A Patent Fertilizer which Anybody May Use.

In December last the United States Circuit Court, Baltimore, in the case of Boykin and Carmen against R. J. Baker & Co., which was argued before the court several weeks ago, Judge Morris filed his opinion in favor of the defendants. The action was for alleged infringement of a patent for the manufacture of fertilizers held by the complainants, from the manufacture and sale of which they would have derived large profits, had not the defendants and others infringed upon their patent. The court held that the only difference between the formula patented by complainants from the old Liebig formula was the substitution of dissolved bone and ground plaster for ground bone and calcined plaster, and that the patent was invalid for want of novelty or any patentable discovery. A large interest was involved in the result of this suit.

The patent in question is No. 206,077, dated July 16, 1878, and it describes the making of the fertilizer as follows:

This invention relates to a combination of chemicals to be used in connection with dry peat or muck and unleached ashes, or with any refuse matter having fertilizing properties, to form a fertilizing compound; and it consists in combining dissolved bone, ground plaster, nitrate of soda, sulphate of soda, and sulphate of ammonia, in proportions substantially as follows:

Dissolved bone, three bushels; ground plaster, three bushels; nitrate of soda, forty pounds, sulphate of soda, forty pounds; and sulphate of ammonia, thirty-three pounds. This mixture is incorporated with, say, twenty bushels of dry peat or muck, and three bushels of unleached ashes.

The manner of preparing a fertilizing compound from the above ingredients is as follows: The peat or muck and ashes, if such matter is used as the base of the mixture, are first thoroughly mixed with the dissolved bone, and the nitrate of soda, sulphate of soda, and sulphate of ammonia, after being dissolved in water, added thereto. The ingredients are next incorporated with the ground plaster, after which the compound is allowed to stand for, say, thirty or forty days, when it becomes ready for use.

NEW INVENTIONS.

An improvement in violins has been patented by Mr. Phineas Topham, of Newark, N. J. The object of this invention is to increase the volume of sound and the fullness of the notes of the violin, to facilitate the playing of two notes at once, and to enable the operator to play the accompaniment with the tune. The invention consists of a violin provided with a sounding board extending over and supported on the violin belly, with its tongue engaged in a pocket of the finger board, of a number of auxiliary strings stretched between the usual strings, of a swinging link pivoted in the scroll for the attachment of the auxiliary strings, of a tail piece for holding the usual strings, and provided with tightening pins for holding and setting the auxiliary strings, and of the bridges set on the sounding board to support the strings.

Mr. John F. Petri, of Midland Park, N. J., has patented a coupling for telegraph or other wires, by means of which wires can be joined more expeditiously and with less labor and expenditure of force than by the usual method of twisting them about each other. The invention consists in coupling the wires by means of a semi-cylindrical metallic plate having two radial holes to receive the bent ends of the wires. The wires having their ends bent at right angles are laid in the plate with their ends entered into the holes therein, and the said plate is then, by means of a hand vise or other suitable tool, clasped tightly about the wires, so as to form a closed sleeve about the point of union.

Mr. Juan F. N. Macay, of Charapoto, Ecuador, has patented an improved filter. This invention relates to improved apparatus for use in effecting the operations of dissolving solids in liquids and producing chemical reactions, and of filtering or separating liquids from solids in chemical and metallurgical processes, in which a soluble substance or substances, mixed or combined with an insoluble substance or substances, is or are to be dissolved separately or together, wholly or partially, in a given solvent or solvents, and the solution separated by filtration from the undissolved residue. The invention consists principally of a rotary decanting filter, which is composed of an outer barrel or cylinder and an inner perforated shell covered with filtering material, the intervening space being divided into segmental compartments provided with a draw-off cock for running off the liquid when separated by filtration. The outer cylinder of this rotary filter is provided with end angle-iron hoops arranged to run in grooved rollers mounted in a suitable frame or cradle. Either one or both of the heads of the cask are made removable to give access to the interior of the filter. The inner cylinder is made up of grooved and perforated staves for operation in combination with a filtering cloth applied to said cylinder. Besides these there are numerous other peculiarities of construction which assist in producing a filter, for the purposes named, that shall keep its filtering surface free from being clogged by particles of solid matter, and that shall present a clear and unobstructed filtering surface for effecting the rapid separation of the liquid from the solid matters.

