very easily tested, and we hope some of our readers will try it and furnish us with the result.

A Curious Dining Hall.

We learn from a London paper that Professor Owen was recently entertained at dinner in the garden of the Crystal Palace at Sydenham, in the model of an Iguanadon. The animal in whose mould the dinner was given was one of the former inhabitants of Sussex, several of his bones having been found near Horsham. His dimensions have been kept strictly within the limits of anatomical knowledge. The length from the snout to the end of the tail was 35 feet; he was 12 feet high; the circumference of his body was 35 feet, and the girth of his fore leg 6 feet 6 inches. Twenty-one gentlemen dined comfortably within the interior of the creature, and Professor Owen sat in his head as substitute for brains. The Iguanadon, it will be remembered, was a huge vegetarian monster, living upon the coarse rank herbage of the epoch which witnessed his existence, when no human beings existed on this fair globe.

Extension of the Telegraph System to Africa.

The Electric and Magnetic Telegraph system now used in Denmark, Holland, Austria, Prussia, Belgium, France, Switzerland, Italy, Spain, is to be extended to Africa. It is to be laid across the Mediterranean from Spezzia to Corsica, across Corsica, under the straits of Bonafacio, over to the island of Sardinia, again under the sea from Cape Suclada to Cape Rosas in Africa. By a decree bearing date the 15th ultimo, the French government threw open its African wires to the public.