

been found in considerable quantity in the potters' field, of New York city, which has been removed to satisfy the necessities of our rapidly increasing population.

There are circumstances however in which a body buried by itself may change into adipocere. Probably all the conditions are not well understood, but it is certain that the change has been brought about in bodies which had been buried in running water.

As might be supposed, the formation of adipocere is not limited to the human body. The fact is that the bodies of very many of the larger animals have been found changed into it, and without doubt the body of an ox or a cat would in like circumstances be changed in the same way as the body of a man. The specimen received from Mr. Northrup, which suggested this article, no doubt originated from the body of a sheep.

As to the chemical nature of adipocere, it may be considered an ammoniacal soap. In the decomposition of the animal substances of the body, the solid fat acids, manganic, stearic, etc., combine with ammonia, to form adipocere, which being a permanent compound remains after all else is dissipated.

GLEANINGS FROM THE POLYTECHNIC ASSOCIATION.

The regular meeting of this branch of the American Institute, was held on Thursday evening, March 21st, Prof. Tillman presiding.

A new portable printing machine was exhibited designed for general use not only for printing of circulars, bill heads, etc., but to be employed by the business man for transacting his correspondence, it being claimed that letters can be printed by its use more quickly than can be written with pen or pencil. A machine of somewhat similar construction for stereotyping, was then shown. In this machine the letters, figures and some of the most frequently recurring words are arranged on the periphery of a wheel. As in the former machine, the type are operated by a set of keys as in a piano-forte: by pressing down either key the corresponding letter, figure or word is in the one case printed or, in the latter machine, is pressed into the plastic material from which may be cast a stereotype plate, ready for printing. A steam plow having the great recommendation in its favor that the spades assist rather than retard its progress: and an improved ventilator for chimney tops, were also exhibited and their construction and advantages explained by their inventors.

BRIDGE BUILDING.

Mr. Blanchard read a paper on this subject therein proposing an easy and practical solution of the mathematical question involved, and suggesting a readier way of arriving at the old results and one better adapted to the capacities of mechanics than the formulæ laid down by engineers. He began by considering the whole span from pier to pier to be divided into such a number of shorter spans, that each may be covered with sufficient security by a single length of simple beams. The points of division between these sub-spans may be called "bearing points" and the erection of a structure containing these bearing points is what we call bridge building. As in the consideration of the circle, we make the curve as a polygon of an indefinite number of sides, so in the arch it is necessary to reason from point to point of the curve in straight lines. The bearing points of the bridge can only be supported by oblique supports acting from the ends of the structure and may act by compression, as in the arch, by tension, as in the suspension cables, or a combination of both as in the truss bridge. It is a theorem in statics that when a body is held in equilibrium by three forces acting from different directions, these forces are relatively equal to the three sides of a triangle, each side of which is drawn at right angles to the direction of the force it represents. From this it follows that if a body in equilibrium is acted upon by any number of forces, the relative magnitude of each is represented by the sides of a polygon each side of which, as before, drawn at right angles to the force it represents. By an application of this law the proportions of the timbers or irons that form the supports of the bearing points may be determined by regarding each point as maintained in a state of stability by three or more contending forces that neutralize each other. The weight of the load, a vertical force, is to be resisted by oblique supports acting from different directions. The greater the inclination of the braces the greater the strain, while the more upright they stand the less the strain becomes. By resolving the strain into thrust and weight the strain upon the tie rod at the bottom is obtained; also the strain upon straining beams which it is necessary to introduce between the heads of the braces when more than one is employed.

In a truss bridge the braces near the center of the bridge transfer their strain to those next nearer the ends, which have this strain in addition to their own to carry: this load is then transferred to the next, thus the strain constantly increases by regular additions from the center to the ends of the bridge. The top and bottom cords perform the secondary part of holding the braces in position, the former being the aggregate of all the straining beams placed between the heads of the braces to resist the inward thrust, while the latter is the aggregate of all the rods with which are connected the feet of each pair of braces to prevent the outward thrust. Mr. Blanchard then explained the necessity for using counterbraces when the load is unevenly distributed, illustrating his views with numerous diagrams and models. The able and interesting article by Dr. Stephens, read at this meeting, we shall refer to again at some future time.