Mr. Daniel L. Lamson, of Fryeburg, Me., has patented an improved heater, which, without being expensive, is very convenient. The object of this invention is to construct a heater for burning coal or wood, or both together, whereby advantage may be taken of the cost or convenience of the fuel supply, and the fire be better adapted to the condition of the weather. Said heater consists principally of a lower coal burning fire-pot chamber, and an upper wood burning chamber, with a radiating space between them to permit free radiation from the top of the one and the bottom of the other. The main smoke flues are arranged in the form of a cross, centrally intersecting each other above the wood-burning chamber, and connecting respectively by side flues and branches with the two chambers. Valves or dampers serve to control the draught from either chamber independently of the other. The combination of these two fire-chambers for burning different kinds of fuel in the one structure is a convenient one, thus a quick heat may be obtained from the wood burning chamber, while a slower but more lasting one is progressing in the other chamber.

Mr. John Murphy, of Auburn, N. Y., has patented an improved carding machine. This invention is designed to be applied to what is known as the "finisher" carding engine which receives the material in the form of drawings from the "second breaker." The object of the invention is to avoid that inconvenience and waste of stock which has heretofore been occasioned by the uneven and lumpy nature of the outer threads of roving as they come from the outer rings of the doffer cylinders of the finisher. To accomplish this the uneven stock, be it either cotton or wool, is taken from the outer edges of the main cylinder of the "finisher" by card-clothed rings on the ends of a third doffer or worker, and is passed to a pair of rolls over which is a vibrating roller, where each strand is partially felted together. From thence each strand passes under a guide finger to a twister-tube, where the two strands are twisted together. From the twister-tube the now single strand passes through carrying rolls to a carrier pulley, from whence it is caused to pass and unite again with the drawing to be refed to the feed table of the carding engine, thus causing the fed stock to be more even than if composed of the single drawing feed alone.

Improvements in that class of cotton sweeps or shovel plows in which a guide plate extending into the soil deeper than the point of the plow is arranged in rear of it, has been patented by Mr. John Brantly, of Lillington, N. C. The plow standard has plates pivoted thereto with a recessed plate secured between them. The guide projecting into the soil below the point of the sweep steadies the latter and prevents any lateral movement of the sweep.

An improvement has been made in flaxseed cleaners, which is also applicable to other seed or grain cleaners. The improvement is the subject of a patent granted to Mr. George Beal, of Gilman, Iowa, and consists in operating the screen of the apparatus by means of a bell crank lever, having its axis arranged transversely to the screen, and which is actuated by a rotating wiper wheel, the axis of which is transverse to that of the lever, whereby the screen has a sudden and rapid lateral as well as a quick and jerking longitudinal movement given to it. This effects a very thorough cleaning. Special means are provided for preventing undue lateral movement of the lever and for keeping it in contact with the wheel.

Mr. John W. Baker, of Hardin County, Tenn., has patented an improved baling press for baling cotton, hay, and other materials with facility and dispatch. The press which forms the subject of this improvement has the sides of its baling box extended upward to form guides for the follower, which is provided with upward extensions to work therein. The head block is attached to the sills of the frame, and has combined with it and the frame removable side planks secured by tie bars for removing the compressed bale. Power is applied to the follower to depress it by means of levers pivoted at their lower ends to the follower, and jointed at their upper ends to the upper ends of two other levers on opposite sides of the press, and which are pivoted below to the main frame. An upper central winding shaft, worked by a draw rope, has secured to it the opposite ends of a rope which passes around pulleys connected with the upper ends of the side levers for drawing the latter toward each other to give the necessary compressing action to the follower, which may afterwards be raised by a separate rope and pulley attachment. With this construction the follower is forced down with great power, but may be quickly raised.

An improvement in the class of grain separators which include a traveling endless band elevator and a "shaker," or means for separating the oats from the straw and conveying the latter away from the machine, while the grain passes downward and is winnowed by a fan blast, has been patented by Mr. William H. Janney, of Martinsburg, W. Va. The improvement relates to the construction and arrangement of the parts by which the course of the falling grain and blast is directed, so that the grain is more thoroughly cleaned, and without the aid of vibrating or other screens.

An improvement in nippers for operating upon hogs, to prevent them from rooting, has been patented by Mr. William B. Lyon, of Pontiac, Ill. The invention consists in a pair of nippers provided with a hook at the end of one jaw, which is elongated for the purpose of drawing out the tendon, and with a knife on the other jaw for cutting the tendon and splitting the hog's rooter. This device is simple in its construction and certain and effective in its operation, and does its work with but little pain to the animal.

Cameos.

The art of cutting stones, comprising the lapidary's art, owes its origin to the innate superstition that precious stones hung about the neck were a protection against evil spirits and witches. Beside the brilliant and transparent noble stones or gems, like the diamond, ruby, emerald, sapphire, topaz, amethyst, which were more rarely employed, the translucent and opaque or soapy-looking stones which take a fine polish were mostly employed. Among the latter are the opal, turquois, and agate, or common rocks like granite, syenite, and basalt; or those of animal origin, such as ivory, coral, mother-of-pearl, and amber, as well as metals. These were variously ornamented by different kinds of cutting. By deep cutting bold relief pictures were formed; by slight cutting, the bass-relief. The latter are called cameo. The Greeks, who received the art of cutting stones from the East, did some excellent work; they decorated many utensils and vessels with cameos, and in fact cut out whole vessels of great beauty and of technical perfection. This is seen in the so-called Portland Vase in the British Museum. The old Romans, too, who learned this art from the Greeks, are distinguished for excellence in it. In the early centuries of the Christian era this art was cultivated in Constantinople especially, while it seems to have been but little known in the West. In the fifteenth century it was brought to Italy by Grecian workmen from Constantinople. It was cultivated there up to the time of the Renaissance in the sixteenth century, particularly in Florence. The fabrication of vessels and articles of splendor from rare stones, which had also been done in Greece, was renewed here in the finest manner.

The cabinet of gems in Paris and Florence, the imperial treasury at Vienna, the treasure chamber in Munich, and especially the Green Vaults in Dresden, all possess a large number of such works of art from the hands of Italian, French, and German artists. In the seventeeth century during the Thirty Years' War, when all art was crippled and retarded, the art of cutting stones also declined, and with the exception of a short revival in the eighteenth century, not much has been accomplished since.

At the present time the manufacture of cameos is carried on chiefly in Genoa and Rome, as well as in Paris, as a branch of industrial art. According to the *Techniker*, cameo cutting was exclusively confined to Italy and Rome forty years ago, but now Genoa has about thirty persons engaged in this art, Rome eighty, and Paris over three hundred.

The cameo cutters of to-day employ not only precious stones, but shells, lava, etc Certain species of univalvular mussels are especially suited for cameos, because they consist of several layers of different colored material, which also vary in hardness and texture. These shells are worked in such a manner that the direction of the leaves of the middle layer runs lengthwise. In these cameos the middle layer forms the body or the relief, and the inner layer the back ground, and the external differently colored layer on the surface gives to the figure a different appearance or a special setting. In selecting shells with three strata, the artist selects one where the layers adhere together well, the middle one being quite thick, and the three different in color, while the inner one is of such a shade as suits the intended work.

The shells are first cut into pieces of suitable size by means of a slitting tool and diamond dust, or a steel knife supplied with emery and water. These pieces are fastened on a four-sided, oval, or other shaped stone, and the edges polished with an oil stone. They are then cemented on a piece of wood to serve sa a handle to hold the cameo while he draws upon it the figure that is to be cut in it. The marks of the pencil are now followed with a sharp pointed instrument which cuts the required outlines. Then finer tools of steel, wire hardened and polished on the end, files, and engraver's chisels are employed to remove the superfluous parts of the white enamel. The surface of the cameo, so far as possible, is finished with cutting tools, because the sharp edges of the figures would be injured by polishing. After the figure is cut in relief, a final polish is given, using a little putty powder dry on a stiff brush. In this operation great care must be taken not to scratch the surface. The cameo is then removed from its wooden handle, and is ready for sale. The pink conch shells make a very delicately shaded cameo that is highly prized for brooches and cuff buttons.