A COATING FOR FLOORS, fire-proof, durable and ornamental, might be applied from a strong solution of soluble glass. Water of course could not be allowed to remain on it,

To Silver Glass.

1. Dissolve 10 grains of nitrate of silver in 1 oz. of water. Then add strong ammonia drop by drop till the cloudiness at first produced is cleared up.

2. Dissolve 10 grains of Rochelle salt in 1 oz. of water. These solutions may be kept apart for any period. For use they are mixed and filtered. After mixture they must be used as soon as possible. The glass must be carefully cleaned; any foreign matter leaves streaks. The glass is placed in a horizontal position and as much of the solution is poured on as it can sustain. Or the solution may be put into an earthen or glass dish and the glass immersed in it. The silvering is completed in half an hour or more.

CAUTIONS.—The operation should be carried on in a room warmed to about 70°. Any vibration of the glass or liquid caused by wagons in the street or machinery in the workshop is fatal to success. If the liquid and glass be exposed to full sunlight the process goes on better. But all the preliminary preparations should be made in a feebler light.

This plan gives only bright silvering. To secure a mat surface seen through the glass silver leaf or paper should be used. A mat surface may be produced on the bright silver by deposition of more silver by the battery; but this will not show itself through the glass.

PROF. WHEATSTONE'S TELEGRAPH is operated by drawing through the sending instrument a strip of paper perforated beforehand with the proper characters of the despatch. The perforations give the connections, and are prepared with an instrument as rapidly as in the usual mode of telegraphing, by any number of assistants which the pressure of business may require, the line being occupied only by the rapid drawing through of the prepared despatches. An ingenious instrument by the same inventor, is used by the Emperor of the French for secret despatches. The words, sent in cypher, of which the sending operator knows nothing, are translated into intelligible print by a proper arrangement of effects in the receiving instrument; and yet the attendant of the latter is as ignorant as the former, for the printed telegram is reeled off into a locked box, as fast as printed, without allowing a letter to be seen.

PUTTING UP FLOWERS FOR WINTER.—Some of our fair friends, when about canning fresh fruits for winter store, may perhaps like to put up a few fresh flowers. We give them a newspaper method for trial. Cut choice buds just ready to open, with a good stem, say three inches long, the end of which is to be immediately covered with sealing wax. Dry the buds partially in the air, and wrap each in a piece of soft paper, clean and dry, and fasten them up in a tight dry box. When wanted, take them at night, cut off the sealed end of the stem, and put them into water containing a little niter or salt. The next day or thereafter, the buds may be expected to expand.

MR. WHITNEY, of Effingham, Ill., whose engraving of a "Coffee Roaster" was recently published in these columns, in acknowledging the receipt of his engravings, model, and patent, adds: "Thanks for the promptness you have exhibited in all your transactions with us. We have sold the state of Indiana, and probably Kentucky, and are now in correspondence with a large number of persons negotiating sales of counties in different parts of the United States. Illustrating and advertising in your paper pays."

Recent American and Foreign Patents.

Under this heading we shall publish weekly notes of some of the more prominent home and foreign patents.

VENT PEG OR VALVE.—Stephen Bourne, Headstone Drive, Harrow, Eng.—This invention relates to a valve or vent peg for beer casks, etc., and consists in making the valve or vent peg of india-rubber and with one or more openings in such a manner that by the elasticity of the rubber or other material they will be held closed while by the extension of the rubber they will be opened and thus a communication established between the inner and outer faces of the valve.

HOOP SKIRT.—August Fellhelmer, New York City.—This invention consists in forming loops at each end of the hoops composing the skirt by bending such end over and then securing it to the main portion, by means of which hoop loops a reliable and durable connection is established between the hoop and their sliding tubular fastenings or the tapes of the skirt, as the case may be.

LOCK.—E. F. Porter and G. W. Hallett, Waterford, N. Y.—In the lock embraced in this invention a series of spring catches are so arranged with regard to the bolt that when the bolt is out they will interlock with the same and will hold it in such position when releasing said catches from the bolt by a suitable key; the bolt is then free to be drawn in.