P. N.

Cider--Its Purification and Preservation.

Of the cider mill nothing more need be said than that the little crusher of our daddies is being replaced by the modern power press capable of pressing one thousand bushels of apples in ten hours. As to the best method of caring for and refining cider, no better rule perhaps can be adopted than running it directly into tanks from the press through a sufficient number of strainers to detach all the pomace possible; then after fermentation has gone nearly far enough to run on the leaches, rack it off. By this process a purer article can be obtained, which will run through the leaches with less waste and far less liability to clog up. There is no particular scientific test necessary to determine just what stage of fermentation is necessary before racking off. Experts claim that experience has taught them to let the cider ferment in the tanks to 18°, but not lower. It is always best to ferment as much as possible while still retaining sufficient sweetness in the flavor. In racking off, it will ferment a little and is in good condition to be put on the leaches at 15°, which is perhaps the best test for that process, although a tank filled with cider which may have been run to 19°, or even as high as 25° of the saccharometer, will run off generally at a uniform test of about 22°, not varying perhaps more than 2° in the test of different tanks. It has been asserted that cider will keep better run down to 15°.

In making leaches pine lumber is doubtless best, and certainly wood in preference to metal. The sand can be set from four to six inches, according to the season, the lighter leach being best for warm weather and the heavier for cold. No leach should stand over two settings, as it is not probable that clear cider can be obtained after a second skimming. Of course skimming is understood to mean scraping off the sediment from the sand which gradually forms on the top, which causes the cider to run slowly. After this, when the cider ceases to filter through in good condition the sand must be thrown away and new setting made. Cider seldom runs through with as good results after the skimming as before, and especial care must be taken not to disturb the sand below.

As to size and capacity of leach, one three feet by twelve feet and fourteen inches deep, with four to six inches of sand, will run through twenty casks of cider without change of sand. Much question has arisen as to the possibility of thoroughly cleaning and renewing the sand for further use, but it is probable that the best way to renew it is to get a new car load. For all convenient localities Massachusetts sand is perhaps the only sand that should be used, as it contains some mineral element that refines cider in a superior manner to other sand.

In leaching much depends on the dampness or dryness of the sand, as to how much cider should be run on when first started. A medium grade of cotton factory cloth is about as good as any other kind for use on the leach, with, say, a foot or two square of rubber cloth resting on an overlay of burlap for the cider to strike on, as a very little ripple in the cider is liable to crack the sand. A new way of cleaning these cloths has been introduced by hanging them up to dry and then whipping out the pomace like dust from a carpet; hot water, it is asserted, cooks the cider into the cloths like apple sauce, while some prominent cider-makers have noticed a foam on cloths cleaned with water after the juice had again started through, which begins to ferment when the cider comes in contact with it, although it is probable that foam will form on any cloth at certain times, which may not be any indication of fermentation. Steam will probably destroy the germ of fermentation as well as anything else, whether in clothes-racks or barrels.

As to cleaning racks, lime has been used with good results, where steam or abundant rinsing with water is afterward employed. A hose and a good broom are often all that is needed for the purpose.

The old process of refining by sounds or isinglass is being discontinued in favor of sand, therefore we do not give space to any suggestions as to that mode of treating cider.

In the matter of keeping cider, all that is to be kept for any length of time through hot weather should be racked off in the spring, as it is subject to a second fermentation sometimes, and then a cool cellar without ice is preferable. Good whisky barrels are best for putting up cider, which can always be improved by an additional racking before moving it from the cellar. The old treatment by putting in mustard seed, raw beef, and similar primitive substances of our grandfathers has pretty generally given place to the preservative qualities of salicylic acid.

These improvements in making, refining, and keeping cider have brought it up to such an excellent standard as a beverage that our bottlers are turning their attention to it as a winter industry, and they are now extensively supplying it as an excellent aerated bottled beverage, generally under the name of champagne cider, and greatly improving its pleasant and healthful properties by the sparkling effervescence of carbonic acid gas.—*American Bottler.*