AUTOMATIC BOILER FEED.—Henry O. Demarest, New York City.—This invention relates to a boiler feed which consists principally of two chambers which oscillate on a suitable rod, their ends being pared off and ground steam tight against seats which are formed by the end pieces of a suitable frame. Suitable channels in the seats and chambers allow said chambers to fill and discharge alternately each chamber when full being made to descend by its own gravity and in descending it opens the communication with the steam boiler and if the water in the boiler is below the desired level steam is admitted to said chamber and the water contained in it sinks down into the boiler, and while one chamber discharges the other fills and an automatic boiler feed is obtained which when once properly adjusted requires no further attention.

CORN PLANTER.—A. M. Corbet, Bethlehem, Iowa.—This invention consists in a novel manner of constructing and arranging the slides in the seed box which are made that the flow of seed may be regulated according to the quantity required to be sown. The slides are furthermore provided with slots or perforations in such a manner that the seed may pass from one slide to the other without clogging up; the hole in the lower slide being closed while the seed passes through the scrapers to the ground.

POUNCING HATS AND HAT BODIES.—John L. Lablax, Newark, N. J.—This invention relates to a machine on which hats and hat bodies of various sizes and shapes may be pounced with the greatest rapidity and ease.

AIR PUMP.—Daniel Carpenter, Peekskill, N. J.—This invention relates to an air pump of novel construction which is to be applied for the purpose of creating a vacuum in boxes or vessels, which are to be used for preserving meat, vegetables or any other article. This invention will prove to be of especial value for long journeys on ships, but also for many other purposes.

MANUFACTURING MOTOR SPLINTS.—Emry Andrews and William Tucker, Portland, Me.—This invention consists in a rack arranged with slats which are strung on wires with washers interposed between them in such a manner that the match splints can be firmly clamped between the slats and the principal strain is thrown on the wires. The rack is fed down by a compensating feed composed of a feed bar which moved down against the action of springs by means of cams on the driving shaft and which is so constructed that it moves the rack for the thickness of one slat for each stroke of the head which pushes the cards against the knives. The slats of the rack are opened by suitable wedges so that the match splints can readily enter between them. The cards are driven against the knives by a toothed feed plate which drives the splints clear through the knives. Said knives are firmly secured on two screws supporting the ends thereof and they are kept apart by washers interposed between them. A portion of the knives are placed in the rear of the others so that they do not all cut simultaneously and the wood is relieved of a part of the compression which it would receive were all the knives in a line. The cutting edges of the knives are concave whereby a drawing cut is produced each way from the center of the card and the knife is less liable to follow the grain of the wood than it is when made with a rectilinear cutting edge.

TOOL HANDLE.—William Runde, New York City.—The object of this invention is to so arrange a tool handle that all kinds of shoemakers' and saddlers' tools may be easily held therein, and that they may be easily removed therefrom and replaced without trouble.

CLOTHESPIN.—William M. Doty, New York City.—The object of this invention is to make a clothespin or fastener in the simplest and least costly manner, and to construct it so as to be strong and easily applied to or removed from a clothesline as may be desired.

IRONING MACHINE.—P. O'Thayne, New York City.—This invention relates to a machine for ironing clothes or articles of any description, said machine being composed chiefly of a movable flat or segmental board in combination with a smoothing iron which is heated by a gas flame and which is so arranged that it can be depressed on the board and that it can be revolved if it should be desirable.

CONVERTING MOTION.—Wm. H. Hurlbut, Elgin, Ill.—This invention consists in the employment or use of a spiral flanged cam in combination with the crosshead of a steam engine, or other equivalent part of another motor and with a shaft to which a revolving motion is to be imparted in such a manner that by the action of the crosshead or other equivalent part on the spiral-flanged cam the reciprocating motion of the piston of a steam engine or the reciprocating motion of an equivalent part of another motor is converted in a continuous rotary motion of the shaft said spiral-flanged cam acting as a substitute for the crank.

DRILLS FOR OIL AND OTHER WELLS.—Washington Tingley, New York City.—The object of this invention is to improve the construction of drills for oil and other wells, so that they will penetrate the rock with ease and rapidly, reach out the bore as the drill advances into the rock, and keep the bore at its full diameter, and also gather within itself the detritus produced by the action of the drill after the manner of a sand plow.

BELTING PULLEY.—Moses Lewis and Samuel Miller, Greenville, Conn.—This invention consists in constructing pulleys upon shafts running at right angles in such a manner that the belt being at a half turn or twist the strain is equal from one belt to the other.

PAINT CAN.—Herman Miller, Hoboken, N. Y.—The object of this invention is to so arrange cans, in which ready made paint is kept for sale, that the same may be opened and reclosed with ease, and still be at all times airtight.

PRESS.—David King, Aberdeen, Ohio.—This invention consists in constructing a screw press in such a manner that the screw after it has been turned or run down may by turning the lever by means of a rack and pinion, be elevated rapidly thus saving the time of running the screw up and down in the nut.

HOISTING APPARATUS.—George L. and Wm. M. Howland, Topsham, Me.—This invention consists in the use of a third pawl, whereby the notched bar may be raised two or more teeth at a time, which pawl can be easily thrown out of gear to test the device, operate for raising or lowering, and consists also in making the connections between the lower pawls more flexible, by the application of one more link, whereby the operation will be easier and a less amount of power required.

TOOL FOR CUTTING BOILER TUBES.—Peter Hoffman, Jersey City, N. J.—This invention relates to a tool for cutting boiler tubes which is composed of a split or sectional bar, one end of which is made to fit the tube to be cut, while the other end, which carries the cutter, is open to receive a wedge in such a manner that when the cutter bar is inserted in the tube to be cut and the wedges placed in its slotted end, the points or teeth of the cutter catch in the inner surface of the tube and by turning the wedge and cutter bar and driving said wedge gradually, the tube is cut in a short time and without producing the least jar in the joints of the boiler.

WAGON BRAKE.—B. B. Scofield, Woodhull, Ill.—This invention furnishes an improved brake for wagons, carriages, etc., simple in construction and effective in operation.

WIRE POINTING.—John Lockwood, Wilton, Conn.—This invention consists of a simple and convenient machine for pointing wire for drawing.

LOCKS.—Chas. Gschwine, and Chas. Reichard, Union Hill, N. J.—The object of this invention is to arrange a lock in such a manner that it cannot be unlocked, unless the position of the key is reversed. The invention consists in so constructing the spring catch and the bolt, and combining them with a dog, or pawl that the bolt cannot be unlocked, unless it is first pressed back by the dog. The latter can in turn only be operated by placing the spindle of the key into the lower end of the key hole, while for locking and unlocking the spindle is pressed through the upper end of the key hole.

FIRE ARM.—Thomas Restell, London, England.—This invention relates to certain improvements in breech-loading needle guns which are so constructed that they serve also as canes and which are operated in an easy and simple manner.

LOCK.—L. S. Chase, New York City.—This invention relates to a lock in which the bit of the key acts on a series of pins or spring stops which are inserted in a revolving disk and which correspond in number and position to a similar number of pins inserted in suitable cavities in the lock plate. Said revolving disk is provided with a circular ward which extends clear up to the inner lock plate and prevents the feeling of the lock, and a bridge in this ward protects a portion of the tumblers and pins. The bit of the key acts on the tumblers but the bolt is thrown by a nose projecting from the circumference of the velocity disk.

HOT BLAST FOR FURNACE.—Job Froggett, Youngstown, Ohio.—This invention consists in a novel arrangement for heating the air which is forced into furnaces for smelting and other purposes.

CHURN.—Daniel C. Merrill, South Paris, Maine.—This invention consists principally in the construction of the dasher, in making the horizontal arm of the standard adjustable, so that it may be extended or contracted to accommodate different sized churns; in combining an adjustable slide or socket with the balance wheel for the reception of the end of the adjustable sliding arm attached to the dasher handle.

DRESS IMPROVER.—John Stademann and Henry Sanerbler, New York City.—This invention relates to a device to be applied to male and female garments for the purpose of giving it fullness. It is more especially designed for giving fullness to the chest of male wearers and to supersede the use of padding in the upper part of the fronts of vests and also to give prominence to the waists of ladies' dresses in front of the breasts. This result is attained by having the swaged wire cloth or wire gauze divided into two parts and connected when necessary by hooks and eyes, slides or elastic, so that they may be attached to or inserted in the garment.

METER ATTACHMENT.—Isaac P. Tice, New York City.—This invention consists in applying a plurality of meters to a still in such a manner that the amount of low grade spirits, or that which requires to be re-distilled, and has passed through the still, will be made known or indicated to a government official or detective, so that the government cannot be defrauded of revenue by an inaccurate statement of the amount of low spirits, or that below proof, produced by any distillation or series of distillations.

